Wordhood issues: Typology and grammaticalization

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William Croft, Chairperson

Rosa Vallejos

Ian Maddieson

Nikolaus Himmelmann
ACKNOWLEDGMENTS

Like all dissertations, the present one owes its existence to many more people than just the author. Bill Croft was instrumental in suggesting the topic of wordhood, which proved to be exactly what I was looking for. All the ideas and arguments presented here were ultimately shaped by Bill’s meticulous comments and singular vision, even though I cannot claim to have done them justice. I came to UNM with the express goal of becoming a typologist, and I could not have asked for a more patient, knowledgeable, and generous teacher than Bill to guide me along that path. I hope that this work will also be of some value to semantic typology. Caroline Smith helped me refine my ideas of prosodic prominence, which was crucial to this project. She also pointed out a range of other empirical phenomena whose discussion ended up putting my arguments on a much firmer footing. In addition, Caroline reined me in whenever I was about to make a claim I could not support, and her contributions to the overall structure and coherence of this dissertation are immeasurable. Due to this comprehensive support, the disclaimer that all remaining flaws are solely the author’s responsibility was never more appropriate than it is in the present case.

I also benefited greatly from feedback by Rosa Vallejos, who provided pivotal help in the analysis of the Kukama-Kukamiria indexes. Early conversations with Ian Maddieson had a major impact on my approach to sampling, and both Rosa and Ian suggested an array of factors that promise to shed more light on the nature of wordhood (issues). I hope to be able to elaborate on those ideas in future research. Nikolaus Himmelmann agreed to act as an external committee member for this dissertation at a time when many of the basic ideas that would come to inform it had yet to emerge. I cannot thank him enough for taking on this role, for believing in this project, and for investing much more time and effort in it than I had any right to expect. His detailed comments made this work an infinitely better one, and the catchy title it now bears is also due to him.

I managed to complete this dissertation in a reasonable amount of time because of the wonderful working environment that is the UNM Linguistics department. I am grateful to the faculty of the department for awarding me the Greenberg Fellowship, which funded most of my stay here. I am equally indebted to the chairs of the department, and especially to Jill Morford, for supplying me with teaching assistantships every semester, and to Dawn
Nordquist for helping me become a better teacher. Jessica Slocum and Yvonne Martinez-Ingram were always there for me when I needed help with paperwork and administrative matters, and I cannot even begin to calculate the hours of frustration and confusion they saved me. I was also privileged to work on Joan Bybee’s Gramcats database for a summer, which, amongst many other benefits, allowed me to get an idea of how to manage my own typological database for this project. Joan is one of my favorite linguists and responsible for many of the ideas on the pages below, which made this an even more pleasant experience.

Throughout my years in the program, I was fortunate to have a lot of entertaining and enlightening conversations with my fellow grad students in the “lab.” Chief among those who graciously put up with my ill-informed contributions and poor attempts at humor are Josefina Bittar, Shellece Easterday, Pavlina Kalm, Lindsay Morrone, Chris Peverada, Mitchell Sances, Jens Van Gysel, Meagan Vigus, and Debbie Wager. In addition, Pav gave me many a free tennis lesson, but unfortunately not enough for me to show any kind of progress. Meanwhile, Debbie kindly took over many guest lectures in my classes, and they always turned out to be the highlight of the semester for my students. More than anything, though, my time in Albuquerque was enriched by the company of Grandon Goertz, who filled me in on arcane American traditions, picked me up from the airport at ungodly hours, took me all the way to Tucson and back, gave me tons of free books, and never failed to make me laugh. Without him, it wouldn’t have been half the fun. One time zone away, Phillip Rogers was always willing to act as a sharp-witted and insightful sounding board for all my ideas about life and language. Phill is responsible for the map in the Appendix, and I owe him further gratitude for being reliably hilarious, for showing exemplary patience on the golf course and, most importantly, for selling me on baseball.

I might not have endeavored to become a linguist if I hadn’t had the tremendous pleasure of being introduced to the field by Thomas Berg. His dedication to teaching made me fall for the subject very quickly, and I feel honored that he has since become a supportive friend, mentor, and co-author. He also provided extensive and challenging feedback on this dissertation, the latter of which was partly inspired by his typological research. I would additionally like to thank him and Eva Berlage for giving me my first linguistics-related jobs and thus the confidence to pursue a career in academia. As of today, that is the best decision I have ever made.
One of the many advantages of living in Albuquerque is the relative proximity of awe-inspiring National Parks. That I got to see most of them firsthand is largely due to several wonderful road trips with Vincent Cords, each of which made for a perfect interruption of the daily grad school grind. There are still a few parks left on the list, though, and I hope we can check them off together sometime.

Above all, I thank my family for supporting me in every way imaginable. I am deeply appreciative of the love, freedom, trust, and funding that they have always given me, and I simply could not have done this, or anything else, without them. Silke, Meikel, Carlotta, Mama und Papa: Danke, dass ihr mir ermöglicht so zu sein, wie ich bin.
ABSTRACT

This work investigates the distribution of “wordhood issues,” in which a morpheme behaves like a word on one subset of wordhood parameters but like a bound item on another. The empirical focus is on the exponents of definiteness, case, indexation, and tense in 60 unrelated languages from five macro-areas. The methodological basis for the wordhood analyses is a set of eight parameters of phonological and morphological wordhood.

The main result is that grammatical markers (“grams”) retain the ability of morphological words to co-occur with members of different syntactic categories even after being integrated into larger phonological word domains. Meanwhile, grams that show the syntagmatic behavior of affixes but prosodic freedom on at least one parameter are less frequent and limited to contexts in which the relevant stem domain is highly morphologically complex. These data can largely be explained by the diachronic models formulated in Bybee (2001, 2015) and Croft (2000b).
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SYMBOLS AND ABBREVIATIONS

Symbols

- Prefix/suffix boundary

<...> Infix

= Clitic boundary

X.Y Category/meaning X cumulated with category/meaning Y

X/Y Either X or Y (neutralization of a distinction)

A > B A acting on B (monomorphemic transitive index)

X₁…X₂ Discontinuous structure X

NX Non-X (where X is listed in the Abbreviations)

Abbreviations

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1. INTRODUCTION

1.0 WORDHOOD AS A PROBLEM

Most linguistic theories and descriptions rely, in one way or another, on a concept of the “word.” The word is argued to be the domain of certain formal properties, which makes it both a useful and a necessary structure for linguistic analysis (e.g., Graff 1929; Bloomfield 1933 [1984]: 38; Robins 1959; Hyman 1978; Miller 1991: 25-34; Anderson 1992; Zonneveld 2002; Baker & Harvey 2003; Blevins 2006; Haspelmath & Sims 2010: chs. 3-4; Ackerman et al. 2016; Kiparsky 2018). In addition, words have proven to be psychologically real for language users, including L1 learners (e.g., Sapir 1921 [2004]: ch. 2 fn. 6; Bolinger 1963; Tomasello 2003: ch. 3; Vihman & Croft 2007; Geertzen et al. 2016; Kaisse 2017; Arkadiev & Klamer 2019: 438). However, defining the word, either within or across languages, is one of the best-known issues in descriptive linguistics (e.g., Hiorth 1958; Lehmann 1962: 53; Krámský 1969; Anderson 1985a: 150-158; Himmelmann 1987: 18, 2006: 254-258; Schwegler 1990: ch. 2; Spencer 2005; Matthews 1991: ch. 11, 2003; Bresnan & Mchombo 1995: 181-213; Bauer 2000; Albrecht 2002; Haspelmath 2011; van Gijn & Zúñiga 2014; Wray 2015; Ramat 2016; Tallman 2020).

The major complication in defining words is that the relevant formal properties do not always single out the same strings. Such mismatches have motivated arguments for different word units, the most widely accepted of which is the division into phonological (or prosodic, or p-) words and morphological (or grammatical, or g-) words (e.g., Dixon 1977: 25-29, 2010a: ch. 10; Hall 1999; Dixon & Aikhenvald 2003; Hall et al. 2008; Hildebrandt 2015). Both the phonological and the morphological word are then claimed to have their own independent properties, which usually – if not necessarily – converge on the same sequence (cf. Post 2009). As parameters that define phonological words, Dixon & Aikhenvald (2003: 13-18) suggest the following: segmental structure,1 prosodic features, and phonological rules. The parameter of segmental structure primarily subsumes the factor of minimality and thus accounts for languages in which every phonological word must be at least bimoraic or

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1 Dixon & Aikhenvald (2003: 13) refer to this criterion as “segmental features,” but I will use “segmental structure” in the same sense throughout this work. This is mostly to distinguish it more clearly from the parameter of prosodic features.
disyllabic, etc. (cf. Kenstowicz 1994: 640-642; Maddieson 2010: 546; Salmons & Zhuang 2018). Meanwhile, prosodic features refer to such phenomena as stress assignment or vowel harmony, which often target the phonological word. Finally, the parameter of phonological rules describes processes of allomorphy, which often apply within but not across phonological words. While these parameters typically identify the same segmental string as a phonological word, they may also produce conflicting results. Example (1.1) from Turkish illustrates such a mismatch and is therefore an instance of what will be called “wordhood issues” throughout this work.

(1.1) gör-dü-nüz müt see-PST-2PL Q ‘Did you (pl.) see?’ (Comrie 1997: 898)

In (1.1), the domains of vowel harmony and stress do not overlap. While stress in Turkish is canonically word-final, vowel harmony usually extends from the root through the remaining word, including all suffixes. Yet in (1.1), the question marker is subject to vowel harmony (it contains a high rounded vowel, as do the stem and the two harmonic suffixes), whereas stress is on the second-person plural suffix. Hence, in terms of stress, the phonological word in (1.1) does not include the question marker, while based on vowel harmony, it does. Bickel et al. (2009) and Schiering et al. (2010) argue that such mismatches are widely found and that many languages must thus have different kinds of phonological words (cf. also Harris 1951: 345-346; Mohanan 1995: 128-129; Russell 1999: 219-220; Hyman 2006: 228-229; Zúñiga 2017: 131-133).

With respect to the morphological word, Dixon & Aikhenvald (2003: 18-25) also propose three criteria. The constituents of a morphological word are “cohesive” in that they cannot be interrupted by other words, and they furthermore occur in a fixed order within each word. These criteria rely on the idea that morphological words make use of templatic slots, which assign a single syntagmatic position to every word-internal element. Meanwhile, the third parameter states that morphological words have a “conventionalized coherence and meaning,” which refers to the fact that native speakers can identify words more reliably than parts of words such as affixes (Dixon & Aikhenvald 2003: 20; cf. also Himmelmann 1987: 228-229).
16, 19, 52; Mithun 2014: 73). However, these parameters do not necessarily lead to the same word segmentations either. A plausible mismatch in this domain concerns separable “prefixes” in Germanic languages (cf. Berg 2018, 2020a). For instance, the German verb aufgeben ‘give up’ manifests itself differently depending on whether it is in the present tense (1.2a) or part of a periphrastic perfect construction (1.2b), which semantically corresponds to the English past tense.

(1.2) (a) Er gib-t nicht auf.

3SG give-3SG NEG up

‘He does not give up.’

(b) Er hat nicht auf-ge-gib-en.

3SG have.3SG NEG up-PTCP1-give-PTCP2

‘He did not give up.’

The morpheme auf is not a prefix in (1.2a) because it follows rather than precedes its putative stem geben and because the free negator separates the sequence of geben and auf. However, in (1.2b), auf- precedes geben and could not be separated from it by a free word. This suggests that aufgeben fails the criteria of fixed order and cohesiveness. The construction seen in (1.2a) is found with finite verbs in main clauses, whereas the pattern exemplified in (1.2b) applies with non-finite verbs as well as with finite verbs in subordinate clauses. In finite main clauses, the separated “prefixes” obligatorily occur at the end of the clause, and this syntactically determined position aligns them with prototypical words. Yet, with non-finite verbs, the prefixes obligatorily occur in the leftmost slot of the verbal template, and this morphologically determined position parallels the behavior of prototypical affixes. However, the criterion of conventionalized meaning would seem to argue for an analysis on which auf and geben constitute a single morphological word in both (1.2a) and (1.2b). That is, aufgeben, like its English cognate give up, is not semantically compositional, and the fact that the constituent elements create the same meaning in (1.2a) and (1.2b) suggests that they form the same lexicalized unit in both cases.

Haspelmath (2011) argues that mismatches across criteria for the morphological word
are rather common, and he further claims that all criteria so far proposed for the morphological word are insufficient to justify such a unit. He also discusses additional parameters for the morphological word, one of which will play a crucial role in the present work. Both the phonological and the morphological parameters that underlie the empirical parts of this project will be discussed in more detail in 2.4.

The examples in (1.1) and (1.2) demonstrate several insights of theoretical importance. The first concerns the fact that wordhood issues are language-specific (cf. Diessel 2019: 68). That is, while vowel harmony and word-final stress are relevant criteria for the definition of phonological words in Turkish, they do not help to identify phonological words in German or many other languages. Conversely, the concept of prefixation is an inapplicable and/or ineffective criterion for the definition of morphological words in Turkish and many other languages, but it is clearly required to describe the above issue in German. The second crucial insight is that wordhood issues are also construction-specific. That is, in the vast majority of cases, stress and vowel harmony domains in Turkish do overlap so that the final harmonic syllable bears primary stress. Meanwhile, the separable “prefixes” in German are only a synchronically arbitrary subset, and most other prefixes in the language are indeed prototypical affixes, i.e., inseparable.

The fact that the word unit continues to elude definition, even after its bifurcation into phonological and morphological words, might suggest that it does not correspond to a psychologically real phenomenon and that it should therefore be discarded, despite its intuitive appeal and long history in theorizing (cf. Haspelmath 2011 with regard to the morphological word). However, such a conclusion would seem premature because wordhood issues along the criteria outlined above are inevitably intricate, and no language offers more than a few of them (cf. Julien 2002: 322). This has by now been shown by a wide range of case studies dealing with mismatches within the phonological or the morphological word, as well as between the two (e.g., Stebbins 2003 on Sm’algyax [Penutian]; Hyman & Katamba 2005 on Luganda [Niger-Congo]; Hildebrandt 2007 on Limbu [Sino-Tibetan]; Tuttle 2008 on Ahtna [Na-Dene]; Dyck 2009 on Cayuga [Iroquoian]; Caballero 2010 on Choguita Rarámuri [Uto-Aztecan]; Green & Morrison 2016 on Somali [Afro-Asiatic]; Mansfield 2017 on Murrinhpatha [Southern Daly]; Næss 2017 on Åiwoo [Austronesian]; Bennett 2018 on
Given that wordhood issues are widely found but still a minority pattern, wordhood might most profitably be conceived of in terms of prototypes (cf. Taylor 2003: 202-209, 2015: 10). Since most linguistic elements that satisfy one wordhood criterion also satisfy all other criteria, these items would be prototypical words. On the other hand, elements that only meet a subset of the criteria would then be in between prototypical word and affix status, with the exact distance from each end of the spectrum depending on the number of criteria violated. Note that this conception of prototypes only refers to matters of description and, unlike traditional prototype theory, does not invoke cognitive factors. This approach is necessary because the cognitive status of words has not been sufficiently explored for most languages.

By contrast, a more strictly cognitive approach to wordhood might classify as words all those strings that language users store as units or “chunks.” This would presumably still exclude most affixes due to the above-mentioned fact that speakers are often able to identify words but not elements below the word level. On the other hand, such a conception of words might have to include certain idioms, which have the internal structure of syntactically complex units but may behave semantically and paradigmatically like prototypical words (cf. Nunberg et al. 1994). Other structures not typically thought of as words, but which are probably part of language users’ mental lexicons, are token-frequent units of all kinds. This might pertain to inflected words that are usually assumed to be composed by rule (Stemberger & MacWhinney 1988) as well as to intonational templates (cf. Croft 1995, 2007a; Himmelmann et al. 2018).

Despite these interesting avenues, however, the present work will primarily dedicate itself to a exploration of the causes and patterns of wordhood issues. Therefore, the question of how the concept of wordhood might be redefined in order to make it more descriptively useful and/or cognitively plausible will mostly be left for future research, as will the psycholinguistic aspects sketched above. However, a brief conclusion as to what the wordhood issues revealed in this work suggest for a cross-linguistic definition of the word

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2 The family classifications in square brackets are based on the World Atlas of Language Structures (WALS; Dryer & Haspelmath 2013) and do not necessarily match those used by the relevant authors.

3 On the storage and psychological reality of words, cf. also Di Sciullo & Williams (1987: 1-21); Zwitserlood (2002), and more generally, Ramscar & Port (2016).
will be offered in 8.3.3. Meanwhile, the specific questions as well as the empirical foundation driving this investigation will be described in the remainder of this chapter and in the next one, respectively.

1.1 THE NOTION OF DEPENDENCE

While the previous section illustrated mismatches among the criteria for phonological and morphological words, respectively, the most extensively described wordhood mismatch is the one between the two. Here, the discussion has especially focused on the phenomenon of clitics (e.g., Zwicky 1977, 1985; Zwicky & Pullum 1983; Klavans 1985; Berendsen 1986; Simpson & Withgott 1986; Kanerva 1987; Spencer 1991: ch. 9; Anderson 1993, 2005; Nevis 2000; Aikhenvald 2003a; Cysouw 2005; Spencer & Luís 2013; Himmelmann 2014; Haspelmath 2015; Lowe 2016). Clitics are commonly defined as elements whose syntagmatic behavior is reminiscent of free words (especially in that they can co-occur with members from different word classes) but which have at least some of the prosodic properties of affixes (e.g., subminimal size, allomorphy); cf. Payne (1997: 22-23, 2006: 18-20); Pavey (2010: 36-38); Spencer & Luís (2012: 1); Harley (2015: 1133). In this work, I will reserve the “clitic” label for elements that meet this general set of properties.

The terminological distinction suggested above is important because the “clitic” label is used in very different senses in the literature (cf. Anderson 2005: 1-4). For example, pronominal elements are often described as clitics when they occur in the so-called “second” (or “Wackernagel”) position of the clause. Many linguists have highlighted that such elements share properties of person/number markers, which renders them affix-like, and of argument NPs, which renders them word-like (e.g., Hale 1983; Jelinek 1984; cf. also Austin & Bresnan 1996; Pensalfini 2004).\(^4\) Presumably, it is this putative intermediate position between free item and affix that invites the clitic classification. However, in many analyses and descriptions whose interest is primarily in (morpho)syntax, the phonological behavior of alleged clitics is not addressed, and it is therefore unclear if such elements satisfy the general definition of clitics cited above (cf. Stonham & Yiu 2002: 333 for an example). This, in turn,

\(^4\) Specifically, a major issue is whether the pronominal “clitics” co-occur with an NP expressing the same argument (cf. Bresnan & Mchombo 1987; Siewierska 1999). If so, they essentially function like agreement markers, but if they are the only expression of the argument, they might be pronominal NPs themselves. This debate is further complicated by markers that can co-occur with a coreferential NP or on their own.
often impacts whether the items at issue can be considered wordhood issues as understood here, and this point will come up in different places throughout the empirical chapters 3-6.

The opposite problem also exists; that is, (morpho)phonological works may use “cliticization” as a synonym for “prosodic reduction,” without specifying if or how this reduction correlates with the kind of syntagmatic behavior expected of a clitic (cf. Fox 2000: 358 for an example). This obviously leaves open the question of whether the relevant items might be affixes instead. Finally, in some discussions of clitics, neither syntagmatic nor prosodic criteria are provided (cf. Childs 2003: 130; Kiyosawa & Gerdts 2010: 28-29), and such “clitics” might then subsume all elements that have a grammatical rather than a lexical function. In these cases too, the absence of definitions might suggest wordhood issues where none exist.

The examples in (1.3)-(1.5) – from English, French, and Oklahoma Cherokee, respectively – represent instances of three different types of clitics, following the original typology of Zwicky (1977).

(1.3)  \text{We}=\text{'ll} \text{ never know}

(1.4)  \text{Je} \quad \text{t'=écoute}
\hspace{1cm} \text{1SG} \quad \text{2SG}=\text{listen}
\hspace{1cm} \text{‘I listen to you.’}

(1.5)  \text{sgi-ohlgi=ju}
\hspace{1cm} \text{2>1}-\text{understand.PRS.CONT=Q}
\hspace{1cm} \text{‘Do you understand me?’} \quad \text{(Montgomery-Anderson 2015: 198)}

The English enclitic in (1.3) is a reduced form of the free auxiliary \textit{will}. Since the clitic is sub-syllabic, it is not a phonological word of English, cannot be stressed, and must be integrated into its host in order to be pronounced. However, its syntagmatic behavior is that of a morphological word in that the preceding hosts can belong to different word classes. In the traditional terminology, a reduced, unstressed variant that has the same distribution as the full form is called a “simple clitic” (Zwicky 1977: 3). While this clitic essentially follows
NPs, and a phrasal distribution is often used as a sufficient definition of clitics, it does not necessarily overlap with the ability to collocate with different word classes. For instance, in languages with head-final NPs, an enclitic following the NP will usually attach to nouns and might then be difficult to distinguish from a nominal suffix (cf. Chapter 4 for further discussion).

The element in (1.4) has been classified as an instance of a “special clitic” because it shows “special syntax” (Zwicky 1977: 4-6). Specifically, French objects that are emphatic pronouns or lexical NPs may be clause-initial or post-verbal, depending on pragmatic context. However, unmarked object pronouns, such as the one in (1.4), can only occur between the subject and the verb. Furthermore, one can make a plausible case that the shape /t/ falls short of phonological wordhood. That is, even though phonological words may consist of consonants only, at least one of the consonants is then usually a sonorant (Moravcsik 2013: 153). In sum, then, the object marker does not enjoy any syntagmatic freedom and is prosodically subminimal, which is why it might be a prefix rather than a clitic (cf. Schwegler 1990: 34 and references there). The idea that the relevant item is nevertheless a clitic may then be due to French orthography, where both the syllabic forms of the unmarked object pronouns as well as other pronouns they may co-occur with are represented as free words. Note, finally, that the concept of “special” syntax refers to the distribution of elements other than the unmarked object marker itself. Since the fact that different elements show different formal behavior is not an anomaly, “special clitics” do not inherently pose a wordhood issue as defined here and subsequently do not feature prominently among the data discussed in the empirical chapters 3-6.

The enclitic⁵ in (1.5) is described by Montgomery-Anderson (2015: 196) as obligatorily attaching to a host that may come from different syntactic categories. However, it is not prosodically integrated into the host because it does not bear stress or a tone, both of which the last vowel in a Cherokee word otherwise would bear (Montgomery-Anderson 2015: 197). Based on cross-linguistically attested developments, it is likely that this marker did bear stress and/or tone and then dropped them during the initial stage of the

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⁵ Montgomery-Anderson (2015) actually calls this class of elements “postfixes,” but it is clear from his description and his use of the equals sign that they should be understood as clitics. The use of the term “postfix” is unfortunate here because it suggests that it is some kind of affix. As the following discussion will show, however, that is not the case.
grammaticalization process (cf. Greenberg 1979: 289; Bybee et al. 1994: 6). This item thus illustrates another problem concerning the use of the “clitic” label. While the elements in (1.3) and (1.4) are prosodically integrated into their hosts (at least in terms of syllabification), the absence of prosodic prominence on the final element in (1.5) proves that it is not so integrated into its (alleged) host. Yet, despite this fundamental difference, both types of items are argued to be clitics (cf. also Dixon & Aikhenvald 2003: 25). The Cherokee marker further differs from the previous two items in that it is not in a distributional relationship with an independently defined class of elements. That is, its position is neither identical to that of a full form nor does it differ from the distribution of functionally equivalent forms.

While the ability to co-occur with words from different syntactic categories is a hallmark of free words, it is the obligatory absence of stress that makes the item in (1.5) a “bound word” on the original classification (Zwicky 1977: 6-7). Note that this understanding renders members from many word classes in many languages “bound.” In fact, it is presumably the popularity of this particular definition that explains the proliferation of clitics in the literature (cf. Halpern 1998: 101-104; Hudson 2007: 105). On the other hand, one can also find descriptions of “clitics” that do bear stress. For instance, Aikhenvald (2003b: 40-42) defines Tariana proclitics and affixes as unstressed and enclitics as bearing secondary stress. Obviously, though, to the extent that clitics are claimed to subsume elements that are usually unstressed, as well as some that are usually stressed, they do not form a natural phonological class (cf. Nespor & Vogel 2007: 149).

In order to classify wordhood issues consistently and without having to rely on ambiguous terms such as “clitic,” I will use the concept of “dependence” to describe the formal status and behavior of morphological structures. For the purposes of this work, dependence is defined as follows (cf. also Langacker 1987: ch. 9; Bybee et al. 1994: ch. 4):

Dependence:

*A morphological element is dependent to the extent that its phonological realization and/or syntagmatic distribution is determined by a surrounding structure.*

Throughout this work, I will refer to elements that fail a given parameter of phonological wordhood as “prosodically dependent” on that parameter, and to elements that fail a
parameter of morphological wordhood as “syntagmatically dependent” on that parameter. Crucially, this formulation leaves open the possibility that the same element is dependent on one dimension or parameter but independent on another. Using this terminology, it can then be said that the English auxiliary clitic is prosodically dependent because it does not meet all the criteria of a phonological word. However, it can collocate with words from all word classes and is thus not syntagmatically dependent. This combination would make it a prototypical clitic, but that fact is not crucial to the analysis. While the French object marker and the Cherokee bound word are also characterized by reduced prosodic structure and potential, they nevertheless pattern differently. That is, at least the sub-syllabic French object marker is both prosodically and syntagmatically dependent and thus a prefix, while the Cherokee interrogative marker might be a function word depending on whether prominence is also definitional for function words.

The parameters of prosodic and syntagmatic dependence can be used to analyze all wordhood issues of interest in this study. For instance, as mentioned above, Turkish vowel harmony typically proceeds from the root through the remainder of the phonological word. However, the progressive and/or present tense marker -iyor is exceptional in this regard. The first vowel occurs after consonants and is harmonic, whereas the quality of the second vowel is fixed as /o/ regardless of whether the preceding root vowels are front or back. In fact, the second vowel is “opaque” in that it begins its own harmony domain such that all following vowels are back vowels. The following examples illustrate this pattern:

(1.6)  (a) /kɔʃ-iyor-um/ run-PROG-1SG ‘I am running.’

(b) /gel-iyor-um/ come-PROG-1SG ‘I am coming.’

(Finley 2010: 1550)

Lewis (1967: 108) states that the progressive marker derives from yorir, the aorist form of an obsolete verb ‘go, walk.’ The fact that its reconstruction is straightforward and that it is not yet integrated into the harmony domain suggests that it is a relatively recent

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6 While Lewis (1967: 109) and Inkelas (1999: 155) state that stress falls on the initial high vowel, Comrie (1997: 898) suggests that it does so irregularly. However, these issues do not impact the argument made here.
grammaticalization. However, in terms of its syntagmatic behavior, the progressive marker already shows the properties of a full-fledged affix in that it assumes a fixed slot in the verbal template. Hence, it is essentially the mirror image of the Turkish interrogative marker discussed above, which is syntagmatically mobile (cf. Menz 2011: 172) but dependent in terms of vowel harmony. Since the interrogative marker is a prototypical clitic, the progressive is therefore an “anti-clitic” (cf. Zúñiga 2014 for this term). The behavior of the Turkish progressive also ties in with the claim that morphological words in languages with rich morphology may consist of several smaller phonological words (Bisang 1996: 535; Halpern 1997; Bickel 2000: 606 n. 2; Bickel et al. 2007; Evans et al. 2008; Vogel 2008; Bickel & Zúñiga 2017).

Table 1.1 arrange[s] the elements discussed above in terms of their behavior with regard to prosodic and syntagmatic dependence. Due to the categorical design of the table, every item that shows any degree of dependence on either dimension is classified as dependent even though it might be independent in terms of other properties on the same dimension. Elements that combine positive features on both dimensions are prototypical affixes, whereas items that combine negative features on both dimensions are prototypical words. As such, neither poses a problem for morphological theories or the present work. While the French and Cherokee elements appear to constitute such clear-cut affixes and words, respectively, they are given in parentheses here to reflect the fact that their description is not sufficiently comprehensive (Cherokee) or that they have traditionally been classified as another type of unit (French). Apart from these language-specific issues, however, it is the elements that combine a positive feature on one dimension with a negative feature on the other dimension that pose a general problem for descriptive linguistics. Put differently, clitics and anti-clitics are inherently wordhood issues.

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<th>[+ syntagmatically dependent]</th>
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<td>[- prosodically dependent]</td>
<td>Turkish progressive anti-clitic</td>
<td>Prototypical words</td>
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<td></td>
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<td>(Cherokee interrogative bound word)</td>
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What the above examples show is that some of the best-known deviations from prototypical words and affixes come about because the values on the two dimensions of dependence can interact in all logically possible ways. However, the data in Chapters 3-6 will show that the range of wordhood issues extends considerably beyond clitics and anti-clitics once the specific wordhood parameters at issue in any given case are taken into account. Meanwhile, it is obvious that several phenomena not referenced in the above table might further complicate the notion of wordhood. While some of them will be discussed in the next section, the role that semantic considerations play for the present work will be outlined in 1.3.3 below (but cf. also Mithun 1997; Croft 2000a: 262; Wiltschko 2009 for different angles).

1.2 OTHER TYPES OF WORDHOOD (ISSUES)

As mentioned with regard to the French object markers above, orthography is a spurious parameter in wordhood analyses. In that particular case, the problem arises due to the well-known fact that spelling systems are more conservative than the corresponding spoken languages. Therefore, it must be assumed that orthography will often obscure shifts in prosodic or syntagmatic dependence that have arisen since the spelling was codified. In other instances, spelling is inconsistent and suggests variation and/or potential wordhood issues where they do not in fact exist. For example, the Corpus of Contemporary American English (Davies 2008-) contains tokens of the forms cheesecake, cheese-cake, and cheese cake. However, this orthographic variation does not correlate with any kind of variation in the spoken signal; /ˈtʃiːzˌkeɪk/ is a single compound word on all pertinent formal criteria, regardless of its representation in spelling. In yet other cases, the spelling merely reflects a problem of word segmentation, such as when English clitics are separated from their hosts by means of an apostrophe. Hence, a decision as to how many phonological or morphological words an English string with an apostrophe consists of is not facilitated by referring to the orthographic dimension.

Finally, and most importantly, orthography is an insufficient guide for a cross-linguistic project such as the one to be developed here. The vast majority of languages do not have a native writing system, and while many languages are fitted with a (usually romanized)
orthography by the linguists that describe them, this system is not necessarily adopted by the speech community. Hence, the word divisions created by such an ad hoc orthography might only reflect the intuition of a single grammarian, who is usually not a native speaker, and referring to the nature of such externally devised spelling systems might thus introduce a major confound. Taken together, then, there is no obvious way in which spelling conventions could inform the concept of wordhood, and the factor of orthography will thus be ignored throughout this work.\(^7\)

Another conceptual distinction often made in discussions of wordhood is that between word forms as actually encountered in utterances, and lexemes, uninflected base forms as listed in the (mental) lexicon (cf. Herbermann 2002; Wurzel 2002; Stump 2005: 49-50). Crucially, on an exemplar approach, in which stored units derive from (experience with) actual usage (e.g., Bybee 2010), empirically unattested units do not play a salient role.\(^8\) On such an account, then, the concept of lexemes would find particularly little support in languages with rich and/or obligatory inflection. Put differently, to the extent that inflectional processes always occur with tokens of a specific word class in a given language, the actual word forms would never coincide with their alleged lexemes. The absence of lexemes in language use would subsequently weaken their cognitive and thus also their theoretical status.

However, the status of lexemes is also unclear in light of languages that have little or no inflection. In such languages, most or all word forms of a lexeme are necessarily identical, which would seem to negate the need for the distinction between them (cf. Lyons 1977: 383; Blevins 2016: 62). Furthermore, even in languages that generally have inflection, this may be limited to specific word classes. One example is Japanese, which has a rich verbal morphology but no nominal morphology (cf. Shibatani 1987: 861; also Olthof 2020: 151, 157 more generally). In the case of Japanese nouns, then, the difference between word forms and lexemes would obviously become moot as well. Since most languages presumably have at least closed word classes that do not inflect, lexemes might only be a worthy object of

\(^7\) Note that I limit myself to a discussion of alphabetic systems here. While word segmentation might be easier or more difficult in cases where the smallest typographical unit corresponds to syllables or words, such systems represent an even smaller minority of languages and thus cannot be the basis for a cross-linguistic study either.

\(^8\) To the extent that language users abstract and store lexeme-like units, this would simply be a facet of the redundancy-driven approach to processing that usage-based accounts posit in any case. This cognitive strategy would not only apply to words but also to all other types of linguistic structures.
study in the domain of verbs and, to a lesser extent, nouns. Given the questionable nature and limited applicability of lexemes, the alleged contrast between lexemes and word forms will not be considered in this work. Instead, for the purposes of this study, wordhood issues will be defined as mismatches that manifest themselves in actual word forms as used in actual constructions.

1.3 CAUSES OF WORDHOOD (ISSUES)

The preceding sections argued that wordhood issues exist in cases where an element or sequence of elements satisfies some but not all criteria of wordhood. One major goal of the present work is to elucidate the patterns found among such wordhood issues, that is, to investigate whether some (combinations of) criteria are more frequently responsible for wordhood issues than others, and if so, under what circumstances. To this end, this section will discuss several structural and semantic factors that lead to predictions about mismatches involving both the phonological and the morphological word. While these factors are generally prominent in the typological literature, the purpose of this section is to show how they apply to accounts of wordhood specifically. This discussion sets the scene for the specific hypotheses that this study will investigate, which will be spelled out in the next section.

1.3.1 Morphology as a diachronic by-product

The insight that word structure shows a considerable range of variation formed the basis of the first research paradigm in linguistic typology, namely, Morphological Typology (cf. Sapir 1921 [2004]: ch. 6; Greenberg 1960; Comrie 1989: 42-52; Plank 1995: 36; Whaley 1997: 127-139; Plungian 2001; Croft 2003: 45-48; Aikhenvald 2007a: 3-11; Bickel & Nichols 2007: 181-193; Velupillai 2012: 95-110; Payne 2017; Haspelmath 2018a). This approach holds that adjacent morphemes relate to each other along the two indices of fusion and synthesis. The concept of fusion is closely connected to what was called “prosodic dependence” in 1.1. That is, if the form of a morpheme is dependent on adjacent morphemes, a certain degree of “fusion” holds between them. In the traditional terminology, and simplifying somewhat, languages are “isolating” if morphemes do not influence each other and “agglutinating” if that influence is predictable. By contrast, the term “fusional” describes
unpredictable formal relationships between morphemes, including cases in which they can no longer be segmented. Finally, a morphological process is “symbolic” if it involves a root change such as ablaut or suppletion. Typically, these formal differences have been tied to differences in function such that a prototypically agglutinating morpheme expresses only one meaning (e.g., past tense), whereas a fusional morpheme cumulates several meanings (e.g., past tense plus third-person singular). However, in the present work, only the formal implications of this typology will be referred to, and in cases where semantics is at issue, a morpheme expressing several meanings will be called “cumulative” rather than “fusional.”

Meanwhile, the index of “synthesis” is essentially a measure of “syntagmatic dependence” as defined above. The more types of information a language expresses via bound morphemes, the more synthetic the language is. The overlap with syntagmatic dependence is that one can only claim that a morpheme is bound if its distribution is defined with respect to that of other types of morphemes. The label “synthetic” itself tends to be applied to languages that combine roots and bound elements, whereas the term “polysynthetic” is often used to describe languages that additionally make use of noun incorporation (e.g., Baker 2001: 1440). However, noun incorporation is not necessarily found in all languages classified as polysynthetic (Mattissen 2004), and the whole notion of polysynthesis as a distinct value on the cline has been called into question (cf. Haspelmath 2018b; Zúñiga 2019). The other end of the scale is represented by “analytic” languages, in which words and morphemes are coextensive.9 Yet, in languages traditionally classified as analytic, such as Mandarin, compounding is a widespread strategy (e.g., Anderson 1985b: 43), which also suggests that the difference between (poly)synthetic and analytic structures is not categorical.

While the basic terminology of Morphological Typology has been retained, the overall approach has come under scrutiny (cf. Himmelmann 1987: 54-57; Carstairs-McCarthy 1992: 166-171). First and foremost, it has been claimed that languages inevitably combine several of the relevant values (Haspelmath 2009). That is, languages are located along a range of synthesis (Greenberg 1978a: 46; Schwegler 1990: ch. 1) and avail themselves of both agglutination and fusion, not least because the latter phenomena are

9 While “analytic” and “isolating” morphology are logically independent concepts, they usually coincide, and the terms are often used interchangeably; cf. Hagège (2005); Aikhenvald (2007a: 8).
themselves defined by a host of criteria (Plank 1999; Haspelmath 2009). The exact mixture that is found in any given language may be conditioned by factors such as word class (cf. Hagège 1990: 300-301) or the inflection/derivation divide (cf. Plank 1999: 292). This suggests that the concepts of Morphological Typology might only apply to specific constructions rather than to entire languages, and in light of this it seems best to treat these categories as prototypes as well, which languages may then approximate to different degrees (cf. Bolinger 1975: 28). The next sub-section will discuss how the concepts of fusion and agglutination bear on the present study and how they will be operationalized here.

It is a core assumption of this work that the variable nature of morphology, and thus also the variable applicability of Morphological Typology, is due to the fact that morphology is an epiphenomenon of phonological and syntactic forces, both of which are themselves language-specific (cf. Žirmunskij 1966: 66-67; Anderson 1988: 326, 1992: 324). That is, no language has been argued not to have phonology10 or syntax, but it is clear that languages at least do not need bound morphology (cf. Lüdtke 1980; Plungian 2000; Baerman & Corbett 2007: 115; Wunderlich: 2008: 252). This theoretical dispensability is subsequently buttressed by languages that indeed do not have any bound morphology or have close to none (e.g., McWhorter 2005, 2007, 2016; Trudgill 2011 for data and sociolinguistic causes; Comrie 1992 for onto- and phylogenetic aspects).

On the basis of the above insight, Aronoff (1998: 413) compares morphology to a disease from which some languages suffer more than others. This view of morphology as an undesirable property might explain why it has often been ignored or explained away. For example, generative approaches initially operated without the notion of a word, or even morphology in general (Hammond & Noonan 1988: 1-5; Motsch 2002), and morphological phenomena were instead assigned to the domains of phonology or syntax (e.g., Williams 1981; Janda 1983; Bye & Svenonius 2012; Mendivil-Giró 2019). In fact, the underlying idea to split up morphology and to subsume it under the latter domains is still evident in more contemporary research paradigms such as Optimality Theory and Distributed Morphology (Carstairs-McCarthy 2005; cf. also Zwicky 1992: 347-354). On the other hand, Himmelmann (1987: 2-4, 50) points out that morphology and syntax are also not reliably distinguished in

10 To the best of my knowledge, the closest anyone has come to claiming that a human language does not have phonology is Aronoff (2007: 806-812) with respect to Al-Sayyid Bedouin Sign Language.
typological approaches, as a consequence of which such accounts do not offer a morphological theory either. Since wordhood issues as understood in this work are defined by both syntactic and phonological factors, it follows that they cannot be assigned to only one of those levels and that a separate level of morphology is thus required. Ideally, then, the empirical phenomena investigated here will contribute to the formulation of a diachronically informed morphological theory.

While the synchronic status of morphology might be underexplored and/or controversial, it is sufficiently clear how it comes about in the first place. One representative account is Haiman (1985), who posits that many syntactic constructions begin as iconic mappings of their semantics. Subsequently, though, this form-meaning correspondence is eroded due to formal changes caused by frequent repetition and due to semantic processes such as metaphorical and metonymical extension. This erosion of iconicity eventually leads to an arbitrary relationship between form and meaning, and the domain of language that has traditionally been considered purely arbitrary is, of course, phonology. On such an account, then, morphology is what arises during the erosive process, before the erstwhile syntax has fully transformed into phonology (cf. also Hopper 1990, 1994).

Since formal erosion is one of the manifestations of grammaticalization (e.g., Givón 1971; Lehmann 1985; Hopper & Traugott 2003), morphology is primarily a product of the latter process (Spencer 2006: 128). Yet, given that morphological systems are highly variable across languages and entirely absent from some of them, it further follows that grammaticalization must unfold in language-specific ways (cf. Bybee 1997: 30; Bisang 2004, 2011; Kabak 2006; Wiemer 2014: 437-447). More precisely, while grammaticalization processes lead to similar semantic categories cross-linguistically (Bybee et al. 1994; Heine & Kuteva 2002), the formal properties of the grammaticalized exponents are shaped by the individual linguistic system in which they arise (cf. Dressler 1985: 348-359; Narrog 2017: 167-168; Reinöhl & Himmelmann 2017: 400-403). With respect to the present project, this means that wordhood issues are expected to be language-specific because morphology in

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11 But cf. the contributions in Hinton et al. (1994) for a wide range of counterexamples to this generalization.
12 This view forces the conclusion that languages originally did not have bound morphology. While Carstairs-McCarthy (2010: 46) argues that this assumption would violate the uniformitarian principle, this has little impact on the present work, which will not deal with matters of historical reconstruction, let alone the origins of language.
general is highly language-specific. Ultimately, then, the nature of morphology sketched above aligns itself with the idea that explanations of linguistic structure should be based on diachronic processes rather than on synchronic states (cf. Givón 1979: ch. 6; Bybee 1988, 2001: ch. 8; Aristar 1991; Mithun 2003).

The existence of language-specific structures also calls for an approach on which languages are synchronically described on their own terms (cf. Croft 2001; Haspelmath 2007a, 2010). One consequence of this tenet is that in order to capture all possible realizations of a phenomenon, typological studies must relax the formal criteria that are taken to define it (cf. Croft 1991: ch. 1; Kuteva 1998: 154; Dryer 2018: 804-816). This approach will be applied throughout the present work. For instance, while case markers are usually understood to be affixes, the wordhood issues in this domain are primarily found among items that are at an intermediate stage between adposition and case affix (cf. Chapter 4).

1.3.2 Phonological and morphological determinants of wordhood issues

The above claims about the origins of morphology and wordhood issues hinted at the critical role of language-specific factors. In order to support this argument, Schiering’s (2006) study of cliticization in 19 unrelated languages is a relevant starting point. Since he only focuses on the prosodic concomitants of grammaticalization, it is not always clear whether the elements in question also show the syntactic behavior of clitics (cf. 1.1). However, this is not a drawback because it increases the likelihood that his findings also extend to wordhood issues other than prototypical clitics, which would render the study even more pertinent to the present one. Meanwhile, the prosodic effects investigated by Schiering (2006) are explained with reference to a concept of “rhythm.” Crucially, though, rhythm is not defined acoustically so as to refer to the temporal distribution of prosodically prominent sequences, which follows from the fact that perceptions of rhythm do not have reliably measurable physical correlates (e.g., Auer & Uhmann 1988; Grabe & Low 2002; Arvaniti 2012; Maddieson 2018: 113-115). Furthermore, languages may not have prominence phenomena such as stress (cf. Goedemans & van Zanten 2014; Gordon & Roettger 2017: 8 on Oceanic; Johns 2020: 527 on Eskimo-Aleut), and such languages would then escape classification on an acoustic definition of rhythm.

In light of these complications, Schiering (2006) defines different rhythmic types as
clusters of phonological characteristics, and the most important dichotomy that emerges in this regard involves the status of vowels.\textsuperscript{13} While mora- and syllable-timed languages (which show the same behavior in most respects) tend to assign roughly the same degree of prominence to all vowels, stress-timed languages are characterized by very prominent vowels on the one hand and highly reduced ones on the other (cf. also Bybee et al. 1998). Whether there is vowel reduction or not subsequently shapes many other phenomena. For instance, the comparatively longer retention of vowels in mora-/syllable-timed languages tends to lead to simpler syllable structures (i.e., consonant clusters are small in extent and few in number) and also creates the prerequisite for vowel harmony. On the other hand, the reduction of vowels in stress-timed languages leads to more (complex) types of consonant clusters and greatly reduces the likelihood of a transparent vowel harmony system.

The implications of these insights for a typologically informed approach to grammaticalization are fairly straightforward (cf. Schiering 2006: ch. 4). In mora-/syllable-timed languages, emerging clitics remain syllabic for longer and retain more of the segmental structure and suprasegmental behavior that their free progenitors had. On the other hand, in stress-timed languages, clitics are subjected to more formal manipulation, often leading to sub-syllabic status. Dryer (2015) suggests that sub-syllabic size is typically a telltale sign of affixhood, and one result emerging from Schiering (2006) is thus that grammaticalizing elements seem to become full-fledged affixes in stress-timed languages more quickly than in mora-/syllable-timed ones. However, while this would seem to suggest that wordhood issues should also be more common in mora-/syllable-timed languages, this conclusion primarily derives from the prosodic focus of Schiering (2006). That is, once the syntagmatic dimension is factored in, the prediction turns out to be more complex (cf. 1.4.2).

Given that morphemes subjected to the two rhythmic types differ in the degree to which they remain formally autonomous and thus predictable, the rhythmic types strongly correlate with the concepts of Morphological Typology outlined in the preceding sub-section. Specifically, mora-/syllable-timed rhythm aligns with agglutination, whereas stress-timed rhythm clearly overlaps with fusional morphology. In this context, it is also noteworthy that Bybee et al. (1998) argue that lexical (i.e., unpredictable) stress coincides with vowel

\textsuperscript{13} The present summary of Schiering (2006) gives short shrift to several complicating factors (cf. also Schiering 2007; Schiering et al. 2012; Caro Reina & Szczepaniak 2014 for further discussion of those issues).
reduction, whereas demarcative (i.e., predictable) stress has no significant effect on vowels. To the extent that the above-mentioned correlation holds, this would argue for lexical stress to co-occur with fusional morphology and for demarcative stress to co-occur with agglutinating morphology. Such connections can at least be anecdotally confirmed. For instance, a prototypically agglutinating language like Turkish has one of the most thoroughly developed vowel harmony systems as well as demarcative stress. Conversely, a prototypically fusional language like English, which inspired the concept of stress-timing in the first place, has unpredictable (including contrastive) stress and shows no signs of vowel harmony.

A study reported by Jun (2014: 535) reveals another suggestive correlation between such phonological and morphological phenomena. In her sample, languages that mark the edge of phrases with a tone are those considered to have mostly agglutinating and synthetic morphology and/or vowel harmony; for instance, certain dialects of Japanese as well as Khalkha and West Greenlandic. In addition, these languages have no “word prosody” (cf. also Nolan & Jeon 2014: 6, 9). Given that agglutinating morphemes still resemble free words to a considerable extent, sequences of such morphemes blur the distinction between complex words and phrases. Put differently, since all strings of morphemes are thus phrases to some extent, the fact that phrases rather than words are the units that mark prosodic prominence is unsurprising.

The ideas sketched above lead to certain predictions about what kinds of wordhood issues should be found with what type of rhythm or morphological type. For instance, since morphemes in an agglutinating, syllable-timed language like Turkish should remain at least syllabic, the emergence of a sub-syllabic morpheme like the English clitic = ‘ll is not predicted. Hence, it might be considered unlikely that wordhood issues in Turkish and structurally similar languages involve the parameter of segmental structure (cf. 1.0). Conversely, vowel disharmony should not cause wordhood issues in English because the prerequisite harmony system does not exist in the first place. This, in turn, would lower the likelihood that the parameter of prosodic features accounts for wordhood issues in the language (even though this parameter also subsumes the phenomenon of stress, which English does have).

As pointed out in 1.3.1, the individual values of Morphological Typology such as
fusion and agglutination may be limited to specific domains in any given language. However, arguments in support of these concepts are also complicated by several other factors. For instance, the idea that vowel harmony and agglutination co-occur seems to derive from the structure of a few well-known Eurasian languages, and whether this correlation is truly a cross-linguistic phenomenon has not been sufficiently explored. In fact, given that vowel harmony tends to be sporadic within languages if widely found across languages (cf. Chapters 3-6 below), any strong correlations in this domain are unlikely to hold across a representative worldwide sample. A related issue concerns the fact that the cut-off point between harmony and assimilation, the latter of which is presumably a universal phenomenon, is often not explicitly defined and subject to the preferences of the analyst. Given the gradient nature of phonologization (e.g., Hyman 1976; Ohala 1989), assimilation and harmony cannot be argued to constitute a dichotomy. Hence, these facts suggest that, despite Schiering’s (2006) findings, vowel harmony might not be a reliable indicator of morphological type or rhythm after all.

So far, this section has argued that Schiering’s (2006) concept of rhythm aligns with traditional Morphological Typology and that his findings in the domain of prosodic cliticization suggest that these approaches can inform the nature and distribution of wordhood issues. As mentioned above, a specific hypothesis based on these factors will be derived and formulated in 1.4.2. However, since both rhythm and Morphological Typology group together a large number of phenomena, they also run into several conceptual and empirical issues, some of which were discussed above. Therefore, the challenge for the present study is to mitigate the effects of such possible confounds while retaining the basic idea of both approaches. In order to achieve this aim, this study will limit the number of diagnostics used to assess the morphological type of a language. Specifically, the two diagnostics chosen here refer to the segmental and the suprasegmental dimension, respectively, and both are predicated on the idea that agglutinating morphology is formally predictable while fusional morphology is not. Note that for the remainder of this work, I will only use the labels “fusional” and “agglutinating” in order to forgo the potentially ambiguous terms “stress-timed” and “mora-/syllable-timed.”

On the first diagnostic, a language will be classified as agglutinating to the extent that its alternations at morpheme boundaries are automatic rather than morphophonological (cf.
In the automatic type, an alternation occurs whenever the relevant segments are arranged in the relevant order, regardless of which morphemes they are a part of. Hence, an automatic alternation is one in which, for instance, every intervocalic obstruent is voiced irrespective of whether the obstruent and/or the surrounding vowels are part of the same morpheme, of different morphemes, or whether the morphemes involved are stems or affixes, etc. By contrast, in the morphophonological type, alternations of segments are conditioned by the specific morphemes they instantiate. For example, a stem-final obstruent might lenite before a subset of case suffixes but not in any other environment. Overall, then, the automatic type creates maximally predictable interactions of morphemes, which would be expected of agglutinating elements that retain some of the prosodic freedom of the lexical elements they originate from. On the other hand, in a language in which all allomorphic patterns depend on the nature of the specific morphemes involved, the latter could no longer be analyzed as having any prosodic freedom. The resulting morphology would then be entirely unpredictable to the extent that all morphologically complex sequences would have to be described separately. This, in turn, would constitute a maximally fusional type.

Given the aforementioned issues surrounding vowel harmony, the suprasegmental diagnostic used here will be prosodic prominence. In this work, the latter term is intended to cover stress, tone, pitch accent, or any language-specific combination of those phenomena. That is, prominence so defined subsumes the different means that languages use to highlight one syllable or mora with respect to other syllables or moras (cf. also Bolinger 1986: 9, 15). Crucially, this definition of prominence does not include higher structural levels that pertain to the interaction of intonation and pragmatics. For the operationalization of this parameter, I will adopt the aforementioned finding by Bybee et al. (1998) that stress tends to be predictable in languages that otherwise show properties associated with agglutination, whereas it is less predictable in those that fall closer toward the fusional end of the spectrum. While their research does not deal with tone, the fact that stress and tone share acoustic properties would seem to permit a conflation of these two phenomena for this part of the investigation. Note also that even though some languages do not have any kind of prosodic prominence, this diagnostic can nevertheless be applied to the vast majority of languages. Finally, it should be pointed out that the two diagnostics chosen here are mutually
independent. That is, a language might have a high number of morphophonologically conditioned segmental alternations but a fully predictable stress/tone system, or vice versa (cf. 7.1).

1.3.3 Syntactic and semantic determinants of wordhood issues

While the status of agglutination and fusion as synchronic phenomena is not fully agreed upon, there is large-scale consensus as to how they relate to each other diachronically (e.g., Bynon 2004: 1228). Generally speaking, agglutinating structures fuse over time to become more dependent on neighboring elements. The converse development, whereby dependent, fusional elements gain a more independent, agglutinating status, is rare (but cf. Igartua 2015 for examples and discussion). Ultimately, this insight reiterates the erosive process sketched in 1.3.1, and this idea has been incorporated into approaches to grammaticalization as the “unidirectionality hypothesis,” which holds as a strong cross-linguistic tendency (cf. Haspelmath 1999).

An even more basic question about morphology, however, concerns the causes that determine which elements become interdependent in the first place. The interest of this issue derives from the trivial fact that no element in any construction of any language has to become dependent, and linear sequences of free words are of course a common occurrence in every language. Hence, it is incumbent upon morphologists to state the conditions under which morphology and the attendant wordhood issues are likely to arise, as well as the extent to which these conditions are language-specific or cross-linguistically robust. Put differently, given Nichols’ (2017a: 711) definition of a language universal as “a bias in favor of one or another diachronic development […] that is always likely to make itself felt but never inevitable,” the question becomes why morphology, as a whole, should be a (near) universal. Here too, a diverse body of research that bears on these questions exists even though most of it is not explicitly geared toward the analysis of wordhood.

Intuitively, the focus on clitics in the literature suggests that they are found in many languages and would thus constitute a promising starting point for an investigation of wordhood issues. Yet, as suggested above, the ubiquity of putative clitics only goes to show that they do not form a homogeneous group (cf. also Sadock 1991: 55-60; Zwicky 1994; Nevis 2000; Julien 2002: 20, 26; Anderson 2005: 30; Haspelmath & Sims 2010: 198, 202;
That is, given that the “clitic” label is loosely employed, a cross-linguistic study of elements classified as such would likely deal with phenomena that are neither internally coherent nor remotely exhaustive of wordhood issues in general.

In line with the principle mentioned in 1.3.1, the present work will therefore proceed from a semantic definition of the phenomena at issue. The most promising line of work in this area is Bybee (1985a, b), which situates grammatical markers\textsuperscript{14} along two clines. The cline of generality measures how many stems of a given class a gram may combine with, and how regular the meaning of the resulting combination is. Meanwhile, the cline of semantic relevance indicates how strongly a gram modifies the meaning of the stem. Bybee (1985a: 15-16, 34, 85, 99, 203) specifically singles out indexation (i.e., markers referencing verbal arguments), case, definiteness, and tense as categories of limited semantic relevance to the stems they attach to. However, the exponents of these categories are often highly general, and the combination of low relevance and high generality essentially converges on the set of inflectional markers (cf. also Himmelmann 2004).

More importantly, though, Bybee (1985a) also finds that exponents of such categories tend to be problematic for divisions into free and bound morphemes given that an item of lower relevance to a stem usually also occurs at a larger distance from it and subsequently shows less morphophonological interaction with it.\textsuperscript{15} This lower degree of interaction is of importance to this study because it essentially predicts that morphemes at the edge of a word form behave like word-internal elements on only a subset of parameters. As such, they would then often be classifiable as clitics or anti-clitics and would thus constitute wordhood issues as defined here.\textsuperscript{16}

Bybee’s approach is clearly inspired by the notion of iconicity in that those elements that affect the stem most closely on the semantic dimension also do so on the formal

\textsuperscript{14} Henceforth, I will follow Bybee & Dahl (1989: 51) in referring to grammatical markers as “grams,” regardless of whether they are segmental morphemes or processes such as (tonal) ablaut, etc.

\textsuperscript{15} It has been pointed out that affix order cannot be reduced to a single principle (such as semantic relevance); cf. Muysken (1986); Inkelas (2016); Mithun (2017). However, Bybee (1985a) explicitly proposes this only as a general, cross-linguistic tendency. Note also that Stump (2001a: 713) mediates between the two positions by stating that the correlation of relevance and order holds for inflection but not for derivation.

\textsuperscript{16} Cf. also Sadock (1991: 112); Spencer (2000: 318); Aikhenvald (2003a: 56-57) for the observation that the above-mentioned gram types, among other commonly inflectional ones, tend to cliticize (i.e., to possibly pose some type of wordhood issue). However, unlike Bybee (1985a), they do not offer an explanation for this tendency.
dimension. Furthermore, since the four gram types mentioned above often scope over the lexical stem as well as over other parts of the utterance, the fact that they tend to be positioned at the word margin, and thus often between the stem and other parts of the clause, is equally iconic. Note, though, that the database underlying Bybee (1985a, b) is restricted to verb stems and verbal morphology. Yet, since iconicity is not limited to the domain of verbs, there is no principled reason to assume that her findings might not also extend to the relationship between noun stems and nominal morphology. As elaborated below, the present study will in fact permit an assessment of the degree to which nominal and verbal grams behave alike in this regard.

At this stage, a brief illustration of the notion of semantic relevance is in order. What makes tense relatively less relevant in Bybee’s (1985a, b) sense is that the meaning described by the verb does not vary as a function of a tense marker. For instance, the event of ‘following’ is the same in *He followed my advice* as in *He follows my advice*. This differs from aspectual distinctions in that the verb in *He was following my advice* expresses the temporal extension of the ‘following’ event, unlike the verb in *He followed my advice*. Similarly, in the domain of indexation, the person-number values of the arguments do not change the semantics of the verb stem; Spanish *canto* ‘I sing’ and *canta* ‘s/he sings’ refer to the same basic activity. Also, whether a given referent is (expressed as) definite depends on the degree of shared knowledge among the interlocutors (cf. Chapter 3 for details). That is, the difference between *I feed the dog* and *I feed a dog* does not involve an inherent semantic feature of the dog but rather takes into account whether its identity is recoverable for the listener. Finally, the difference in case marking between *The man sings* and *The man’s song* signals different syntactic roles of the noun *man*, but the overt genitive marker does not change the extension of the referent *man* and therefore does not affect the meaning of the lexical element to which it is attached either.

While the exponents of the above categories might not show a large degree of formal interaction with their stems, they are commonly cumulated with one another and/or with other grams. Haspelmath (2009: 20), for example, points out that bound indexation markers\(^\text{17}\) often combine person and number meanings because they are usually grammaticalized from free pronouns that contained both of the relevant semantic values. An analogous situation

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\(^{17}\) Henceforth, I will refer to grams expressing this function as “indexes” (not “indices”).

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holds in the case of tense grams, which are often part of semantically more complex morphemes that also express aspectual and/or modal and/or evidential functions. These grams, in turn, are typically grammaticalized from auxiliaries that previously expressed the relevant cluster of functions (e.g., Steele 1978: 35-43; Spencer 2017: 216).

The consequences of such cumulative grams for the structure of this work will be discussed in Chapters 3-6, which will deal with wordhood issues involving exponents of the four categories mentioned above and thus form the empirical foundation of this work. The concept of “exponent” will necessarily be construed broadly because wordhood issues often do not lend themselves to descriptions in terms of established categories and labels. Therefore, in addition to a semantic definition of each category, the four empirical chapters will also discuss the range of formal strategies considered as exponents of the respective categories.

As suggested above, another theoretical angle that informs the interests and the design of this work is the idea that wordhood issues might show different patterns depending on whether they involve verbal or nominal morphology. The four gram categories investigated here can straightforwardly be divided into those that are typically expressed on nouns, such as case (Blake 2004a: 1073) and definiteness (Himmelmann 2001: 832), and those that are typically expressed on verbs, such as tense (Dahl 2004: 1181) and indexation (Schwartz 2000: 783). A potentially crucial difference between verbs and nouns is that the former tend to have more morphology than the latter (Bybee 2000: 795), which generally holds for both the paradigmatic and the syntagmatic dimension. This difference is at least partly a consequence of the fact that utterances typically contain verbs but not necessarily nouns and that the former are thus more token-frequent than the latter (cf. Givón 1995: 50-51; Tallerman 2011: 175; Velupillai 2012: 286-287). Due to this higher frequency of verbs,

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18 This functional network is usually abbreviated “TAM” or “TAME.” I will opt for the former in this work because evidentiality is found less frequently than the other three functions and because the tense markers of interest in Chapter 6 show a stronger overlap with aspect and mood than with evidentiality.

19 Exceptions to this generalization are reported by Blake (1999) and Aikhenvald (2008a) with respect to case marking on verbs, and by Nordlinger & Sadler (2004) with regard to tense marking on nouns. However, the constructions described there are highly polysemous, and it is not clear whether these elements truly perform the same functions with nouns and verbs (cf. also Tonhauser 2007 and 4.0.2 below). To the extent that they do not, their status as typological outliers would obviously be diminished.

20 This is why I will follow Croft (2003: 34) in using the term “indexation” rather than “agreement” for the category that expresses the person (and/or number, gender, etc.) values of arguments. There is often no noun (phrase) that exponents of this category could “agree” with.
other clausal elements tend to cluster around them and to become verbal morphology eventually (cf. Steele 1977: 557; Myhill 1988). Croft (2001: 258-268) generalizes this idea and suggests that it is the less semantically contentful (i.e., more grammatical) elements in a construction that grammaticalize onto the more contentful (i.e., more lexical) one. Since verbs are often the most contentful items in an utterance, the path to verbal morphology is arguably more straightforward than it is in the case of nominal morphology.

The above line of reasoning is also in line with Bybee’s (2002: 112) “Linear Fusion Hypothesis,” according to which “[i]tems that are used together fuse together.” On that account, token-frequent constructions (such as those involving verbs) are more likely to develop signs of formal dependence than less frequent ones (such as those involving nouns). This, in turn, complements the fact that content words are generally prosodically heavier than grams (cf. Heine et al. 1991: 15-16; Givón 2001a: 45). Since the latter are thus likely to fall short of prosodic independence in terms of minimal word size, they may be integrated with an independent content word, which is likely to be a verb given the arguments provided above.

It is crucial to note that these accounts of how verbal morphology comes about do not predict that verbal morphology will be involved in wordhood issues more often than its nominal counterpart. In fact, a greater likelihood and/or degree of fusion may lead to a larger number of prototypical affixes, whereas nominal grams, to the extent that they are less frequent and thus less strongly fused, might be formally ambiguous relatively more often. That said, however, evidence in support of the assumption that nouns are less likely to develop morphology does exist. Based on spoken corpus data from nine languages belonging to eight different families, Seifart et al. (2018) show that speakers both slow down their speech rate and make more pauses before nouns. They attribute this to the fact that nouns are only used in marked circumstances and/or for the expression of new information (with old information presumably expressed by indexes or ellipsis).

It is this relative infrequency of nouns that is argued to present an obstacle to fluent speech production, and according to the authors, this finding might also explain why there are comparatively few nominal prefixes (Seifart et al. 2018: 5723). The idea that the special information status of nouns influences

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21 It would also be plausible to argue that nouns are a larger class than verbs in most languages. This fact might then further complicate lexical selection and slow down speech rate.
prosodic phrasing is further supported by findings in Cole et al. (2019: 130). They show that nouns in natural speech are rated as more prosodically prominent across different languages, and the authors also tie this result to the idea that nouns usually introduce new information.

Seifart et al.’s (2018) argument ties in with Himmelmann’s (2014) account of the suffixing preference, which argues that grams are always cognitively available and therefore do not cause production issues, unlike content words. Hence, grams are usually grouped into the same intonation contour as a preceding content word and thus tend to become suffixes (recall Croft’s 2001 generalization above). By contrast, before content words, pauses are more frequent, and the resulting intonation breaks forestall the prefixation of grams. While this leaves open the question as to why this general process seems to be less pronounced with verbs, Seifart et al. (2018) suggest that this yet again has to do with token frequency. Specifically, the greater practice that speakers have with producing verbs and the grams preceding them partially supersedes the factors that impede prefixation with nouns.22

The observation that nominal prefixes are rare is supported by the insights that case affixes are predominantly suffixes (e.g., Hawkins & Gilligan 1988: 222-223; Dryer 2013a) and that case is one of relatively few grammatical categories expressed on nouns to begin with (cf. Givón 2001b: 2). However, other nominal grams illustrate the same tendency. For example, when Danish nouns are accompanied by modifiers, the definite article is a free item that precedes the modifiers and the noun (det gamle hus ‘the old house’). Yet, when the noun is otherwise bare, the article follows the noun as a suffix, such as in hus-et ‘the house’ (Lyons 1999: 77; cf. also Haugen 1987: 167-168 for more data from North Germanic). This asymmetry is even more remarkable in light of Aronoff & Sridhar’s (1988) argument that an otherwise exclusively suffixing language like Kannada developed native prefixes (including nominal ones) on analogy with the many prefixes found in Sanskrit loanwords. This suggests that nominal prefixes can be transferred via language contact and overcome significant systemic obstacles in the process. Hence, the fact that they are nevertheless a marked pattern cross-linguistically calls for precisely the kind of explanation that Seifart et al. (2018) propose. A specific hypothesis based on these considerations will be developed in 1.4.2.

22 Himmelmann (1998) shows that languages with rich systems of agglutinating case markers do not have definite articles. Hence, while the focus here is on psycholinguistic factors that prevent nominal prefixes, there also seem to be interdependencies among nominal grams that further restrict the amount of nominal morphosyntax (cf. also Gil 1987).
The final argument suggesting a major division between verbs and nouns is based on Berg (1998, 2018), who develops the theory that verbs are more “syntactic” than nouns. On his account, “syntacticity” is essentially the inverse of cohesiveness so that verbs are argued to be less cohesive than nouns. One piece of evidence in favor of this claim is that verbs often resemble clauses in their ability to be interrupted and to occur in different orders (recall the data and parameters discussed in 1.0). While this argument was developed against the backdrop of Germanic phrasal verbs, the arguments discussed above suggest that it will also be able to account for other languages and constructions. In particular, in order for word-internal elements to be separated or to show competing orders, there have to be several elements within a (putative) word to begin with. As mentioned above, in the vast majority of languages verbs have greater morphological potential than nouns (to the extent that the concept of polysynthesis is only ever applied to verbs). Therefore, it should primarily be wordhood issues involving verbal grams that fail the parameters of fixed order and cohesiveness.

In this section, it was argued that wordhood issues are partly informed by the traditional concepts of fusion and agglutination. It was also proposed that the exponents of certain grammatical categories are particularly likely to be involved in wordhood issues. Finally, I suggested that there are differences between verbs and nouns that suggest distinct patterns with respect to the wordhood issues their respective grams are involved in. The next section will develop these considerations into concrete hypotheses.

1.4 RESEARCH QUESTIONS

The argument that wordhood issues arise from phonological, syntactic, and semantic factors such as the ones outlined above is compatible with the idea that the word assumes a central position in the linguistic system (cf. Anderson 2015: 264; Hippisley 2015; Taylor 2015: 1; also Jackendoff 2007: 362; Joseph 2017: 744-745). This position clearly sets the word apart from units such as syllables, which are independent of syntactic and semantic factors, and from phenomena such as relative clauses, which are formed without reference to phonological factors. However, the large number of forces that shape (definitions of) words also accounts for the fact that this concept and its boundaries are poorly understood when compared to more narrowly confined phenomena such as syllables or relative clauses. One
manifestation of this is that no systematic, cross-linguistic study of wordhood issues exists even though it is agreed upon that they are found in essentially every language.

The main empirical goal of the present work is thus to assemble precisely such an inventory of wordhood issues, based on criteria and desiderata outlined below and in the following chapter. The database arrived at will then allow for an analysis of which (combinations of) wordhood criteria are violated how frequently and under which structural circumstances. Some predictions of this sort will be captured by the hypotheses below, and their evaluation in Chapters 7 and 8 will constitute the primary theoretical contribution of this work. However, on the assumption that wordhood issues are caused by language-specific trajectories of grammaticalization, this dissertation will also provide indirect insights into the nature of language change. Ideally, these findings will provide relevant insights for future linguistic descriptions and/or studies of wordhood.

1.4.1 The goals of this study

While existing accounts of wordhood issues tend to focus on individual and widely different phenomena, the only data used in the present study are exponents of the four categories described and justified in the previous section: indexation, tense, case, and definiteness. The motivation for this restriction is to arrive at a more straightforward database. That is, a collection of any given wordhood issue from a wide range of languages would include many unique and idiosyncratic cases, which would undermine cross-linguistic comparison. By contrast, grammatical functions such as the four chosen here are widespread and also characterized by relatively uniform semantics, which suggests that wordhood issues involving these categories will not only be frequent but also form coherent patterns.

Apart from a focus on specific grammatical domains, this study will further distinguish itself from previous treatments of wordhood and wordhood issues. As mentioned above, it will be based on a balanced language sample, the precise structure of which will be described in the next chapter. A balanced sample promises to produce a much larger database than studies of individual languages and to provide a better idea of which types of issues are generally common or rare. Another distinctive trait of the present work is that it will investigate both phonological and morphological wordhood. The vast majority of the literature focuses on one or the other type, as a consequence of which it is largely unclear to
what extent they interact. Also, given that many elements described as clitics do not actually
(or obviously) combine prosodic dependence with syntagmatic independence, the empirical
status of clitics requires a more detailed investigation. Even less is known about the
frequency and distribution of anti-clitics and especially about mismatches between
phonological and morphological words that do not lend themselves to a description in either
of those terms. Finally, this work will rely on a fixed set of wordhood parameters, most of
which were discussed in 1.0 and all of which will be explained in more detail in the next
chapter. Since existing studies of wordhood (issues) focus on different phenomena, they also
tend to use rather different definitional criteria. Hence, by applying the same parameters to
all cases, the degree of comparability between the wordhood issues captured should increase.
This methodological strategy thus also promises to bring about a more comprehensive
empirical picture than is currently available.

Throughout this work, I will use the term “wordhood issue” to refer to all sequences
that satisfy some but not all of the wordhood parameters outlined in the next chapter.
Therefore, items that fail wordhood parameters other than those used here as well as
elements that are labeled “clitics” without explanation will not be included in the database
below. However, relevant instances of the latter sort will be discussed in some sections of
Chapters 3-6.

1.4.2 Hypotheses

The factors argued to cause wordhood issues translate into certain hypotheses of
theoretical interest. The first structural cause discussed in 1.3 was morphophonological type.
Recall that in the present work the terms “agglutinating” and “fusional” are always used with
reference to the formal rather than the semantic properties of morphemes. On that approach,
then, agglutinating morphology is characterized by the retention of a larger degree of
prosodic independence than fusional morphology. Hypothesis 1 is a strong version of the
prediction that follows from this view.

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23 Isolating and symbolic morphology are merely extreme types of agglutination and fusion, respectively. For
the purposes of this dissertation, the former pair of concepts will therefore be subsumed under the latter unless
explicitly stated otherwise.
Hypothesis 1:

The more fusional the morphology of a language, the more wordhood issues in that language will be characterized by the fact that the degree of prosodic dependence exceeds the degree of syntagmatic dependence. Conversely, the more agglutinating the morphology of a language, the more wordhood issues in that language will be characterized by the fact that the degree of syntagmatic dependence exceeds the degree of prosodic dependence.

While agglutinating morphology is more phonologically predictable and thus similar to independent phonological words, it must share with affixes a restricted syntagmatic distribution in order to be considered bound morphology at all. The opposite holds in the case of fusional morphology, which is defined by phonological manipulation but technically not by a reduction of syntagmatic freedom. Hence, while fusional morphemes may still have the distribution of words, their degree of phonological erosion renders them ineligible for full word status.

The second hypothesis combines the notion of morphophonological type with the expected differences between nominal and verbal morphology. As argued in 1.3.3, languages tend to have more verbal than nominal grams, and in addition, verbal grams are more likely to be prefixal than nominal grams are. Crucially, Bybee et al. (1990: 23-24) also argue that verbal prefixes show a higher degree of fusion with their stems than do verbal suffixes. Since a large share of verbal prefixes express indexation (Bybee et al. 1990: 37 n. 9; Siewierska 1998a: 383), it is plausible to assume that this difference in terms of fusion is primarily caused by verbal indexes. This further appears likely because indexes are presumably among the most token-frequent elements cross-linguistically and are thus expected to develop high degrees of formal dependence. Since verbal and nominal suffixes are not reported to differ in their respective degrees of fusion, and since person markers preposed to nouns are not considered in this study (cf. Chapter 5), the verbal grams investigated here should more often be preposed and thus also be more tightly fused than the nominal grams analyzed in this study. Since fusion is understood here as a cover term for prosodic dependence, it would seem to follow that wordhood issues involving verbal grams are characterized by higher degrees of prosodic dependence than of syntagmatic dependence. By contrast, no such
expectation holds for the more frequently suffixal and more loosely fused nominal grams. This idea is captured in Hypothesis 2.

Hypothesis 2:

In wordhood issues of the verbal domain, the degree of prosodic dependence exceeds the degree of syntagmatic dependence more often than it does in wordhood issues of the nominal domain.

Throughout this work, I will largely avoid the term “phrase” because it presupposes specific syntactic properties that may not be found in all constructions actually described as phrases (cf. Himmelmann 1997: 11-12). Instead, I will use the less specific term “domain” so that nouns and their modifiers form the nominal domain, while verbs and their modifiers form the verbal domain. In many cases, domains might prove to be phrases on strict syntactic criteria as well, but this will usually not be relevant to the analysis of the wordhood issues.

Based on the arguments in 1.3.3, I will subsume the categories of case and definiteness under the nominal domain and the categories of tense and indexation under the verbal domain. Hence, Hypothesis 2 states that exponents of case and definiteness are more likely to be anti-clitics than exponents of indexation and tense, which are predicted to be clitics. In this context, it is important to highlight that the impetus for Hypothesis 2 is solely the reported behavior of indexes. Hence, by extending the prediction to tense markers, which might show a different behavior, Hypothesis 2 remains falsifiable. Furthermore, it is crucial to bear in mind that the frequencies implicit in Hypothesis 2 are to be understood as relative. That is, the subset of the verbal wordhood issues showing more syntagmatic than prosodic dependence might outnumber the corresponding nominal subset in terms of absolute frequencies. However, if the former subset is balanced out by a large number of cases in which verbal grams show a higher degree of prosodic than of syntagmatic dependence, the hypothesis might still hold.

Finally, a phenomenon that may prove relevant to Hypothesis 2 is what has come to be called “ditropic” clitics (cf. Cysouw 2005; Himmelmann 2014). These are elements that fall within a preceding prosodic domain but within a following semantic and/or syntactic domain. Hill et al. (2019) suggest that the development of ditropic clitics into full-fledged
prefixes is accomplished by a “prosodic jump,” i.e., a movement into the following prosodic domain, which then complements their pre-existing semantic and syntactic affiliation. It is reasonable to assume that such a prosodic jump necessitates significant amounts of time, during which the relevant elements might pose a wordhood issue. Given the research sketched in 1.3.3, a prosodic boundary is more likely to exist before nouns than before verbs, which in turn suggests that ditropic clitics might be more common in the nominal than in the verbal domain.

The third hypothesis is dedicated to the idea that the syntagmatic freedom of grams differs based on whether they are part of the nominal or the verbal domain. This idea primarily refers to the two parameters of fixed order and cohesiveness (cf. 1.0). Generally speaking, grams whose ties to other grams and stems are looser than expected of prototypical affixes are widely reported (e.g., Nichols 1986: 84-86; Haspelmath 1993; Good & Yu 2000; Harris 2000; Comrie 2008: 137; Jenks & Rose 2015; Mansfield et al. 2020). However, the previous section argued that verbs co-occur with multiple grams more often than nouns, and this constitutes a crucial difference between the two domains. Specifically, since the presence of multiple grams is a prerequisite for different orders among them and furthermore increases the likelihood that the outermost grams are loosely attached and thus separable, the two parameters would appear to apply primarily in the verbal domain. This idea is summarized in Hypothesis 3.

Hypothesis 3:

*Wordhood issues in the verbal domain involve elements that are independent on the parameters of fixed order and cohesiveness more often than do wordhood issues of the nominal domain.*

Note that Hypothesis 3 is independent of Hypothesis 2. While both hypotheses predict that the degree of syntagmatic independence in the verbal domain exceeds the corresponding degree in the nominal domain, one could be confirmed while the other is disconfirmed. For instance, if Hypothesis 3 proved true, Hypothesis 2 would still be disproven if wordhood issues in the verbal domain involved a large number of grams that are dependent on the remaining parameters of morphological wordhood, non-selectivity and conventionalized
meaning, but independent on some (set of) parameter(s) of phonological wordhood. Conversely, Hypothesis 3 might be false even when Hypothesis 2 is confirmed due to a large number of verbal grams that are prosodically dependent but independent on the parameters of non-selectivity and conventionalized meaning. The relationship between these two hypotheses and the parameters of morphological wordhood they are based on will be treated in more detail in Chapter 8.

1.5 OUTLOOK

The design of this work is motivated by the idea that morphology is not a design feature or a language universal but rather emerges from the interaction of other forces and principles in the linguistic system, all of which are highly variable. The combinatorial possibilities this presents for morphological structure are therefore considerable (e.g., Harris 2008, 2010; Arkadiev & Klamer 2019: 453; Herce 2020: 55-56). Since the word is the primary domain of morphology (Blevins et al. 2016: 295), it stands to reason that no other linguistic unit lends itself less to firm generalizations than the word, which happens to tie in with the traditional conception of the lexicon as a repository of irregularities. However, while the lack of progress with regard to valid definitions of the word seems to support this view, the investigation of wordhood and deviations from it is not a futile endeavor.

This is because close interactions between different structural levels such as phonology, morphology, and syntax are not limited to the domain of the word and have been demonstrated on both the synchronic (e.g., Hilpert 2008; Riesberg et al. 2019: 541-546) and the diachronic dimension (e.g., Harris & Campbell 1995: 316-317; Croft 2000b: 33-37). Yet, while such interactions are neither easily detected nor explained, there is no reason to assume that they are random in nature. Hence, it is hoped here that by investigating a larger number of factors than has traditionally been the case in the literature on wordhood, and by using a more robust set of parameters as well as a more balanced database, patterns among wordhood issues will become apparent. Ideally, these patterns will make possible more refined definitions of wordhood in individual languages, which in turn might shed light on the

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24 It is important to emphasize that by “morphology,” one typically means bound morphology. To the extent that free morphemes (roots) count as morphology, every language would indeed have it. Note, however, that Hockett’s (1960: 90-92) design feature of “duality of patterning” only refers to the formation of roots, which is compatible with the view that bound morphology is an evolutionary embellishment.
general structure of – and the relationships among – the stored units and processes that speakers of all languages must make use of while communicating.

Chapter 2 will describe the language sample used for this study as well as the wordhood parameters that underlie the empirical analyses. Chapters 3 through 6 will deal with the data found in the domains of definiteness, case, indexation, and tense, respectively. These chapters are mostly descriptive in nature, and the theoretical analysis of the patterns found there is deferred to Chapters 7 and 8, which will investigate the (morpho)phonological and the (morpho)syntactic factors, respectively. Finally, the conclusion in Chapter 9 will formulate possible avenues for further research.
2. METHOD

2.0 PRELIMINARIES

Chapter 1 argued that wordhood issues derive from language- and construction-specific grammaticalization processes. Since the exact range and distribution of such issues is as yet unknown, the research required to arrive at a cross-linguistically representative database will be of an exploratory nature. Rijkhoff & Bakker (1998: 265) explicitly recommend a variety sample under such circumstances, which according to Croft (2000c: 342, 2017: 42-43) maximizes genealogical (i.e., historical) and geographical unrelatedness among the languages selected. By contrast, he describes an alternative type of sample, the probability sample, as one that controls for the frequency and interaction of the phenomena under investigation. As such, the latter reflects structural properties in the sample languages in proportion to their genealogical and/or areal distribution across the entire population (i.e., all known languages).¹ A probability sample thus presupposes more facts than are typically available in the case of exploratory research projects. Therefore, the present work will rely on a variety sample, and the majority of this chapter is dedicated to a description of the principles that led to its design.

Even though variety samples put a premium on genealogical and geographical balance, the question of how to weight those two parameters in the construction of any given language sample has not been resolved in a general fashion. For instance, in their study of phonological wordhood, Bickel et al. (2009: 72) find that it is the genealogical affiliation of a language that significantly determines the kind of prosodic domains the latter has. On the other hand, Dryer (2018: 802) concludes that geographically adjacent but genealogically unrelated languages are more likely to share the order of numeral and noun than are more geographically distant languages from the same family. While neither of these insights

¹ Yet other types of samples are random samples and convenience samples, both of which are usually characterized by a higher degree of genealogical and/or areal bias. Random samples are not controlled for either bias, and results based on such samples tend to be heavily skewed. However, random samples may make up for this disadvantage if they are sufficiently large and “accidentially” balance themselves out. Meanwhile, convenience samples are tailored to specific research needs and might be required in cases where the properties of interest are limited to genealogical or areal subsets of languages (e.g., absence of fricatives, presence of numeral classifiers). In the present work, the former bias has to be avoided because the sample will be comparatively small, and the latter bias can be prevented because the vast majority of languages have some way of expressing the grammatical categories at issue.
allows for predictions about other structural features, they do suggest that one should strive for a perfect balance between the two parameters in an exploratory project such as the present one.\(^2\) However, note that such a strict approach puts considerable constraints on the size of a variety sample. That is, since many language families are not sufficiently described, and no family should be represented multiple times in a sample when other families are not represented at all, the number of languages in a sample cannot exceed the number of families for which adequate descriptions exist. Furthermore, since all areas should be represented in equal measure, the least diverse and/or the least well documented area further reduces the ultimate sample size.\(^3\) In this work, I will subordinate all other factors that impact the design of cross-linguistic samples to the two goals of maximum genealogical and geographical balance. The precise effects this choice has on the size and make-up of the sample used here will be described in the following sub-sections.

Finally, it is of interest to consider where the present study falls within Himmelmann’s (2000) “typology of typologies.” He proposes a distinction between partial and holistic approaches to typology, where the latter axis refers to whether a construction is investigated in isolation or against the background of the respective linguistic system (“non-holistic” vs. “holistic”) and the former refers to whether the interest is in a single construction or in a relationship between constructions (“mono-constructional” vs. “cross-constructional”). Since this work focuses on four different types of grams, and Hypotheses 2 and 3 make predictions about how subsets of these grams pattern together, it qualifies as cross-constructional. It is also holistic in that Hypothesis 1 requires the analysis of these grams with respect to the morphophonological system of the relevant language. Himmelmann (2000: 8) argues that typological projects that combine the holistic approach with the cross-constructional one aim for an exploration of “the great underlying groundplans” of linguistic systems. While the present study will not attempt to analyze languages in their entirety, of course, the motivation for this formulation is of a piece with the sketch in 1.5, which suggested that the assumption of rigid divisions between linguistic levels is an impediment to understanding wordhood issues.

\(^2\) Obviously, Dryer’s (2018) finding is not only relevant for the separation of geographical areas from one another but also for the distribution of languages within individual geographical areas. Cf. 2.2.6 for a description of how this problem was dealt with in the present work.

\(^3\) Cf. 2.1.2 below for a discussion of this issue.
Section 2.1 is a description of some general parameters that influenced the construction of the sample, whereas 2.2 outlines and motivates the more specific criteria based on which the individual languages were selected. Section 2.3 lists the final sample and provides a discussion of actual and potential biases found therein. Finally, 2.4 provides a thorough discussion and illustration of the wordhood parameters that will be used to identify the wordhood issues of interest in this work. It will also outline the operationalization of fusion necessary to assess Hypothesis 2.

2.1 THE NATURE OF THE SAMPLE

In 2.1.1, I describe the geographical areas based on which the sample for the present study was constructed. In 2.1.2, I outline some further principles that shaped the sample, and in 2.1.3, I briefly discuss which types of languages are and are not included in the sample.

2.1.1 The definition of macro-areas

As mentioned above, areal factors are of crucial importance in the construction of cross-linguistic samples. For the purposes of linguistic sampling, languages are typically assigned to “macro-areas,” which in most cases coincide with continents. Despite this general principle, however, the exact number of macro-areas underlying any given sample differs depending on the researcher. Therefore, contemporary samples may be based on four macro-areas, as in the case of Vigus (2018), or on ten, as in Nichols (2017b). Meanwhile, the two most common typological resources, WALS and Glottolog (Hammarström et al. 2020), both divide the world into the same six macro-areas. These six areas, in turn, largely go back to Dryer (1992: 83-84), which is itself a modification of the division into five macro-areas proposed by Dryer (1989: 268). Table 2.1 sums up the differences between the three divisions. It shows clearly that all three models agree on the partitioning of Africa, Eurasia, and the Americas, and that the “problematic” area is the Malay Archipelago, the region extending from mainland East Asia to Australia. The cells indicating how the division of this area impacts the overall model are shaded in gray.
Table 2.1. Comparison of three macro-area divisions.

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<td>South America</td>
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<tr>
<td>Australia &amp; New Guinea</td>
<td>yes</td>
<td>yes</td>
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<td>Southeast Asia &amp; Oceania</td>
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<td>Australia</td>
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In Dryer (1989), Eurasia is by far the largest area, essentially stretching from Iceland to New Zealand (via Maori/Austronesian). This large area is broken up in Dryer (1992), where Southeast Asia constitutes a region of its own between Eurasia and Australia & New Guinea. In WALS and Glottolog, finally, New Guinea and Australia are split up, with Papunesia subsuming all the families found in New Guinea, including Austronesian. Several families other than Austronesian (e.g., Afro-Asiatic) also extend over more than one macro-area. However, Dryer (1989: 268) classifies all languages of those families into the macro-area in which the majority of the languages are spoken, and I will follow this procedure here. Hence, all Afro-Asiatic languages would be counted toward the macro-area of Africa, etc.

The problem that the two more recent divisions pose for the present project is that not all of the resulting regions yield a sufficient number of grammatical descriptions that meet the desiderata described in 2.2. For instance, the region defined as Southeast Asia contains languages from only five different families and not a single isolate (cf. Enfield & Comrie 2015: 7). This would mean that in the interest of equal representation of each area the sample size would be capped at thirty (six regions, each represented by five families; cf. 2.1.2 for elaboration). Intuitively, though, such a sample would be too small for the present project, and this is the reason why Dryer’s (1992) classification will not be adopted here. On

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4 Goddard (2005: ch. 2) divides the same area into seven families, but his division is based on a split of Sinitic and Tibeto-Burman, as well as on the inclusion of Japanese/Korean/Ainu. The split of the former two is not generally accepted, and both the areal and the genealogical classification of the latter trio is controversial. Hence, I will follow Enfield & Comrie’s (2015) analysis here.
the other hand, while Papunesia would yield a sufficient number of suitable descriptions, the macro-area of Australia (which would be necessitated by separating Papunesia) would not. That is, although the non-Pama-Nyungan languages of Australia are numerous and diverse, only a few of them have been described recently and in comprehensive fashion, and very few of them are vital (cf. 2.2 for these criteria). This, in turn, argues against the WALS/Glottolog model.

In light of these problems, I will use the original model proposed by Dryer (1989). Hence, Australia and New Guinea form a single area, which will be called “Oceania” throughout this work. To combine these two islands into a single macro-area seems justifiable given that they only became separate landmasses after being populated (cf. Dixon 2002: 7-8).\(^5\) Another consequence of following Dryer’s (1989) classification is that Austronesian is subsumed under Southeast Asia, the latter of which is itself part of Eurasia. While Dryer (1989) does not provide an exact geographical cut-off point between New Guinea and Eurasia, the languages to the (north)west of New Guinea are primarily from the Oceanic branch of Austronesian (Hammarström & Donohue 2014: 173-174) and therefore part of Eurasia in any case. Even though Eurasia is exceptionally large on Dryer’s (1989) classification, it is by no means more linguistically diverse than the other areas. Rather, it is home to several exceptionally large and expansive families such as Indo-European and Austronesian. Necessary details about the geographical boundaries of the different macro-areas will be given in 2.3.

\subsection*{2.1.2 Sample type and sample size}

The definition of the underlying macro-areas is only the first step in the process of generating a (variety) sample. Miestamo et al. (2016) provide a detailed discussion of the different types of variety sample conceivable, and here I will describe where the present sample falls with respect to their typology. The first type they propose is a “genus sample,” which contains exactly one language from each genus.\(^6\) Extrapolated to the entirety of the

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\(^5\) Note, however, that concrete linguistic evidence for relationships between languages of New Guinea and Australia is at best sparse (McGregor 2004: 2, 32; Koch 2014: 56-57).

\(^6\) Both Miestamo et al. (2016) and Dryer (1989, 1992) argue that genera rather than families are the main units to be diversified because the former are less controversial (due to their better reconstructability). However, by not using any family more than once, one automatically also diversifies the genera. Since this is the strategy chosen here, I will gloss over the difference between families and genera in most of what follows.
world’s languages, this would not only require a sample of several hundred languages, but it would of course also require the existence of sufficient descriptions for at least one language of every genus. Since the state of language documentation does not satisfy this prerequisite, a genus sample is a theoretical ideal rather than a practical option.

Once a genus sample is reduced to the languages and families for which satisfactory descriptions exist, one arrives at a “core sample.” A core sample would still necessitate the inclusion of every genus that is sufficiently documented, and hence it would usually contain a few hundred languages as well. Yet, since different geographical areas are documented to very different degrees, a pure core sample would most likely show a considerable areal bias. In order to control for this bias, Miestamo et al. (2016) suggest the creation of a “restricted sample,” in which each macro-area is represented by the same percentage of its genera. That is, if one finds sufficient descriptions for 30% of genera in the least extensively documented area, all other areas would also be represented by 30% of their genera. However, given that languages are unevenly distributed within individual macro-areas, this method would not protect against the inclusion of geographically adjacent languages that have (probably) been in contact with each other. This problem would be particularly acute if New Guinea were accepted as an area of its own, given that it is considerably smaller than the other macro-areas but no less linguistically diverse (cf. Miestamo et al. 2016: 271, 276; also Foley 2010). The final type of variety sample that Miestamo et al. (2016) discuss is an “extended sample,” which is a core sample plus a variable number of available languages added on. Put differently, in an extended sample, some genera would be represented more than once. The motivation for this strategy is not immediately relevant for this project, however, and I will not discuss it further here.

The four options mentioned above only refer to “bottom-up” samples; that is, the ultimate sample size will be whatever the method chosen happens to create. However, Miestamo et al. (2016) also suggest methods for arriving at samples with a predetermined number of languages (“top-down”). The first option here is a “primary sample,” which is essentially a restricted sample within the numerical boundaries that researchers set for themselves. Such a primary sample could then further be converted into an extended sample, as described above.

The variety sample I will use here does not correspond to exactly one of the types
summarized above. It is, of course, not a genus sample, and it cannot be a core sample because this would not control for areal bias. Furthermore, the exploratory nature and the holistic, cross-constructional interests of this work tend to lead to relatively small sample sizes in any case (Himmelmann 2000: 8; also Miestamo et al. 2016: 250). Instead, then, the sample for this study might be called a modified restricted sample. This is because, in contrast to the proposal by Miestamo et al. (2016), I do not control for intra-areal bias in terms of proportions but in terms of absolute frequencies. Hence, each of the five areas is represented by the same absolute number of languages. The reasoning, as suggested above, is that relative frequencies equate to high absolute numbers of languages in highly diverse macro-areas. The more languages are included from such areas, the higher the likelihood that any given language has been in contact with another one represented in the sample. Meanwhile, by balancing out the absolute number of languages per area, one is better able to choose languages spoken sufficiently far apart and thus to maintain the basic idea of a variety sample, namely, to maximize both genealogical and geographical diversity. Of course, in a smaller sample, the lower number of languages per area further lends itself to a more even geographical distribution, which suggests that the present work might manage to avoid areal biases better than larger projects.

The reason that the sample used for this work is not a primary sample is that it was not designed with a maximum number of languages in mind. Instead, as described above, the least diverse area determined the eventual sample size. For the purposes of this work, the diversity of a macro-area was determined by two factors: the genealogical classifications in WALS on the one hand, and the descriptive resources available on the other. Based on the WALS classifications, Africa shows a rather low degree of diversity, and what makes it even less diverse than Eurasia for practical purposes is that the number of available descriptions that meet the criteria in 2.2 is fairly low. Hence, Africa emerged as the least diverse macro-area and subsequently defined the eventual sample size. Specifically, I was able to find suitable grammatical descriptions for twelve unrelated African languages. This number could have been increased by including Uduk (Killian 2015) and Lumun (Smits 2017), but only at the price of having even more languages from greater (South) Sudan. As will be explained in 2.3.1, that part of Africa is already overrepresented in the sample, and this fact argued against the inclusion of further languages from that region. This was the only top-down correction
applied to an otherwise bottom-up strategy.

Finally, a comment with respect to Bangime is in order. This language is classified as an isolate in WALS, and it is not spoken in (South) Sudan. It would therefore have raised the number of unrelated African languages to thirteen if it had been included in the sample. However, I did not include it because Hantgan (2013: 37-41) suggests that it might be a secret language (cf. 2.1.3).\(^7\) Incidentally, Güldemann (2018: 193) discusses the idea that Bangime is the only isolate in Africa, and if so, this macro-area might be even less diverse than it is according to WALS, which classifies many more African languages as isolates.

Given the approach described above, the final sample consists of 60 languages (the twelve languages from Africa times five areas). These 60 languages belong to 60 different families, where each isolate constitutes a separate family. Note, however, that the question of how to treat isolates in typological samples is a matter of some controversy. While Rijkhoff & Bakker (1998: 290-292) caution that treating each isolate as a separate family may lead to their overrepresentation, Miestamo et al. (2016: 277) argue against the idea of subsuming all isolates under a single umbrella family. They also point out that isolates were underrepresented in previous samples (Miestamo et al. 2016: 243). Due to these conflicting points, I aimed for a middle ground by choosing one isolate from each macro-area. This criterion was relaxed in Africa (cf. 2.3) but applied in all other cases. Hence, there are seven isolates in the 60-language sample (three from Africa, and one each from the four remaining areas). This corresponds to a ratio of 11.7%, which is considerably below the worldwide ratios of 25% to 30% that Rijkhoff & Bakker (1998: 290-292) cite. This representation appears defensible, though, given that isolates are usually classified as such due to insufficient evidence of a genealogical relationship rather than due to the assumption that they actually have a unique origin.

### 2.1.3 Language types

Before I describe the criteria that determined the choice of the individual sample languages, I will follow a suggestion by Rijkhoff & Bakker (1998: 293) and briefly discuss which “special” language types were considered for inclusion in the sample. By “special

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\(^7\) In addition, Bangime is spoken in the other region of Africa that is arguably overrepresented in the sample, Mali/Burkina Faso. This fact would also have made it a questionable addition. Cf. 2.2.6 and 2.3 for details.
languages,” they mean all those linguistic systems that deviate from the ones typically found in typological samples. They argue that transparency on this parameter is crucial for the replicability of typological results, and this kind of transparency seems pertinent here because the population from which the sample is drawn is indeed only a subset of possible language types. Table 2.2 lists the “special language” types mentioned by Rijkhoff & Bakker (1998) and states whether these are represented in the present sample.

Table 2.2. Representation of “special language” types in the sample.

<table>
<thead>
<tr>
<th>Special language type</th>
<th>In the sample?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolates</td>
<td>yes</td>
</tr>
<tr>
<td>Mixed languages</td>
<td>yes</td>
</tr>
<tr>
<td>Extinct languages</td>
<td>yes</td>
</tr>
<tr>
<td>Pidgins and creoles</td>
<td>no</td>
</tr>
<tr>
<td>Signed languages</td>
<td>no</td>
</tr>
<tr>
<td>Secret languages</td>
<td>no</td>
</tr>
<tr>
<td>Artificial languages</td>
<td>no</td>
</tr>
<tr>
<td>Unclassified languages</td>
<td>NA</td>
</tr>
</tbody>
</table>

As mentioned in the preceding sub-section, there are seven isolates in the sample. This number may be too low or too high depending on methodological preferences and theoretical assumptions, but there are no good reasons for excluding them entirely. Rijkhoff & Bakker (1998) do not define what they mean by a “mixed” language, but some of the Amazonian languages in the sample are described as being part of dense contact networks, and they would presumably qualify as mixed on standard definitions. Although an attempt was made to include as many living languages as possible (cf. 2.2.5), the superordinate goals of areal and genealogical balance forced the inclusion of several moribund or even extinct languages. This issue is particularly salient in macro-areas where indigenous languages compete against English, i.e., in North America and Australia.

Pidgins were excluded for several reasons. On the one hand, they usually descend from well-known Indo-European languages, which were omitted from the sample on independent grounds (cf. 2.2.6). On the other hand, they are not spoken natively, which
crucially distinguishes them from the majority of languages. This lack of native speakers is of course due to the fact that they typically exist for only a short period of time before they go extinct or become creoles. As a consequence of this, pidgins that have not transitioned to the creole stage are rarely properly documented, which renders them ineligible for typological projects that rely on written descriptions. Meanwhile, creoles are the natural continuation of pidgins and crucially do have native speakers. Since they are more diachronically stable, they also lend themselves to thorough linguistic documentation. However, given that they have the same genealogical origins as pidgins, they were also excluded for the reason given above.

The issue of how spoken and signed languages can be adequately compared, and by extension, if and how they can be combined in the same cross-linguistic sample, has not been sufficiently discussed in the relevant literature (cf. also Evans 2020: 424). However, what is crucial to this work is the fact that signed languages are incompatible with the classificatory principles that underlie the present sample (cf. Zeshan & Palfreyman 2017: 180-181). I therefore considered it most prudent to leave out signed languages entirely. The same issues of classification also disqualify secret and artificial languages from inclusion in the sample. Furthermore, secret languages are typically restricted to specific communicative settings, whereas artificial languages might not even be designed for or used by humans. As such, both these “special” types lie outside the interests of the present work.

Finally, WALS was used as the source for all genealogical classifications, and every language in WALS is assigned to exactly one family. However, languages without demonstrated relatives are generally classified as isolate families in WALS, and this choice might obscure the existence of unclassified languages. Specifically, Campbell (2013: 167) highlights the difference between isolates on the one hand, for which the comparative method reveals that they cannot be related to any known languages, and unclassified languages on the other hand, for which there is an insufficient amount of data to apply the comparative method. Given this dichotomy, it is possible that languages classified as isolates in WALS are in fact unclassified. Yet, the crucial point for the design of the present sample is only that languages have not been shown to be related to each other, which largely negates the need for this distinction.

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8 In WALS, for instance, all signed languages are in the same family called “other.”
2.2 THE CONSTRUCTION OF THE SAMPLE

In the preceding section, I described how the criteria of genealogical and areal balance guided the sampling process. Yet, the final sample is also influenced by a variety of other factors, concerning both the kinds of languages and the types of grammatical descriptions considered. In this section, I will provide a detailed account of these additional factors. The criteria concerning descriptive materials largely take precedence over the language-related ones, and this is roughly reflected by the order in which they are discussed here. However, the factors interact in different ways, and no strict hierarchy between them can be established. Finally, while the choice between adequately documented languages was limited or non-existent in the case of many families and macro-areas, largely equivalent options were available in some cases. Therefore, if another researcher compiled a sample of the same size, according to the same principles, and with the same overall goals in mind, that sample should not greatly diverge from the one discussed below.

2.2.1 Comprehensiveness of description

Since the present project requires information on phonological, morphological, and syntactic properties, only languages for which comprehensive descriptions exist were considered. A comprehensive description in this sense essentially corresponds to a full reference grammar, and languages for which only (morpho)phonological or (morpho)syntactic descriptions exist were subsequently ineligible. Throughout the sampling process, I primarily relied on Glottolog for the retrieval of descriptive resources. As mentioned above, multiple grammars exist for a few languages, and in those cases I used one as the primary source and supplemented it with the other (usually less comprehensive) one. Further details of this process are provided in the next section. Finally, grammars including explicit information on the topic of wordhood were preferred, but since such information is only found in some descriptions and is usually not discussed with reference to individual grams, this factor hardly impacted the ultimate selection.

Note that a focus on comprehensive grammars may lead to the inclusion of “atypical” representatives of a given family or genus. For instance, English is a West Germanic language, but it diverges in many ways from typical West Germanic patterns (e.g., it does not
have separable “prefixes,” strong and weak adjectives, or V2 word order). However, English would nevertheless be an attractive option for many typological samples because it is exhaustively described. In light of this issue, Miestamo et al. (2016: 248-249) argue that the degree of typicality is irrelevant for (worldwide) sampling because the interest of the projects using such samples is not in illuminating the properties of any one family. Put differently, if the present study were interested in the properties of a specific family, or if the analysis crucially depended on those properties, a worldwide sample would not be an adequate database in the first place. Furthermore, the main reason why the properties of a language differ from those found elsewhere in its higher-level unit is sustained contact with languages from outside that unit. Hence, by attempting to control for contact influence, as done here (cf. 2.2.6), the inclusion of atypical members will largely be avoided in any case. Given these reasons, no additional efforts at finding typical members of any given family were made here.

2.2.2 Metalanguage of description

While usually not discussed in sections on methodology, the amount of literature that researchers can access is crucially constrained by the range of languages they have a sufficient reading knowledge of. Therefore, it should be pointed out for every study how metalanguages impacted the choice of the sources used. In the present case, the bias was toward descriptions written in English and German. However, since I also prioritize recent grammars (cf. 2.2.3), and most contemporary grammars are written in English, this restriction did not have a major influence on the design of the sample. In fact, only one of the sample languages is described in a German-language grammar (Reh 1985 on Krongo).

Traditionally, however, the languages of specific macro-areas have mainly been described in the respective socially dominant languages. Hence, many grammars of South American languages are written in Spanish or Portuguese, whereas the most thorough descriptions of many Eurasian and African languages are in Russian and French, respectively. Since the number of African languages played a crucial role with regard to the eventual sample size (cf. 2.1.2), it is instructive to see how the metalanguage criterion impacted their number. To the best of my knowledge, only one African language, Maba, was omitted from the present sample because the relevant description, Weiss (2009), is in French.
WALS classifies the language as part of the Maban family, which is not otherwise represented in the final sample, and its inclusion would thus have raised the number of African languages to thirteen. Given the sampling technique described above, the overall sample size would subsequently have increased to 65 (thirteen times five).

2.2.3 Recency of description

A further important constraint on the descriptions used for this project concerns their age. Specifically, an effort was made to find as many recent grammars as possible. The ultimate motivation for this restriction is that more recent grammars tend to adopt what has come to be called “Basic Linguistic Theory (BLT).” Dryer (2006: 207-212) characterizes this approach as one that primarily uses the concepts and terminology of traditional (roughly, pre-generative) grammar and modifies these only where strictly necessitated by empirical facts that have emerged in the meantime. Hence, this approach is conservative and makes BLT grammars more accessible than many grammars from the mid-20\textsuperscript{th} century, which were cast in short-lived theories that are now often opaque. Dryer (2006: 212) dates the advent of BLT as the primary descriptive framework to the early 1990s, and this is subsequently the beginning of the time range understood as “recent” here. The preference for grammars that are recent on this definition could be satisfied in the majority of cases. Specifically, only three grammars used here are from the 1980s (Krongo, Nisgha, Huallaga; cf. 2.3 for details), and the only grammar from the 1970s (Hewitt 1979 on Abkhaz) is complemented by a more recent grammar on the same language (Chirikba 2003). Finally, it is worth highlighting that the overlap between recency and the use of BLT is of course only approximate. That is, not all recent grammars follow BLT (and hardly any acknowledge it explicitly), while works such as Reh (1985) are essentially compatible with it even though they predate its official existence.

Note that Aikhenvald & Dixon (2017: 13) state that more recent grammars are not necessarily better than older ones. However, there is a suggestive correlation between recency and quality in that more recent grammars tend to be longer than older ones. Such an increase in bulk usually leads to broader coverage, or at least to more (transparent) exemplification, which in turn is at least a necessary condition for an increase in descriptive quality. Furthermore, most languages of the world have not been described more than once,
and thus typologists do not usually have a choice between older and newer descriptions of a given language in the first place. Finally, it must be emphasized that while BLT is a desirable standard for descriptive works, it does not render other theories redundant. Rather, BLT is uniquely suited to the presentation of novel data, but as Dryer (2006) points out, it cannot provide explanations for them, and functionalist explanations must instead resort to grammaticalization. This, of course, is precisely the approach followed in this work.

2.2.4 Publication of description

Most contemporary reference grammars are or derive from Ph.D. dissertations. Whenever there was a choice between an unpublished dissertation and a published version, I made an effort to use the latter. The reasoning is simply that the additional revisions and peer reviews that a published version has been subject to should improve the overall accuracy of the data and the quality of the presentation. Hence, while there is generally no reason to question or neglect the information in unpublished dissertations, there is a higher likelihood that any given part of the description in a published grammar is superior. Overall, I used unpublished grammars for 20 of the 60 sample languages (cf. 2.3 for details). In all but one case, the unpublished grammar is a dissertation; the one exception is the manuscript by Heath (2017) on Jalkunan, which had to be included in light of the comparatively limited diversity of African languages.

2.2.5 Language vitality

The above-mentioned criteria refer to the nature of the descriptive sources, but there are of course also certain desiderata in terms of the actual languages selected. One major goal in this regard was to choose as many living languages as possible. Even though this topic is not usually made explicit in typological studies, the vitality of languages is rather crucial for the notion of replicability. Specifically, claims made in (or on the basis of) a single grammar cannot be falsified once the relevant language has ceased to be spoken. Analyses based on (often minimal) information in a single source may then attain a level of authority that might simply be due to the fact that counterevidence can no longer be unearthed. Needless to say, the phenomenon of language death is so widespread and proceeds so rapidly that typological samples exclusively based on healthy, living languages would be severely unbalanced. Yet,
whenever there is a choice, one should opt for the inclusion of the healthier of two languages so that specific claims about the language are falsifiable at least in theory.

Determining exactly how many languages in the sample are moribund or extinct is difficult, both because definitions of these concepts vary, and because the information in the grammars may be obsolete. That is, a grammar published ten years ago is often based on data gathered twenty years ago, and the social situation described in the grammar may have shifted decisively in the meantime. However, as mentioned above, the situation of indigenous languages appears to be particularly dire in North America and Australia. In light of these facts, it does not seem exaggerated to suggest that perhaps half of the sample languages are no longer used in everyday communication among native speakers. This high share is, of course, partly brought about by the deliberate exclusion of “major” languages from the sample (cf. 2.2.6).

While there are thus undoubtedly extinct languages in the sample, an effort was made to exclude grammars whose primary data are not based on the author’s own fieldwork but were themselves taken from previous descriptions. This is because such an indirect approach typically has to deal with data that are difficult to interpret and perhaps also tainted by obsolete theoretical assumptions (cf. 2.2.3). This methodological principle therefore excludes descriptions such as those by Jany (2009) on Chimariko, Balodis (2011) on Yuki, and Walker (2020) on Southern Pomo, which would otherwise qualify on the criteria of comprehensiveness and recency. Yet another case concerns grammars that are based on primary fieldwork but were published after the last speakers had died. Relevant examples are Hill (2005) on Cupeño and Clendon (2014) on Worrorra. Given that virtually no indigenous Australian language is vital (whereas a few North American ones are), Worrorra was included in the sample, while better alternatives exist for Uto-Aztecan. Generally, the criteria of comprehensiveness and recency leave typologists with few choices in Australia, and the factor of language vitality therefore had to be relaxed considerably for that region.

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9 The most important issues in this area concern the distinctions between native and non-native as well as between active and passive competence. Several grammars mention that speakers with a passive or less-than-fluent active command of the language outnumber the fluent L1 speakers. Inclusion of the former group therefore leads to higher estimates of the size of the speech community and arguably keeps the language “alive” for longer than warranted.
2.2.6 Distribution of languages within macro-areas

It was pointed out in 2.1 that a typological sample should attempt to limit the languages that have been in contact with one another, and it was suggested that the most effective way to do so is to guarantee a wide geographical dispersion of the languages within each macro-area. While the existence of languages that are widely learned non-natively suggests that not all contact phenomena are necessarily due to geographical proximity (cf. also Blake 2001), the latter is arguably the most common cause overall and the only one whose potential effects were considered in the construction of the sample.

The main problem for intra-areal dispersion is that certain regions within the macro-areas are characterized by an above-average density of (unrelated) languages, whereas other regions are more genealogically uniform and/or sparsely populated. Nichols (1992, 1997) describes the former as “residual zones” or “accretion zones” and the latter as “spread zones.”

The following accretion zones are well-known and also became evident during the sampling process: the Caucasus and Himalayas in Eurasia; the island of New Guinea in Oceania; Amazonia in South America; the stretch from the Pacific Coast to the Continental Divide in North America, and, roughly, the Sahel in Africa. There is considerable evidence that accretion zones reflect historical movement patterns of human populations (cf. Nichols 1997: 368-375 for an overview). Hence, regions for which a large number of linguistic descriptions exist are usually not artifacts of infrastructural conditions that are conducive to fieldwork but rather reflect actual clusters of linguistic diversity. On such a view, “deconstructing” accretion zones for the purposes of sampling might somewhat undermine the typological goal of describing languages in all their facets. On the other hand, the

\[\text{Note that accretion zones do not necessarily constitute a “sprachbund” or “linguistic area,” i.e., a region in which genealogically unrelated but geographically contiguous languages show structural convergence (cf. Matisoff 2019). One of the best-known examples of this phenomenon is the Balkans, where Greek and Albanian as well as Slavic and Romance languages share several properties with each other that are not found elsewhere in their respective genera. By contrast, contact in accretion zones may be less systematic and profound, involving fewer languages and properties, etc.}\]

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\[\text{11 Most of the African languages for which I found suitable descriptions are spoken in or just south of the Sahel, the region that is itself just south of the Sahara. I will use the description “Sahel” for the sake of simplicity. For the purposes of this work, the Sahel includes (South) Sudan in the east and Mali/Burkina Faso in the west. The high degree of diversity that Güldemann (2008) describes for the “Macro-Sudan belt” suggests that that region is essentially the Sahel (cf. also Nichols 1993: 77), but according to the map in Güldemann (2011: 110), the Sahel is instead a combination of the Macro-Sudan belt and the region of “Chad-Ethiopia.” In any case, though, the fact that Güldemann (2008) also describes contact in the Macro-Sudan belt as widespread provides support for the above-mentioned decision to limit the number of languages from (South) Sudan at least to some extent.}\]
existence of accretion zones does not render languages spoken in spread zones any less relevant, and the latter also need to be accommodated in any sample.

The sampling process thus faces the following problem. Prioritizing intra-areal balance might require the neglect of potentially superior descriptions of languages from accretion zones, while a pursuit of maximum genealogical diversity cannot guard against the likely influence of contact within accretion zones. Ultimately, then, no attempt was made to eliminate accretion zone languages from the sample, and all the relevant zones mentioned above can be discerned in the final sample. Yet, in order to counterbalance their impact, a language from outside an accretion zone was preferred to one from inside it, other things being equal. This strategy had very different effects in the different macro-areas, though, primarily because the accretion zones make up different proportions of their respective macro-areas. For example, the territory of the Caucasus is negligible within Eurasia, whereas Amazonia – depending on the definition – may account for up to half of South America. Similarly, due to the small overall size of Oceania, even an island the size of New Guinea represents a major percentage of this macro-area. Given these factors, it is easier to find Eurasian languages not spoken in accretion zones than it is to find South American languages not spoken in accretion zones.

Even though the accretion zone of the Caucasus could have been avoided due to the overall size of Eurasia, the three families native to the Caucasus (Northwest Caucasian, Nakh-Daghestanian, Kartvelian) are nevertheless all represented in the present sample. The motivation for this seemingly unnecessary bias is that they can be considered part of Europe (cf. Daniel & Lander 2011: 125; Comrie 2017: 22), whose only other representative in the sample is Basque. Hence, the Caucasian languages perform a useful linking function between the two continents subsumed under Eurasia. Meanwhile, the reason that Europe proper is underrepresented in the sample is that it primarily consists of languages from the two families that form the core of “Standard Average European (SAE),” i.e., Indo-European and Uralic (cf. Haspelmath 1998: 273). SAE is characterized by many shared features that are rare elsewhere in the world (cf. Cysouw 2011; van der Auwera 2011: 292-299; Comrie 2016:

12 Note also that Nichols (2003: 306) describes the Caucasus as an accretion zone but states explicitly that it is not a linguistic area characterized by sustained contact and structural convergence. To the extent that this is true, the inclusion of all indigenous families from the Caucasus would not actually introduce a bias.
373), and since most (influential) linguists have been native speakers of an SAE language, its structure has unduly shaped linguistic thinking (Dahl 1990: 3). Upon this view, then, every linguistic theory comes with SAE languages baked in (cf. also Himmelmann 1997: 14-15), and to the extent that they are part of a cross-linguistic sample, they might “confirm” the very theoretical assumptions they informed in the first place. Given this threat of circularity, I did not include Indo-European or Uralic languages in the sample, and this constitutes the only deliberate bias therein. However, since Haspelmath (2001: 1493) mentions the possibility that Basque and Georgian are peripheral members of SAE, the latter might not be wholly absent from the sample after all.

Himmelmann (2000: 10-11) highlights that for the majority of languages in cross-linguistic studies, the database consists of spoken utterances as recorded in grammatical descriptions. However, the data for the “major” languages in such studies are often based on written standard varieties. He argues further that the spoken-written dichotomy cross-cuts areal and genealogical variety and that one might arrive at very different typological results if the same medium were used as the database for all sample languages. Since written standard languages are particularly common and influential in the SAE homeland, it seems advisable to omit those languages in the interest of greater data uniformity as well.

2.2.7 Previous use in typology

The preceding sub-section sketched the impact of SAE on typological theory. However, SAE languages are not the only ones that have disproportionately shaped certain ideas about linguistic structure. In the domain of Morphological Typology, for instance, there are languages that display a specific phenomenon in particularly clear-cut fashion and are therefore commonly exemplified in the literature. This holds for Vietnamese and Mandarin with regard to isolating and/or analytic morphology as well as for Turkish with respect to agglutination (cf. also Chapter 1). Similarly, non-concatenative morphology is usually illustrated with Arabic or Hebrew. As argued above, though, an empirical focus on the same narrow range of languages creates the potential for misrepresenting the true cross-linguistic frequencies of structural properties.

In response to this danger, the sample used here gives preference to languages that have played a less prominent role in previous works on (morphological) typology. So, while
the families to which the above-cited languages belong are all represented in the sample, the actual languages are not. For instance, instead of Vietnamese, the Austro-Asiatic language in the sample is Kharia, and the Sino-Tibetan member selected is Ao rather than Mandarin. However, this strategy was only applied if the previously outlined criteria allowed for it. Hence, due to the lack of material describing Kartvelian languages other than Georgian, the latter was selected even though it is by far the best-known member of the family and has had a profound influence on morphological theories (cf. Stewart 2016: 112-127).

2.2.8 No repeated authors

The final criterion that shaped the construction of the sample was the attempt not to use more than one grammar by the same author. The idea behind this principle is that every author focuses on certain phenomena at the expense of certain others and does so through the prism of specific theoretical assumptions (even within the framework of BLT). Hence, using more than one grammar by the same author would overrepresent that author’s approach and thus introduce a confound. This criterion had little impact on the eventual sample, however, because few authors write reference grammars on unrelated languages (and this is the only scenario in which the criterion applied). As it stands, two authors account for more than one grammar in the sample. The relevant cases are Hewitt (1979) on Abkhaz and Hewitt (1995) on Georgian, as well as Heath (1999) on Koyraboro Senni and Heath (2017) on Jalkunan. As mentioned above, I also use Chirikba (2003) for Abkhaz, but the relatively modest levels of diversity and documentation in Africa essentially required the inclusion of two grammars by the same author.

2.3 THE SAMPLE

This section will describe the final sample used for this study. Each of the five macro-areas will be discussed in a separate sub-section and conclude with a table listing the twelve languages chosen for that macro-area. Within each of these tables, the languages are sorted alphabetically by their ISO 639-3 code. These codes are based on Glottolog, which links each grammar to the specific variety it describes and thus allows for greater precision in this regard than WALS. However, the latter is the sole source for issues of language classification because it assigns each language to exactly one family and one genus, which lends itself to a
more straightforward representation below than the branching family trees given in Glottolog. While the classificatory systems used by WALS and Glottolog show some substantive differences, the former often employs a less conservative “lumper” approach, and languages analyzed as unrelated in such a system are thus particularly unlikely to share a historical ancestor. Note, finally, that the problems that have been pointed out with regard to the information contained in WALS (e.g., Bright 2007; Schulze 2007; Plank 2009; Dixon 2012: 461-462) primarily concern structural properties rather than the language classifications.

With regard to some of the languages in the sample, the relevant grammar posits a genealogical affiliation that differs from the corresponding classification in WALS. While such discrepancies only concern the name of the family/genus in some cases, other descriptions assign the language to a different genealogical unit altogether or even to a unit not found in WALS. In the interest of uniformity, I use the WALS classifications throughout this work and therefore ignore the classifications found in grammars when they differ from those in WALS. Meanwhile, in yet other cases, the sample language itself is not listed in WALS. However, based on the genealogical information provided in the relevant grammars and in Glottolog, all the languages at issue could straightforwardly be classified with respect to the families and genera found in WALS. The languages classified via this strategy are underlined in the tables below. In addition, I also underline those languages for which WALS only lists a variety whose ISO 639-3 code differs from the one of the variety actually used in the sample.

The leftmost column in each table below lists the name of the language as used by the respective grammar, while the reference to the relevant grammar is given in the rightmost column. In cases where I use two descriptions for one language, the one given first in the cell is the primary reference. The only modification I made to language names is the deletion of regional or genealogical modifiers. So, for instance, “East Dangla” is given as “Dangla,” and “Huallaga Quechua” is rendered as “Huallaga.”

The aim of this strategy is to single out an intermediate unit larger than a regional variety but not so large as to bear the same name as a regional or genealogical modifier. The name “Huallaga Quechua” is probably inspired by the long-standing uncertainty as to whether the branches of Quechuan are separate languages or dialects of the same language; cf. Adelaar & Muysken (2004: 168); Adelaar (2009: 891).
family or genus. Note that the use of the language names employed by the grammar, as well as my own alterations to those names, may obscure the identity of a language better known under another name. Relevant examples from the present sample are Lilooet, which is also commonly referred to as “St’át’imcets,” and Mapuche, which is often called “Mapudungun.”

In one case of a language for which two grammars are available, the authors do not use the same name for the language. In the relevant table below and throughout this dissertation, I will choose the name “Huave” instead of “Umbeyajts” because I will primarily rely on the grammar that uses the former name. However, that may be a poor choice for the reasons discussed in footnote 14.

In all tables, cells shaded in blue mark isolates, whereas cells shaded in gold identify unpublished descriptions. Relevant comments on the individual macro-areas and the languages representing them are provided in the corresponding sub-sections. Finally, a map showing the geographical locations of the 60 languages selected for this sample is provided in the Appendix at the end of this work.

2.3.1 Africa

The macro-area of Africa is coextensive with the continent of the same name and thus did not pose problems in terms of its geographical delineation. However, as mentioned throughout this chapter, the linguistic composition and the status of documentation in this macro-area present unique challenges (cf. also Brenzinger 2007: 179; Downing 2010: 394). One consequence of this is the rather high number of unpublished sources that had to be used. Furthermore, due to the aforementioned degree of relative diversity in the Sahel, there is a noticeable lack of intra-areal dispersion. While the major accretion zone in (South) Sudan and the smaller one in Mali/Burkina/Faso are sufficiently far apart from one another, each of these two zones is represented by more languages than would ideally be the case. In fact, only Dangla, Fwe, Sandawe, and Khwe are clearly spoken in regions other than those two zones (but Dangla, in Chad, is still part of the Sahel).

Meanwhile, the number of isolates in the African portion of the sample is no more

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14 The most common reason for this discrepancy is that more recent grammars usually employ language names that are the express preference of the speech community, whereas older descriptions often used non-native names that the speech community may consider derogatory and insulting.
than a side effect. Gumuz and Fur could have been left out in favor of Uduk and Lumun, neither of which is an isolate. This decision would have had no impact on the intra-area spread, though, because all four of the languages are spoken in the (South) Sudan region. Eventually, Fur was selected because of the availability of published grammars, while the benefit of the Gumuz grammar is that it treats two different varieties (only the northern variety has an ISO 639-3 code, and that is the one given below). This, in turn, holds the potential to observe grammaticalization in progress, which may shed light on the nature of wordhood issues found in one or both of the varieties. Since the overall number of isolates is within reason even after their inclusion (cf. 2.1.2), those factors ultimately outweighed the principle of using only one isolate per area.

The WALS classifications for Africa might diverge more strongly from alternative classifications than they do in the case of other macro-areas. This is because WALS largely follows a “splitter” approach in Africa and does not make use of higher-level “phyla” such as Nilo-Saharan or Khoisan. On the one hand, this approach is in line with Ringe & Eska (2013: 275), who do not consider Khoisan a valid family and who call the concept of Nilo-Saharan “unproved and controversial” (cf. also Sands 2009). On the other hand, however, these two phyla are commonly assumed by Africanists, and discussions of their structure and merits can be found in, for instance, Childs (2003: 30-31, 42-44), Dimmendaal (2011: 312-318, 324-325), and Güldemann (2018: 94-98, 235-258).

While the acceptance of such phyla would have implications for the genealogical relationships between many of the languages in Table 2.3, I will leave issues of reconstruction to the specialists and follow the WALS classifications instead. At this stage, it merely seems relevant to point out that Africa would be even less linguistically diverse if many of the languages classified as unrelated in WALS would instead be subsumed under Nilo-Saharan or Khoisan. Finally, it should be pointed out that WALS does not consistently use a splitter approach in the African macro-area. Specifically, it can be gleaned from the table below that WALS considers Niger-Congo a family and Bantu (Bantoid) a genus thereof. This differs from Campbell & Poser (2008: 162), who consider Bantu an “established and non-controversial” family but deem the proposal of Niger-Congo “inconclusive.” Crucially, though, this does not impact the status of Fwe, which is not related to another language on either approach.
### Table 2.3. Sample languages: Africa.

<table>
<thead>
<tr>
<th>Language</th>
<th>ISO 639-3</th>
<th>Family</th>
<th>Genus</th>
<th>Grammar(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jalkunan</td>
<td>bxl</td>
<td>Mande</td>
<td>Western</td>
<td>Mande, Heath (2017)</td>
</tr>
<tr>
<td>Dangla</td>
<td>daa</td>
<td>Afro-Asiatic</td>
<td>East Chadic</td>
<td>Shay (1999)</td>
</tr>
<tr>
<td>Tommo So</td>
<td>dto</td>
<td>Dogon</td>
<td>Dogon</td>
<td>McPherson (2013)</td>
</tr>
<tr>
<td>Fwe</td>
<td>fwe</td>
<td>Niger-Congo</td>
<td>Bantoid</td>
<td>Gunnink (2018)</td>
</tr>
<tr>
<td>Gumuz</td>
<td>guk</td>
<td>Gumuz</td>
<td>Gumuz</td>
<td>Ahland (2012)</td>
</tr>
<tr>
<td>Ik</td>
<td>ikx</td>
<td>Eastern</td>
<td>Kuliak</td>
<td>Schrock (2014)</td>
</tr>
<tr>
<td>Krongo</td>
<td>kgo</td>
<td>Kadu</td>
<td>Kadugli</td>
<td>Reh (1985)</td>
</tr>
<tr>
<td>Koyraboro</td>
<td>ses</td>
<td>Songhay</td>
<td>Songhay</td>
<td>Heath (1999)</td>
</tr>
<tr>
<td>Senni</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 2.3.2 Eurasia

The geography of the Eurasian macro-area was discussed in 2.1.1, and the omission of Indo-European and Uralic languages as well as the bias toward Caucasian languages was defended in 2.2.6. The Austronesian language selected for the sample, Kokota, is spoken on the Solomon Islands northeast of Australia and therefore within the vicinity of Savosavo, which was chosen as a representative of Oceania. The inclusion of Kokota thus serves to reflect the dimensions of Eurasia, whose western endpoint in the present sample is marked by Basque in Spain and whose eastern terminus is in the South Pacific. Whether Eurasia so
defined is a coherent sub-division of the world’s landmass is certainly debatable, but the assumption of this macro-area is justifiable here in that it is arguably characterized by an above-average number of spread zones and thus a below-average degree of linguistic diversity (cf. 2.1.1).

The remaining Eurasian languages include all five families that are part of the Southeast Asian macro-area as defined by Dryer (1992): Austro-Asiatic, Austronesian, Tai-Kadai, Hmong-Mien, and Sino-Tibetan. Hence, if this area were considered a valid and important one in its own right, some conclusions about it could be drawn from the present sample as well. Meanwhile, India is possibly overrepresented in the sample given the inclusion of Ao, Kharia, and Kurumba. Yet, apart from this partial bias, the extraordinary size of Eurasia – and the extraordinary documentation of its languages – not only allows for a good intra-areal dispersion but actually leads to considerable areal gaps, especially in Siberia.

Finally, it should be emphasized that Basque is not easily identifiable as an isolate in WALS, which lists twelve separate varieties that are all subsumed under the label of “Basque.” The WALS authors remain non-committal as to whether this variation licenses the classification of Basque as an isolate,15 a position also taken by Friedman & Joseph (2017: 60 fn. 13) and Campbell (2018: 3-4). However, the different varieties are essentially mutually intelligible (Hualde 2003a: 4), and Hualde (2003a: 13) therefore explicitly states that Basque is an isolate. This generally appears to be the majority view (cf. Trask 1995: 65), and since the WALS classification does not explicitly contradict it, I will consider Basque an isolate for the purposes of this work.

Table 2.4. Sample languages: Eurasia.

<table>
<thead>
<tr>
<th>Language</th>
<th>ISO 639-3</th>
<th>Family</th>
<th>Genus</th>
<th>Grammar(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chukchi</td>
<td>ckt</td>
<td>Chukotko-Kamchatkan</td>
<td>Northern Chukotko-Kamchatkan</td>
<td>Dunn (1999)</td>
</tr>
</tbody>
</table>

15 Their discussion is not in a citable section of the online edition of WALS, but it can be found here: https://wals.info/languoid/genealogy (last access: April 2, 2019).
<table>
<thead>
<tr>
<th>Language</th>
<th>ISO 639-3</th>
<th>Family</th>
<th>Genus</th>
<th>Grammar(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basque</td>
<td>eus</td>
<td>Basque</td>
<td>Basque</td>
<td>Hualde &amp; Ortiz de Urbina (eds.) (2003)</td>
</tr>
<tr>
<td>Evenki</td>
<td>evn</td>
<td>Altaic</td>
<td>Tungusic</td>
<td>Nedjalkov (1997), Bulatova &amp; Grenoble (1999)</td>
</tr>
<tr>
<td>Hinuq</td>
<td>gin</td>
<td>Nakh-Daghestanian</td>
<td>Avar-Andic-Tsezic</td>
<td>Forker (2013)</td>
</tr>
<tr>
<td>Kharia</td>
<td>khr</td>
<td>Austro-Asiatic</td>
<td>Munda</td>
<td>Peterson (2011a)</td>
</tr>
<tr>
<td>Kokota</td>
<td>kkk</td>
<td>Austronesian</td>
<td>Oceanic</td>
<td>Palmer (2009)</td>
</tr>
<tr>
<td>Lao</td>
<td>lao</td>
<td>Tai-Kadai</td>
<td>Kam-Tai</td>
<td>Enfield (2007)</td>
</tr>
<tr>
<td>Ao</td>
<td>njo</td>
<td>Sino-Tibetan</td>
<td>Kuki-Chin</td>
<td>Coupe (2007)</td>
</tr>
<tr>
<td>Kurumba</td>
<td>xub</td>
<td>Dravidian</td>
<td>Southern Dravidian</td>
<td>Coupe (2007)</td>
</tr>
</tbody>
</table>

### 2.3.3 North America

Dryer (1989: 268) states that the boundary between North and South America is “roughly in Honduras,” and he explicitly subsumes families mostly spoken in Mesoamerica, like Uto-Aztecan and Mayan, under North America. Since no languages in the sample are spoken in Honduras (or neighboring El Salvador), the division of the American languages into the two different macro-areas is unambiguous. The intra-areal spread in North America is clearly better than in Africa but arguably worse than in Eurasia. Specifically, while the distribution from north to south is relatively even, only Onondaga and Creek are at all spoken in the eastern half of the continent. This, of course, is essentially a reflection of the fact that the Pacific coast is a single continuous accretion zone.

The nature of the descriptions available for North American languages complicated the sampling process in several ways. For instance, while Miyaoka’s (2012) grammar on Central Alaskan Yupik is exceptionally comprehensive, it is marred by an unconventional framework and use of terminology. Furthermore, Yupik is rather well represented in morphological theory and typology, and therefore the criterion outlined in 2.2.7 argued
against its inclusion. The grammar of the Eskimo-Aleut language that was chosen instead, Lanz (2010) on Iñupiaq, is less extensive but more readily interpretable, and it also contains a detailed discussion of wordhood. With respect to Na-Dene, Rice (1989) on Slave is also characterized by an extraordinary breadth of coverage, but it is considerably older than Holton (2000) and crucially predates the “recent” time period as defined in 2.2.3. Finally, a choice also needed to be made with regard to Uto-Aztecan. Hill (2005) on Cupeño was discarded because the language is extinct (cf. 2.2.5), and while Caballero (2008) on Choguita Rarámuri touches on many of the areas of interest to the present project, it does not cover nominal morphology in sufficient detail. Therefore, Ute was ultimately selected as the representative of this family even though Givón’s (2011) discussion of suprasegmental phonology is rather brief.

Yaitepec, the Oto-Manguean language selected for the sample, is a member of the Eastern Chatino cluster, which itself is one branch of “Chatino,” alongside Zenzontepec and Tataltepec (cf. Campbell 2013, 2014; McIntosh 2015: ch. 1; Sullivant 2015). Despite the shared label, however, these linguistic systems are not varieties of a single language, and Villard (2015: 17) states that mutual intelligibility does not even hold between the different constituents of Eastern Chatino. Given this situation, I will rely exclusively on the Yaitepec grammar by Rasch (2002), whose detailed description of nominal morphology renders it more appropriate for the present project than the other Chatino grammars mentioned above.

As in the case of the Eurasian isolate Basque, the dialectal differences within Huave are significant (cf. Kim 2008: 3). However, according to Heaton (2018: 231), the consensus is to consider Huave a single language, which justifies the isolate analysis in the table below. Finally, as in the case of Niger-Congo addressed above, WALS also assumes certain contested higher-level phyla in North America, specifically Hokan and Penutian (cf. Hinton 2007: 444; Rice 2010: 185). As mentioned above, though, a discussion of the underlying issues is beyond the purview of this work, and I will simply follow the WALS classifications here. Critical, in-depth treatments of Hokan and Penutian are provided by Campbell (1997: 290-305, 309-322) and Golla (2011: 82-127, 128-168).

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16 WALS only lists the San Mateo del Mar variety under its Huavean family, which makes Huave appear like a straightforward isolate. However, since no other varieties (or languages) belonging to this family are listed in the database, this is not a definitive classification.
Table 2.5. Sample languages: North America.

<table>
<thead>
<tr>
<th>Language</th>
<th>ISO 639-3</th>
<th>Family</th>
<th>Genus</th>
<th>Grammar(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arapaho</td>
<td>arp</td>
<td>Algic</td>
<td>Algonquian</td>
<td>Cowell and Moss (2008)</td>
</tr>
<tr>
<td>Yaitepec</td>
<td>ctp</td>
<td>Oto-</td>
<td>Zapotican</td>
<td>Rasch (2002)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manguean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tiipay</td>
<td>dih</td>
<td>Hokan</td>
<td>Yuman</td>
<td>Miller (2001)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aleut</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Huave</td>
<td>hue/hve</td>
<td>Huavean</td>
<td>Huavean</td>
<td>Kim (2008), Salminen (2016)</td>
</tr>
<tr>
<td>Itzaj</td>
<td>itz</td>
<td>Mayan</td>
<td>Mayan</td>
<td>Hofling &amp; Tesucón (2000)</td>
</tr>
<tr>
<td>Lillooet</td>
<td>lil</td>
<td>Salishan</td>
<td>Interior Salish</td>
<td>van Eijk (1997)</td>
</tr>
<tr>
<td>Creek</td>
<td>mus</td>
<td>Muskogean</td>
<td>Muskogean</td>
<td>Martin (2011)</td>
</tr>
<tr>
<td>Nisgha</td>
<td>ncg</td>
<td>Penutian</td>
<td>Tsimshianic</td>
<td>Tarpent (1989)</td>
</tr>
<tr>
<td>Onondaga</td>
<td>ono</td>
<td>Iroquoian</td>
<td>Northern</td>
<td>Woodbury (2018)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Iroquoian</td>
<td></td>
</tr>
<tr>
<td>Tanacross</td>
<td>tcb</td>
<td>Na-Dene</td>
<td>Athapaskan</td>
<td>Holton (2000)</td>
</tr>
<tr>
<td>Ute</td>
<td>ute</td>
<td>Uto-Aztec</td>
<td>Numic</td>
<td>Givón (2011)</td>
</tr>
</tbody>
</table>

2.3.4 Oceania

The location of the boundary between Oceania and Eurasia was discussed in 2.1.1, as was the fact that there are considerably more descriptions of languages from New Guinea that meet the criteria in 2.2 than there are corresponding descriptions of Australian languages. Overall, six of the languages in this portion of the sample are from New Guinea, while five are from Australia, and Savosavo is from the Solomon Islands. Since the southernmost seven eighths of Australia – and thus the majority of the total macro-area – are exclusively covered by the Pama-Nyungan family (cf. Koch & Nordlinger 2014: 4), the Australian languages are primarily from the northern part of the country. In fact, even the Pama-Nyungan language selected, Wanyjirra, is from the north, which is ultimately due to the fact that the northern languages are relatively more vital and more thoroughly
documented (cf. Evans 2007: 345; Walsh 2007: 221). An areal bias is also found within New Guinea in that most of the Papuan languages in the sample are from the eastern half of the island, which roughly corresponds to the country of Papua New Guinea. Finally, while Glottolog lists Yangman, Dagoman, and Wardaman as Yangmanic languages, all three were apparently mutually intelligible (Merlan 1994: 2). Hence, the isolate analysis that WALS suggests for Wardaman seems appropriate.

Earlier typological studies commonly pointed out that New Guinea and South America are linguistically underexplored (e.g., Bell 1978: 147; Dahl 1985: 43; Nichols 1992: 26, 34), and those areas subsequently tended to be underrepresented in cross-linguistic research as well (cf. also Bybee & Easterday 2019: 291). Obviously, linguistic documentation in those two regions has improved considerably in the meantime, and they are arguably the most active areas for fieldwork today. While this is a positive development overall, these regions are home to two of the world’s densest accretion zones, and the extent to which one can incorporate the newly documented languages into typological samples thus depends in large part on how one weights the criteria of intra-areal distribution and language contact (cf. also 2.3.5).

<table>
<thead>
<tr>
<th>Table 2.6. Sample languages: Oceania.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Language</strong></td>
</tr>
<tr>
<td>Maybrat</td>
</tr>
<tr>
<td>Bardi</td>
</tr>
<tr>
<td>Wanyjirra</td>
</tr>
<tr>
<td>Kayardild</td>
</tr>
<tr>
<td>Manambu</td>
</tr>
<tr>
<td>Savosavo</td>
</tr>
<tr>
<td>Komnzo</td>
</tr>
</tbody>
</table>
### 2.3.5 South America

The Chibchan languages of Central America are spoken south of Honduras and generally count toward the South American macro-area because that is where the majority of the family members are spoken (Dryer 1989: 268). The relevant language here is Guna from Panama, whose location makes it one of the few South American languages in the sample that is clearly not spoken in the vast (and variously defined) region of Amazonia. The other language meeting this criterion is Mapuche, while Awa Pit, Panare, and Huallaga are perhaps borderline cases. Apinajé is still part of Amazonia but is spoken much further to the east than the other Amazonian languages. With the notable exception of Mapuche, then, it is primarily the southern half of the continent (largely the “Southern Cone” region comprising Chile, Argentina, and Uruguay) that is underdocumented and suffers from a lack of language vitality (cf. Aguilera 2007: 206; Campbell & Grondona 2012: 628-630). Finally, the fact that WALS classifies Mapuche as an isolate seems justifiable because the other language that Glottolog lists for the Araucanian family, Huilliche, is an Argentinian variety of Mapuche (Campbell 1997: 193; but cf. Seifart & Hammarström 2018: 276 for an opposing view).

Epps (2008: ch. 1) mentions that Hup has been in contact with members of the Tucanoan family, and it must therefore be assumed that this contact has caused structural similarities between the sample languages Hup and Kotiria. Similarly, Vallejos (2016: ch. 1) discusses the interaction between Kukama-Kukamiria and neighboring Quechuan, the latter of which is also represented in this sample. Such networks of language contact are common in Amazonia, and the structural effects they have greatly complicate the reconstruction of South American language families (cf. Aikhenvald 2007b: 183-184). Yet, given that the South American portion of the sample could not omit the Amazonian accretion zone or avoid

<table>
<thead>
<tr>
<th>Language</th>
<th>ISO 639-3</th>
<th>Family</th>
<th>Genus</th>
<th>Grammar(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worrora</td>
<td>wro</td>
<td>Worroran</td>
<td>Worroran</td>
<td>Clendon (2014)</td>
</tr>
<tr>
<td>Wardaman</td>
<td>wrr</td>
<td>Yangmanic</td>
<td>Yangmanic</td>
<td>Merlan (1994)</td>
</tr>
<tr>
<td>Yimas</td>
<td>yee</td>
<td>Lower Sepik-Ramu</td>
<td>Lower Sepik</td>
<td>Foley (1991)</td>
</tr>
<tr>
<td>Yeri</td>
<td>yev</td>
<td>Torricelli</td>
<td>Wapei-Palei</td>
<td>Wilson (2017)</td>
</tr>
</tbody>
</table>
the open questions surrounding it, grammars for this macro-area were primarily selected on the basis of their comprehensiveness and recency. These criteria clashed in the case of Quechuan. That is, while Shimelman (2017) is a recent grammar of Yauyos, it contains almost no information on phonology and was therefore rejected in favor of the older grammar on Huallaga.

Table 2.7. Sample languages: South America.

<table>
<thead>
<tr>
<th>Language</th>
<th>ISO 639-3</th>
<th>Family</th>
<th>Genus</th>
<th>Grammar(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apinajé</td>
<td>apn</td>
<td>Macro-Ge</td>
<td>Ge-Kaingang</td>
<td>Oliveira (2005)</td>
</tr>
<tr>
<td>Apurinã</td>
<td>apu</td>
<td>Arawakan</td>
<td>Purus</td>
<td>Facundes (2000)</td>
</tr>
<tr>
<td>Mapuche</td>
<td>arn</td>
<td>Araucanian</td>
<td>Araucanian</td>
<td>Smeets (2008)</td>
</tr>
<tr>
<td>Cavineña</td>
<td>cav</td>
<td>Tacanan</td>
<td>Tacanan</td>
<td>Guillaume (2008)</td>
</tr>
<tr>
<td>Kukama-Kukamiria</td>
<td>cod</td>
<td>Tupian</td>
<td>Tucanoan</td>
<td>Vallejos (2016)</td>
</tr>
<tr>
<td>Guna</td>
<td>cuk</td>
<td>Chibchan</td>
<td>Kuna</td>
<td>Smith (2014)</td>
</tr>
<tr>
<td>Kotiria</td>
<td>gvc</td>
<td>Tucanoan</td>
<td>Tucanoan</td>
<td>Stenzel (2013)</td>
</tr>
<tr>
<td>Hup</td>
<td>jup</td>
<td>Nadahup</td>
<td>Nadahup</td>
<td>Epps (2008)</td>
</tr>
<tr>
<td>Awa Pit</td>
<td>kwi</td>
<td>Barbacoan</td>
<td>Barbacoan</td>
<td>Curnow (1997)</td>
</tr>
<tr>
<td>Panare</td>
<td>pbh</td>
<td>Cariban</td>
<td>Cariban</td>
<td>Payne &amp; Payne (2013)</td>
</tr>
<tr>
<td>Huallaga</td>
<td>qvh</td>
<td>Quechuan</td>
<td>Quechuan</td>
<td>Weber (1989)</td>
</tr>
</tbody>
</table>

2.4 WORDHOOD PARAMETERS

In this section, I discuss the wordhood parameters that form the basis for the analyses of the wordhood issues in the following four chapters. While many different wordhood parameters have been suggested in the literature, the present study will be based on four parameters for the phonological word and four parameters for the morphological word. This restriction primarily derives from two facts. First, many of the parameters suggested elsewhere are language-specific and thus cannot be applied to a cross-linguistic database, and second, many parameters rely on detailed information about phenomena that are rarely discussed in reference grammars. Ultimately, then, the parameters chosen for this study are geared toward the identification of a large number of wordhood issues while crucially
retaining cross-linguistic comparability.

The eight wordhood parameters that will be used in this study include all six proposed by Dixon & Aikhenvald (2003), as discussed in 1.0. Detailed operationalizations of those parameters will be given below. The two remaining parameters concern the concepts of free occurrence and non-selectivity, based on Haspelmath (2011). The latter parameter refers to the idea that prototypical affixes are selective in that they are limited to a single word class, whereas prototypical clitics resemble morphological words in that they are non-selective, i.e., capable of co-occurring with several word classes. A relevant example of the latter phenomenon is the English possessive marker ‘s, which typically follows nouns (e.g., *the boy’s book*) but may also follow members of other word classes that can occur NP-finally, such as stranded prepositions (e.g., *the boy I told you about’s book*). Since the possessive gram is prosodically dependent in the same way that the homophonous English plural marker is, a lack of differentiation with regard to their respective degrees of selectivity might lead to an analysis on which both elements are affixes and neither poses a wordhood issue. Instead, the parameter of non-selectivity reveals that the possessive is a clitic while the plural marker, which exclusively follows nouns and is thus selective, is a straightforward suffix.

The next four chapters will show that the parameter of non-selectivity accounts for a large share of wordhood issues in the present database. However, the role it plays in the domain of wordhood is complicated by the fact that there is no consensus on how to define word classes (cf. Croft 2001: ch. 2). Specifically, the criteria used to posit word classes in any given language, and subsequently also the word class inventories claimed to exist in individual languages, differ greatly. One potential implication for the present study is that the parameter of non-selectivity might apply less frequently in languages argued to have few distinct word classes than it might in languages for which a larger inventory is assumed. In any case, the following four chapters will predominantly follow the word class analyses posited in the respective descriptions, and in cases where a language-specific treatment of word classes poses problems for a given wordhood issue, these will be outlined in the relevant sub-sections. A general discussion of the theoretical implications that word classes and their methodological underpinnings have for the notions of wordhood and wordhood issues will be provided in Chapter 8.

Where non-selectivity aims at the distinction between affixes and clitics, the notion of
free occurrence is supposed to identify free words as compared to bound elements. Specifically, this parameter is based on the assumption that words can be uttered in isolation (including elliptical contexts), whereas this is not possible for elements below the word level. Haspelmath (2011: 39-40) argues that this parameter fails to single out words, however, because the same communicative restriction also holds for otherwise free function words such as (English) determiners and adpositions. While his interpretation of this notion is thus grounded in morphosyntax, the original discussion in Bloomfield (1933 [1984]: 181) also mentions this concept in the discussion of phonological words (cf. also Bybee 2001: 30). Therefore, I will treat “free occurrence” as a parameter of phonological wordhood for the purposes of this study. Finally, it should be noted that even though this concept is sufficiently general to be applicable in every language, few grammars discuss it explicitly (cf. also Haspelmath 2011: 40). This fact explains why free occurrence, unlike non-selectivity, is not frequently involved in the wordhood issues discussed below, which in turn de-emphasizes the question of whether this parameter properly applies to the phonological or the morphological word.

Table 2.8 lists the eight wordhood parameters underlying this work, including concise summaries. The parameters not yet addressed above will be illustrated and defined more thoroughly below.

**Table 2.8. Summary of wordhood parameters.**

<table>
<thead>
<tr>
<th>Phonological word</th>
<th>Morphological word</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Free occurrence</strong>: A word constitutes a well-formed utterance</td>
<td><strong>Cohesiveness</strong>: The constituent elements of a word always occur together</td>
</tr>
<tr>
<td><strong>Segmental structure</strong>: The word is the domain of phonotactic constraints; the word has a minimum weight</td>
<td><strong>Conventionalized meaning</strong>: The word is the smallest psychologically real sign for native speakers</td>
</tr>
<tr>
<td><strong>Prosodic features</strong>: The word is the domain of stress/tone assignment and vowel harmony</td>
<td><strong>Fixed order</strong>: The relative position of each morphological unit within a word is fixed</td>
</tr>
<tr>
<td><strong>Phonological rules</strong>: The word is the domain of allomorphy and allophony</td>
<td><strong>Non-selectivity</strong>: Words can co-occur with different word classes</td>
</tr>
</tbody>
</table>
As mentioned in 1.0, the parameter of conventionalized meaning invokes the idea that non-linguists can often identify words in their native language(s) but cannot necessarily do so with regard to lower-level units such as bound morphemes (Dixon & Aikhenvald 2003: 20). This parameter is included here because the concept of psychological reality can be applied to all languages and speakers in principle. However, it is rarely explicitly discussed in grammatical descriptions, and the parameter of conventionalized meaning thus resembles free occurrence in that it is rather infrequently involved in the wordhood issues analyzed below.

The remaining two parameters of the morphological word, fixed order and cohesiveness, are at the heart of Hypothesis 3. The former is most clearly involved in the case of elements that always have to occur with a stem from a single word class but are not limited to a single slot within the template of the relevant stem type. Hence, while such elements behave like affixes on the parameters of non-selectivity and cohesiveness, the syntagmatic freedom they have within the template is atypical of bound elements. A factor that is often neglected in the discussion of such elements and/or the wordhood parameter of fixed order is that different orders of word-internal elements may have different semantic implications. Specifically, two word forms that are only distinguished by the order of their internal constituents may either have different meanings or be semantically equivalent (cf. Rice 2011: 185-188; Mansfield et al. 2020). The following example from Chichewa shows a minimal pair of the former kind.

\[(2.1) \hspace{1cm} \text{(a) mang-its-an} \hspace{1cm} \text{(b) mang-an-its} \]

\[
\begin{align*}
\text{tie-CAUS-RECP} & \hspace{1cm} \text{tie-RECP-CAUS} \\
\text{‘cause each other to tie’} & \hspace{1cm} \text{‘cause to tie each other’}
\end{align*}
\]

(Hyman 2003: 247)

Meanwhile, Chintang is a language in which elements within the verbal template can occur in different orders without causing a semantic difference. The following examples only illustrate a subset of this pattern.
(2.2) u-kha-ma-cop-yokt-e
3NSG-1NSG-NEG-see-NEG-PST
‘They didn’t see us.’ (Bickel et al. 2007: 44)

(2.3) u-ma-kha-cop-yokt-e
3NSG-NEG-1NSG-see-NEG-PST
‘They didn’t see us.’ (Bickel et al. 2007: 44)

For the purposes of this work, the parameter of fixed order will only be considered violated in the case of pairs such as (2.2) and (2.3), and the relevant elements will be called “mobile affixes” throughout this study (cf. Cinque 2001). That is, in order to posit a wordhood issue based on the parameter of fixed order, the relevant strings have to be semantically identical (cf. Dixon & Aikhenvald 2003: 20). Since the two sequences in (2.1) not only differ in their internal order but also in their meaning, they cannot be argued to be the same word and thus do not constitute a wordhood issue.\(^{17}\) Note that on the definition suggested here, an element such as the separable German “prefix” discussed in 1.0 would not bear on the parameter of fixed order because it does not necessarily occur within the verbal template. However, the discussion of this element in 1.0 is based on Dixon & Aikhenvald’s (2003) definition, which does not appear to contain the same strict condition and thus also seems to apply to elements that fall within a morphological template in only a subset of constructions.

The parameter of cohesiveness as defined here primarily targets synchronic variation in the placement of grams. One instance where this parameter comes into play concerns elements that may occur on all members of a conjoined sequence or on only one member, again without causing a semantic difference. A well-known instance of such a structure is the Spanish adverbializer shown in the example below.

(2.4) Hablaron lentamente grave-mente
speak-3PL.PST slow and grave-ADV
‘They spoke slowly and gravely.’ (Bradley & Mackenzie 2004: 64)

\(^{17}\) More generally, one could argue that different forms usually correlate with different meanings and that a default arrangement, by definition, cannot be the foundation of an anomaly (such as a wordhood issue).
As the translation suggests, the adverbializer is part of the meaning of lenta even though it is not part of its form. Since Bradley & Mackenzie (2004: 64) state that the construction in (2.4) is restricted to formal registers and they describe -mente as a suffix, the latter would presumably be marked on both lenta and grave in less formal registers. On that approach, then, the sequence y grave “splits” the suffixed word lentamente, which is subsequently not cohesive. Since sociolinguistic details are not reliably provided in reference grammars, the present work will simply invoke the parameter of cohesiveness whenever the structural variation evidenced in the above example is found. Crucially, grams with the distribution of -mente would not be captured by the parameter of non-selectivity because coordinated elements typically belong to the same word class. Furthermore, in light of the fact that -mente would follow lenta in either construction, and given that lenta does not form a single morphological template with y or grave, wordhood issues of this type also do not fall within the domain of fixed order. Hence, on the definitions provided here, all parameters of morphological wordhood are logically independent in that they account for different phenomena. Note that in this work, elements with the distribution of -mente will be referred to by the term “suspended affixes,” which has been used for equivalent constructions in Turkish (cf. Lewis 1967: 35; Orgun 1995; Kabak 2007). Finally, the parameters of cohesiveness and fixed order will be further discussed in the evaluation of Hypothesis 3 in 8.1, and the status and distribution of all the parameters of morphological wordhood will be addressed in 8.2.

In 1.0, the separable “prefixes” in German were argued to bear on the parameter of cohesiveness as defined by Dixon & Aikhenvald (2003). Yet, on the definition proposed here, this analysis would no longer apply because those elements are not limited in terms of the word classes they co-occur with. Whether they truly pose a wordhood issue would thus at least hinge on a consideration of the prosodic parameters, and a similar conclusion also applies to the preverbal grams in Chintang shown above. That is, the fact that the latter can be freely ordered would theoretically be compatible with function word status, and if they are not dependent on any of the remaining parameters, they would not constitute a wordhood issue. However, since grammars do not describe the behavior of any given element with respect to the exact set of parameters in Table 2.8, a methodological workaround for the
empirical analyses below is required. Specifically, I will assume here that elements described as words or affixes show the respective properties suggested by those labels unless stated otherwise. Hence, if an item is described as a word but shown to be prosodically dependent on one parameter, it will be assumed that it is prosodically independent on all other parameters even when its behavior with regard to those parameters is not explicitly discussed or exemplified. Conversely, if an item is not confined to a single templatic slot but described as an affix, it will be assumed that it is dependent on all other parameters even when this is not illustrated. While this will inevitably make many wordhood issues look less complex than they are, a study relying on explicit information on all of the above parameters would result in a negligible database.

Dixon & Aikhenvald (2003: 18-19) raise the interesting point that their parameters for the morphological word are applicable to all languages, whereas the parameters for the phonological word are subject to language-specific conditions. For instance, the parameter of prosodic features could not be applied in the analysis of a language that lacks both word-based prosodic prominence and vowel harmony. While some of Dixon & Aikhenvald’s (2003) definitions of the morphological parameters were modified above, I will leave the definitions of their phonological parameters essentially unaltered. Crucially, though, tonal sandhi could be considered to bear on the parameter of phonological rules because they are a type of allomorphy, or on the parameter of prosodic features because they involve tone. In the interest of consistency, this work will only apply the parameter of phonological rules in cases of allomorphy (or allophony) that involve adjacent segments. Hence, the English plural marker, whose voicing feature depends on the voicing feature of the preceding segment, is dependent on the parameter of phonological rules. By contrast, the parameter of prosodic features subsumes suprasegmental allomorphy (e.g., tonal sandhi) as well as allomorphy affecting non-adjacent segments (e.g., vowel harmony).

It should also be mentioned here that unstressed and/or toneless elements may give rise to conflicting classifications on the parameter of prosodic features. For instance, if all phonological words in a language (or at least those with the structure of the relevant element) must bear stress, an unstressed element would be dependent on the parameter of prosodic features because it lacks stress. On the other hand, to the extent that unstressed elements are “extrametrical” and do not impact the stress assignment in any other word, they would not be
integrated into a stress domain and thus not be dependent on the parameter of prosodic features. The eventual classification of such elements in this work will depend on their syntagmatic behavior. Specifically, if an element is syntagmatically free, a lack of otherwise obligatory stress on such an element would be considered an initial step toward dependence on the parameter of prosodic features (cf. 1.1). However, if an element is syntagmatically dependent, the fact that it is not integrated into the stress domain of the morphological word it is subsumed under suggests that its dependence on the parameter of prosodic features lags behind. In the majority of cases, the latter combination of properties will lead to an anti-clitic analysis. Finally, as mentioned in 1.3.2, the term “prominence” will be used here to cover stress and tone (as well as their combinations) in cases where they target specific syllables (or moras), as opposed to cases in which they instantiate intonation across phrasal or clausal units.

Meanwhile, the concept of minimal weight, which is part of the parameter of segmental structure, presumably approximates the phonological interpretation of free occurrence. Due to this uncertainty, however, I will refer to the parameter of segmental structure whenever the notion of minimal weight impacts the analysis of a wordhood issue below. Nevertheless, it will be seen that the parameter of free occurrence is independently invoked in some descriptions, and it is furthermore required in the analyses of purely tonal morphemes. A detailed discussion of the individual parameters of phonological wordhood as well as their contributions to the empirical database described in the next four chapters will be offered in 7.2.

**Note on examples and glosses:**

In the chapters that follow, the first lines of examples usually show the “underlying” forms in cases where a grammar distinguishes them from “surface” forms. In some examples, however, I combine information from the “underlying” form and the “surface” form into a single line in the interest of clarity and without explicitly marking this. As in the case of the examples given so far, the element(s) under discussion will consistently be boldfaced in the first line as well as in the interlinear gloss below it, even though the source usually does not employ such highlighting. Wherever the exact phonological value of a given orthographic symbol or string of symbols is relevant to the analysis, the necessary details will be provided.
in the body of the text. The final line of each example, which gives the free translation, is usually taken over from the original source without modifications. However, the first orthographic word of a translation corresponding to a full English clause is always capitalized here, even when it is not capitalized in the description.

In contrast to the treatment of the examples and their free translations, I will frequently make alterations to the interlinear glosses in the second line. Specifically, I will replace all glossing abbreviations that deviate from those suggested in the Leipzig Glossing Rules (Comrie et al. 2015) with those suggested in the latter. Where the Leipzig Glossing Rules do not provide an abbreviation for a specific value or category, I will use the gloss listed in Croft (2003: xix-xxiii), or, failing that, an ad hoc strategy. All glossing abbreviations used here are listed at the beginning of this work.
3. DEFINITENESS

3.0 DEFINING THE CATEGORY

Unlike the three categories described in the next three chapters, definiteness is not widely distributed among the world’s languages (cf. Corbett 2012: 134-136). In particular, it is agreed upon that the so-called “articles” that express (in)definiteness in many Indo-European languages are absent from most other languages (cf. Greenberg 1995: 159; Dryer 2007a: 95; Dixon 2010b: 160; König 2018: 166). Even where articles are claimed to exist, however, they may be marginally relevant to the phenomenon of definiteness since many elements classified as articles do not (primarily) express that function (cf. Becker 2018). On the other hand, the insight that the category of definiteness is cross-linguistically rare may also derive from the fact that definite articles are often optional and functionally opaque (cf. Dryer 2014). This may render them difficult to detect during fieldwork, and as a consequence, they might simply be underrepresented in grammatical descriptions. In any case, whether an element is or could plausibly be described as an article was not a factor considered for the database discussed in this chapter, which instead includes all grams that meet the semantic criteria outlined in 3.0.1 and the morphosyntactic criteria defined in 3.0.2.

3.0.1 The semantics of definiteness

Lyons (1999: 14-15) states that an NP is definite if it meets the criterion of identifiability, of inclusiveness, or both. Identifiability holds when addressee(s) are in a position to identify the exact referent of a noun or an NP (Lyons 1999: 5-6; cf. also Chafe 1976: 39-40; Lyons 1977: 180-181), and the different ways by which identifiability can be established will be discussed further below. Meanwhile, inclusiveness holds when reference is made to “the totality of the objects […] in the context which satisfy the description” (Lyons 1999: 11). Hawkins (1978: 159-161) points out that the term “inclusiveness” is preferable to the alternative “uniqueness” because the latter does not account for the use of definiteness markers with mass and plural nouns. Despite this bipartite definition, however, Lyons (1999: 15) claims that the conditions of identifiability and inclusiveness often converge, and it is perhaps due to this overlap that other authors treat identifiability as a sufficient criterion of definiteness (e.g., Lambrecht 1994: 79-87; Andrews 2007: 148; Becker
Ariel (1988) and Gundel et al. (1993) offer general theories of reference marking, and both agree that definite referents fall somewhere toward the middle of the “givenness” or “accessibility” hierarchy. Ariel (1988) in particular makes clear that accessibility correlates with recency of mention; that is, more recently invoked referents are more accessible and usually expressed pronominally or not at all, whereas referents invoked less recently tend to require a bulkier expression such as a full name or a modifying relative clause. Referents that are accessible in the mental state of the hearer but have not recently been activated represent the intermediate type often marked by definite grams. That is, definite referents do not need to be referred to by a proper or common noun, like entirely new participants, but they also cannot be referred to via a shorthand such as a pronoun because participants that compete for this pronominal reference would typically have been mentioned in the meantime (cf. also Epstein 2002: 334). Ultimately, then, this approach lends credence to the idea that definiteness is primarily conditioned by pragmatic considerations, which may distinguish it from most other grammatical categories (cf. Aikhenvald & Dixon 1998: 75-77).

It is well-known that markers of definiteness often grammaticalize from demonstratives (e.g., Diessel 1999: 128-129), and this suggests that exponents of those two categories cannot always be neatly distinguished. In order to make the necessary classifications, I will therefore rely on the functional cline discussed by Himmelmann (1997: 35-42), which ranges from pragmatic to semantic definiteness. Pragmatic definiteness subsumes referents that are spatially present in the speech situation as well as those that have previously been mentioned in the discourse (i.e., anaphoric referents). Meanwhile, semantic definiteness is at play when the referent is generally known (e.g., the President) and in “associative” uses, where a part of a previously mentioned referent is introduced.¹ For example, in I need a new car; the engine is shot, the engine has not been mentioned previously, but it can be referred to by a definite noun because it can be connected to the referent car, which has been introduced.

What is crucial for the distinction between demonstratives and true definiteness markers (such as European articles) is that the former can only be used to express pragmatic

¹ Cf. Dryer (2007b: 152-161) for a similar discussion, but also Schwarz (2013) for a different division of this cline.
definiteness, whereas definiteness markers also cover contexts of semantic definiteness (cf. Himmelmann 1997: 41). Ideally, a cross-linguistic study of definiteness grams would thus limit itself to expressions of semantic definiteness in order to guarantee the absence of demonstratives from the database. However, since the relevant details about the usage of definiteness markers and/or demonstratives are not usually discussed in sufficient depth, the present project will only attempt to omit expressions of pure spatial deixis. Since deixis is the primary function of demonstratives (e.g., Diessel 1999: 2), this will largely serve to distinguish demonstratives and definiteness markers. Yet, given that grams expressing anaphoric definiteness might also be demonstratives, some of the elements discussed below might have to be classified as demonstratives upon further study. Also, it should be mentioned that the examples provided in the sources do not always match the description, and there will thus be several examples below whose translation suggests a deictic rather than a definite meaning. Whenever such a conflict arose, I relied on the prose description, and to the extent that the information provided there suggested that the relevant element is not limited to uses of spatial deixis, the gram was included even when the translation failed to support the functional analysis.

Finally, definiteness as a notional category must also be distinguished from the concept of specificity. Himmelmann (1997: 101) states that on the specific interpretation of a sentence like *Michael wants to buy a book today*, Michael has a concrete book (title) in mind, whereas on the non-specific interpretation he simply wants to purchase something that qualifies as a book. The two interpretations thus show that indefiniteness (as expressed by the article in the example) straddles the division between specific and non-specific. This suggests that the category of specificity is orthogonal to definiteness, and grams expressing the former function will therefore not be considered here. By contrast, markers of indefiniteness may be assumed to be mutually exclusive with definiteness grams and thus to form a single paradigm with them.

Based on the above assumption, wordhood issues involving markers of indefiniteness were also considered for inclusion in this chapter. However, the data below will show that such grams are not involved in any of the wordhood issues, which is presumably a function of the fact that they are even less frequent than grams expressing definiteness (cf. also Dryer 2007b: 152). Himmelmann (1997: 230) goes so far as to call indefinite articles “exotic” (cf.
also Koptjevskaja-Tamm 2004: 1067), and he asserts that the paradigmatic relationship between markers of definiteness and indefiniteness that was suggested above is mainly a trait of SAE languages. Lyons (1999: 49-50, 89, 95) accounts for the overall infrequency of indefiniteness markers by arguing that this meaning is usually expressed via the absence of a definiteness marker and that indefinite articles often cannot be distinguished from the numeral ‘one,’ from which they typically grammaticalize (cf. Givón 1981).²

3.0.2 The exponence of definiteness

As discussed in 1.3.3, definiteness will here be considered a phenomenon of the nominal domain.³ So, while the (in)definite status of a nominal argument might theoretically be expressed on the verb, markers of this sort would not be considered here. However, verbal definiteness grams are essentially absent from the sample languages, and this strategy therefore had no impact on the database presented below. In addition to their restriction to the nominal domain, definiteness grams as understood here also need to occur adnominally. This condition largely serves to distinguish them from third-person pronouns, with which they form an intricate grammaticalization network (cf. Himmelmann 1996: 206-214).

To the extent that the referents of third-person pronouns are identifiable, they would seem to bear on a distinction proposed by Lyons (1999: 2, 16) between simple and complex definiteness marking. Specifically, the former type subsumes constructions whose essential function it is to express (in)definiteness, whereas the latter constructions co-express (in)definiteness alongside other categories. Indexes such as third-person pronouns would thus presumably fall in the category of complex definiteness marking because their primary function is to express person (and possibly number, gender, etc.), from which definiteness follows as an artifact. While the scarce information on definiteness (grams) in most descriptions often renders this distinction difficult to apply in practice, the goal of this chapter is to arrive at a database that consists of simple definiteness markers. Hence, another

² However, it should be pointed out that both Becker (2018: 139) and Dryer (2013b) do find overt indefinite articles, which are furthermore not limited to Europe. The fact that indefinite articles do not feature in the wordhood issues below might then be due to the generally scarce coverage of (in)definiteness in grammatical descriptions (cf. also 3.1.4).
³ Note that throughout this work, the affiliation of a specific gram type with a specific word class domain refers to the unmarked distribution of the relevant gram. That is, a wordhood issue hinging on the parameter of non-selectivity might precisely come about if an element assigned to one word class domain can occur on members of the other domain under specific conditions. Instances of this kind will be seen in Chapters 4-6 in particular.
well-known type of complex definiteness construction that will be excluded from this chapter concerns case markers. These are known to express the distinction between indefinite and definite objects in some languages (cf. Moravcsik 1978: 261), but since this pattern is typically limited to a subset of case markers in the paradigm (cf. 3.1.4) and furthermore restricted to a small minority of languages overall, definiteness is clearly not an essential function of case markers.

In sum, then, grams marking indefiniteness were considered for inclusion in the database, as were demonstratives not limited to spatial uses. On the other hand, markers of specificity and categories that co-express definiteness, such as case and indexation, were not eligible. (The latter two categories will of course be investigated in the following chapters). Despite these general principles, the limited discussion of definiteness and its exponents in most reference grammars poses the risk of including examples that are not definiteness grams (false positives) and of omitting examples that are definiteness grams (false negatives). Therefore, the analyses throughout this work will focus on relatively clear-cut instances of the relevant category, which should at least minimize the number of false positives.

Section 3.1 will discuss all wordhood issues found in the domain of definiteness marking. Section 3.2 will provide an interim summary, which includes a table that lists all the elements analyzed and the type of wordhood issue they pose, followed by a brief discussion of preliminary insights. The next three chapters will have the same structure. The primary discussion of the patterns found in those chapters, and how those patterns relate to the hypotheses in 1.4.2, will be reserved for Chapters 7 and 8.

3.1 WORDHOOD ISSUES

The wordhood issues below are ordered alphabetically by macro-area, and where multiple languages within a macro-area show a wordhood issue, those languages are also ordered alphabetically. This pattern will be applied in Chapters 4-6 as well.

3.1.1 Africa

3.1.1.1 Tommo So

Tommo So has a “definite determiner” =ge (McPherson 2013: 132) whose semantic
contribution is not explicitly defined. However, since it is translated as ‘the’ throughout the grammar, it will be assumed here that it marks definiteness in at least one of the ways outlined above. The position of this gram is determined with respect to the NP in that it precedes the plural marker but follows nominal modifiers other than the quantifier ‘all’ (McPherson 2013: 106, 132-133, 182). The following examples illustrate this distribution.

(3.1) JàndùlùL gém=ge kém bándùŋkálá=né=kɔ-εn
donkey  black=DEF  all  courtyard=OBL=be.PROX-3PL

‘All of the black donkeys are in the courtyard.’ (McPherson 2013: 133)

(3.2) gámmá néé-go=ge=mbe
cat  two-ADV=DEF=PL

‘the two cats’ (McPherson 2013: 181)

(3.3) Àn-ná=ge dågi=ɲ
Man-HUM.SG=DEF  small=COP

‘The man is small.’ (McPherson 2013: 133)

McPherson (2013: 74) explicitly classifies the definite marker as an enclitic because it meets all the language-specific criteria she establishes for that class: clitics usually do not have lexically specified tones, are often monomoraic, and cannot be focused or said in isolation. By contrast, phonological words can be said in isolation (McPherson 2013: 74) and are subject to a bimoraic minimum (McPherson 2013: 36), and lexical stems have a specified tone on each syllable (McPherson 2013: 90). Hence, with respect to the wordhood parameters used in this study, the definiteness marker is dependent on the parameters of prosodic features, segmental structure, and free occurrence.

It should be noted, however, that while the definiteness marker does not have a lexically specified tone, it receives a phonetic tone via “interpolation” (McPherson 2013: 90), i.e., from the tonal values surrounding it (McPherson 2013: 94-95). Specifically, a toneless marker like the definiteness gram will be high (H) if both surrounding tones are H but low (L) if the tones on either side are L. Meanwhile, with a preceding H and a following L, the
lexically toneless element will have a non-phonological falling tone that is in between H and L. Yet, in the opposite scenario, with L preceding and H following, the tone on a lexically toneless gram is exceptionally L rather than the expected rising value between L and H. Finally, while Tommo So also has vowel harmony, this process is generally very limited in the nominal domain (McPherson 2013: 65-66), and the fact that the definiteness marker is not subject to it is thus not an indication of its independence on the parameter of prosodic features.

If, in addition to its prosodic dependence outlined above, the definiteness marker were also syntagmatically dependent, it would be an affix and thus not constitute a wordhood issue. However, as mentioned above, the definiteness marker has a syntactic distribution in that its location is determined with regard to the NP, and this is borne out by the fact that it follows members of different word classes in the above examples. While McPherson (2013) does not give an explicit account of the different word classes found in the NP, the order of the head and its modifiers is fairly rigid, and the process of tonal overlay marked by the superscript L in (3.1) applies specifically across combinations of nouns and following adjectives (McPherson 2013: 169, 175; cf. also Lionnet & Hyman 2018: 678-680). Both these facts suggest that nouns can be distinguished from adjectives, which in turn must be distinct from modifiers that do not cause tonal overlay, such as the numeral in (3.2). On that assumption, the examples above demonstrate that the definite gram is non-selective and thus behaves like a morphological word on that parameter. Given that it is prosodically dependent, it therefore meets the formal criteria of a prototypical clitic.

While the definiteness marker is clearly a clitic, it is debatable whether it is also appropriately classified as an enclitic. That is, the behavior of =ge with respect to the phenomenon of interpolation suggests that it is equally dependent on elements on either side of it. To the best of my knowledge, there is no established term for such a clitic. On the other hand, one might argue that the above-mentioned exceptional pattern with a preceding L and a following H tone supports the idea that the element preceding the definiteness marker is ultimately more important for its formal manifestation. In that case, =ge would indeed be an (atypical) enclitic.
3.1.2 Eurasia

3.1.2.1 Basque

One of the functions of the definite singular article -a in Basque is to mark identifiable referents, and while Trask (2003: 119-121) lists several more functions which suggest that the term “definite article” might be too narrow, the focus here will be on contexts in which it has definite semantics. The element in question is described as a suffix by Lehmann & Moravcsik (2000: 741), as an enclitic by Lyons (1999: 76-77), and more generally as a bound morpheme by Trask (2003: 119). Like all nominal inflections in the language, it occurs at the end of the NP rather than necessarily on the noun itself (Trask 2003: 113). The following unglossed examples illustrate the article following a noun and an adjective, respectively.

(3.4) (a) gizon-a ‘the man’ (b) gizon handi-a ‘the big man’ (Trask 2003: 119)

Since adjectives form a clearly distinct word class in the language (Trask 2003: 136), the article does not behave like a suffix on the parameter of non-selectivity, and this fact suggests that it might pose a wordhood issue. However, this analysis is complicated by the fact that the systems of prosodic prominence in Basque differ widely based on regional variety (cf. also Comrie 2007: 31; Haase 2011: 211; van der Hulst et al. 2017: 172-175), and no single location consistently attracts stress. Given that vowel harmony is also not a systematic phenomenon in the language, the parameter of prosodic features therefore does not inform the question of whether the article is a free or a bound form. Furthermore, even though there is no discussion of word minimality in the grammar, it is clear from the examples that (function) words can be monomoraic, which suggests that the article does not run afoul of the parameter of segmental structure either. Nevertheless, there is some evidence that the article is not an independent function word. Specifically, nouns and adjectives that end in /a/ delete this /a/ before vowel-initial inflections (Hualde 2003b: 172). Given that the article is vowel-initial, this produces homophones that differ in terms of definiteness, as shown in (3.5).

(3.5) (a) hondartza ‘beach (INDF)’ (b) hondartza ‘beach (DEF)’
Hualde (2003c: 49) states that some varieties raise rather than delete a stem-final /a/ in the same environment, which suggests that it is indeed the final stem vowel that undergoes a change rather than the vowel of the article. Note, however, that even though this allomorphic process suggests that the article forms a single phonological word with the preceding lexical element on the parameter of phonological rules, the article does not actually show the effects of the allomorphy. It might therefore be argued that it is misleading to call the article prosodically “dependent” in such cases. This issue will be addressed in more detail in 3.2.2.

The fact that the article is part of a larger phonological word also ties in with its cognitive status. Specifically, Trask (2003: 121) states that when asked for a noun or an adjective, native speakers will “invariably” produce a word form including the definite article. This suggests that the definite article is dependent on the parameter of conventionalized meaning, and in light of the very broad range of functions it encodes, it might be on its way from an article to a general noun marker, perhaps not unlike the pattern outlined by Greenberg (1978b). However, its dependent status with regard to those two parameters contrasts with its non-selective behavior illustrated above. Since the article therefore behaves like a morphological word on one parameter but is not obviously a phonological word on any parameter, it is a prototypical clitic.

3.1.2.2 Kokota

While Kokota has a word class called “articles,” these grams express ‘specificity,’ and it is the demonstratives that identify referents as anaphoric or generally known (Palmer 2009: 73, 80). Therefore, the latter elements will be of interest here. The demonstrative forms split into five semantic sub-categories: ‘touching,’ ‘within reach,’ ‘nearby,’ ‘potentially visible,’ and ‘not visible’ (Palmer 2009: 72). Palmer (2009) does not give a precise definition of clitics, but it seems likely that clitics are defined by their sub-minimal size. That is, while the minimal word is monosyllabic, the minimal stress-bearing word consists of a heavy, bimoraic syllable (Palmer 2009: 25). It is therefore relevant that two of the five

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4 On the other hand, the fact that the article also seems to be part of adjectival stems and is not in a paradigm with other incipient noun markers suggests that a different development might be afoot.
demonstrative categories are expressed by monomoraic clitic forms and that the markers in the ‘not visible’ category exclusively consist of monomoraic elements. The forms in question are illustrated in (3.6).

(3.6) (a) ine, =ne ‘within reach (SG)’  (e) =o, =no ‘not visible (SG)’
(b) ide, =de ‘within reach (PL)’  (f) =ro ‘not visible (PL)’
(c) ana, =na ‘nearby (SG)’
(d) are, =ra ‘nearby (PL)’ (Palmer 2009: 72)

However, the boldfaced forms above are not only dependent on the parameter of segmental structure. In the absence of a vowel harmony system, this can most clearly be seen in their behavior with respect to stress assignment. The stress system is in the midst of change, and there is considerable synchronic variation (Palmer 2009: 30, 34), but the most common pattern is for stress to be on the first syllable or mora of a word and on every other syllable or mora thereafter. Yet, as described by Palmer (2009: 31-32), this pattern only manifests itself if the syllable is part of a foot, i.e., a sequence of two syllables or moras. Hence, in words with an odd number of syllables or moras, the final syllable or mora is not part of a foot and falls outside the domain of stress assignment. Meanwhile, in words of two feet or more, primary stress is on the first syllable or mora of the rightmost foot, while the other alternating syllables or moras in the word bear secondary stress (cf. also Blust 2003: 253). That monomoraic demonstratives are integrated into a larger stress domain can be seen in the following example with the form =de.

(3.7) hiba ‘eye’ → hiba=gu ‘my eye(s)’ → hiba=gù=de ‘these eyes of mine’

(Palmer 2009: 37)

As described by Palmer (2009: 37), the word for ‘eye’ is bimoraic and stressed on the first mora. Upon addition of the first-person singular possessive marker =gu, the stress pattern remains the same because =gu does not form a foot of its own, and hibagu therefore does not consist of two feet. However, once a mora is added with which =gu can form a foot, the resulting word consists of two feet, and primary stress should then be on the first mora of the
rightmost foot. Since the addition of $=de$ in the above example has precisely this effect, it must be part of the word headed by its host, and it is therefore dependent on the parameter of prosodic features.

Given that there is no dedicated discussion of the differences between suffixes and enclitics and that much of the description suggests that the prosodic behavior of those two units is identical, it would seem possible to analyze the monomoraic demonstratives as suffixes. However, the syntagmatic behavior of demonstratives is incompatible with such an analysis because they occur in the rightmost NP slot (Palmer 2009: 107). As such, $=de$ may follow words of different classes, which is shown in (3.8) and (3.9).

(3.8) $\text{ḡ-e tu-turi}=\text{ña palu mane}=\text{de sala ge tikilave}$
NT-3.SBJ RDP-tell=1MM two man=DEM PN and PN

‘These two men Sala and Tikilave talked.’

(Palmer 2009: 107)

(3.9) $\text{mane suaragi=ne } \text{ḡ-e tufa=ri=u}$
man PN=DEM NT-3.SBJ affect=3PL.OBJ=CONT

pohe mata=de

clothes bush=DEM

‘This man Suaragi was giving them these bush clothes.’

(Palmer 2009: 107)

According to Palmer (2009: 107), $=de$ in (3.8) follows a noun, whereas in (3.9), it is preceded by an element for which Palmer (2009: 95) explicitly claims that it is always an adjective. It follows that $=de$ is independent on the parameter of non-selectivity, and due to its aforementioned prosodic dependence, it is therefore a clitic. Note, however, that if $=de$ can be followed by clitics, it might bear stress itself in such a context and thus violate a common definition of clitics.

3.1.2.3 Lao

In Lao, there is a topic marker $ni$ which refers to a given or presupposed referent. Enfield (2007: 100-101) states that it is closely related to a demonstrative, but he does not describe it as a definiteness marker or an article. However, the free translations suggest that it
can have a function similar to the English definite article, and the gram is included here on that assumption. The topic marker occurs at the right edge of an NP, as shown in examples (3.10) and (3.11). In those examples, I follow the transcription of Enfield (2007). Hence, the empty set symbol indicates that an element is unstressed (Enfield 2007: 38), which given the remaining description of the language must (also) mean “toneless.” Meanwhile, the numbers at the end of words refer to tonal values, and the examples thus illustrate clearly that most words do have tones. I add the brackets around the relevant NP in (3.10) in order to render it analogous to (3.11), for which the source gives the brackets. Finally, example (3.10) also has an indefinite plural interpretation, but I ignore this reading here.

(3.10) [khon2 suung3 ni∅]  
        person tall  TOP  
        ‘the tall person (who we have already been talking about)’  (Enfield 2007: 101)

(3.11) [vèèn1-taa3 caw4 ni∅] qa’an1 nangsùù3 bò∅ daj4  
        glass-eye  2SG.POSS TOP read writing NEG can  
        ‘(With) the spectacles (of) yours, (I’m) unable to read.’  (Enfield 2007: 102)

The element preceding the topic marker in (3.10) is classified as an adjective, and adjectives themselves are argued to form a sub-class of verbs (Enfield 2007: 248). Meanwhile, the relevant preceding element in (3.11) is a member of the pronominal class (Enfield 2007: 77), which is explicitly assigned to the nominal domain (Enfield 2007: 3). Given that the distinction between nouns and verbs forms the most basic dichotomy in the Lao word class inventory (cf. Enfield 2007: 3), the topic marker can clearly follow members of different word classes, and it therefore behaves like a morphological word on the parameter of non-selectivity.

However, this syntagmatic independence of ni contrasts with its prosodic behavior. That is, a minimal word must have a CVC or CVV syllable, and the CV structure of the topic marker is instead referred to as a “minor syllable” (Enfield 2007: 33). Minor syllables are common with clitics, and this is why Enfield (2007: 100) describes ni as an enclitic. In terms of the parameters used here, this obviously means that the topic marker is of sub-minimal
size and therefore dependent on the parameter of segmental structure. Furthermore, Enfield (2007: 33) emphasizes that minor syllables are also distinguished by their lack of stress (or tone), and even though he does not explicitly discuss this factor with respect to the notion of wordhood, I will therefore classify \( ni \) as dependent on the parameter of prosodic features as well.

In sum, then, \( ni \) might be classified as a clitic because it combines a syntactically determined distribution with partial prosodic dependence. However, as in the somewhat similar case of the Tommo So marker described above, the lack of formal interaction with its surrounding elements raises the question as to whether the topic marker has any kind of host. In fact, while there was some evidence for considering the Tommo So marker an enclitic, no element has any impact on the tonal structure of the Lao gram at issue here, and it therefore cannot be argued that its dependence shows any direction. Hence, to the extent that clitics are defined as units that have preceding or following hosts, the more abstract concept of dependence used in this work manages to illustrate the similarities between such clitics and elements like the Lao topic marker without suggesting that their behaviors are necessarily identical.

### 3.1.3 North America

#### 3.1.3.1 Creek

Anaphoric definiteness in Creek is expressed via the medial demonstrative \( ma \) ‘that’ in adnominal position (cf. Martin 2011: 145-146). The demonstratives are classified as a type of noun (Martin 2011: 30), but they differ from the latter in that they consist of less than a foot, where a foot is defined as a heavy syllable or a sequence of two syllables in which the first one is light (Martin 2011: 72). Apart from falling short of this minimal size, anaphoric \( ma \) also shows signs of dependence in that it fuses with some following nouns, as shown in (3.12).

\[
(3.12) \quad ma \; isti \; ‘that \; person’ \rightarrow m\acute{e}ysti^5 \quad \text{(Martin 2011: 146)}
\]

\(^5\) The character \( y \) is described as a consonant by Martin (2011: 21), but no corresponding IPA symbol is provided.
Yet, while this behavior suggests that *ma* might pose a wordhood issue, the description suggests that it is equally dependent on the syntagmatic axis. Specifically, the NP template provided by Martin (2011: 372) illustrates that demonstratives are the only nominal modifiers occurring before the noun other than possessive grams. Yet, since demonstratives and possessives cannot co-occur (cf. Martin 2011: 372), and since the definiteness-marking function of *ma* requires a following noun, definite *ma* appears to be limited to immediately prenominal position. Given that it was also shown to be prosodically dependent above, it would therefore be classified as a prefix in this work, which is why it will not be considered a wordhood issue here.

The second strategy for definiteness marking, which Martin (2011: 360, 362) defines in terms of identifiability as well as anaphoric and associative definiteness, involves the “referential clitic” *-a:t(i)*. One use of this marker is provided in (3.13), and the example incidentally shows that *-a:t(i)* is compatible with the above-mentioned *ma*. However, their functional interaction is not discussed in the source and will therefore be ignored here.

(3.13) ma  isti-manítt-*a:t*  ma  hoktí:  i:-páhy-o:f
that  person-young-REF  that  woman  REFL-add.HGR-when
‘After the young man had married the woman.’ (Martin 2011: 361)

Definite-marking *-a:t(i)* can only follow verbs, specifically participles (Martin 2011: 261, 361), which translate into English as adjectives (Martin 2011: 31). The participles may form compounds with nouns (cf. Martin 2011: 125), as in the case of *isti-manítt* in (3.13), and Martin (2011: 360, 361) explicitly assigns the definite marker to the nominal domain. Given this distribution, it follows that *-a:t(i)* is selective with regard to the word class of its collocates, and it is therefore dependent on the parameter of non-selectivity.

The fact that the definiteness marker consists of a foot as defined by Martin (2011) is

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6 The final vowel of this element is only present in a few special contexts (Martin 2011: 66, 360 fn. 1).
7 Martin (2011: 32) mentions a difference between adjoined and compounded participles, but it is not clear to me what this distinction refers to. However, Martin (2011: 361) states explicitly that the definite gram can only occur on adjoined participles and that the relevant item in (3.13) is of that type. This limitation arguably increases the syntagmatic dependence of the definiteness marker even further, but this will not be essential to the analysis.
compatible with both an affix and a word analysis because no size restrictions are described for affixes and because both free nouns and verb roots can consist of a single foot (cf. Martin 2011: 72-73). While the formal variation of the definiteness marker is not an effect of phonological allomorphy (Martin 2011: 66) and no vowel harmony is discussed for the language, there is one factor that suggests that the definiteness gram is not integrated into the phonological word that precedes it. Nouns are typically stressed on their final foot (Lahiri 2001: 1353-1355; Martin 2011: 76), and since a:t is a foot and, by syntagmatic criteria, the last element of the noun ‘young man’ in (3.13), it should be stressed. Yet, the reason that Martin (2011) refers to -a:t(i) as a “clitic” is that he uses this label for NP-final elements that do not impact stress assignment (cf. Martin 2011: 80). Hence, the definiteness marker does not bear stress in (3.13) and is thus not dependent on the parameter of prosodic features. Since stress is not described as an obligatory property of words in general, it therefore behaves like a phonological word in this regard.

The wordhood issue discussed here crucially differs from the definiteness grams analyzed above. That is, the Creek marker shows more syntagmatic dependence than prosodic dependence and is therefore an anti-clitic rather than a clitic proper. The fact that Martin (2011) nevertheless chooses the “clitic” label for this element thus points to some of the conceptual difficulties surrounding this term (cf. 1.1). Specifically, while the above gram meets one common definition of clitics in that it does not bear stress, it fails another common criterion in that it is limited to a specific word class. As throughout this work, I will reserve the “clitic” label for prosodically dependent elements that are non-selective.

3.1.3.2 Itzaj

Definite reference in Itzaj is expressed by a’, which Hofling & Tesucún (2000: 247) describe as a “determiner proclitic particle.” This determiner is NP-initial and usually co-occurs with the topic marker, which follows the NP (Hofling & Tesucún 2000: 118-119). The examples in (3.14) illustrate the determiner preceding a noun and an adjective, respectively.

(3.14) (a) á’ winik-ej (b) á’ nukuch winik-oo-ej
DET man-TOP DET great man-PL-TOP
‘the man’ ‘the great men’
Since Hofling & Tesucún (2000: 34) explicitly classify nouns and adjectives as separate syntactic categories, the determiner is not selective with respect to the word class of its collocates. This would generally be compatible with a function word analysis and also tie in with the fact that the determiner has a VC syllable structure, which function words can have (cf. Hofling & Tesucún 2000: 26). Yet, while vowel harmony is limited to a small subset of verbal grams (Hofling & Tesucún 2000: 27-28) and thus not a plausible indicator of wordhood in the present case, there is one fact that suggests that the determiner is dependent on the parameter of prosodic features. Specifically, every word receives at least one stress, except for monosyllabic “particles,” where stress is optional (Hofling & Tesucún 2000: 6). It is arguably due to their potential lack of stress that Hofling & Tesucún (2000: 6, 8) refer to such elements as “clitics.” In any case, though, since the determiner is a monosyllabic gram, it also shows optional stress marking. The examples in (3.15) illustrate this phenomenon, and the indication of stress via the acute accent is taken from the source.

(3.15)  (a)    á’    wínik-éj    (b)    a’    wínik-éj
   DET    man-TOP     DET    man-TOP
   ‘the man’     ‘the man’

(Hofling & Tesucún 2000: 7)

The scenario described here differs from most of the wordhood issues presented in this chapter in that it relies on free variation. That is, whenever the determiner is stressed, it behaves like a full-fledged function word and therefore does not constitute a wordhood issue. However, the fact that it can optionally occur without stress is most likely a sign of its incipient grammaticalization, and the unstressed form subsequently poses the kind of wordhood issue expected of grammaticalizing elements. In sum, the determiner is a clitic because it is non-selective while showing optional prosodic dependence. Yet, here too, it is questionable whether Hofling & Tesucún’s (2000) classification of this element as a proclitic can be justified in the apparent absence of (supra)segmental interaction between the determiner and surrounding elements. That is, as in the cases of the Tommo So and Lao
markers above, the elements following the Itzaj determiner are not more obviously its prosodic hosts than the elements preceding it.

Note, finally, that the function of the above-mentioned topic marker is largely unclear. Hofling (2017: 720, 721) appears to suggest that the topic marker is the primary expression of definiteness and that the determiner may be omitted. However, there is not enough discussion of the topic marker in either Hofling & Tesucún (2000) or Hofling (2017), and its role in the system, as well as its functional division of labor with the above determiner, therefore cannot be elucidated here.

3.1.3.3 Ute

Givón (2011: 59-60) describes a paradigm of eighteen demonstratives for Ute, which are based on three deictic distinctions (‘near speaker,’ ‘away-visible,’ and ‘away-invisible’), three distinctions in animacy and number (‘inanimate’, ‘animate singular,’ and ‘animate plural’), and two distinctions for grammatical relationship (subject vs. object). These demonstratives typically occur as prenominal modifiers, and they bear stress when they occur in this position (Givón 2011: 162, 163). However, the demonstratives of the ‘away-invisible’ set can be used postnominally, in which case they are unstressed and function like definite articles (Givón 2011: 60). While the latter classification is not elaborated upon, it presumably refers to the fact that these grams can be used anaphorically to refer to previously introduced referents (Givón 2011: 164). The following example illustrates two of the relevant demonstratives in article function. Note that in the grammar, the glottal stop, which precedes all seemingly vowel-initial words, is represented as ’ (cf. Givón 2011: 27). Since this could be misinterpreted as marking stress, I will use the IPA symbol of the glottal stop in all examples of this kind throughout this work.

(3.16)  khʔura  ?áapachi  ?u  tukuavi
then-be  boy.SBJ  ART.SBJ.AN.SG  meat.OBJ

?uru  tuka-puga
ART.OBJ.INAN.SG  eat-REM

‘Then the boy ate the meat.’ (Givón 2011: 163)
Givón (2011: 163) remarks that the definite articles are “probably” suffixes or clitics in terms of word-level phonology, but since he does not discuss phenomena that would bear on the parameters of segmental structure or free occurrence, this description is difficult to evaluate. However, he does state that only lexical words must contain a stressed vowel (Givón 2011: 19), and the fact that the articles lack stress is thus presumably not indicative of their formal status. Furthermore, since no vowel harmony system is described for the language, the parameter of prosodic features also does not seem to inform the analysis of these elements.

Instead, the wordhood issue the articles are involved in concerns their behavior with regard to final vowel devoicing. Roughly, nouns in subject or predicate function contain a final devoiced vowel, whereas nouns in object or possessor function have final voiced vowels (Givón 2011: 21-22). In the grammar, devoiced vowels are marked by underlining (Givón 2011: 23), and voiced vowels are unmarked. This practice is also adopted here. The actual vowel on which the voicing distinction manifests itself is usually that of the noun suffix, a remnant of an earlier noun classifier system that can be found in most nouns of the language (Givón 2011: 22, 38-39). In the above example, the noun suffix -chi (cf. Givón 2011: 39) can be seen on the subject noun ‘boy,’ and it is presumably not glossed separately because the nouns containing the obligatory noun suffixes have lexicalized.

Crucially, Givón (2011: 94) states that when the noun suffix is followed by another suffix, the vowel of the noun suffix is always voiced, and the voiceless vowel does not appear on the following suffix even when the noun functions as subject. This process is illustrated in (3.17).

\[
\begin{align*}
(3.17) \quad & \text{(a) sari-chi ‘dog’ } \rightarrow \text{ sari-chi-}u \ ‘\text{dogs’} \\
& \text{(b) tua-chi ‘child’ } \rightarrow \text{ tua-chi-}n \ ‘\text{my child’} \quad \text{(Givón 2011: 94)}
\end{align*}
\]

It follows that if the articles were prosodic suffixes, the vowel of the noun suffix on a preceding subject should be voiced. Yet, the example in (3.16) shows that subjects preceding

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8 Givón (2011: 20-21) describes this phenomenon as one whereby final vowels are “de-voiced, silenced or whispered,” without providing a definition of what these terms refer to or whether they are to be understood as synonyms. In her phonetic studies of Ute, Oberly (2008: 25, 2013: 89) states that devoiced vowels are “not audible.” Since the argument developed here is phonological and does not depend on the exact acoustic manifestation of the devoiced vowels, this issue is peripheral to the present discussion as long as devoiced and voiced vowels differ in some way.
the article do contain a devoiced vowel. Since the phenomenon of devoicing seems to refer to the segmental level (cf. footnote above), this suggests that the articles do not form a phonological word with preceding nouns on the parameter of phonological rules.

This independence seems to contrast with their syntagmatic behavior given that Givón (2011: 60, 163) states that the articles “follow the noun” and are “placed after the head noun.” While this general characterization would of course allow for adjectives, which are also postnominal (Givón 2011: 50), to intervene between nouns and articles, there does not appear to be a single unambiguous example of a noun-adjective-article sequence in either Givón (2011) or the accompanying text collection, Givón ((ed.) 2013). I therefore assume that the articles occur immediately postnominally, which would make them dependent on the parameter of non-selectivity. Since they behave like free words on the parameter of phonological rules, the articles are therefore anti-clitics.

As mentioned above, Givón (2011) does not attempt to distinguish whether the articles are affixes or clitics. Given that the present analysis argues that they are neither affixes nor clitics, the Ute articles might be assumed to show a particularly complex or unusual formal behavior. However, this is not the case, and part of the confusion arises from the indiscriminate fashion in which Givón uses the “clitic” and “affix” labels. Elsewhere, for instance, he suggests that the English definite article is a prefix (Givón 1993: 60) even though this element is widely cited as a prototypical instance of a clitic due to its phrasal distribution and prosodic dependence (cf. also Givón 2011: 72 fn. 10, where he describes English prepositions as “cliticized prefixes”).

3.1.4 Oceania

No clear-cut instances of wordhood issues in the languages of Oceania were found. While there is a set of allative case markers in Komnzo that refer specifically to previously introduced animate arguments (Döhler 2018: 151), case markers are not considered eligible

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9 This calls to mind Greenberg’s (1966: 87) Universal #20: “When any or all of the items (demonstrative, numeral, and descriptive adjective) precede the noun, they are always found in that order. If they follow, the order is either the same or its exact opposite [emphasis mine, TZ].” While Dryer (2018: 799) finds vastly more languages in which a postnominal adjective precedes a postnominal demonstrative, he also points out that articles show different patterns than demonstratives (Dryer 2007a: 95). Since the elements of interest here are halfway in between demonstratives and articles, these cross-linguistic insights do not seem to permit a strong prediction about the likely order of those items in Ute.
exponents of definiteness in this work (cf. 3.0.2). Apart from that, however, at least one of
the allative grams seems to fall short of the language-specific word minimum even though it
is non-selective, and it might therefore pose the general kind of wordhood issue that was seen
multiple times above.

In Bardi, meanwhile, there is a putative indefinite suffix, but this item is highly
infrequent, and its meaning furthermore does not appear to be that of an indefinite marker as
traditionally conceived (cf. Bowern 2012: 177). I also omit this gram here because it seems
likely that the indefinite “suffix” is the same element as the indefinite clitic described
elsewhere, which is an analysis the author herself hints at (cf. Bowern 2012: 420-422). That
clitic, in turn, is not presented as a wordhood issue here because the syntagmatic, prosodic,
and functional aspects that lead to the classification of this element are insufficiently
discussed. However, instances of more clear-cut Bardi clitics will be seen in the following
chapters.

3.1.5 South America

3.1.5.1 Kotiria

In Kotiria, the “particle root” ti, on which third-person indexation and possessive
grams are based (Stenzel 2013: 142, 186), can in its bare form function as a definite and/or
anaphoric marker with inanimate referents (Stenzel 2013: 145-146). The following examples
illustrate this pattern. A tilde signals that a following morpheme is nasal (Stenzel 2013: 23 fn.
1), which means that all phonemes in that morpheme (and in certain suffixes) that have nasal
allophones will be rendered as nasal (Stenzel 2013: 42-46).

\[
\begin{align*}
(3.18) & \quad \textbf{ti}=\tilde{\text{phú-ří}} & \text{(b)} & \quad \textbf{ti}=\tilde{\text{dúbú}} & \text{(c)} & \quad \textbf{ti}=\text{kopú} \\
& \text{ANPH=leaf-PL} & \text{ANPH=day} & \text{ANPH=hole} \\
& \text{‘those/the leaves’} & \text{‘that/the day’} & \text{‘that/the hole’} \\
& \text{(Stenzel 2013: 146)}
\end{align*}
\]

Stenzel (2013: 146) states that ti is a proclitic “more often than not” (cf. also Stenzel 2013:
81). This classification derives from the fact that ti always has an L tone and does not
participate in tonal spread (Stenzel 2013: 94, 146). By contrast, all phonological words contain at least one H tone (Stenzel 2013: 93), and tonal and nasal spread proceeds left to right through the phonological word, affecting at least some of the following elements (cf. Stenzel 2013: 52). Hence, if $ti$ were part of the phonological word, it should trigger tonal spread. The definiteness marker also fails the final criterion that Stenzel (2013: 76, 93) mentions for the phonological word in that it is monomoraic, while the word minimum is bimoraic (cf. also Stenzel 2013: 41). Overall, these properties show that $ti$ is dependent on the parameters of segmental structure and prosodic features.

With regard to the parameters of morphological wordhood, Stenzel (2013: 93) states that the elements she classifies as proclitics (including $ti$) are felt to be separate words by Kotiria speakers, and she assumes that this is because there are no prefixes in the language that could serve as a model for $ti$. Hence, the definiteness marker behaves like a morphological word on the criterion of conventionalized meaning. While the syntagmatic potential of $ti$ is not discussed in detail, the NP order given in Stenzel (2013: 196) shows that determiners, including $ti$, are not limited to immediately prenominal occurrence. This suggests that $ti$ is non-selective, but Stenzel (2013: 146) explicitly states that it most commonly occurs with noun roots when it expresses definiteness. Furthermore, it is unclear whether the words that occur within the NP can be classified into different syntactic categories (cf. Stenzel 2013: 78-81). Therefore, the parameter of non-selectivity does not seem to apply in this case, and I will omit it from the analysis.

In sum, the definite gram is dependent on the parameters of segmental structure and prosodic features but independent on the parameter of conventionalized meaning. While it therefore shows a greater degree of prosodic than of syntagmatic dependence, the description does not allow for a conclusion as to whether this element is truly a clitic, as classified by Stenzel (2013). That is, some of the above analyses showed that several clitics cannot easily be assigned proclitic or enclitic status, but the gram discussed here demonstrates that the word class inventory posited for a language crucially impacts whether a given element of that language can be considered a clitic at all. Here too, the more general concepts and parameters employed in this study manage to avoid such terminological complications.
3.2 INTERIM SUMMARY

Table 3.1 provides a summary of the wordhood issues discussed above. The number in parentheses behind each macro-area states how many wordhood issues there are for the respective area. In the “description and form” column, I give the shape of the element in question as well as the label the relevant grammar uses to describe this item. In some cases, several labels are used for the same unit, in which case I list all of them. While many grammars do not explicitly categorize the elements at issue as words, this label is used below to refer to grams that the description assigns to a word class such as demonstratives, determiners, or (p)articles. Finally, this column also lists the relative position of the marker in question. Where it is explicitly mentioned that the gram occurs at the edge of a phrase, this is reflected below, but in all other cases I simply state whether the gram precedes or follows the lexical element.

The “summary” column describes the behavior of the gram that causes the wordhood issue and names the parameters involved. For many items that are syntagmatically dependent, grammars only explicitly show and/or state that they are selective, and this fact was also the only one invoked in the analyses of Creek and Ute above. Unless stated otherwise, however, such elements will also be assumed to be dependent on the remaining syntagmatic parameters (cf. 2.4), and I therefore simply summarize as “syntagmatically dependent” all those grams defined by a larger degree of syntagmatic than of prosodic dependence. Wordhood issues of the latter sort are abbreviated as “S > P” in the rightmost column of the table, whereas the reverse scenario, in which the degree of prosodic dependence is greater than the degree of syntagmatic dependence, is abbreviated as “P > S.”

Preliminary insights that emerge from the data will be pointed out below, but a detailed discussion of the relevant issues is reserved for Chapters 7 and 8.

<table>
<thead>
<tr>
<th>Macro-area</th>
<th>Language</th>
<th>Description and form</th>
<th>Summary of wordhood issue</th>
<th>Dependence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>Tommo So</td>
<td>Clitic =ge (post-N)</td>
<td>Non-selective but dependent in terms of free occurrence, sub-minimal size (segmental structure), and tone</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>Macro-area</td>
<td>Language</td>
<td>Description and form</td>
<td>Summary of wordhood issue</td>
<td>Dependence</td>
</tr>
<tr>
<td>------------</td>
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<td>---------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Eurasia (3)</td>
<td>Basque</td>
<td>Bound -a (NP-final)</td>
<td>Non-selective but dependent in terms of allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Kokota</td>
<td>Clitic =de (post-N/ADJ)</td>
<td>Non-selective but dependent in terms of stress assignment (prosodic features) and sub-minimal size (segmental structure)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Lao</td>
<td>Word, clitic ni∅ (NP-final)</td>
<td>Non-selective but dependent in terms of tone assignment (prosodic features) and sub-minimal size (segmental structure)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>North America (3)</td>
<td>Creek</td>
<td>Clitic -a:ti (post-PTCP)</td>
<td>Syntagmatically dependent, but independent in terms of stress assignment (prosodic features)</td>
<td>S &gt; P</td>
</tr>
<tr>
<td></td>
<td>Itzaj</td>
<td>Word, clitic a/á (NP-initial)</td>
<td>Non-selective but dependent in terms of stress assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Ute</td>
<td>Word, affix, clitic ?u (post-N)</td>
<td>Syntagmatically dependent, but independent in terms of allomorphy (phonological rules)</td>
<td>S &gt; P</td>
</tr>
<tr>
<td>South America (1)</td>
<td>Kotiria</td>
<td>Word, clitic ti (pre-N)</td>
<td>Independent in terms of conventionalized meaning, but dependent in terms of tone assignment (prosodic features) and sub-minimal size (segmental structure)</td>
<td>P &gt; S</td>
</tr>
</tbody>
</table>

### 3.2.1 Analysis

In total, there are eight wordhood issues in the domain of definiteness markers. While
the following three chapters will each yield higher numbers, this tally is nevertheless substantial considering that the sample only consists of 60 languages and that the category of definiteness as well as the behavior of its (potential) exponents are often sparsely described in grammars. It can therefore be tentatively concluded that the low semantic relevance of definiteness markers with regard to nouns manifests itself in a looser formal bond between those two units. Put differently, the relationship between functional interaction and formal behavior that Bybee (1985a) proposes for verbal morphology indeed appears to hold for this particular area of nominal morphosyntax as well.

With respect to the actual data, there are six grams that show a larger degree of prosodic than of syntagmatic dependence, and only two that evince the opposite behavior. However, the next chapters will show that the share of the latter type is relatively large when compared to the wordhood issues involving the other grammatical categories investigated here. This pattern might therefore go some way toward confirming Hypothesis 2, which predicts that wordhood issues in the nominal domain involve grams that show a higher degree of prosodic dependence less often than do those in the verbal domain. Similarly, none of the above wordhood issues concern the parameters of fixed order and cohesiveness. This would be compatible with Hypothesis 3, according to which these parameters are more often definitional of wordhood issues in the verbal domain. Yet, the most remarkable result that follows from the above data is arguably the virtual absence of allomorphy among the definite grams (the behavior of the Basque marker will be discussed in 3.2.2). That is, the segmental shape of definiteness markers is usually invariant, even when they otherwise show a considerable degree of prosodic dependence. If the loss of segmental autonomy were taken as the strongest indicator of fusion, definiteness markers would then generally be characterized by a low degree of fusion. Instead, the prosodic dependence of the definite grams mostly manifests itself in a sub-minimal size and/or the absence of prominence, which corroborates the patterns that Lyons (1999: 63, 64) finds for definite articles.

In terms of geographical distribution, it is notable that six of the eight languages in Table 3.1 are from North America or Eurasia. This seems to tie in with the fact that definiteness marking in general and/or definite articles in particular are comparatively rare in South America and Australia (cf. Lyons 1999: 49; Becker 2018: 11). However, given that the vast majority of languages have demonstrative elements, and the functions of the latter
overlap with those of definiteness markers (cf. 3.0.1), this argument does not necessarily hold. Instead, the areal clusters shown in the above table might simply be another artifact of the relatively small sample size and/or of the empirical foci of the specific grammatical descriptions selected. Since the theoretical interests of this work do not hinge on areal patterns, though, this apparent imbalance will not be further addressed here.

Finally, while it was mentioned above that the number of definiteness grams that pose a wordhood issue is comparatively high given the relative rarity of the category, it is conceivable that other nominal categories might have produced more grams with the formal properties of interest here. In light of the fact that nominal morphosyntax is cross-linguistically less elaborate than its verbal counterpart, the potential alternatives largely reduce to number and gender markers as well as to classifiers, the latter of which often combine semantic properties of the former two. However, Bybee (1985a: 85) explicitly states that number marking bears on the meaning of the relevant noun and is thus crucially different from definiteness and case, whose exponents relate a noun to the discourse setting and to other syntactic units, respectively. Given the association between semantic relevance and formal behavior, this would predict that number markers tend to be more tightly integrated with their stems, which in turn would render them less likely to pose wordhood issues as defined here. Essentially the same argument extends to gender markers, which therefore align with number grams in that they can be derivational categories in any given language (Bybee 1985a: 99; Corbett 2000: 2, 262-263).

Meanwhile, classifiers differ from prototypical number and gender markers in that they may also express definiteness (cf. Aikhenvald 2000: 321-328). Yet, while this suggests that classifiers are underrepresented in the present chapter, there are both formal and functional reasons that may account for their absence here. Specifically, the very fact that classifiers do not primarily express definiteness increases the likelihood that this function is not explicitly discussed or illustrated in grammatical descriptions. Furthermore, classifiers may show a high degree of fusion with their noun stems and subsequently become unsegmentable parts of the latter (e.g., Givón 2011: 38-39). In conjunction, these facts suggest that even those classifiers that express definiteness may not show the ambiguous formal behavior investigated in this study. However, given the cross-linguistic frequency of classifiers, a detailed study of this issue is a worthwhile topic for future research.
3.2.2 Terminological issues

One theoretical question suggested by the data discussed in this chapter is whether the elements typically analyzed as clitics might lend themselves to a division into (at least) two different prosodic types. That is, several of the above examples suggest that one reason clitics appear to be abundant is that grammars do not distinguish between non-selective elements that interact with a host and non-selective elements that only fail to meet a language-specific metrical or suprasegmental threshold. While grams of the former type are prototypical clitics in that they can be divided into pro-, endo-, and enclitics, the latter items cannot be so classified. I will therefore refer to non-selective, prosodically dependent elements that do not interact with a host as “particles.” Given the discussion in the preceding sub-section, it thus follows that many of the definiteness markers above would more accurately be classified as particles rather than as clitics. Even though the concept of dependence that underlies this work does not critically rely on such distinctions, a consistent application of this terminology could greatly facilitate cross-linguistic studies of morphology.

With respect to the terminology specific to this work, the Basque article analyzed above highlighted a complication. In Chapter 1, it was stated that a morphological element is “dependent” to the extent that it is impacted by surrounding elements. Since the Basque article itself is invariant and instead triggers allomorphy in an /a/-final stem, it would not count as dependent on that definition. Yet, the crucial point for this work is that the allomorphic pattern triggered by the Basque gram is limited to the word domain, which shows that the article is part of a larger phonological word. Put differently, the article is involved in a process of word-internal allomorphy and therefore dependent, and it is only the fact that this dependence manifests itself elsewhere that is relatively anomalous. For the remainder of this work, I will therefore classify elements whose behavior is analogous to the Basque article as dependent, and I will not distinguish them from elements that exhibit the properties of dependence themselves.

3.2.3 Theoretical issues

The behavior of the Abkhaz definite article, not discussed above, presents a challenge to the concept of non-selectivity and thus also bears on the present work. Specifically, Hewitt
(1979: 226) states that in at least one context, the article occurs on both the noun and a preceding adjective, which can be understood as a type of concord. This fact would then suggest that the article is non-selective because it can occur on different word classes. However, this type of non-selectivity would differ from the one shown by clitics, which usually occur once per NP rather than on different elements within the same NP. The theoretical question therefore becomes whether concord on the one hand and a phrasal distribution on the other hand should both be considered instances of non-selectivity. The reason this topic is not usually addressed in the wordhood literature is perhaps that concord does not necessarily involve the same morphemes. That is, function A may be expressed by one gram on the head noun but by a segmentally unrelated one on attributive adjectives (and yet another one on numerals, etc.). Hence, non-selectivity due to concord would often refer to morphological categories rather than to individual exponents such as NP clitics.

Given that the goal of this study is to analyze the behavior of specific elements, I will not consider concord an instantiation of non-selectivity here, and no wordhood issues discussed in this work rely on that phenomenon. In the interest of consistency, I will also ignore concord that occurs outside NPs as well as concord systems in which the elements involved are formally identical (as in the case of the Abkhaz article). The impact that this decision has for the size of the present database is defensible. That is, while concord within the NP is not uncommon, especially when it involves case markers, many grammars do not distinguish word classes within the NP. Hence, a considerable portion of the case markers that participate in NP concord systems would be analyzed as selective, which reduces the likelihood that they are involved in wordhood issues. Conversely, even where case markers occur on different word classes within an NP, the mere fact that they are non-selective would not constitute a wordhood issue. Finally, there is essentially no analog to concord in the verbal domain, and its exclusion therefore has little impact on the wordhood issues found among indexes and tense markers.

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10 I will follow Norris (2017: 1) in referring to agreement within the NP as “concord.” This phenomenon can therefore be more easily distinguished from “agreement” markers that express person/number/gender functions.
4. CASE

4.0 DEFINING THE CATEGORY

The notion of “case,” like most linguistic concepts, has been used in different senses (cf. Crystal 2008: 66-67). On the traditional definition, case is expressed by nominal affixes and codes the relationship between the noun (or NP) and its head, where the head is usually a verb, an adposition, or another noun (cf. Blake 2004b: ch. 1). Subsequently, the term “case language” tends to be reserved for languages that have case affixes. However, as Blake (2004b: 9, 86, 98) points out, adpositions essentially perform the same range of functions as case affixes, and adpositions will therefore also be considered exponents of case in this work. The idea that both case affixes and adpositions should be subsumed under a single category of “case markers” is further supported by the fact that the former usually grammaticalize from the latter, which frequently renders impossible the categorization of individual grams as either one or the other (Blake 2004b: 11-12; Kulikov 2006: 23, 27; König 2008: 19). This will also be seen in the wordhood issues discussed below, many of which involve elements that combine properties of adpositions and of affixes. Another crucial insight about the exponence of case is that this category can also be expressed by suprasegmental strategies such as tonal apophony or suprafixation, especially in Africa (cf. König 2008: 5). While such grams were thus also considered for inclusion here, they are underrepresented among the wordhood issues below because the relevant prosodic phenomena are characterized by rather high degrees of fusion.

Croft (1991: 26) states that case marking is the primary means of expressing grammatical relations such as subject and object alongside indexation and constituent order. Yet, since case was defined as a category of the nominal domain in Chapter 1 (cf. also 4.0.2), there is no risk of misclassifying the latter two phenomena as instantiations of case marking. Specifically, indexation is primarily a phenomenon of the verbal domain once it is properly separated from the category of possession, and constituent order necessarily manifests itself across the entire clause. By focusing on case grams in the nominal domain to the exclusion of

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1 Cf. Beck (2017: 338-340, 348-350) for these terms. He defines a suprafix as a tonal melody whose structure can be stated in isolation (e.g., LH) and applies to any eligible word equally. By contrast, tonal apophony also describes a meaning-changing manipulation of a tonal contour, but one with lexically conditioned variants.
indexes and constituent order, the present chapter will investigate “case systems” rather than “case patterns” in the terminology suggested by König (2008: ch. 1). Note that I classify adpositions as part of the nominal domain here even though they are often argued to head their own phrases and to grammaticalize from serial verb constructions. This choice is not only motivated by the above-mentioned diachronic relationship between adpositions and case affixes but also by the fact that the presence of an adposition presupposes the presence of a nominal complement, whereas no such dependency holds between adpositions and verbs.

4.0.1 Typologies of case

Following Luraghi (1991: 71 n. 11) and Spencer (2009: 186), I will not consider the vocative a case for the purposes of this work, and hence no wordhood issues (exclusively) involving vocative grams will be presented below. This decision derives from the understanding that case expresses the relationship between a noun (phrase) and some other structure. By contrast, vocatives are defined precisely by their occurrence in isolation, which not only distinguishes them from all other cases but also from the majority of elements in human languages more generally. The traditional classification of the vocative as a case is probably due to the fact that it is mutually exclusive with actual case markers in languages like Latin. Yet, while such paradigmatic oppositions might be a necessary condition for the assignment of any given value to a case paradigm, they are not sufficient on a functional definition of the category.

The second potentially controversial case value is the genitive. It crucially differs from the majority of cases in that it does not typically relate a noun (phrase) to a predicate but rather expresses a possessor whose possessum is encoded in the same phrase (e.g., John’s book). While the definition of case in the preceding sub-section lists nouns as possible heads of other nouns, this reference is primarily required because of the genitive. In light of such considerations, König (2008: 12) discusses, but eventually rejects, the claim that case only holds at the clausal level and that the genitive is therefore not a case. One major reason why this argument fails is that its premise does not hold. That is, cases cluster around certain functions and constructions, but they are rarely confined to a single one. In German, for instance, the genitive commonly expresses possession, but it is also “governed” by certain adpositions, which are assumed not to be part of the NP that contains the genitive. Similarly,
several Russian verbs trigger genitive objects (cf. Timberlake 2004: 316-319), which further illustrates that the principles of genitive-marking are neither confined to the NP nor limited to the expression of possession (cf. also Nikiforidou 1991). That the genitive can theoretically be triggered by adpositions and verbs thus aligns it with most other case values and suggests that it is a case in its own right. Therefore, it will be considered a case marker for the purposes of this chapter.

Given the considerable overlap between genitive and possessive functions, it is important for the design of this work to distinguish their respective exponents. Possessive grams are cumulative in that they express ‘possession’ in addition to certain properties of the possessor and/or the possessum (person, number, etc.). Meanwhile, a genitive gram codes only that there is some abstract relationship, typically between nominals. Hence, English my is a possessive gram because it necessarily expresses possession and furthermore encodes that the possessor is first-person singular. By contrast, English of is a genitive gram because it does not necessarily express possession, and even when it does, it makes no reference to any properties of the possessor or the possessum. Only the latter type of gram will be considered in this chapter, while possessive markers will not be described anywhere in this work.

Many approaches to case systems distinguish between “core” (or “grammatical,” or “direct”) cases on the one hand and “peripheral” (or “semantic,” or “oblique”) cases on the other hand (cf. Blake 2004b: ch. 5). The former set typically refers to highly grammaticalized and semantically bleached case markers that are usually token-frequent because they tend to occur in basic clause types (e.g., nominative, ergative). Meanwhile, the latter set may be much larger, and its members tend to be semantically richer and less token-frequent than the core cases (e.g., allative, inessive). However, this distinction is far from clear-cut (e.g., Luraghi 1991: 62; Blake 2004b: 31-32) because “core” case functions are usually grammaticalized from “peripheral” case functions, and this diachronic tendency causes the same kind of gradient relationship that also holds at the formal level between case affixes and adpositions (on other factors impacting the diachrony of case markers, cf. Arista 1997; Bentz & Winter 2013; Bickel et al. 2015). In light of these facts, the present work will consider all case markers eligible loci of wordhood issues. One consequence of this inclusive strategy is that it will capture all instances of “general-purpose” adpositions, which can

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express (mostly non-agentive) relations regardless of whether they are assigned to the core (e.g., object) or the periphery (e.g., instrument). The grams discussed below from Khwe, Kokota, and Itzaj are probably instances of this phenomenon.

4.0.2 Distributional specifications

As mentioned in 1.3.3, verbs have also occasionally been described as domains of case marking. However, it is crucial to point out that the constructions that motivate this argument often come from Australian\(^2\) languages, given that Dench & Evans (1988: 23-30) show that Australian “case” markers may also express switch-reference as well as aspectual and modal meanings. While the latter functions fall within the verbal domain and might thus explain the occurrence of “case” markers on verbs, the present work will not consider an element non-selective if it expresses a case function in the nominal domain but another function in the verbal domain. Put differently, the interest here is only in grams that are semantically invariant, and I will leave open the question of whether items such as those described above should be analyzed as polysemous case markers or as instances of homonymy (cf. also Malchukov 2010: 150).

The previous chapter showed that the parameter of non-selectivity is often decisive in the analyses of wordhood issues. However, with regard to case marking, the criteria by which non-selectivity is established will be altered. The main motivation for this measure is to prevent the classification of case markers as non-selective solely because they can occur with both nouns and free pronouns. This issue did not arise in the realm of definiteness because indexes such as pronouns are typically definite (cf. also 3.0.2) and therefore unlikely to be marked for definiteness by a separate gram. By contrast, pronouns do not come with a connotation for any given case value, which aligns them with nouns. Crucially, these two form classes show further parallels in that they can head NPs and/or function as arguments of verbs and/or adpositions. In many languages, nouns and free pronouns also inflect for the same categories such as number, and it follows that they are not necessarily different syntactic categories (cf. also Siewierska 2004: 8-13). However, discussions of these issues are often scarce in grammars, and in the interest of consistency, I will therefore generally not

\(^2\) However, an expansion of case functions into the verbal domain is also posited for Ik (cf. Schrock 2014: 289-294).
posit non-selectivity when a case-marker is compatible with nouns and pronouns only. Meanwhile, the issue of whether the remaining classes typically posited to occur in NPs (demonstratives, adjectives, numerals, etc.) differ sufficiently from (pro)nouns to establish non-selectivity will be discussed on a language-specific basis in the relevant sub-sections below.

4.1 WORDHOOD ISSUES

This section describes the wordhood issues found in the domain of case marking. As throughout, the macro-areas and the languages within them are sorted alphabetically.

4.1.1 Africa

4.1.1.1 Fur

Fur has four case markers (object, locative, genitive, comitative/instrumental); the object marker is optional, and the comitative/instrumental case is preposed to its object, in contrast to the other three, which are postposed (Waag 2010: 71-72). The case markers are described as clitics because they attach to the edge of the NP rather than to its head or to each element within it via concord (Waag 2010: 71). There are few examples illustrating this distribution for any of the case markers, but (4.1) and (4.2) show the locative following a noun and an adjective, respectively. Note that the locative can also be expressed by a “polar tone,” which switches the tone(s) of all moras or of the last mora of the noun/NP to the respective other tone value(s), but this gram will not be discussed here. While Waag (2010) marks H tones with an accent and leaves L tones unmarked, Jakobi (1990) uses the opposite strategy (cf. Jakobi 1990: 50; Waag 2010: 42). In this work, I will adjust examples from Jakobi (1990) to Waag’s (2010) system.

(4.1)  soo̰m-le̱  
school-LOC  
‘in the school’  
(Waag 2010: 50)

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3 Note that it is unclear whether this is suprafixation or apophony. The two strategies for locative marking are apparently in free variation (Waag 2010: 45 fn. 7).
We have come from a distant place.\textsuperscript{(Jakobi 1990: 122)}

Waag (2010: 91-92) posits a general word class of “modifiers,” which co-occur with both nouns and verbs. It is clear from the discussion in Waag (2010: 92) that attributive nominal modifiers follow the noun, and therefore \textit{karra} in example (4.2) is here assumed to be such a modifier. Waag (2010) refers to the nominal instances of modifiers as “adjectives” throughout the grammar, and I will follow this usage here.

Part of the structure of the locative marker is a preceding floating L tone, which interacts with preceding material as follows. If the morpheme preceding the locative ends in an L, the locative’s floating tone does not manifest itself. However, when the preceding morpheme ends in an H, this H either changes to a falling tone or is downstepped (Waag 2010: 49). In the two examples above, the morpheme preceding the locative ends in an L, which is why there are no overt tonal sandhi processes. Yet, example (4.3) shows the downstepping effect of the locative’s floating tone with an H-final object NP. Tone sandhi are generally indicative of single phonological words because tones do not spread across word boundaries (Waag 2010: 51).

\begin{multicols}{2}
\begin{enumerate}
\item \(\text{lóó 'place'} \rightarrow \text{lóó'=lé 'at (the) place'}\) \textsuperscript{(Waag 2010: 50)}
\end{enumerate}
\end{multicols}

Given this behavior, the locative is dependent on the parameter of prosodic features. Meanwhile, other case markers have allomorphic variants depending on the segmental structure of the preceding element, which renders them dependent on the parameter of phonological rules. For example, in some dialects, an epenthetic vowel is inserted between consonant-final hosts and the object marker =\textit{sí}, which is also preceded by a floating L (Waag 2010: 49-50). Similarly, the genitive’s shape varies between C and VC (plus floating tone) depending on whether the preceding host is vowel- or consonant-final (Waag 2010:

\textsuperscript{4} This verb form is not segmented in the example, but its morphological structure can be reconstructed based on the information given in Jakobi (1990: 92, 101).
There is one straightforward example of the genitive attaching to an NP-final element other than a noun, given in (4.4). Waag (2010: 58) posits quantifiers as a separate word class, and she explicitly categorizes the relevant item below as a member of this class (Waag 2010: 68).

(4.4) kwa sɔŋŋâ=ŋ belé
people many=GEN word
‘(the) word of many people’ (Waag 2010: 79)

The genitive occurs in its monoconsonantal allomorph because the host ends in a vowel (Waag 2010: 36), and its floating L tone impacts the inherently falling tone on the final mora of sɔŋŋâ such that it becomes a downstepped falling tone (Waag 2010: 80). This particular tonal value is not specifically marked in the grammar or the present work, but it demonstrates that the genitive is also dependent on the parameter of prosodic features.

In sum, the above analysis shows that the case markers are non-selective and that the locative and the genitive are prosodically dependent on the parameters of phonological rules and/or prosodic features. Hence, these two case grams show a higher degree of prosodic than of syntagmatic dependence, and they are therefore indeed prototypical clitics.

4.1.1.2 Fwe

Neither adpositions nor case affixes seem to play a role in Fwe, but there is a “connective” construction that essentially functions like a genitive. The connective element is a linker between the preceding head and the following dependent noun. Its initial component indexes the noun class of the preceding head noun, and its second component, the root, is the same vowel as the augment prefix\(^5\) of the dependent noun (Gunnink 2018: 167). Several crucial details with regard to this construction will be discussed below, but example (4.5) is a typical instance. Note that the pattern discussed here is only found in the Namibian variety, while in Zambian Fwe, the connective root is invariant /o/ (Gunnink 2018: 167-168). I will ignore this regional difference here and speak simply of “Fwe” throughout.

\(^5\) The function of the augment is unclear (Gunnink 2018: 107, 109) and will not factor into the analysis.
The quality of the connective vowel is determined by that of the monovocalic augment on the following noun. The augment, where it exists, shows vowel harmony with the following noun class marker such that a noun class marker containing an /u/, like mu- above, triggers an augment vowel /o/ (Gunnink 2018: 101). However, the augment is not actually manifested segmentally in (4.5) or any of the other examples provided. Since the connective vowel is the same as the augment, the question is on what basis one can argue that the actually manifested vowel is the connective and not the augment. Here, it seems relevant that the augment consists not only of a vowel but also of a floating H tone that attaches to the syllable preceding it (Gunnink 2018: 107). Given that the vowel preceding the class 1 prefix in (4.5) bears an H tone, it is presumably the element that “underlyingly” precedes the augment, whereas the absence of the augment can be explained by the fact that it is usually omitted (Gunnink 2018: 107) or may only manifest itself via its floating tone (Gunnink 2018: 110).

So far, then, the following has been argued. The noun class marker, which always immediately precedes the noun (Gunnink 2018: 101), is a full-fledged affix and thus part of the noun. The augment, whose position to the left of the noun class marker is also fixed (Gunnink 2018: 107), is a straightforward prefix as well and is dependent on the noun class marker for the purposes of vowel harmony. Finally, the connective root depends on the augment for both vowel harmony and tone assignment and is therefore dependent on the parameter of prosodic features. Gunnink (2018: 172) states further that the connective may also be prosodically dependent with respect to the following noun when the former is affected by H tone spread (cf. Gunnink 2018: 83-86), where an H tone extends to preceding syllables but never beyond the word boundary (Gunnink 2018: 172).

The reason that Gunnink (2018: 172-173) analyzes the connective as a proclitic rather than as a prefix is that it behaves like a morphological word on the parameter of non-selectivity. Specifically, the connective occurs between NPs rather than between nouns, and

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6 Like many of the (morpho)phonological processes in the language, H spread appears to be lexically conditioned and/or optional.
this phrasal distribution can be seen when the dependent noun in the construction is modified by a preceding demonstrative, the latter of which Gunnink (2018: 158) posits as a separate word class. A relevant example of this construction can be seen in (4.6).

(4.6)  
\[ \text{e-mi-isi} \quad \text{i-e=cí} \quad \text{ci-shamú} \]
\[ \text{AUGM-CL4-root} \quad \text{CL4-CONN=DEM.CL7} \quad \text{CL7-tree} \]
\[ \text{N7-mu-shamú} \]
\[ \text{COP-CL3-medicine} \]
\[ \text{‘The roots of this tree are medicine.’} \]
\[ \text{(Gunnink 2018: 173)} \]

Given that the connective is non-selective but falls short of phonological wordhood on the parameter of prosodic features, it shows a greater degree of prosodic than of syntagmatic dependence and is therefore a prototypical clitic. Furthermore, this construction might be of relevance to the phenomenon of ditropic clitics, which was briefly introduced in 1.4.2. Where those elements are prosodically enclitic and semantically affiliated with following elements, the Fwe connective agrees with a preceding NP while being prosodically dependent on the following one. To the extent that this makes it the mirror image of a ditropic clitic, it would then also seem plausible to suggest that it will eventually become a suffix. While this prediction does not critically bear on the present work, it would be compatible with the fact that case affixes are predominantly suffixal (cf. 1.3.3).

Finally, Fwe also has a highly polysemous proclitic \( nV^\text{=} \), which primarily functions as a coordinator but which can also express traditional case functions such as ‘comitative’ and ‘instrumental’ (Gunnink 2018: 182-191). Prosodically, it behaves similarly to the connective described above in that it assumes the vowel quality (but apparently not the floating tone) of the augment. One reason I do not analyze this element here is that its coordinating function appears to be primary and that, despite the fact that comitative cases and coordinators are commonly related by polysemy, the respective prototypes of those functions are different (cf. Stassen 2000: 18; Haspelmath 2007b: 29-33). Specifically, case

\[ ^7 \text{Capital N symbolizes a homorganic nasal (Gunnink 2018: 104). Before a nominal prefix beginning with a nasal consonant, as in (4.6), the copula prefix is ‘absorbed’ by the following nasal, which leads to homophony between the forms with and without the copula (Gunnink 2018: 191-192).} \]
has a relational function in that it encodes some kind of hierarchy between elements, whereas coordination has a more basic, enumerative function and usually links elements of equal status. Another reason I omit a discussion of this element is that the examples in which it performs a comitative or instrumental function do not contain non-(pro)nominal hosts. Hence, its non-selective status, which would critically underlie a clitic analysis, cannot be demonstrated.

4.1.1.3 Khwe

Khwe has a frequently lexicalized genitive suffix, two potential case suffixes classified as derivational,\(^8\) and simple as well as complex postpositions (Kilian-Hatz 2008: 78, 81-89, 234-241). The simple postposition \(\dot{a}\) can mark any clausal participant, but it occurs most frequently with indirect objects, less frequently with direct objects, and least frequently with indefinite subjects (Kilian-Hatz 2008: 51, 61). The following example illustrates an instance in which it marks the direct object.

(4.7) Áxam \(\dot{a}\) pá-\(\ddot{a}\)-tè àpa \(\dot{a}\)

tick FOC bite-ACT.NPST-PRS dog OBJ

‘A tick is biting a dog.’ (Kilian-Hatz 2008: 52)

As can be gleaned from the gloss, the postposition also functions as a focus marker. In fact, Kilian-Hatz (2008: 54-55, 133-134) suggests that the element was initially a copula, which then became a focus marker and eventually extended its functional range to both core and oblique arguments (cf. also König 2008: 276-278). She subsequently argues for one highly polysemous item and uses different glosses for it (Kilian-Hatz 2008: 52-54). However, the focus-marking function of this element will not bear on the analysis proposed here.

While the postposition is rendered as a free word in (4.7), Kilian-Hatz (2008: 63) argues that it can also occur in bound form. This analysis is based on the fact that (putatively) vowel-initial phonological words, including postpositions, generally have an initial glottal

\(^8\) The two grams in question are the ‘privative’ and the ‘associative,’ where at least the former can change word class and as such is not a prototypical case marker. In addition, the discussion of these items is too brief to allow any substantive analysis, and I will therefore ignore them here.
stop, whereas vowel-initial suffixes, virtually without exception, do not have an initial glottal stop (Kilian-Hatz 2008: 21). The following example illustrates this variation found with the postposition.

(4.8) Xà-ná l’ân-à-tê éruku à (or: éruku-à) 
DEM-3PL.C beat-ACT.NPST-PRS dog OBJ dog-OBJ
‘They are beating the dog.’ (Kilian-Hatz 2008: 64)

The postpositional allomorph of the form in parentheses is analyzed as a suffix because it lacks a glottal stop. Since the presence of the glottal stop draws a clear line between words and affixes, the fact that the postposition shows (optional) prosodic dependence on the parameter of phonological rules is a sign of its development toward affix status, which the author herself highlights (Kilian-Hatz 2008: 52). While the grammar also has some allomorphs that appear to be conditioned by vowel harmony (cf. Kilian-Hatz 2008: 54), the latter phenomenon is only posited for verbal roots (e.g., Kilian-Hatz 2008: 32). Hence, vowel harmony is not a reliable indicator of wordhood in this case. Finally, free grammatical words can have L tones only (Kilian-Hatz 2008: 26), and I will therefore not classify the postposition as dependent on the parameter of prosodic features.

The analysis of the syntagmatic behavior of à is complicated by the fact that Kilian-Hatz (2008) does not explicitly describe it and because there she offers few examples in which it follows word classes other than (pro)nouns. However, there is at least one instance of a clausal complement in which the relevant postposition follows a verb. This is given in (4.9) below.

(4.9) xàcí tcáá-tê-?à tí jx?án qáámà-tê
she be.sick-PRS-ACC I very regret-PRS
‘I am a lot sorry [sic] that she is sick.’ (Heine & Kuteva 2007: 219)

Even though Heine & Kuteva (2007: 219) do not describe the host of the above postposition as a verb, the fact that tense marking is only described for Khwe verbs (cf. Kilian-Hatz 2008: 97-106) clearly suggests this analysis. Also, the element glossed as an accusative marker in
(4.9) can be assumed to be the same item as the one discussed above on the basis of both its form and its function. In sum, then, the postposition is non-selective but (optionally) dependent on the parameter of phonological rules. While it thus meets the definition of a prototypical clitic, Kilian-Hatz (2008) does not use this label for this specific item.

4.1.1.4 Tommo So

Tommo So does not have case marking on subjects, but some largely optional marking of objects does exist (McPherson 2013: 13). While the object marker is described as a clitic, its collocates seem to be limited to (pro)nouns, and it usually does not mark case when it co-occurs with words from other syntactic categories (McPherson 2013: 338). It therefore appears to be selective, and since it is also dependent on parameters of phonological wordhood (cf. McPherson 2013: 337), the object marker seems to be an affix rather than a clitic. Therefore, I will omit this gram from the present analysis.

Instead, the items of interest here are the five highly polysemous postpositions, all of which are considered enclitics (McPherson 2013: 221). As discussed in Chapter 3 with regard to the definiteness marker, the relevant differences between clitics and phonological words in Tommo So are as follows. Clitics are often monomoraic, usually toneless, and they cannot be produced in isolation, whereas phonological words must be at least bimoraic, do have tone, and can be produced in isolation (McPherson 2013: 74). With respect to the parameters underlying this work, clitics thus fall short of phonological wordhood on the parameters of free occurrence, segmental structure, and prosodic features. For the remainder of this analysis, I will focus on the associative marker =/le because it is the most thoroughly exemplified postposition in the grammar.

The associative gram immediately follows the last element of an NP (McPherson 2013: 222), and it primarily expresses the functions of ‘comitative’ and ‘instrumental’ (McPherson 2013: 221). The former use is seen in (4.10), where it follows a pronoun, and the latter use is shown in (4.11), where it follows the definiteness marker analyzed in the preceding chapter. As discussed there, a superscript L marks the process of tonal overlay (cf. McPherson 2013: 107).

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9 Note, however, that Heine & Kuteva (2007: 219) render the postposition with the glottal stop even though they gloss it as a suffix. This may ultimately be due to the optional status of the glottal stop.
Given that the preceding chapter suggested that the definiteness marker is a morphological word that does not fall within the word class of nouns, the above examples show that the associative postposition is non-selective. Yet, since the element is monomoraic and toneless, it meets the above definition of a Tommo So clitic, and since clitics also cannot be pronounced in isolation, it is dependent on the parameters of segmental structure, prosodic features, and free occurrence. Hence, the associative gram shows virtually the same formal behavior as the definiteness marker. Note that while the preceding chapter provided a detailed discussion of the process of interpolation, by which phonologically toneless elements come to bear a phonetic tone, the grammar does not discuss how interpolation manifests itself in the examples given above. Specifically, the effects of this process are unclear in cases where a vowel adjacent to a phonologically toneless vowel is itself phonologically toneless, as in (4.11). However, since Tommo So clitics are defined with respect to their phonological tone, the exact nature of their phonetic tone ultimately does not impact the analysis proposed here.

4.1.2 Eurasia

4.1.2.1 Basque

In Basque, there are 15 case markers that are argued to be phonologically bound to

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10 McPherson (2013: 90) states that vowels not marked by an accent do not have inherent tone. These vowels are said to occur in certain functional elements (such as the definiteness marker and the associative postposition discussed in the present work), but based on the list she provides it is unclear why the last syllable of a proper name might be toneless.
the final element in the NP, which need not be the head noun (Hualde 2003b: 171; Trask 2003: 170). While there is no explicit discussion of wordhood in the grammar, there is clear evidence for the idea that the case markers are phonologically bound. Specifically, consonant-initial case markers have vowel-initial allomorphs following consonants, and vowel-initial case markers have consonant-initial allomorphs following vowels (cf. Hualde 2003b: 171-175). While the grammar describes these processes as cases of epenthesis, nothing hinges on this approach, and they might equally be considered instances of deletion. The relevant processes are shown below with the ergative and genitive markers, respectively.

(4.12) (a) leku-k  (b) azal-ek
    place.INDF-ERG skin.INDF-ERG
    [no translation provided]          (Hualde 2003b: 174)

(4.13) (a) azal=en  (b) leku=ren
    skin.INDF=GEN place.INDF=GEN
    [no translation provided]          (Hualde 2003b: 175)

Since this allomorphy is limited to NP inflection and does not occur across phonological word boundaries (cf. Hualde 2003b: 174-175), the above case markers are dependent on the parameter of phonological rules. While the case markers do not seem to run afoul of other parameters of phonological wordhood, their prosodic dependence conflicts with their syntagmatic distribution. There are few examples that illustrate that the case markers can follow elements other than nouns, but (4.14) is a relevant instance. The constituent brackets are adopted from the source.

(4.14) [ni eta ni bezaloko asko]=ren iritziz
    I and I like.REL many=GEN opinion.INS
    ‘In the opinion of me and of many like me.’          (Trask 2003: 169)

The host of the genitive gram, asko, is explicitly classified as a quantifier (Trask 2003: 131), and quantifiers form a separate word class from nouns (cf. Trask 2003: 113). Therefore, the
Genitive clearly shows the properties of a prototypical enclitic in that it has the distribution of a morphological word but is prosodically dependent on a preceding host. Interestingly, however, the authors do not use the term “clitic” in the description of the case markers and instead consistently describe them as suffixes (e.g., Hualde 2003b: 171; Trask 2003: 170; cf. also Hualde 2009: 146). This points to yet another problem in the use of the “clitic” label. While most of the confusion surrounding this term stems from false positives (i.e., elements that are not obviously clitics are nevertheless described as such), the Basque case markers represent a false negative in that they should be classified as clitics but are not.

4.1.2.2 Chukchi

Dunn (1999: 61) explicitly states that the phonological and the morphological word in Chukchi almost always overlap, and the only exceptions he mentions concern auxiliary constructions and an emphatic particle (Dunn 1999: 38, 69). This would suggest that none of the 13 case suffixes (Dunn 1999: 99-100) pose a wordhood issue, and the discussion of those items supports this assumption (cf. Dunn 1999: ch. 6). However, there is evidence that two of the postpositions are enclitics, which the author himself acknowledges (Dunn 1999: 38 fn. 1, 77). The two postpositions in question are gaca ‘near’ and reen ‘together with’ (Dunn 1999: 77), but since the relevant mismatch is only demonstrated for the latter, the analysis here will focus on that item. In (4.15), it can be seen that reen triggers an allophonic change on the preceding locative suffix, whose primary exponent is /k/ (Dunn 1999: 101). According to Dunn (1999: 77), this specific interaction between the locative and reen is found “intermittently.” However, no further details about this usage pattern are provided, and I will ignore this aspect for the remainder of the analysis.

(4.15) ətl’aɣ  reen  na-twa-qen ənnen ɣiik
        mother-LOC with HAB-be-3SG one year
        ‘It stays with its mother for one year.’ (Dunn 1999: 77)

The process exemplified above is one of allophony rather than allomorphy because all
instances of /k/ become /ɣ/ before “[back] consonants.” The latter category includes all consonants except for velar and uvular ones (cf. Dunn 1999: 43-44), and the alternation is therefore expected with the postpositional onset /ɾ/, which is alveolar (cf. Dunn 1999: 44, 60). However, the fact that this process applies in the present case is nevertheless relevant because this allophonic alternation is usually only found word-internally (Dunn 1999: 77). Hence, examples such as the above suggest that reen sporadically forms a single phonological word with a preceding item. I will treat allophony and allomorphy as the same phenomenon for the purposes of the present work, and reen is therefore dependent on the parameter of phonological rules.

With regard to other potentially relevant parameters, Dunn (1999: 62) states that the phonological word is coextensive with the vowel harmony domain (for a description of the latter, cf. Muravyova 1998: 522). Yet, while the postpositions do not fall within a harmony domain (Dunn 1999: 77), the behavior of reen with respect to this phenomenon would be inconclusive in any case because /e/ can co-occur in a phonological word with both the recessive vowels /i, e/ and the dominant vowels /a, o/ (Dunn 1999: 48; van der Hulst 2018: 405). Since the language also does not have a stress system (Dunn 1999: 47), it follows that the parameter of prosodic features cannot inform the wordhood status of the postposition. The same holds for the parameter of segmental structure because Dunn (1999) does not discuss a minimum word size or phonotactic restrictions that apply at the word level.

The wordhood issue illustrated by reen revolves around the fact that it shows prosodic dependence with an adjacent element even though it has the distribution of a morphological word. In the present case, however, the degree of syntagmatic freedom is considerably greater than in most of the other instances presented in this chapter. Example (4.16) is the only relevant illustration of this distribution provided in the grammar.

(4.16) əŋqen n-iw-qinet əŋŋot əŋko ɣat kePe-k

DEM.ABS HAB-say-3PL thus there 2SG.ABS spirit-LOC

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11 In the language-specific orthography of the grammar, the symbol /ɣ/ is used for a velar approximant (Dunn 1999: 60). This possibly goes back to an older usage which conflated velar approximants and fricatives, whereas nowadays /ɣ/ is only used for the latter (cf. Pullum & Ladusaw 1996: 67). While this is potentially confusing, I will follow Dunn’s (1999) orthography here.

12 Schwa is purely epenthetic but can also co-occur with both the recessive and the dominant series within a phonological word (Dunn 1999: 48).
The above example shows that the postposition does not necessarily attach to an NP and may instead be separated from it by an intervening verb. Dunn (1999: 78) takes the fact that reen cannot occur without a locative-marked NP (even though it can be separated from it) as evidence that reen and the locative NP form a discontinuous phrase in examples like the above. However, such non-contiguous instances of a locative NP and reen are “rare” (Dunn 1999: 77), and this might ultimately lead to a situation in which reen is best analyzed as a case suffix. This, in turn, would not necessitate a reconsideration of the Chukchi nominal template because something akin to case stacking is already found in the contemporary language (cf. Koptjevskaja-Tamm 1995).

4.1.2.3 Georgian

Georgian has a paradigm of case suffixes that is variably described as containing seven (Hewitt 1995: 523) or eight members (Boeder 2005: 13). However, it is in the domain of the putative postpositions that a wordhood issue is most clearly found. There is widespread consensus among authors that (some of) the postpositions cliticize (e.g., Hewitt 1995: 69, 541; Harris 2003: 240; cf. also Bossong 2001: 666; Boeder 2005: 14-16; Daniel & Lander 2011: 136). Yet, none of these sources provide information on what defines cliticization in this specific instance, or which postpositions are affected, and under which conditions. Hence, the analysis provided here will be based on Slocum & Harris (n.d.), who explicitly address the question to what extent seven of the Georgian postpositions qualify as clitics based on the properties outlined by Zwicky & Pullum (1983). Slocum & Harris (n.d.) are careful to point out that the postpositions are at different stages of grammaticalization and therefore show different behavior with respect to the relevant phenomena. This diachronic gradience is also reflected in the diverging acceptability ratings they receive from their native-speaker consultants. In light of these considerations, I will focus here on the postposition -(a)mde ‘until’ (Slocum & Harris n.d.: 2), for which a wordhood issue most

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qə-twa-rkən  reen
ITN-be-PROG  with

‘They spoke thus, “You there, go live with the spirits!”’  (Dunn 1999: 78)

13 Boeder (2005: 13) posits a zero-marked absolutive case that is absent from Hewitt’s (1995: 523) paradigm.
clearly emerges.\footnote{The status of the initial /a/ in (a)mde is unclear. Slocum & Harris (n.d.: 3-4) mention that it has been analyzed as a historical reflex of the adverbal case marker, but they also describe it as an instance of synchronic epenthesis. On the other hand, Hewitt (1995: 76) only gives the form without the initial vowel, the latter of which he analyzes as the adverbial case triggered by the following postposition mde. However, examples provided throughout Hewitt (1995) clearly show that the adverbial case (or generally, /a/) does not obligatorily precede mde. While the exact degree of lexicalization of this postposition (and its potential allomorphy) thus cannot be gleaned from either source, this issue ultimately has little impact on the analysis proposed here.}

It cannot be said with certainty to what extent the postpositions are selective or not. Slocum & Harris (n.d.: 6) state that, virtually without exception, the postpositions only attach to “nominals.” Yet, they do not define this word class, and Hewitt (1995: 33) does not subsume all the words that can occur in an NP under a single “nominal” word class. However, modifiers such as adjectives (which include demonstratives and numerals) precede the noun (Hewitt 1995: 45, 51, 58). This ultimately makes it unlikely that the postpositions ever follow anything other than (pro)nouns. In that sense, then, they would have to be considered dependent on the parameter of non-selectivity, which would be incompatible with a clitic analysis.

Meanwhile, the morphophonological behavior discussed by Slocum & Harris (n.d.) supports the idea that (some of) the postpositions are prosodically dependent. This is because some of them trigger a process they dub “pre-sonorant syncope,” which causes the deletion of a non-high vowel in the last syllable of a nominal root when this vowel is followed by a sonorant and a suffix whose shape either is or begins with a VC sequence (Slocum & Harris n.d.: 6-7). Hewitt’s (1995: 25-26) formulation of this process is slightly different, but it crucially converges with that of Slocum & Harris (n.d.) in that he also limits it to the full-fledged case suffixes, as does Aronson (1997: 934). Examples (4.17a, b) illustrate the (non-)application of pre-sonorant syncope with some of the case suffixes.

(4.17) (a) sopel-i
     village-NOM
     ‘a village’
(b) sopl-is
     village-GEN
     ‘of a village’

(Slocum & Harris n.d.: 7)

Importantly, VC sequences that are not (part of) suffixes do not trigger this process, as seen in (4.18).
Against this background, it is clear that (some of) the postpositions behave like prosodic suffixes. The non-syncopated form before -(a)mde in (4.19b) is ungrammatical.

(4.19) (a) sopel-amde  (b) *sopel-amde
    village-until
    ‘up to the village’  (Slocum & Harris n.d.: 7)

Hence, the postposition -(a)mde behaves like a suffix with regard to syncope and is thus part of a larger word on the parameter of phonological rules.\(^{15}\) Assuming that postpositions like -(a)mde are indeed selective, the fact that they are also prosodically dependent would suggest that they are full-fledged suffixes. Yet, their distribution in coordinated plural NPs shows that they are not prototypical affixes after all. That is, several of the postpositions, including -(a)mde, can optionally be used on only the last element of a conjoined sequence while retaining semantic scope over the entire coordinated string (Slocum & Harris n.d.: 10-11). As outlined in 2.4, I will call such constructions “suspended affixation” in this work. While Slocum & Harris (n.d.: 10-11) do not provide examples of -(a)mde on each plural noun conjunct, they explicitly state that its suspended occurrence is the marked variant. Hence, this is precisely the kind of context captured by the parameter of cohesiveness as defined for the purposes of this work. Example (4.20) shows -(a)mde in suspended use.

(4.20) sk’ol-eb-sa da ek’lesi-eb-amde
    school-PL-DAT and church-PL-up.to
    ‘up to schools and churches’  (Slocum & Harris n.d.: 11)

\(^{15}\) Other postpositions can trigger syncope optionally, while yet others never trigger it at all. This is the reason I focus on -(a)mde here.
As hinted above, (4.20) is only acceptable with plural nouns. That is, substituting singular forms for the plurals in (4.20) leads to ungrammaticality, and analogous examples for other postpositions show the same number-dependent distribution (Slocum & Harris n.d.: 10-11). The authors do not offer an explanation for this fact, and none will be attempted here either. However, this restriction lends credence to the more general idea that grammaticalization diffuses one construction at a time and that synchronic irregularities are either those constructions that resist change the longest or those that adopt it the earliest.

The above analysis has argued that the postposition -(a)mde presents a wordhood issue in that it shows the behavior of an affix on the parameter of phonological rules while retaining syntagmatic freedom on the parameter of cohesiveness. Note also that the latter parameter has explicitly been referred to as definitional for Georgian words by Harris (2003: 228, 232). Based on the available evidence, then, -(a)mde is more prosodically than syntagmatically dependent. However, even though Slocum & Harris (n.d.) freely refer to (some of) the postpositions as clitics, this label would not be justified if they are truly selective. In that case, the term “suspended affix” would be more appropriate.

4.1.2.4 Kharia

The adpositions in Kharia are explicitly described as phonological and morphological words (Peterson 2011a: 24, 44, 68) and will subsequently be ignored here. Instead, the focus will be on the case markers. Kharia has a zero-marked “direct” case for subjects and certain objects, an oblique for certain other types of object, and a genitive (Peterson 2011a: 143). While Peterson (2011a: 17, 37, 57) categorizes the latter two as enclitics, this form class is somewhat difficult to define in the language. For instance, the phonological word is characterized by an LH pitch pattern, and clitics are said to diverge from phonological wordhood in that they do not show this pattern obligatorily (Peterson 2011a: 35-36). However, Peterson (2011b: 95) states explicitly that the pitch properties of clitics have not been fully identified, and due to this uncertainty I will refrain from considering pitch here.16 Given that there is no vowel harmony in the language, it follows that the parameter of

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16 Consider also that most content words are “(at least) bisyllabic” (Peterson 2011a: 35), and according to Anderson (2016: 115), pitch rises through the entire word (cf. also Schiering & van der Hulst 2010: 574; Hock 2016: 398). Hence, if clitics can also have rising pitch, the LH template would not distinguish them from full-fledged phonological content words.
Prosodic features do not bear on a distinction between free and bound elements. Similarly, since both content words and clitics can be monosyllabic (Peterson 2011a: 63), the parameter of segmental structure will also not factor into the present analysis.

Peterson (2011a: 1-4, 18, 77) rejects traditional syntactic categories for Kharia (cf. also Peterson 2005) and only posits a single open class and two closed classes, one of which comprises the elements considered clitics. Meanwhile, in Peterson (2011b: 95), he subsumes one of the closed classes under the open class, which would lead to two word classes overall (i.e., the open one and the clitics). Despite this limited inventory of word classes, the genitive marker can be shown to be non-selective. The relevant examples are given below.

(4.21) laʔ u sembho ro ḡakay rani=kiyar=aʔ nāw jan
then this PN and PN queen=DU=GEN nine CLF
beʔ=ḍom=kiyar aw=ki=kiyar
son=3.POSS=HON COP=MID.PST=HON
‘And then this Sembho and Queen Dakay had nine sons (= This Sembho and Queen Dakay’s nine sons were)’

(Peterson 2011a: 55)

(4.22) ayo apa=yaʔ jiyom=te=ko kunḍuʔ=ki=yaʔ thọŋ
mother father=GEN soul=OBL=CONTR child=PL=GEN for
soub bhere=ga dular aw=ta
all time=FOC love COP=MID.PRS
‘In a mother or father’s soul there is always love for their children.’

(Peterson 2011a: 55)

Peterson (2011a: 17) states that all “functional or grammatical” elements in Kharia are enclitics, and he explicitly subsumes number markers under that group (cf. also Peterson 2011a: 158). Hence, the genitive in (4.21), which follows the dual gram, attaches to a member of the clitic class. By contrast, in (4.22), the genitive follows a member of the open class of “contentive morphemes” (cf. Peterson 2011a: 119).

Given that the parameters of segmental structure and prosodic features were argued not to apply in the language, the genitive might therefore be a function word. Yet, the above
examples crucially illustrate that the genitive shows allomorphy. Peterson (2011a: 64) claims that \textit{aʔ} is the allomorph with preceding consonants, which accounts for its occurrence in (4.21), whereas \textit{yaʔ} is the allomorph following /e/ and /i/. As can be seen, though, the boldfaced token of \textit{yaʔ} in (4.22) follows \textless a\textgreater, in which case the genitive allomorph should have been a glottal stop according to the description. However, the important point for the present argument is that the genitive shows phonologically conditioned allomorphy at all, which can also be gleaned from the other token in (4.22). Even though Peterson (2011a: 33-35) does not explicitly limit such alternations to the level of the phonological word, all the examples he discusses seem to occur within that domain. Hence, the genitive will be classified here as non-selective but dependent on the parameter of phonological rules, which makes it a prototypical clitic.

4.1.2.5 Kokota

Palmer (2009: 63) argues that the only morphologically complex nouns in Kokota are either compounds or reduplicated; hence, there do not seem to be case affixes. Furthermore, Palmer (2009: 108, 123, 219) states that there is only a single preposition, the “general locative” \textit{ka}, which in addition to locative arguments also expresses the semantic roles of goal, source, instrument, cause, and benefactive. This preposition is one of the language’s few proclitics (Palmer 2009: 42), or more specifically, it tends to be rendered as a proclitic in casual speech but less commonly so in careful speech (Palmer 2009: 46). As elsewhere, I will treat this kind of synchronic variation as an indication of incipient grammaticalization.

The preposition can precede both a phrase or a clause (Palmer 2009: 46-47). Here, I will limit myself to exemplifying its interaction with phrasal complements since in those constructions its function as a case marker is more straightforward. Since NPs are not head-initial, the preposition can be followed by elements from different word classes, as shown in (4.23).

\begin{align*}
(4.23) & \quad (a) \quad & \text{ká}=\text{ira} & \quad (b) \quad & \text{ká}=\text{nau}=\text{gu} \\
& \quad \text{at}=\text{ART.PL} & \quad \text{at}=\text{house}=\text{1SG.POSS}^{17}
\end{align*}

\textsuperscript{17} No interlinear gloss for this example is given in the source, but the morphological structure can be pieced together from the information provided in the relevant discussion.
Since Palmer (2009: 81) argues that articles precede the nominal they modify, it follows that articles must be distinct from nouns. Hence, the preposition is non-selective. Meanwhile, as explained in more detail in the preceding chapter, stress falls on the first mora or syllable in a foot and on every other footed mora/syllable thereafter (Palmer 2009: 31). These patterns support the idea that the preposition is integrated into a single phonological word in terms of stress assignment. That is, if the article in (4.23a) constituted the beginning of a phonological word, it would have to bear stress on its first mora /i/. Instead, /i/ accounts for the second mora of the foot, which is unstressed, while the third mora, which is unfooted, is also unstressed.

Example (4.23b), however, is more complex. Palmer (2009: 32-35) states that younger speakers use a syllable-based stress system, whereas older speakers operate with a mora-based system. This variation presumably explains why there is no stress following the preposition in (4.23b). On a mora-based system, nau would be two moras (cf. Palmer 2009: 30), and one of them should be stressed in any environment. However, on a syllable-based system, nau forms the second syllable and as such is unstressed, and the following possessive is unstressed because it is unfooted. In any case, the absence of stress following the prepositions in the above examples can only be explained if the prepositions and the following elements are part of the same phonological word. Hence, the preposition is dependent on the parameter of prosodic features.

The preposition also participates in a sandhi process before /a/-initial elements, as shown in (4.24).

(4.24) gai teo ĕ-g-a mai=û k=ago
1PL.EXCL not.exist NT-3.SBJ come=CONT LOC=2SG
nogoi sala
VOC PN
‘We are not coming to you, Sala.’ (Palmer 2009: 124)

The above example shows that the preposition is dependent on the parameter of phonological
rules. However, if, as suggested by Palmer (2009: 124), it is the preposition rather than the following /a/-initial item that reduces in this environment, the former would also fall below the threshold of a full phonological word, which must be at least monosyllabic (Palmer 2009: 25). Since only sequences of identical vowels are concerned here, though, it is impossible to tell which of the two is ultimately manifested in examples such as the above. Yet, the preposition still seems to be sub-minimal because Palmer (2009: 25) makes a further distinction between a minimal word and a minimal stress-bearing word. Crucially, the latter has to be bimoraic, and since “grammatical particles” are claimed not to usually lengthen, the stressed monomoraic preposition seen above must be considered dependent on the parameter of segmental structure.

In sum, then, the preposition behaves like a morphological word on the parameter of non-selectivity, but it is dependent on the parameters of prosodic features and phonological rules. While this general behavior would seem to suggest that it is a clitic, the fact that it may bear stress violates one criterion commonly invoked for clitics.

### 4.1.3 North America

#### 4.1.3.1 Creek

The noun template given in Martin (2011: 24) shows that there are no case affixes in Creek. However, there are two elements, -(i)t and -(i)n, which occur NP-finally and mark subjects and non-subjects, respectively (Martin 2011: 337-338). Since the functional range of these items exceeds (non-)subject marking, Martin (2011: 23) refers to the subject marker as “thematic” and to the non-subject marker as “non-thematic.” I will adopt this usage here. Whether a given NP is marked by the (non-)thematic elements depends on several formal and pragmatic factors, but one generalization is that there is no case marking unless the respective NPs are in focus (Martin 2011: 339). This behavior suggests that the (non-)thematic markers are not fully grammaticalized, which, in turn, is presumably responsible for the wordhood issue discussed below.

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18 Note that these two elements also mark switch-reference at the clause-level (Martin 2011: 337), which I will ignore here.
Martin (2011: 22) states that the (non-)thematic markers occur at the end of NPs. Since NPs are not head-final (cf. Martin 2011: 372), the two grams at issue can attach to different word classes. The following examples illustrate their non-selectivity.

(4.25) ifá:-t  pó:si  lást-i:-n  á:ssi:c-is
dog-THM  cat  black-DUR-NTHM  chase.LGR-IND

‘The dog is chasing the black cat.’  (Martin 2011: 22)

(4.26) ísti  hámk-it  ánla:p-atí:-s
person  one-NTHM  meet.LGR-REM.PST-IND

‘A man met them.’  (Martin 2011: 340)

In (4.25), the thematic marker occurs on an NP that consists of a bare noun, and the non-thematic marker occurs on a postnominal stative participle, which Martin (2011: 30) paraphrases as “adjective” and explicitly distinguishes from the nominal and verbal category. Meanwhile, in (4.26), the non-thematic marker occurs on a postnominal numeral, which Martin (2011: 30) classifies as a sub-type of verb.19

As mentioned in the preceding chapter, stress is not a general requirement for words in Creek, and hence the (non-)thematic markers could be free function words even though they do not bear stress (Martin 2011: 22). Similarly, since (Martin 2011: 72-73) only formulates a one-foot minimum size requirement for nouns and verbs, the fact that the two grams in question have sub-syllabic allomorphs, as shown in (4.25), does not render them dependent on the parameter of segmental structure. However, what argues for their prosodic dependence is the fact that they are subject to allomorphy. While Martin (2011: 66) only describes a process that deletes the initial /i/ of the (non-)thematic markers when following an auxiliary, the examples throughout the grammar suggest that the grams are generally vowel-initial following consonants and consonant-initial following vowels. This ties in with the observation that tautosyllabic consonant clusters appear to be limited to casual speech.

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19 Note that in (4.26), the non-thematic marker occurs on an NP translated as an English subject. There is no explanation of the pragmatics involved in this specific example, but perhaps this apparent mismatch in grammatical relations is due to the switch-reference function of the (non-)thematic markers.
and/or perhaps to lexicalized constructions (cf. Martin 2011: 71). I will therefore assume that the formal variation of the (non-)thematic markers is phonotactically conditioned and that they are thus dependent on the parameter of phonological rules.

Taken together, the combination of allomorphy and non-selectivity renders the two case markers prototypical clitics. While Martin (2011) classifies these elements as clitics as well, it should be recalled that he also assigns this label to the definiteness gram described in the preceding chapter. However, even though both the latter element and the two discussed here are unstressed, they crucially differ with respect to the parameter of non-selectivity. Hence, on the present approach, which conceives of clitics in terms of both prosodic and syntagmatic criteria, the Creek definite marker and the Creek case markers pose different wordhood issues and are not part of the same form class.

4.1.3.2 Iñupiaq

In Iñupiaq, there is an elaborate system of cumulative case/number markers (absolutive, ergative, instrumental, allative, ablative, locative, perative, simulative, vocative), the exponents of which are described as suffixes (Lanz 2010: 52-69).20 One syntagmatic criterion that supports their affixal status is that they have to be the final element in every word in which they occur (Lanz 2010: 73). Yet, they seem to diverge from the affix prototype in that they can occur on different word classes. For example, most of the oblique cases (i.e., all but the absolutive and the ergative) can also occur on the large sub-class of demonstrative adverbs (Lanz 2010: 112-113). However, the paradigms provided by Lanz (2010: 54, 114) suggest that the case markers on the demonstratives are essentially suppletive allomorphs of the nominal case markers. Hence, it cannot be argued that the two sets of case markers are the same elements, and I will therefore not compare their syntagmatic and prosodic behavior here (cf. also 3.2.3).

What does call into question an affixal analysis of the nominal case markers, though, is that they can be suspended in coordinating constructions. Lanz (2010: 164) offers the example in (4.27), in which both conjuncts are case-marked, but she explicitly mentions that

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20 Lanz (2010) uses these cross-linguistically more common case labels, and I follow her usage here. Cf. Nagai (2006: 40-52) for the terms traditionally used in the Eskimo-Aleut tradition. Nagai (2006) does not appear to consider the vocative a case (cf. also 4.0.1), perhaps because it is not expressed by segmental morphology (cf. Lanz 2010: 68). The number values with which the case markers are fused are singular, dual, and plural.
only attaching the case marker to the last conjunct is an option in such contexts. This variation therefore invokes the parameter of cohesiveness as defined for the purposes of this work. Since the relevant example involves the ergative marker and it is unclear to what extent other case markers can be suspended, the rest of the present analysis will focus on the ergative.

\[(4.27) \text{ajuti-}m=lu \text{ aṣnaq-}m=lu \text{ tuttu-}Ø \\
\text{man.} \text{ERG.SG=} \text{and} \text{ woman-} \text{ERG.SG=} \text{and} \text{ caribou-ABS.SG} \\
\text{tautuk-}ka:k \\
\text{see-3DU>3SG.IND} \\
\text{‘The man and woman saw a caribou.’} \text{ (Lanz 2010: 164)}\]

Given the above-mentioned variation, the construction in (4.27) should be acceptable without the case marker on the noun corresponding to ‘man.’ To the extent that this is true, this would show that the case markers behave like words on the parameter of cohesiveness. Meanwhile, in terms of prosodic behavior, there is nothing to suggest that the case markers are anything but suffixes. Lanz (2010: 138) states that there is no compelling evidence for word stress in the language, and since there is also no vowel harmony (Lanz 2010: 22), the parameter of prosodic features seems to be inapplicable in Inupiaq. Moreover, in her discussion of the phonological word, Lanz (2010: 135-138) does not mention a language-specific minimum size or any word-specific phonotactic restrictions, which is why the parameter of segmental structure does not factor into the analysis either. However, the ergative marker does show allomorphy. While the sub-syllabic variant seen above appears to be its “elsewhere” exponent, the ergative is marked by /mu/ with certain noun classes and by /im/ with certain loanwords (Lanz 2010: 55). Example (4.28) illustrates the latter with a noun borrowed from English.

\[(4.28) \text{uqaluk-}a \text{ God-}im \\
\text{word-3SG.REFL.POSS God-ERG} \\
\text{‘the word of God (literally: God’s own word)}^{\text{21}} \text{ (Lanz 2010: 57)}\]

\[^{21}\text{Lanz (2010: 57) considers the genitive function evidenced here as a polysemous extension of the ergative.}\]
Even though it is not explicitly stated in the grammar, it is likely that the ergative allomorph seen in (4.28) is phonologically conditioned because the language does not allow tautosyllabic consonant clusters (Lanz 2010: 35), one of which would arise if the elsewhere allomorph were used in (4.28).22 On that assumption, then, the ergative marker poses a wordhood issue because it shows the syntagmatic freedom expected of a morphological word on the parameter of cohesiveness even though it is dependent on the parameter of phonological rules. As argued with respect to the similar case in Georgian described above, elements such as the Iñupiaq ergative are not clitics because they are selective. Instead, they are examples of suspended affixes.

4.1.3.3 Itzaj

There is no case marking on nouns in Itzaj (Hofling & Tesucún 2000: 190), but the language has an “all-purpose” preposition ti’, which covers (at least) the functions of English ‘to,’ ‘at,’ ‘in,’ ‘on,’ ‘of,’ and ‘from’ (Hofling & Tesucún 2000: 136). The description of the remaining prepositions (cf. Hofling & Tesucún 2000: 137-138) is not sufficiently elaborated, and I will therefore limit myself here to an analysis of ti’. Examples (4.29) and (4.30) show representative instances of that gram.

(4.29) b’in-een tulakal t-a’ noj bej tu’ux
    go-1SG all to-DET big road where
    k-in-meyaj-ej
    INC-1SG-work-TOP
    ‘I went all along the big road where I work.’ (Hofling & Tesucún 2000: 312)

(4.30) in-ka’aj ti k’aax
    1SG-go to forest
    ‘I am going to the forest.’ (Hofling & Tesucún 2000: 314)

22 Dorais (2010: 31-32) discusses examples of consonant clusters, but those are all straightforwardly heterosyllabic. Note that, despite ample discussion of case-marking allomorphy in both Lanz (2010) and Nagai (2006), it is not clear to me how a’unaq-m=lu in (4.27) is syllabified and how a tautosyllabic consonant cluster is avoided in that sequence.
The examples illustrate that ti’ precedes the NP, as a consequence of which it is non-selective. In (4.29), it is followed by the determiner analyzed in the preceding chapter, whereas in (4.30), it is followed by a noun.

It is readily apparent from (4.29) that ti’ undergoes allomorphy with the following determiner. However, no explicit formulation of this variation is provided, and the specific pattern involved here does not seem to follow from any of the general (morpho)phonological processes summarized by Hofling & Tesucún (2000: 8-25). Instead, Hofling & Tesucún (2000: 31-32) subsume this phenomenon under “contraction” or “fusion,” which they acknowledge is subject to considerable variation and has not been systematically studied. Crucially, though, this process is not limited to sequences in which the preposition precedes the determiner. If that were the case, one might argue on the basis of co-occurrence frequency that the collocation of the preposition and the determiner constitutes a separate lexical entry (as do the somewhat analogous constructions in German). Rather, examples (4.31) and (4.32) show that the same sub-syllabic variant of the preposition occurs when ti’ precedes a vowel-initial noun.23

(4.31)  ti’ aj-kax  →  tajkax
to  M-chicken
‘to the chicken’  (Hofling & Tesucún 2000: 32)

(4.32)  ti’ ix-ch’up  →  tixch’up
to  F-woman
‘to the woman’  (Hofling & Tesucún 2000: 32)

Hence, it seems plausible to argue that the preposition generally has a sub-syllabic allomorph before vowels, which renders it dependent on the parameter of phonological rules. As discussed in the relevant section of the preceding chapter, vowel harmony in Itzaj is limited to a few verbal grams and therefore not a robust indicator of wordhood. Since the

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23 The morphemes immediately following the preposition in these examples are noun classifiers (cf. Hofling & Tesucún 2000: 117-118).
behavior of the preposition with respect to stress is not described, it follows that the parameter of prosodic features does not apply in the present analysis. The same holds for the parameter of segmental structure because Hofling & Tesucún (2000) do not describe word minimality or phonotactics. Nevertheless, the combination of properties that the preposition exhibits suggest that it is a clitic. Unlike the definiteness marker, though, its allomorphic patterns clearly show that it is dependent on a following element, and it is therefore a straightforward proclitic.

4.1.3.4 Lillooet

No case-marking affixes are mentioned for Lillooet, but there are four “primary” prepositions, which cover a wide semantic range and are collectively described as proclitics (van Eijk 1997: 219). The only syntagmatic criterion that van Eijk (1997: 46) illustrates for nominal proclitics is that their position is determined with respect to the NP, unlike affixes, which are tied to the noun. While this corresponds to the parameter of non-selectivity as defined in this work, the application of this parameter is complicated by the fact that word classes are argued to be weakly distinguished in Lillooet. Specifically, van Eijk (1997: 41-44, 258 fn. 4) claims that a difference between nouns and verbs may be untenable (cf. also Kinkade 1983; Czaykowska-Higgins & Leonard 2015: 1744), and the main categorial division that van Eijk (1997: 41-47) suggests instead is one between variable words, invariable words, and clitics. The analysis presented here crucially relies on this division.

The one preposition that appears to be a straightforward proclitic is ῥə̂, whose functions are given as ‘toward, along’ as well as marking the agent of a passive construction (van Eijk 1997: 219). The following examples illustrate these two usages. Note that the example rendered here as (4.34) is only partly glossed in the source. I added the remaining glosses based on information found elsewhere in the grammar, and they may therefore be incorrect.24 However, the analysis proposed here does not hinge on these glosses.

(4.33) ῥə̂=ti=citxʷ=a

toward=ART₁=house=ART₂

24 Also, the representation of clitics used in the source is adjusted to the standard employed throughout this work.
The host of the preposition in (4.34) bears a prefix, which may be the nominalizer s- (cf. van Eijk 1997: 48-49). However, since affixation is generally a distinctive property of variable words (van Eijk 1997: 41), the preposition occurs with a member of that class regardless of the function of that prefix. By contrast, the word to which the preposition in (4.33) attaches is an article, and this class is explicitly described as consisting of clitics itself (van Eijk 1997: 192). Given the few syntactic categories posited to exist in the language, this illustrates the non-selective nature of the preposition. Note, finally, that clitics and invariant words both cover the functional range of typical grams. In fact, they seem to differ only in that the former are prosodically deficient in ways that are not always transparently described in the grammar. Yet, even if one did not accept a division of word classes based on phonological criteria, the two examples above would then illustrate the preposition with an invariant word and a variant word, respectively, which would also demonstrate its non-selectivity.

The main reason that the focus here is on the preposition ˀə is that van Eijk (1997: 6) explicitly mentions that schwa cannot occur word-finally unless in borrowings. I will assume here that the preposition is not a borrowing since grams are cross-linguistically less likely to be borrowed than open-class items (Tadmor et al. 2010: 231; Matras 2011: 208, 222). To the extent that this is true, the preposition would then be dependent on the parameter of segmental structure. Beyond that, however, ˀə is not obviously prosodically dependent. That is, the elements classified as proclitics are generally unstressed (van Eijk 1997: 153), but stress is only required for polysyllabic words (van Eijk 1997: 5). Furthermore, processes involving vowel harmony are generally not described for the language, and allomorphy is not

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25 The Lillooet clitic articles were not analyzed as a wordhood issue in Chapter 3 because they all express whether the referent is ’present’ or ’absent,’ which is described as a fundamentally deictic function (van Eijk 1997: 193-194). As described in 3.0.1, such elements were not eligible for inclusion in the preceding chapter (cf. also Dryer 2014: e242 for the same decision with respect to Upriver Halkomelem, a related Salishan language).
discussed for the preposition in question. Hence, neither the parameter of prosodic features nor the parameter of phonological rules bears on the present analysis. This has implications for the classification of the preposition as a proclitic given that it was argued in 3.2.3 that the combination of non-selectivity and dependence on the parameter of segmental structure identifies particles rather than clitics.

4.1.3.5 Onondaga

Woodbury (2018: 72) posits three word classes for Onondaga: verbs, nouns, and particles. Since case is not mentioned as a category expressed on nouns (cf. Woodbury 2018: 78-81), the language thus appears to have neither case affixes nor adpositions. While Woodbury (2018: 81-85) makes a further distinction between particles and clitics, it is unclear what this distinction is based on. Specifically, particles are described as monomorphemic elements, which, among other things, express grammatical functions. Yet, this description also seems to fit (most of) the clitics. Hence, this putative distinction will not play a major role in this analysis.

Woodbury (2018: 72) states that clitics are non-selective even though they usually occur in the nominal domain. Of the nine clitics listed, the “(external) locative” is the only one that can be considered a case marker; one of its functions is to add the meanings ‘on’ or ‘at’ to nominals (Woodbury 2018: 85). The following two examples illustrate the locative with nominal hosts. Note that the locative must be added to most body part nouns (Woodbury 2018: 79 fn. 11), which might explain why no locative meaning is reflected in the translation for (4.35a).

(4.35) (a) ųgw-e:yah=ne=shų?
1PL.P-heart=LOC=PL
‘our hearts’

(b) k-hų?gw-a?=ge
1SG.A-throat-NSF=LOC
‘(on) my throat’

(Woodbury 2018: 84, 79)

As can be gleaned from the examples, the locative has allomorphic variants. According to Woodbury (2018: 287 fn. 6), the alternation is such that ne occurs after /h/ and ge occurs elsewhere. This is the distribution in evidence above. However, Woodbury (2018: 85) also
gives a further allomorph hne, which in turn seems to be a variant of ne, but whose conditions of occurrence are not discussed. As will be seen below, the locative apparently has even more allomorphs whose relationship with ne and ge is also unclear. Yet, what matters for the argument to be developed here is simply that the locative shows this formal variation at all because morphophonologically conditioned allomorphy is explicitly argued to occur within the domain of the word but not across words (Woodbury 2018: 71). Hence, the two examples in (4.35) illustrate that the locative is part of a larger word, and it is therefore dependent on the parameter of phonological rules.

As mentioned above, the locative is usually found in the nominal domain, and relevant contexts in which it occurs with hosts other than nouns are scarcely exemplified in the grammar. However, the following example seems to illustrate that it can indeed occur with different word classes as well.

(4.36) seʔ=á  gwaʔ  goʔ  tho  naʔ
MDL=DIM  REST  CONTR  LOC  ASS
d-ʊda-ʊɡnʔ-ʔ=geh
DL-CIS.FACT-1DU.P-drag-PNCT=LOC
‘Actually, though, we did drive through there.’ (Woodbury 2018: 368)

The element to which the locative attaches in (4.36) must be a verb because it contains a cislocative prefix and a punctual aspect suffix, and the relevant paradigms are part of the verbal morphology (cf. Woodbury 2018: ch. 4). This analysis is further supported by the fact that the relevant string above contains neither a nominalizing affix nor a noun affix, the latter of which is typically found on nouns (cf. Woodbury 2018: 78). While the function of the locative in this example is not elaborated upon, the free translation is clearly compatible with a locative meaning, which suggests that the element at issue expresses its eponymous function in (4.36). In sum, then, the locative appears to be non-selective.

As hinted above, it is unclear why the form of the locative in (4.36) is given as geh. This variant is not listed by Woodbury (2018: 85), and none of the more general processes described by Woodbury (2018: ch. 2) would seem to account for it. Several other aspects about the phonology of the locative also cannot be addressed here. For instance, Woodbury
(2018: 293 fn. 13) mentions that clitics may generally impact stress assignment, but there is no discussion of how individual clitics such as the locative behave in this regard. Since no vowel harmony system is described for the language, the parameter of prosodic features therefore does not inform the present analysis. Similarly, the parameter of segmental structure fails to apply in the absence of a discussion of word minimality or phonotactics.

In conclusion, the locative shows the non-selective distribution expected of a morphological word, but it is dependent on preceding elements on the parameter of phonological rules. This behavior clearly supports Woodbury’s (2018) classification of this element as an enclitic.

4.1.3.6 Tanacross

Nouns in Tanacross can be inflected for possession and, if they refer to humans, optionally for number (Holton 2000: 122). Hence, there is no indication of case affixes in the language. However, there is a large class of postpositions, which primarily mark oblique arguments and which “must occur immediately following the noun phrase they govern” (Holton 2000: 282). There is no explicit discussion of NP structure, but it is crucial that attributive adjectives, which form a small class, follow the noun (Holton 2000: 293). No clear example of a postposition following an NP with a postnominal adjective is provided in the relevant sections or the glossed text, but it must be assumed on the basis of this explicit description that postpositions can follow at least two different word classes, i.e., nouns and adjectives.26

It is also apparent from at least one example in Holton (2000: 283) that postpositions can precede other postpositions and thus do not necessarily occur before a verb. Nevertheless, though, an immediately preverbal position seems to be the default option, and it is with following verbs that the postpositions show optional sandhi processes (cf. also Denk 2019: 825). For instance, the verbal prefix yi-, which expresses a fourth-person object (or ‘obviative;’ cf. Holton 2000: 250) manifests itself as y- when preceded by an open syllable and followed by a consonant (Holton 2000: 284).27 It is likely that the preceding

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26 Holton (2000: 277) himself considers his word class divisions “rather arbitrary” and weakly supported, but he provides concrete morphological evidence in support of the adjective class. The assumption of this class is sufficient for the argument that follows.

27 Orthographic y corresponds to IPA /j/ (Holton 2000: 59).
open syllable is usually another prefix given that the obviative marker occupies a non-initial slot in the prefix template (cf. Holton 2000: 243, 248). Crucially, however, this allomorphic process also extends to cases in which the preceding syllable is a postposition, as shown in (4.37). Note that this example illustrates that participants that correspond to direct objects in English are often expressed as obliques in Tanacross (Holton 2000: 283; cf. also Rice & de Reuse 2017: 732). This difference will also be seen in the next example.

(4.37) dɛnːːg ya y-d-y-l-dək
moose by 4.OBJ-THM-MD-CLF-miss.shot
‘He (shot and) missed the moose.’ (Holton 2000: 284)

Another process the postpositions are involved in is the deletion of the iterative prefix na-following an open syllable, which causes the preceding vowel of the open syllable to be lengthened (Holton 2000: 284). It is clear from the general description of that process (Holton 2000: 69) that it also (and presumably in most cases) affects strings of prefixes and is thus a word-level phenomenon. However, when a vowel-final postposition precedes a verb with an initial iterative prefix, the same process occurs. The presentation of the following example is modified in the interest of clarity. The string to the left of the arrow is the “underlying” form and the one to the right of the arrow is the “surface” form. The relevant postposition is not translated for this specific example in the source, but I use the translation given in Holton (2000: 282).

(4.38) m-e na-č’e-čkʔáːtl → m-e: ʔč’e-čkʔáːtl
3-on ITER-INDF.OBJ-1SG.CLF-eat
‘I fed it again.’ (Holton 2000: 284)

The argument presented here suggests that the Tanacross postpositions are non-selective but (optionally) dependent on a following verb on the parameter of phonological rules. By contrast, the behavior of the postpositions with regard to the other parameters is inconclusive. For instance, Holton (2000: 87) states that the morphological stem is monosyllabic, and all postpositions listed by Holton (2000: 282) meet this minimum. Furthermore, vowel harmony
seems to be limited to a single morpheme (cf. Holton 2000: 27, 135) and is thus not a useful indicator of wordhood. Finally, the relationship between postpositions and the phenomenon of rightward H tone spread is unclear. That is, Holton (2000: 83) explicitly states that the verbal prefixes constitute the domain of H tone spread, but he suggests elsewhere that H tone can also spread from a postposition to a following verb prefix (cf. Holton 2000: 84-85). While this would suggest that postpositions behave like verbal prefixes with respect to this process and are thus also dependent on the parameter of prosodic features, the discussion of this topic is ultimately too brief, and I will therefore omit this parameter from the analysis.

Despite the above-mentioned empirical gaps, the postpositions clearly show a greater degree of prosodic than of syntagmatic dependence, and given that they interact with following verbs, they can be classified as prototypical clitics (cf. Holton 2000: 286). It should also be pointed out that Holton (2000: 255) explicitly rejects the analysis that the postpositions are verbal prefixes, which is commonly pursued with regard to other Athapaskan languages. Given the syntagmatic freedom of the postpositions, this argument is in line with the general approach adopted in the present work.

Finally, it seems noteworthy that the postpositions appear to instantiate the mirror image of ditropic clitics. That is, their syntactic complements are the preceding NPs, but they only show phonological interaction with following verbs. Thus, while ditropic clitics are argued to require a “prosodic jump” to become full-fledged prefixes (cf. 1.4.2), the Tanacross postpositions would necessitate a “syntagmatic jump” to arrive at that stage. In this context, it is of interest that Tanacross, unlike most of the world’s languages, is predominantly prefixal, which suggests that the better-known ditropic clitics usually lead to suffixes, whereas their less common mirror images typically lead to prefixes. However, an exploration of why any given language has ditropic clitics or their mirror images, and why the direction of the prosodic interaction usually seems to determine the eventual affix type, must be left for further research.

4.1.3.7 Tiipay

There are five overt and largely optional case markers in Tiipay, all of which are described as NP-final clitics (Miller 2001: 6, 154). The main property defining clitics is the fact that their onsets lenite when following an NP (Miller 2001: 44-48). Of the five overt case
clitics, however, only the subject case marker =ch undergoes lenition (Miller 2001: 44), and the present analysis will therefore focus on this element. While Miller (2001: 5) explicitly posits verbs, nouns, and adverbs as word classes, the latter are limited in number and largely uncommon (Miller 2001: 169). Hence, the fact that the subject case marker is an NP-final clitic rather than a nominal suffix can best be illustrated by showing its occurrence following a verb. The first token in example (4.39) is a straightforward instance of this distribution. The square brackets marking off the NP boundaries are taken from the source.

(4.39) [kwe-’llyap]-ch we-yaw w-aaar-m [yiiw]-ch
[SBJ.REL-be.hot]-SBJ 3-take 3-do.much-DS [face]-SBJ
aaaxully
break.out.in.rash
‘He had a fever (literally: that which was hot really took him) and his face broke out in a rash.’ (Miller 2001: 46)

The above example demonstrates that the subject marker can occur on a bare noun such as ‘face’ as well as on an element that is morphologically a verb. That is, the subject relative prefixes, which are exemplified by kwe- in (4.39), occur on verbs (Miller 2001: 124-125), and the verbal nature of the subject ‘fever’ is further conveyed by the English translation. This distribution therefore establishes the non-selectivity of the subject case marker to the extent possible.

By contrast, the prosodic behavior of the subject marker suggests that it is not a free word. Miller (2001: 46) states that both tokens of the subject marker in (4.39) are rendered as [dʰ], the lenited form of the voiceless palato-alveolar affricate that orthographic ch corresponds to (Miller 2001: 12). As Miller (2001: 45) herself points out, the allomorphy of the subject case marker is not conditioned by assimilation (i.e., it is voiced even after voiceless segments, as seen with the first token above). However, its shape is nevertheless determined by the preceding element, and the subject marker is therefore dependent on the parameter of phonological rules. Since a phonological word is furthermore defined by a stressed syllable (Miller 2001: 11), and stressed syllables obligatorily contain a vowel (Miller 2001: 5), the subject marker also falls short of wordhood on the parameters of segmental
structure and prosodic features. Finally, Miller (2001: 51) claims that the ability of a word to be pronounced in isolation is tied to the existence of a stressed vowel, and given the above, the subject case marker thus falls short of the parameter of free occurrence as well.

In sum, then, the subject case marker is the most clear-cut instance of a clitic that can emerge given the parameters and definitions used in this work. It fails all four parameters of phonological wordhood but can essentially occur with all word classes in the language.

4.1.4 Oceania

4.1.4.1 Bardi

There are no prepositions in the language (Bowern 2012: 165) and only a few “nascent adpositions” that can occur either before or after an NP (Bowern 2012: 346-347). These do not seem to constitute a wordhood issue and will consequently be ignored here. Instead, the focus will be on the 17 case markers (Bowern 2012: 192). The author explicitly classifies these grams as inflectional suffixes rather than clitics (e.g., Bowern 2012: 4, 121-122, 191-192, 194-195, 347), and the reasons arguing for and against this analysis will be discussed below.

The most salient property of the case markers is that they exclusively occur inside the NP. Specifically, they are postposed to the first member of the NP, regardless of which word class the first member belongs to (Bowern 2012: 4, 192).\(^{28}\) This pattern is highly unusual for case markers, and Bowern (2012: 170) herself points out that it seems to be limited to Australia.\(^{29}\) The following examples, which retain the phrasal brackets from the source, illustrate this pattern with the ergative marker.

\[(4.40) \quad [\text{Aamba-nim}] \quad \text{aarl} \quad \text{i-na-m-boo-na} \]

\[
\text{man-ERG} \quad \text{fish} \quad 3-\text{TR-PST-poke-REM.PST}
\]
‘The man speared a fish.’ \quad (Bowern 2012: 193)

\(^{28}\) Bowern (2012: 169) states that there is no optional case concord in the language. However, the ergative marker may appear on all members of a discontinuous subject expression, which Bowern (2012: 369) takes as evidence that these members then form separate NPs. This will not bear on the present analysis.

\(^{29}\) Dryer (2013c) calls such case markers “inpositions,” and seven of the eight languages in which he finds them are Australian (the outlier is Tümpisa Shoshone [Uto-Aztecan]).
The element *boordiji* in (4.41) is explicitly classified as an adjective by Bowern (2012: 263-264), whereas *aamba* in (4.40) is categorized as a noun (Bowern 2012: 158). While Bowern (2012: 152) subsumes both nouns and adjectives under the category of “nominals” (which essentially subsumes all elements found in an NP), she outlines elsewhere that adjectives are distinct from nouns in several ways (cf. also Bowern 2014: 505-506). Hence, it seems justifiable to consider the ergative non-selective. Another sub-class of nominals that is analyzed as separate from nouns is the set of numerals (Bowern 2012: 282). One member of this class is *arinyj(i)* ‘one’ (Bowern 2012: 279), which is seen in (4.43) with the locative gram. Since (4.42) shows the locative with a noun, this case marker is thus also non-selective. Note that while the ablative largely shows the same prosodic and syntagmatic behavior as the locative (Bowern 2012: 230-235), I will restrict myself here to a discussion of the latter in the interest of conciseness.

(4.42) rali booroo-goon i-na-ma-n=irr
straightaway camp-LOC 3-TR-put-REM.PST=3AU.OBJ
‘He put them in [his] camp.’ (Bowern 2012: 219)

(4.43) Arinyj-on aamba i-ngorr-orrorgorndi-n gooyarr-injoona-nim
one-LOC man 3-PST-AU-tie.up-PST two-together\(^{30}\)-ERG
jőorloo snake
‘The two snakes together tied up the one man.’ (Bowern 2012: 183)

\(^{30}\) Bowern (2012: 183-184) is unsure about the semantics of this morpheme, but since this does not affect the present discussion, I will use the tentatively proposed translation for the sake of simplicity.
While both the ergative and the locative have the syntactic distribution of morphological words, they show certain properties that mark them as prosodically dependent. For instance, the former bears secondary stress even though all phonological words bear a word-initial primary stress (Bowern 2012: 110, 112). Similarly, the locative does not receive any primary or secondary stress (cf. Bowern 2012: 115) and therefore also falls short of phonological wordhood. Hence, both the ergative and the locative are dependent on the parameter of prosodic features.

In addition, the locative also shows allomorphy. The relevant variation is conditioned by processes described as lenition and vowel harmony, which are both stated to affect affixes but not clitics (cf. Bowern 2012: 122, 131, 161). However, both these processes are characterized by considerable irregularity with respect to the locative (Bowern 2012: 214-215). For example, according to the general description, the /u/ (orthographic oo) of the locative should become /o/ when following low vowels (Bowern 2012: 131). Yet, in (4.43), the nucleus of the locative is /o/ even though it does not follow a low vowel. Similarly, the onset of the locative should be deleted intervocalically based on the general formulation of the principle by Bowern (2012: 121), but in (4.42) the onset is retained in an intervocalic environment. While a satisfactory statement of the locative allomorphy thus cannot be given, the relevant fact for the present analysis is merely that there is phonological allomorphy at all, which is uncontroversial to the extent that both (4.42) and (4.43) are grammatical. On that assumption, then, the locative is dependent on the parameters of prosodic features and phonological rules.

As mentioned above, Bowern (2012) rejects a clitic analysis for the case markers. The major reason invoked for this decision is that lenition processes in clitics differ from those in affixes (Bowern 2012: 122, 163, 194-195, 343-344). However, given that the allomorphic patterns of (at least) the locative are highly irregular, this does not seem to be a robust basis for such an argument (as Bowern 2012: 161 herself acknowledges). A more compelling case could instead be made with respect to the wordhood parameter of conventionalized meaning. That is, native speakers do not recognize case markers in isolation as meaningful elements (Bowern 2012: 342). In conjunction with their prosodic dependence, this would largely support the author’s view that the case markers are affixes. However, the parameter of non-
selectivity, complicated though it is by the posited superordinate category of “nominals,” quite clearly associates the case markers with morphological words and thus with clitic status. For the purposes of this work, the case markers will therefore count as a wordhood issue. Overall, though, the fact that neither an affix nor a clitic classification seems perfectly appropriate for (some of) the Bardi case markers illustrates that the established morphological terminology does not measure up to the richness of attested morphological phenomena.

4.1.4.2 Mauwake

Nouns in Mauwake lack inflection (Berghäll 2015: 18, 55), and subsequently there are no case affixes (Berghäll 2015: 21). The number of postpositions is also limited, and while most of them are full phonological and morphological words, a subset of the relevant elements is made up of clitics (Berghäll 2015: 216). Strictly speaking, Berghäll (2015: 216) distinguishes between postpositions and clitics, but she also states that they show similarities in form and function. I focus on the elements classified as clitics here, not least because their functions are arguably more straightforward instantiations of the case category than those of the postpositions.

The author explicitly defines nominal enclitics as morphological words that are phonologically attached to the last element of the NP (Berghäll 2015: 216). The following examples illustrate two of the clitics with non-nominal hosts.

(4.44) pon piipa unowa=pa soomar-em-ik-eya mik-a-m
turtle seaweed many=LOC walk-SS.SIM-be-3SG.DS spear-PST-1SG
‘The turtle was walking among the seaweeds and I speared it.’

(Berghäll 2015: 220)

(4.45) nomokowa galua-galua nain=iw biiris on-am-ik-e-mik
tree soft-soft DEM=INS bridge make-SS.SIM-be-PST-3PL
‘They kept making bridges with soft timber.’

(Berghäll 2015: 221)

The host of the locative in (4.44) is explicitly categorized as a member of the quantifier class
(Berghäll 2015: 85), and the element to which the instrumental attaches in (4.45) belongs to the category of demonstratives (Berghäll 2015: 119). Since most other examples of the postpositional clitics show them with nominal hosts, they are clearly non-selective.

Berghäll (2015: 41-43) defines the phonological word in Mauwake as follows. Every phonological word has one stressed syllable, and while they can consist of a single syllable (of a shape other than VC), most words consist of two or three syllables. Stress falls on the syllable containing the second vowel and thus on the second syllable unless the first syllable consists of a long vowel or a diphthong. Both inflectional and derivational affixes are integrated into phonological words of that structure and therefore bear stress if the stem consists of a short monophthong. However, clitics never bear stress and instead lead to stress even on monosyllabic hosts, the latter of which undergo vowel lengthening if monomoraic.

There do not appear to be any examples in the grammar that would clearly illustrate the impact of the postpositional clitics on stress assignment, and in both of the examples above, the second vowel is part of the host. Nevertheless, it can be concluded from the general description given above that the locative =pa does not bear stress, and it is therefore dependent on the parameter of prosodic features. The same analysis applies to the instrumental =iw because this element is also classified as a clitic in the grammar. However, =iw shows additional dependence on the parameter of segmental structure in that it has the form VC, which, as mentioned above, is the one shape a monosyllabic phonological word cannot take. Overall, then, the two case markers show a greater extent of prosodic than of syntagmatic dependence. However, as in similar cases discussed elsewhere in this work, the question emerges as to whether the elements are properly described as clitics. Since they are neither subject to allomorphy nor embedded in a larger stress domain, they appear to be particles on the definition proposed in 3.2.3.

4.1.5 South America

4.1.5.1 Apurinã

There are no nominal case affixes in the language (Facundes 2000: 258, 264), and the elements expressing case-like functions are instead the oblique markers, which the author classifies as a subset of the category he calls “special bound formatives” (Facundes 2000: 258).
385). The oblique markers occur NP-finally (Facundes 2000: 459), and the class of “special bound formatives” would presumably be referred to as “clitics” in most other descriptions. However, the author deliberately avoids the term “clitic” due to its imprecision (cf. Facundes 2000: 432).

Six different oblique markers are discussed by Facundes (2000: 386-390), but only the ‘allative’ will be of interest here. The primary function of this gram is to mark ‘goal’ participants (including benefactives and recipients), which in turn can either be expressed by nouns or pronouns (Facundes 2000: 386, 496-497). The following examples illustrate these distributional and semantic options of the allative.

(4.46) kikio-mokaru nu-sa-ru
field.farm-ALL 1SG-go-3.M.OBJ
‘I went to the field farm.’ (Facundes 2000: 389)

(4.47) uwa-mokaru nu-suka-ru
3SG.M-ALL 1SG-give-3.M.OBJ
‘I gave away to him.’ (Facundes 2000: 389)

As mentioned in 4.0.2, the fact that a case marker can occur with both nouns and free pronouns will not be considered an indication of its non-selectivity. However, the allative is distinct from all other obliques in the language in that it can also follow relativizing verbs, which constitute the only type of postnominal modifier in the language (Facundes 2000: 436, 455). The following example illustrates this construction.

(4.48) i-txa kema owa hãtako-ro ø-ānhi-kuto-mokaru
‘The tapir said to her, the woman whom she took away.’ (Facundes 2000: 436)

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31 Note that allative functions can also be expressed by another form, -monhi, which is either in free variation with the gram analyzed below or belongs to a different register (cf. Facundes 2000: 389, 496). However, the status and behavior of -monhi is not sufficiently discussed, and I will therefore omit it from the present analysis.
Facundes (2000: 436-437) acknowledges that (4.48) may prove that the allative can attach to verbs, but elsewhere he suggests instead that the presence of the allative in such a context marks relativizing verbs as “somewhat nominalized” (Facundes 2000: 594). What matters for present purposes, however, is that the allative can occur with morphological verbs. Given that nouns and verbs are described as the two basic word classes in the language (Facundes 2000: 134), the allative is non-selective and thus indeed an NP-final gram rather than a (pro)nominal suffix.

Facundes (2000: 436, 437) suggests that the allative is something other than a free function word because it is “phonologically bound.” While the relevant facts are not discussed for the allative in particular, the discussion of phonological wordhood by Facundes (2000: 122-124) makes clear that the allative meets the bimoraic word minimum and does not run afoul of the segmental restrictions that hold at the word level (cf. Facundes 2000: 115-117). Since no vowel harmony system is described for the language, and since no allomorphy is mentioned for the allative in particular, it therefore seems likely that the crucial factor is stress assignment. Primary stress in Apurinã falls on the penultimate mora, with the important qualification that nasal vowels count as bimoraic (Facundes 2000: 101). Meanwhile, secondary stress falls on every other syllable before the primary-stressed one (Facundes 2000: 95).

Facundes (2000: 103-105) states that stress shifts with the addition of bound forms, which shows that the latter are part of a larger phonological word. He also provides examples that show that the associative marker, which is part of the same set of obliques as the allative, participates in this stress shift. Furthermore, the only exception to stress shift mentioned is that heavy (i.e., bimoraic) syllables generally attract stress and may thus override the penultimate pattern (Facundes 2000: 105). Given these facts, the distribution of stressed syllables in the relativizing verb in (4.48) should be *anhi-kutó-mokáru*, with acute accents marking primary stress and grave accents marking secondary stress. Meanwhile, the distribution of stress on the same verb form without the allative marker (to the extent that this...
would be grammatical) should be ənhi-kúto.

If the above analysis is correct, the integration of the allative into a larger stress domain would show that it is dependent on the parameter of prosodic features, which in turn would support the author’s classification, on which it is neither an affix nor a function word. In fact, in light of the argument proposed here, Facundes’s (2000) avoidance of the “clitic” label is understandable because the trisyllabic allative would inevitably bear some kind of stress and thus violate one common criterion posited for clitics. The rather convoluted terminological alternative that Facundes (2000) chooses is thus an immediate consequence of the fact that no established label exists for elements like that discussed here.

4.1.5.2 Awa Pit

There are no case affixes in Awa Pit, but the language has several postpositions (Curnow 1997: 104). The discussion in Curnow (1997: 104-107) explicitly argues that (most of) the postpositions are enclitics, and one manifestation of that status is that they attach to different word classes. Examples (4.49) and (4.50) show the postpositions translated as ‘until’ and ‘with’ following an infinitival verb form and an adjective, respectively. Both of these classes are explicitly distinguished from nouns by Curnow (1997: 106), who further argues that this distribution proves that the postpositions are not nominal suffixes.

(4.49) Demetrio kayl-na=kima kal ki-ni-s
       Demetrio return-INF=until work₁ work₂-FUT-LOCUT

     ‘Until Demetrio returns, I will work.’ (Curnow 1997: 106)

(4.50) na=na cuchillo mocho=kasa=yŋ kuzhu
       1SG.NOM=TOP knife blunt=with=REST pig
       nak-ma-ta-w

     skin-COMPL-PST-LOCUT.SBJ

     ‘I skinned the pig with a blunt knife.’ (Curnow 1997: 106)

In (4.49), the postposition functions as a subordinator (Curnow 1997: 104), relating one clause to another. This is arguably different from the prototypical function of case marking,
which is to relate structures clause-internally. However, the somewhat nominal character of infinitives is well-known (e.g., Forsyth 1970: 283; Hopper & Thompson 1984: 739-740; Langacker 2008: 119), and the more typical function of case therefore appears to be evident here as well. Hence, I will follow Curnow (1997) in considering this an instance of a postposition. Meanwhile, in (4.50), it can be seen more clearly that postpositions follow entire NPs rather than simply the noun. Note, however, that this is only obvious here because the relevant NP contains Spanish loanwords. The usual order in Awa Pit is for the adjective to precede the noun, but with Spanish loans the Spanish pattern is also an option, which results in NP-final adjectives to which the postpositions attach (Curnow 1997: 90, 106).

The above facts clearly show that the postpositions are non-selective, and the reason Curnow (1997: 105) classifies most of them as clitics is that they show allophony. Specifically, the voiceless stops /p, t, k/ are voiced and fricativized when they occur intervocally and word-internally (Curnow 1997: 23-25), and it follows that the allophones of the /k/-onsets in the two postpositions above should be voiced and fricativized (i.e., [ɣ]).

As discussed with respect to the Chukchi gram above, I will treat allophony and allomorphy as the same phenomenon for the purposes of this work, and the postpositions are therefore dependent on the parameter of phonological rules.

Since the stress system in the language is not described (cf. Curnow 1997: 46), and there is no mention of vowel harmony or word minimality, the parameters of prosodic features and segmental structure do not apply in the present analysis. Finally, while Curnow (1997: 81) mentions the ability to be pronounced in isolation as a criterion for phonological wordhood, his classification of the postpositions as clitics is solely based on their behavior with respect to allophony (cf. above). Given this uncertainty, I will ignore the parameter of free occurrence here. Overall, then, the two postpositions are indeed straightforward enclitics because they are non-selective but prosodically dependent on a preceding host.

Another wordhood issue in the domain of case marking can potentially be found with personal pronouns, which show a distinction between nominative and accusative (cf. Curnow

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33 While not mentioned in the discussion of the postpositions, Curnow (1997: 28) states that the same allophonic process described here can also be found across words. It is unclear how this distinction can be made on structural grounds, though, because allophony is invoked as the primary criterion of phonological wordhood. Instead, this statement may derive from the fact that allophony across words is optional, whereas allophony within a word is obligatory (Curnow 1997: 27). I will therefore have to assume that the author has sufficient corpus evidence to draw this distinction and to assign postpositions to the class of clitics.
1997: 85-87). Nominative is unmarked on both singular and plural pronouns, but the number distinction correlates with a difference in accusative marking. Specifically, while accusative is marked via suffixes on the singular pronouns, it is expressed by elements described as clitics in the case of the plural markers. The motivation underlying the clitic analysis is that pronouns can form an NP with numerals, the latter of which then occur between the pronominal stem and the accusative marker (Curnow 1997: 86). Example (4.51) illustrates this construction.

(4.51) au kutnya=miza
      we three=1/2PL.ACC

‘us three’ (Curnow 1997: 86)

While this distribution shows that the accusative plural markers are not pronominal suffixes, it is unclear from the discussion why they should count as clitics. Most importantly, even though the descriptions of the allophonic patterns of /m/ by Obando Ordóñez (1992: 78-79) and Curnow (1997: 34) differ, neither permits the conclusion that the accusative gram is dependent in the same way the postpositions above are. Hence, there is a distinct possibility that the accusatives are free words on both prosodic and syntagmatic parameters, and these elements will therefore not be considered wordhood issues for the purposes of this work.

4.1.5.3 Cavineña

Cavineña has a large number of postpositions, which divide into a major and a minor set (Guillaume 2008: 509). The latter consists of items that are both syntagmatically and prosodically independent (Guillaume 2008: 509, 542), and they will therefore be ignored here. However, the major postpositions, which include the associative (mostly ‘instrumental’ and ‘comitative’), dative, locative, general locative, perlative and ‘up to’ markers, are all described as enclitics that attach to the last word of their object NP (cf. Guillaume 2008: 509, 513). In most of the relevant examples provided in the grammar, the NP is made up of only a noun, in which case the postposition follows it. This pattern is shown in (4.52).

(4.52) kwa-kware=dyə avioneta=tsewe
go-REM.PST=FOC  light.plane=ASSOC
‘I went by light plane.’  (Guillaume 2008: 515)

However, since attributive adjectives follow the noun (Guillaume 2008: 70), NPs are not necessarily head-final. Attributive adjectives form a closed class of 16 elements (Guillaume 2008: 464), and the following examples illustrate two of the postpositions following members of that class. The brackets marking off the objects of the postpositions are taken from the source.

\[(4.53)\]
Churu  \([ebakwa  nana=\text{ja}]\)  pa-a!
bonnet  child  young=\text{DAT}  HORT.SG-affect
‘I’m going to make a bonnet for the baby!’  (Guillaume 2008: 468)

\[(4.54)\]
[tujuri  siri=\text{tsewe}]  ka-rama-ti
mosquito.net  old=\text{ASSOC}  \text{REFL}_1\text{-cover-REFL}_2
‘(I didn’t have any warm clothes so) I covered myself with my old mosquito net.’  (Guillaume 2008: 469)

This distribution illustrates that the postpositions are non-selective with respect to the word class of their host. However, the detailed discussion of the phonological word makes clear that the postpositions are prosodically dependent. Specifically, Guillaume (2008: 53) defines the phonological word as minimally disyllabic and as the domain of an independent pitch contour. It is immediately apparent that the dative marker =ja is sub-minimal, and it is therefore dependent on the parameter of segmental structure. With regard to the second criterion, Guillaume (2008: 41-42) describes Cavineña as a pitch accent language in which the phonological word is delimited by a pitch contour of the shape H^n(M)M.\textsuperscript{34} This template is to be understood as follows. The first syllable always receives an H tone, whereas the second syllable, if it is also the last, receives a mid (M) tone. In trisyllabic words, the last two

\textsuperscript{34} Aikhenvald & Dixon (1999: 365) report that Cavineña has stress on the penultimate syllable of a root. This does not seem to be compatible with Guillaume’s (2008) analysis, however, and since his description is considerably more thorough, I will ignore the former account here.
syllables are M, and in words longer than three syllables, the last two are M and all preceding ones are H. Hence, H is recursive within certain limits, and this property is signaled by the superscript \( n \) in the above formula. Clitics are prosodically dependent in that they are integrated into such a pitch template rather than forming a separate domain onto which this template is mapped. The following examples illustrate the principle.

\[(4.55) \quad (a) \quad \text{péadya} \quad \text{úra} \quad (b) \quad \text{é-spéré}=\text{keja} \]
\[\text{one} \quad \text{hour} \quad \text{NPF-stream}=\text{LOC.GNL} \]
\[\text{‘one hour’} \quad \text{‘in the direction of the stream’} \]
\[(\text{Guillaume 2008: 54})\]

In (4.55a), the two elements each have their own pitch contour beginning with an H and followed by up to two instances of M. Hence, each of the two elements is a phonological word. Meanwhile, there is only one contour in (4.55b). The last two syllables are M, while all preceding syllables are H. Put differently, since a phonological word in Cavineña cannot begin with an M tone, the general locative postposition in (4.55b) falls short of wordhood on the parameter of prosodic features. While Guillaume (2008) does not provide details on the manifestation of pitch accent with respect to other postpositions, he does not mention any clitics that are exceptional in terms of pitch assignment. Hence, it may be concluded that the associative and dative case markers in examples (4.53) and (4.54) are equally part of a larger pitch contour and therefore both dependent on the parameter of prosodic features as well. To the extent that this assumption is correct, they would then also be straightforward enclitics.

4.1.5.4 Huallaga

Huallaga has a large paradigm of case markers described as suffixes (e.g., Weber 1989: 55), but it is difficult to state exactly how many members it comprises since at least one exponent is compounded from other case markers, and another one is obsolescent (Weber 1989: 225, 226). Overall, the number of case markers seems to be between 10 and 12 (cf. Weber 1989: 55-58, ch. 10). While one of the two ‘similarity’ case markers is said to optionally form its own stress domain (Weber 1989: 225) and is therefore possibly involved in a wordhood issue, there is no exemplification or further discussion of this phenomenon,
and I will therefore have to omit it here. Instead, the focus of the present analysis will be on
the ‘goal’ case marker -\textit{man} and the ‘similarity’ case marker -\textit{naw}. Crucially, the latter
element is not the above-mentioned gram that may constitute its own stress domain. The
relevant property exhibited by -\textit{man} and -\textit{naw} is that they can occur in either order without
creating a semantic difference. Examples (4.56) and (4.57) illustrate this pattern. Note that
even though ‘similarity’ may not be a prototypical case function, the ‘goal’ marker expresses
“the endpoint of some path” (Weber 1989: 197) and is thus more straightforwardly
compatible with the domain of case. To the extent that the ‘goal’ gram is accepted as a case
marker, the analysis proposed here will hold.

\begin{align*}
(4.56) & \text{ishka-n} \quad \text{tikra-sha} \quad \text{hukanylla-}\text{\textbf{man-naw}} \\
& \text{two-3.POSS} \quad \text{turn-3.PFCT} \quad \text{just.one-G-SML} \\
& \text{‘The two of them have become as though one.’} \quad \text{(Weber 1989: 221)}
\end{align*}

\begin{align*}
(4.57) & \text{ishka-n} \quad \text{tikra-sha} \quad \text{hukanylla-}\text{\textbf{naw-man}} \\
& \text{two-3.POSS} \quad \text{turn-3.PFCT} \quad \text{just.one-SML-G} \\
& \text{‘The two of them have become as though one.’} \quad \text{(Weber 1989: 221)}
\end{align*}

The above examples clearly show that the case markers (or at least the ‘goal’ case marker)
are not dependent on the parameter of fixed order as defined for the purposes of this work.
Weber (1989: 9) only posits a single class of “substantives,” which is the domain of
application for the unproductive suffix -\textit{ylla} and also comprises the numerals such as \textit{huk}
‘one’ (cf. Weber 1989: 40, 44), both of which are seen in the above examples. Since there is
no indication that the case markers can attach to non-substantives or be suspended from
individual substantives, I will classify the two elements as dependent on the parameters of
non-selectivity and cohesiveness. Finally, given that there is also no discussion of whether
native speakers conceive of these items as free words, it will be assumed here that they are
dependent on the parameter of conventionalized meaning as well.

The discussion of phonological wordhood suggests that the two case markers are also
prosodically dependent. For instance, Weber (1989: 454) states that a phonological word
consists of a “series of syllables,” and since both elements at issue here are monosyllabic,
they are dependent on the parameter of segmental structure. No vowel harmony system is reported for Huallaga, but since the aforementioned ‘similarity’ case gram is the only one claimed to behave anomalously with regard to stress, it will be assumed here that both of the case markers are dependent on the parameter of prosodic features. Since stress is regularly on the penultimate mora (Weber 1989: 457), they are thus likely to bear stress in constructions such as those exemplified above. Finally, no allomorphic alternations of the case markers are mentioned or otherwise evident from the examples, which is why the parameter of phonological rules will not be invoked here. In sum, this renders both the ‘goal’ and the ‘similarity’ gram more prosodically than syntagmatically dependent, and they are therefore not prototypical affixes. However, since they seem to apply to only a single word class and to be inseparable from individual tokens of that word class, they are also neither clitics nor suspended affixes. Instead, they are an example of mobile affixes as defined in 2.4.

Finally, it should be mentioned that, in addition to its rich paradigm of case markers, Huallaga also has elements that are classified as postpositions. However, there is no systematic discussion of these items in the grammar, and they crucially seem to (also) fall within the verbal domain (cf. Weber 1989: 87). Since the process of cliticization that some of these postpositions undergo is only illustrated with grams that do not express obvious case functions (cf. Weber 1989: 470), I will not analyze these items here.

4.1.5.5 Hup

Hup has a large set of locative postpositions, some of which appear to be “marginally encliticized” (Epps 2008: 463). However, the description of what this process of enclitization is defined by is insufficient for present purposes, and the focus will therefore be on the case markers that Epps (2008: 165) calls suffixes. It should be pointed out, though, that the author emphasizes the gradient boundaries between affixes, clitics, and particles (cf. Epps 2008: 125, 134, 137, 165 fn. 58), and this interaction will also be reflected in the present analysis.

The paradigm of case grams consists of an object marker for direct object, beneficiary, and recipient arguments; an oblique marker for instrumental, comitative, and locative arguments, and a directional oblique marker for locative and goal/source arguments (Epps 2008: 166). The object gram is distributed according to a principle of differential
object marking (Epps 2008: 170-178), but the details of this system will be ignored here. The following examples illustrate the object and the oblique marker.

(4.58) tiyî? tegd’úh-ân dēh n’êʔ-êy
    man tree-OBJ water give-DYN
    ‘The man gives the tree some water.’  (Epps 2008: 168)

(4.59) têg=hod-ôt hid d’oʔ-yæʔ-yîʔ-ay-åh
    wood=hole-OBL 3PL take-roast-TEL-INCH-DECL
    ‘They baked it in the fireplace (literally: ‘woodhole’).’  (Epps 2008: 188)

The two case markers above are subject to a process whereby the coda consonant of the preceding stem is geminated so as to provide the “underlyingly” vowel-initial case markers with an onset, which in turn is conditioned by the language-specific tendency for all syllables to have onsets (Epps 2008: 47). The phonetic details of the relevant allomorphs are not given in the source, but it should be noted that all Hup morphemes are either fully nasal or fully oral, as a consequence of which the geminated onset of a (phonologically) vowel-initial gram adopts the relevant feature borne by that gram (cf. Epps 2008: 47, 48, 82-83). The oral/nasal dichotomy will be considered a type of harmony here, and since the process of gemination is explicitly stated to occur within the phonological word (Epps 2008: 118), both case grams are dependent on the parameters of phonological rules and prosodic features.

In addition to the above, the oblique marker also undergoes a process of “vowel copying,” which provides a gram without a phonologically specified vowel with a phonetic vowel (Epps 2008: 102-103, 126). As can be seen in (4.59), the oblique marker has the same vowel quality as the preceding root, and full vowel copying appears to be the norm given the other instances of the oblique described in the grammar (cf. Epps 2008: 185-191). Note that while the author distinguishes vowel copying from vowel harmony, this distinction will not be made in this work, and the process described here thus also falls within the parameter of

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35 Vowel copying is defined as a left-to-right process supplying an “underlyingly” vowel-less morpheme with a vowel (as in [4.59]), whereas vowel harmony changes the quality of an existing vowel and proceeds right-to-left in lexicalizing compounds (cf. Epps 2008: 102-103).
prosodic features. Hence, the oblique marker is dependent on the latter parameter because it is subject to both vowel and nasal/oral harmony.

Since the presence of an onset is only formulated as a tendency, which furthermore applies at the level of the syllable rather than the phonological word, I will not refer to the parameter of segmental structure in this analysis. Similarly, while Epps (2008: 117) mentions stress as one indicator of the phonological word, this phenomenon cannot inform the analysis because elements classified as suffixes may bear stress but do not do so necessarily (Epps 2008: 87) and because stress assignment is generally less systematic in nouns (Epps 2008: 118). One consequence of the latter fact is that case-marked nouns can have two syllables with primary stress, where one is on the root and one is on the case marker (cf. Epps 2008: 94). Instances of this pattern can be seen in both examples above given that tone is only found on stressed syllables, and syllables marked by tone diacritics are thus stressed (Epps 2008: 86). The fact that case markers can bear stress explains why they are not classified as enclitics (cf. also Epps 2008: 136) given that the latter are “by definition unstressed” (Epps 2008: 88).

While the case markers are thus dependent on two parameters of phonological wordhood, all nominal morphology in Hup occurs NP-finally (Epps 2008: 164-165, 178). This can most clearly be seen with postnominal adjectives. Example (4.60) illustrates the object marker with such an adjective, and the analogous construction is shown for the oblique gram in (4.61).

(4.60) tiy̌iʔ(-ān) (tih=)pōg-ān tūk-ūy=mah
man(-OBJ) (3SG=)big-OBJ want-DYN=REP
She likes the big man, it’s said.’ (Epps 2008: 180)

(4.61) pidiya pōg-ōt ʔū j’am ħāy=ħɔb-āt
battery big-OBL EPT REM.PST um=hollow=OBL
taʔ-yōʔ j’am tih wīʔ-ih
be.end.to.end-SEQ REM.PST 3SG hear-DECL
It was with big batteries, I suppose, stuck end-to-end in a whatchamacallit-hollow-stick that he listened (to his radio).’ (Epps 2008: 187)
The elements in parentheses in example (4.60) are to be understood as mutually conditioning. That is, the object marker typically occurs only on the adjective, but if the latter is nominalized by $tih=$, the case marker can additionally occur on the noun as well (Epps 2008: 180). Note that this variation does not bear on the parameter of cohesiveness because of the obligatory addition of the nominalizer. Since Epps (2008: 114-115) explicitly defines adjectives as a separate word class and $pōg$ ‘big,’ the relevant item seen in the examples above, as a member thereof, the case markers are non-selective. Unlike their behavior with respect to stress, this syntactic distribution clearly aligns them with clitic status, which Epps (2008: 165 fn. 58) herself points out. Given these ambiguous properties, the “affix” and the “clitic” label are equally problematic, which once more underscores that the diversity of morphological structures is not adequately reflected in morphological terminology. In terms of the categories underlying the present work, the case markers will simply be classified as elements that show a greater degree of prosodic than of syntagmatic dependence.

4.1.5.6 Jarawara

Jarawara has a postposition $jaa$, which is explicitly stated to correspond to the entirety of English prepositions (cf. Dixon 2004: 489-492). Yet, while it thus resembles the Kokota and Itzaj markers analyzed above in terms of functional range, it differs from these elements in that it does not pose an obvious wordhood issue. Therefore, the present analysis will focus on the accusative “suffix” $-ra$, which marks object NPs in clauses whose A argument is third person (Dixon 2004: 282). This gram is described as archaic because young speakers never use it, whereas older speakers sometimes do (Dixon 2004: 282). It follows that this element is scarcely attested in the author’s corpus (Dixon 2004: 283) and that its description and illustration in the grammar is relatively brief. The two examples provided in the grammar are reproduced below and clearly demonstrate that the accusative occurs after the final element of the NP, as explicitly mentioned by Dixon (2004: 283). The phrasal brackets marking off the NP boundaries are adopted from the source.
The element *one* in (4.62) is the feminine allomorph of an adjective (Dixon 2004: 303), and the dependent suffix preceding the accusative in (4.63) attaches to verbs (cf. Dixon 2004: 93). Given that more than half of all NPs consist of a bare noun (Dixon 2004: 280), it is reasonable to assume that the accusative usually follows a noun. In conjunction, these facts suggest that the accusative is non-selective.

This syntagmatic freedom of the accusative marker contrasts with its prosodic dependence. Dixon (2004: 29) defines the phonological word in Jarawara as minimally bimoraic, as coterminous with a stress domain, and as the locus of phonological rules. Since the accusative is monomoraic, it is clearly sub-minimal. Meanwhile, canonical stress is on the penultimate mora of a word and on every other mora before that (Dixon 2004: 27). The indications of stress in the above examples follow Dixon’s (2004: 283) explicit description and show that the accusative is integrated into the stress domain of its host word. That is, since the case marker is the final constituent of the respective phonological words above, and it is monomoraic itself, stress is on the mora immediately preceding it in both cases. Finally, no allomorphy is reported for the accusative, which is why the parameter of phonological rules does not factor into the present analysis. In conclusion, then, the case marker behaves like a morphological word on the parameter of non-selectivity but falls short of wordhood on the parameters of segmental structure and prosodic features.

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36 This element is not segmented in the grammar; the present gloss is based on the information provided in Dixon (2004: 47).
The above analysis suggests that the accusative is a prototypical enclitic. However, Dixon (2004) himself does not refer to this element by this term. In fact, Dixon (2003: 126) claims that there are no elements in the language that should be called clitics, and elsewhere he states that the only case in which a single phonological word consists of multiple morphological words involves one specific auxiliary verb construction (Dixon 2003: 145, 2004: 30). This apparent contradiction can be resolved, though, because the parameter of non-selectivity is drawn from Haspelmath (2011) and does not feature in Dixon & Aikhenvald’s (2003) discussion of wordhood. Hence, even though the accusative marker would not emerge as a straightforward clitic on the latter account, it will be classified as such for the purposes of this work.

4.1.5.7 Kotiria

No adpositions are reported for the language. Meanwhile, the locative and object markers (Stenzel 2013: 159-163) are described as suffixes, and there is no evidence to suggest that they pose a wordhood issue. However, there is another element, the comitative/instrumental marker =~be’re,37 which is described as a clitic (e.g., Stenzel 2013: 92, 152) and will be the gram of interest here. Nouns in comitative function typically have animate referents, whereas nouns in instrumental function usually have inanimate referents (Stenzel 2013: 353, 354). The following examples illustrate these two patterns. Note that some of the suffixes below receive their nasalization value from the stem via spreading. In the source, this is indicated by a preceding + instead of a hyphen (Stenzel 2013: 24 fn. 3), but I will not make this distinction here.

(4.64)  tú=~be’re ~bu’ú wa’i-kídá~wáhá sitó-ta-ga
        stick=INS 2SG animal-PL-kill circular.movement-come-IMP
        ‘With this stick, you go around hunting (animal-killing).’  (Stenzel 2013: 164)

(4.65)  ~sá yoú-ro-pu    yu=phuk-ú=~be’re    thu’o-i

37 Recall from the discussion of the Kotiria definite marker that the tilde mark a following element as nasal (Stenzel 2013: 23 fn. 1). Based on the information in Stenzel (2013: 43), ~be’re should then correspond to [mẽʔɾẽ].
Crucially, Stenzel (2013: 353, 354) states that the comitative/instrumental marker occurs on nouns (rather than NPs). While there are examples of possessive markers and third-person pronouns bearing the comitative/instrumental (e.g., Stenzel 2013: 163, 353), those elements belong to the word class of particle roots, which can only take nominal morphology and which act as NPs when they do so (Stenzel 2013: 78-80). Given that grams analyzed in this chapter are not considered non-selective if they can only occur with nouns and pronouns, the relevant case marker will be classified as selective here. Note that this also ties in with Stenzel (2013: 79), who explicitly analyzes particle roots as a subclass of nouns. However, the high degree of selectivity that this gram then exhibits clearly militates against its classification as a clitic. The reason Stenzel (2013: 92) nevertheless applies this label to the case marker in question is that the latter shows certain prosodic properties of a bound element and others that align it with phonological words (cf. below). Put differently, the unorthodox use of the “clitic” label comes about because clitics are defined in purely prosodic terms.

As stated in the previous chapter, phonological words in Kotiria are (minimally) bimoraic, have at least one H tone, and are the domain of nasal and tone spreading (Stenzel 2013: 93). Given that Stenzel (2013: 39) explicitly argues that syllables with a glottal stop coda are monomoraic, the comitative/instrumental marker is bimoraic and thus meets the minimum word size.\footnote{Another fact that presumably associates the comitative/instrumental marker with phonological words is that it contains a glottal stop, which neither suffixes nor particle roots do (cf. Stenzel 2013: 90). Yet, given that clitics are classified as a group separate from both of the latter, this fact is not decisive for the present analysis.} Furthermore, the case gram at issue is inherently nasal and L-toned (Stenzel 2013: 92), which shows that it does not participate in either of the relevant spreading processes, both of which would originate from the preceding root (cf. Stenzel 2013: 70). It is this combination of properties that leads Stenzel (2013) to claim that the case marker falls somewhere between a free word and a bound element. Specifically, the fact that the comitative/instrumental is not affected by nasal or tonal spread suggests that it behaves like a
separate phonological word on the parameter of prosodic features. On the other hand, its L tone suggests that it is dependent on the same parameter. What matters for the classification of this wordhood issue, however, is that the element shows some properties of a phonological word but none that would suggest that it is a morphological word. On the terminology adopted in this work, it is therefore an anti-clitic rather than a clitic.

4.2 INTERIM SUMMARY

Table 4.1 below summarizes the wordhood issues discussed in this chapter. It follows the same format as Table 3.1 in the preceding chapter. Note that the number given in parentheses behind each macro-area refers to the number of wordhood issues found in that area rather than to the number of languages that show wordhood issues. This makes a difference because several languages have case markers with different wordhood profiles, and these will be counted as separate wordhood issues. By contrast, where multiple case markers in a language have the same type of dependence relationship, these are counted as a single wordhood issue, and I will only list the gram that was most thoroughly discussed and exemplified in the relevant sub-section above.

Some salient results emerging from Table 4.1 will be addressed in the remainder of this section, but the larger theoretical discussion will be reserved for Chapters 7 and 8.

Table 4.1. Overview of wordhood issues: Case.

<table>
<thead>
<tr>
<th>Macro-area</th>
<th>Language</th>
<th>Description and form</th>
<th>Summary</th>
<th>Dependence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>Fur</td>
<td>Clitic V̂=(i)η (NP-final)</td>
<td>Non-selective but dependent in terms of allomorphy (phonological rules) and tone assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clitic V̂=lɛ, (NP-final)</td>
<td>Non-selective but dependent in terms of tone assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Fwe</td>
<td>Clitic (C)V̂-V̂= (NP-initial)</td>
<td>Non-selective but dependent in terms of vowel harmony and tone assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>Macro-area</td>
<td>Language</td>
<td>Description and form</td>
<td>Summary</td>
<td>Dependence</td>
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<tr>
<td></td>
<td>Khwe</td>
<td>Word, affix -ǎ (post-N/V)</td>
<td>Non-selective but dependent in terms of allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Tommo So</td>
<td>Word, clitic =le (NP-final)</td>
<td>Non-selective but dependent in terms of free occurrence, sub-minimal size (segmental structure) and tone assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>Eurasia (5)</td>
<td>Basque</td>
<td>Affix -(r)en (NP-final)</td>
<td>Non-selective but dependent in terms of allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Chukchi</td>
<td>Word, clitic reen (post-N)</td>
<td>Non-selective but dependent in terms of allophony (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Georgian</td>
<td>Word, clitic, affix -(a)mde (post-N)</td>
<td>Independent in terms of cohesiveness, but dependent in terms of allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Kharia</td>
<td>Clitic =(y)aʔ (post-N)</td>
<td>Non-selective but dependent in terms of allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Kokota</td>
<td>Word, clitic ka= (NP-initial)</td>
<td>Non-selective but dependent in terms of sub-minimal size (segmental structure), allomorphy (phonological rules) and stress assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>North America (7)</td>
<td>Creek</td>
<td>Clitic -(i)t, -(i)n (NP-final)</td>
<td>Non-selective but dependent in terms of allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>Macro-area</td>
<td>Language</td>
<td>Description and form</td>
<td>Summary</td>
<td>Dependence</td>
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<tr>
<td></td>
<td>Iñupiaq</td>
<td>Affix -(i)m (post-N)</td>
<td>Independent in terms of cohesiveness, but dependent in terms of allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Itzaj</td>
<td>Word tiʼ/t (NP-initial)</td>
<td>Non-selective but dependent in terms of allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Lillooet</td>
<td>Clitic =ʔə (pre-N)</td>
<td>Non-selective but dependent in terms of phonotactic constraints (segmental structure)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Onondaga</td>
<td>Clitic =(h)ne, =ge (N-/V-final)</td>
<td>Non-selective but dependent in terms of allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Tanacross</td>
<td>Word, clitic ya, e (NP-final)</td>
<td>Non-selective but dependent in terms of allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Tiipay</td>
<td>Clitic -ch (NP-final)</td>
<td>Non-selective but dependent in terms of free occurrence, allomorphy (phonological rules), sub-minimal size (segmental structure), and stress assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>Oceania</td>
<td>Bardi</td>
<td>Affix -(g)vn (NP-medial)</td>
<td>Non-selective but dependent in terms of stress assignment, vowel harmony (prosodic features) and allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>(4)</td>
<td></td>
<td>Affix -nim (NP-medial)</td>
<td>Non-selective but dependent in terms of stress assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Mauwake</td>
<td>Clitic =pa</td>
<td>Non-selective but dependent in terms</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>Macro-area</td>
<td>Language</td>
<td>Description and form</td>
<td>Summary</td>
<td>Dependence</td>
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<tr>
<td>South America (8)</td>
<td>Apurinã</td>
<td>Formative -mokaru (NP-final)</td>
<td>Non-selective but dependent in terms of stress assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>Awa Pit</td>
<td>Clitic =kima, =kasa (post-N)</td>
<td>Non-selective but dependent in terms of allophony (phonological rules)</td>
<td>P &gt; S</td>
<td></td>
</tr>
<tr>
<td>Cavineña</td>
<td>Clitic, word =ja (NP-final)</td>
<td>Non-selective but dependent in terms of pitch assignment (prosodic features) and sub-minimal size (segmental structure)</td>
<td>P &gt; S</td>
<td></td>
</tr>
<tr>
<td>Huallaga</td>
<td>Affix -naw, -man (post-N)</td>
<td>Independent in terms of fixed order but dependent in terms of stress assignment (prosodic features) and sub-minimal size (segmental structure)</td>
<td>P &gt; S</td>
<td></td>
</tr>
<tr>
<td>Hup</td>
<td>Affix -ân, -ńt</td>
<td>Non-selective but dependent in terms of allomorphy (phonological rules)</td>
<td>P &gt; S</td>
<td></td>
</tr>
<tr>
<td>Macro-area</td>
<td>Language</td>
<td>Description and form</td>
<td>Summary</td>
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<tr>
<td></td>
<td>Jarawara</td>
<td>Affix -ra (NP-final)</td>
<td>Non-selective but dependent in terms of stress assignment (prosodic features) and sub-minimal size (segmental structure)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Kotiria</td>
<td>Clitic =--be’re (post-N)</td>
<td>Syntagmatically dependent but independent in terms of nasal harmony (prosodic features)</td>
<td>S &gt; P</td>
</tr>
</tbody>
</table>

4.2.1 Analysis

The category of case has produced a much larger number of wordhood issues (29) than the category of definiteness (8). This has several obvious reasons. On the one hand, case markers are more cross-linguistically widespread than definiteness markers. In fact, once the definition of case markers includes adpositions, as in the present study, case marking approaches the status of a language universal. On the other hand, case markers often come in paradigms, whereas many languages that mark definiteness have a single exponent for the expression of that function. Due to these two factors, the overall number of case markers is considerably larger than the overall number of definiteness markers, and the greater number of wordhood issues among the former set follows naturally. Apart from that, however, it should also be pointed out that case marking is usually described in more detail than definiteness marking even in descriptions of languages that have both phenomena. This may be a consequence of the fact that definiteness marking depends heavily on pragmatic factors that may be elusive during fieldwork. In any case, though, since the present investigation relies on detailed descriptions, this is another factor that biases the identification of wordhood issues against definite markers and in favor of case markers.

Despite the prevalence of case marking and its paradigmatic organization, however, most of the languages shown in Table 4.1 only have one case gram that poses a wordhood issue. While this may in some instances be a reflection of the grammatical description rather
than of the actual linguistic structure, it is clear from many grammars that wordhood issues are indeed limited to only a subset of case markers in a given language. Furthermore, the fact that about half of the grams discussed here (14/29) express locative, comitative/instrumental, or genitive functions supports the idea that “peripheral” case markers are characterized by lower degrees of grammaticalization. Overall, then, Table 4.1 appears to confirm two of the central claims on which the present work rests. Specifically, the word as a focal point of morphophonological and morphosyntactic processes is a robust prototype, but case marking is one area in which these processes commonly do not converge.

Beyond that, the most notable pattern that emerges from this chapter is that wordhood issues involving case markers overwhelmingly show a larger degree of prosodic dependence than of syntagmatic dependence. Of the 29 wordhood issues recorded, only the case marker in Kotiria shows the opposite behavior. While it was pointed out above that not all grams of this type could or should be classified as clitics, it is noteworthy that the parameter of non-selectivity accounts for the vast majority of wordhood issues. Put differently, the parameters of cohesiveness and fixed order only factor into a total of three wordhood issues. Both of these patterns differ from the results found for the definite markers. Specifically, a quarter of the latter (2/8) involved a greater degree of syntagmatic than of prosodic dependence, and neither cohesiveness nor fixed order were involved in any of the wordhood issues in that domain.

Furthermore, the two nominal categories also differ in terms of the prosodic parameters involved. While it was highlighted in the last chapter that definiteness markers are usually not dependent on the parameter of phonological rules, the latter criterion factors into more than half of the wordhood issues among the case markers (16/29). Given the claim proposed in 3.2.1 that dependence in terms of phonological rules is the strongest indicator of fusion, the results obtained here clearly suggest that case markers, on average, are more tightly fused to the nominal domain than are definiteness markers. This arguably finds a straightforward explanation in terms of Bybee’s (1985a, b) concept of semantic relevance. That is, to the extent that the category of definiteness expresses pragmatic distinctions, it bears less on the semantics of a noun or NP than case markers, which encode straightforwardly grammatical functions.

The data described in this chapter seem to bear more directly on Hypothesis 2 than on
Hypothesis 3. The former states that wordhood issues in which the degree of prosodic dependence exceeds the degree of syntagmatic dependence are more often found in the verbal than in the nominal domain. However, the large number of case markers that fit this pattern suggests that this relationship between word class and type of wordhood issue may not be robust after all. Meanwhile, the analysis of the two nominal categories has shown that the parameters of fixed order and cohesiveness are rarely involved in wordhood issues, which may of course be due to the fact that their effects are infrequently addressed in grammatical descriptions. In any case, the grams discussed in this chapter do not undermine the prediction formulated in Hypothesis 3, according to which fixed order and cohesiveness are more often involved in wordhood issues of the verbal domain.

Finally, Table 4.1 also reveals a bias in terms of geographical distribution. While the Americas account for more than half of the relevant data (15/29), Oceania, with four wordhood issues from two languages, appears to be underrepresented. However, there are concrete structural reasons that can explain this intuitive areal imbalance. First and foremost, Australian languages are well-known for their elaborate systems of case concord, and this phenomenon is indeed found in three of the five Australian languages in the sample (Kayardild, Wanyjirra, Wardaman). Since case marking tends to be found on all members of an NP in those languages, the syntactic context that accounts for a majority of the wordhood issues documented here (i.e., a case marker occurring once per NP) is largely absent.

The structure of the Papuan languages is different, but it has the same net effect in terms of wordhood issues. That is, several of the New Guinea languages in the sample, notably Yeri and Yimas, have a highly synthetic verbal morphology, and many of the distinctions expressed by case markers in other languages are instead encoded by verbal indexation in the former. As outlined above, a low number of grams inevitably leads to a low number of wordhood issues involving those grams. Overall, then, the sample languages from Oceania seem to diverge from the cross-linguistically unmarked type of case marking on several dimensions. In particular, they appear to have more case markers syntagmatically (Australia) or fewer case markers paradigmatically (New Guinea) than languages elsewhere. While potentially of great interest, such areal patterns will not be further addressed in this work.
4.2.2 The role of word classes

The fact that the wordhood issues involving case markers primarily rely on the parameter of non-selectivity might crucially inform theories of language change in that non-selectivity seems to be retained even after prosodic independence has been lost. Yet, it should be pointed out that there are several conceptual issues with the parameter of non-selectivity that complicate its application. One major problem concerns the fact that some grammars argue that all words that occur within NPs belong to a single class of “nominals,” which then divides into several sub-classes (e.g., Bardi). While such a step may be empirically justified in any given language, a word class inventory of this type inevitably invites different interpretations as to whether it is the large class or the smaller sub-classes to which the parameter of non-selectivity should be applied. Put differently, if the larger “nominal” class were the domain of application, the impact of non-selectivity (and thus the frequency of clitics) would reduce accordingly. It follows that the role that non-selectivity plays for the concept of wordhood can only be fully established once there is consensus about the nature of word classes and how to compare them cross-linguistically. This issue will be taken up in more detail in Chapter 8.

One factor that clearly works against the application of the non-selectivity parameter is its interaction with NP-internal word order. That is, even if a language is argued to have distinct classes of adjectives, numerals, determiners, etc., a prosodically dependent postposition will attach to the noun if the NP is head-final.39 In such cases, the case marker will typically be classified as a nominal case suffix (Spencer 2009: 186). Yet, such an analysis critically depends on whether there are “headless” NP constructions, in which the case marker might attach to hosts other than nouns. Note also that this issue has a particularly strong impact on the data discussed in this chapter because of the conflation of the nominal and pronominal word classes. Specifically, at least one potential wordhood issue, from Kukama-Kukamiria, was not analyzed here even though postposed case markers interact prosodically with NP-final nouns and pronouns (and are thus analyzed as clitics by Vallejos 2016).

Lastly, the hypotheses formulated in 1.4.2 crucially rely on the distinction between

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39 While this NP-internal order could still reveal that a preposition is non-selective, prepositions are a clear minority in the present database of wordhood issues. I will therefore focus on postpositions here.
the nominal and the verbal domain. Yet, in Lillooet and Kharia, no distinction between verbs and nouns is posited, and both languages are instead claimed to have a single lexical class and one class (or two) containing the grams. Given the incompatibility of these word class inventories with the approach adopted here, all grams described in this chapter will be considered part of the nominal domain for the remainder of this work. Analogously, all indexes and tense markers analyzed in the next two chapters will be considered part of the verbal domain. Note that Kharia and Lillooet are the only languages in the sample that necessitate this specification, and the latter will therefore not have an undue influence on the overall database described here. Finally, it should be highlighted that the syntactic categories of Munda and Salishan languages are the subject of considerable controversy (cf. Evans & Osada 2005a, b on Munda; Mithun 1999: 64-67; Davis 2020: 466 on Salishan). Hence, the analytical problem described here is at least partly an artifact of the specific grammatical descriptions used for the two languages at issue, and their structure does not necessarily call into question the assumption of a basic dichotomy between nouns and verbs.40

40 Consider also Anderson (2007), who speaks of Munda verbs and nouns throughout, without even discussing an alternative division of the word class inventory.
5. INDEXATION

5.0 DEFINING THE CATEGORY

For the purposes of this study, indexation is defined as a category of the verbal domain whose exponents refer to clausal arguments. As such, it corresponds to the category more typically called “agreement.” On Siewierska’s (2004: 126) typology, for instance, person markers that must co-occur with a noun (phrase) that references the same argument\(^1\) instantiate “syntactic agreement,” those that may co-occur with it constitute “ambiguous agreement,” and those that may never co-occur with it show “pronominal agreement.” Crucially, however, “syntactic agreement” is generally rare (Siewierska 2004: 268), and the three types form a diachronic cline, which renders them difficult to distinguish (cf. also 1.1). Since all the above exponents of indexation are theoretically of interest to this study, I will therefore use the cover term “indexes” rather than “agreement” markers here.

Unlike the indexes of interest here, free pronouns share many properties with nouns (cf. 4.0.2) and thus fall within the nominal domain. However, since they are precisely defined by their word-like prosodic and syntagmatic properties (cf. Siewierska 2004: 16), they are unlikely to pose wordhood issues in any case. By contrast, the restriction to the verbal domain also excludes possessive markers from consideration in this chapter. Furthermore, cross-linguistically common elements that express both possession in the nominal domain and indexation in the verbal domain (cf. Siewierska 1998b) will not be considered non-selective in this work. This is because possession and indexation are different functions. Specifically, possessive markers often express distinctions in alienability, which has no analog in the realm of indexation, whereas indexes commonly encode the difference between subject and object function, which has no parallel in the domain of possession. Since the interest of this study is limited to grams that are semantically uniform, such mixed possession/indexation grams will only be analyzed here if they also express indexation with word classes other than verbs, or if they pose a wordhood issue with respect to a parameter other than non-selectivity.

The parameter of non-selectivity will also not be applied to indexes that can only

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\(^1\) Haspelmath (2013: 205) calls such NPs “conominals.”
occur with verbs and adpositions. This decision is necessitated by the respective grammaticalization patterns of indexes and adpositions. Specifically, given that it was argued in the preceding chapter that adpositions commonly grammaticalize onto the nominal domain, it is likely that a sequence of an index and an adposition is a case-marked free pronoun, which would not fall within the purview of this chapter. If so, the case-marked index would be clearly distinct from the more grammaticalized marker in the verbal domain, which cannot be marked for case, and the two elements should subsequently not be treated as the same item in the analysis of a wordhood issue. This topic is rarely addressed in grammars, which may be due to the fact that free pronouns and bound indexes are often semantically (if not pragmatically) equivalent and segmentally similar. In any case, though, the omission of adpositional constructions from the analyses below is an attempt to minimize false positives.

A final restriction on the application of the non-selectivity parameter will be imposed in the domain of predicative adjectives. Where these are not subsumed under the word class of verbs, the difference between the two classes often reduces to the fact that the adjectives show a smaller range of aspect marking (cf. Dahl 1985: 28) due to their property semantics (e.g., ‘tall,’ ‘red’). Since such adjectives are thus a proper subset of the verbal class, I will not consider indexes non-selective simply because they can occur on verbs and predicative adjectives. While the measures described here might suggest that the parameter of non-selectivity is largely inapplicable in the domain of indexation, it will be seen below that this parameter nevertheless accounts for a large share of the wordhood issues.

Even though case marking complements indexation in the expression of argument structure, the two phenomena can be distinguished on both formal and functional grounds. With regard to the formal dimension, prototypical case marking occurs in the nominal domain, whereas prototypical indexation is found in the verbal domain. Even where this difference is difficult to establish, however, the semantic concepts involved draw a clear dividing line between the two categories. Specifically, indexation overwhelmingly refers to the grammatical person (and less frequently, the number and gender/class) of the relevant arguments in order to mark them as clausal participants. As a consequence, studies of grammatical person essentially deal with indexes (e.g., Forchheimer 1953; Ingram 1978; Plank 1985; Cysouw 2003; Siewierska 2004; Nichols 2017b). Meanwhile, case markers
hardly ever reference grammatical person or number and are instead dedicated to the expression of a relationship that holds between a noun (phrase) and some another domain (cf. 4.0). Due to these differences, the separation of grams into indexes and case markers is straightforward, and no elements discussed in this chapter could be argued to belong in the preceding one (or vice versa).

5.0.1 Complex predicates

Many of the descriptive issues in verbal morphosyntax revolve around complex predicates, i.e., predicates consisting of more than one verbal element (cf. Anderson 2011 for an overview). One well-known instance of this phenomenon is verb serialization, in which a string of lexical verbs combines to form a single predicate. While one member of a serial verb construction often assumes the properties of a closed-class element (cf. Aikhenvald 2011: 9-11), serial verbs are nevertheless distinguished from auxiliary verb constructions. In prototypical instances of the latter, there is one semantically light element that bears the inflection for the whole predicate and one open-class element that contributes the primary lexical semantics of the predicate but is itself uninflected or lightly inflected. In such constructions, the element that bears (most of) the inflection is usually predictable and considered the morphosyntactic head, whereas the remaining elements in the predicate are typically analyzed as non-finite forms such as participles or infinitives (cf. Heine 1993: 24).

The empirical focus of this chapter will exclusively be on the heads of predicates. This is because the absence of an index on any given verbal form is not a wordhood issue in and of itself, and verbal forms not marked for indexation can therefore largely be ignored here. Another possible arrangement in auxiliary verb constructions is agreement such that both the auxiliary and the lexical verb inflect for (some of) the same functions. For reasons discussed in 3.2.3, agreement will not be considered the foundation of a wordhood issue in this work, and the internal structure of auxiliary verb constructions will thus not play a role in most of the analyses below. However, the relationship between the auxiliary and the lexical verb does become relevant when the sole index in the predicate can occur on either

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2 There is a great amount of terminological variation in this domain so that constructions of the type sketched here may be claimed to contain “coverbs,” “preverbs,” “light verbs,” etc. However, the general principle of a division of labor between grammatical and lexical functions is manifest in all constructions of this type. I will call them “auxiliary verb constructions” here for the sake of simplicity.
constituent. A wordhood issue of this type will be discussed for Lillooet below.

Meanwhile, a defining criterion of serial verb constructions is that each component member must be capable of occurring on its own (Aikhenvald 2006: 1), which suggests that all members of such constructions are finite. The reason serial verbs are nevertheless considered single predicates is that their members are not overtly linked by conjunctions or other means (Aikhenvald 2006: 1). The main issue they pose for wordhood analyses is thus the extent to which they might be considered compounds. This, in turn, is due to the fact that serial verbs are particularly common in West Africa, Southeast Asia, and creoles (Bisang 2009: 793), and the relevant languages are well-known to largely lack inflection (cf. Lord 1993: 235). Hence, the members of a serial verb construction in such languages would usually be morphologically bare and thus not readily distinguishable from members of a compound even when they are finite. While the relevant factors are usually discussed in grammatical descriptions, this issue is peripheral to the interests of the present study. Subsequently, serial verb constructions play an even more marginal role in the data below than do auxiliary verb constructions.

In sum, complex predicates are involved in only a minority of the wordhood issues presented in this chapter because neither the existence of non-finite verbs nor the concatenation of finite verbs bears directly on the wordhood parameters that underlie this work. However, given that auxiliaries commonly grammaticalize into TAM markers, they will feature more prominently among the wordhood issues in the next chapter on tense grams.

5.0.2 The interaction of indexation with other grammatical phenomena

One major complication for the present work is that indexes may be cumulated with TAM grams, which according to Siewierska (2004: 38) is particularly common in African and Austronesian languages. Since this study aims to distinguish these two categories and to discuss the relevant wordhood issues in separate chapters, all relevant grams must be categorized as either indexes or tense markers. To this end, the following criteria will be relied upon. First, where indexation is only cumulated with straightforward aspect or mood meanings, the relevant item will invariably be classified as an index. This follows from the fact that the next chapter will only deal with markers that (co-)express tense, and
aspect/indexation or mood/indexation grams subsequently fall outside that functional range. Second, if a paradigm of indexes is conditioned by certain tense values (e.g., one paradigm is used with non-past tense and another one with past tense), tense would only be covertly marked by the relevant grams. Therefore, such elements will be classified as indexes because indexation is their core function, whereas the relevant tense meaning is primarily expressed elsewhere. Third, if there are markers that cumulate indexation and tense but some members of the relevant paradigm only express indexation, this will be taken as evidence that the core function of that paradigm is to express indexation, and all its members will then be considered indexes. Wherever the grams discussed below combine tense and indexation functions, the relevant details will be described in the respective sub-sections.

While person and number are usually cumulated in indexes (Siewierska 2004: 3, 75), the two categories may also be expressed separately and even discontinuously (cf. Trommer 2003: 288-290). Where a separate number marker in the verbal domain is involved in a wordhood issue, this gram will also be considered eligible for inclusion here. This follows naturally from the fact that the present chapter is dedicated to indexation in general and does not limit itself to the category most frequently referenced by indexes (i.e., person). However, an analytical issue brought about by number markers in verbs is that they might belong within the category of pluractionality, one of whose functions is the expression of repeated actions. Obviously, the latter is an aspectual meaning, and wherever a gram appears to express the number of events rather than the number of participants, it will be excluded here. Wordhood issues involving number markers that clearly belong within the domain of indexation rather than pluractionality can be seen in the analyses of Guna and Wardaman below.

It is well-known that many languages show considerable differences between their exponents for speech act participants (i.e., first and second person) on the one hand and for third-person markers on the other (cf. Siewierska 2004: 5-7). Specifically, languages tend to have designated indexes for speech act participants, whereas third-person arguments are

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3 Note that the three grammatical persons assumed by traditional grammar exhaust the space of logical possibilities. That is, “fourth persons,” as found in descriptions of Athapaskan and Algonquian languages, refer to backgrounded participants that are notionally third-person arguments (also called “obviatives”) even though they may be expressed differently from topical third-person arguments (cf. also Cysouw 2003: 18; Siewierska 2004: 7).
commonly indexed by demonstratives. In principle, markers of all three persons will be considered here, but since demonstratives tend to be formally independent more often than pure indexes, a potential underrepresentation of third-person grams in the wordhood issues below would find a likely explanation along those lines. In this context, it is also important to recall the discussion of the functional overlap between definiteness, demonstrative, and third-person marking. That is, while an adnominal position was taken to be definititional for definiteness grams in Chapter 3, a demonstrative element will only count as a third-person index if it is clear from the description that it can single-handedly act as an argument and thus occur without an adjacent noun. A lack of detail on this score in the relevant grammars might thus further contribute to a relative lack of third-person markers among the wordhood issues discussed in this chapter.

In addition to the difference between speech act participants and third-person arguments, there are also reasons to expect distinct patterns based on the type of grammatical relation expressed by a given index. While indexes for all argument types will be considered in this chapter, Siewierska (2004: 43-46, 67) states that subject markers are more often formally dependent and/or reduced than object markers (cf. also Haig 2018) and that both of them are more often dependent than grams for more marked relations such as obliques. This would suggest that indexes of oblique arguments will account for a relatively large share of the wordhood issues discussed below. By contrast, Siewierska (2004: 54-55) finds that the relevant markers in stative-active (cf. Mithun 1991) as well as in hierarchical systems (cf. van Gysel 2019) are usually formally dependent. Even though the prediction that the latter indexes should then rarely be involved in wordhood issues is confirmed by the data below, this is probably due to the fact that the respective systems are cross-linguistically rare and that the corresponding languages are not sufficiently represented in the sample.

Finally, indexation must be distinguished from some functionally related phenomena. For instance, prototypical switch-reference markers indicate whether a referent (usually the subject) of one verb is identical to or different from a referent of another (usually following) verb. This definition suggests that switch-reference grams differ from indexes in that they do not express grammatical properties of arguments themselves and are only interpretable against the background of actual indexes. Yet, while Siewierska (2004: 179 fn. 1) goes so far as to state that switch-reference is “not sensitive to person,” this seems to be too broad a
statement. That is, switch-reference markers cumulated with person indexation are indeed attested (cf. Haiman & Munro 1983: x-xi; Foley & van Valin 1984: 342; van Gijn 2016: 28 for examples), and it follows that such grams would generally be considered for inclusion in this chapter. However, switch-reference ultimately does not play a role in the data below, which is presumably due to its rather limited geographical distribution (cf. Pawley & Hammarström 2018: 99). Specifically, the grams discussed in the above sources are all from languages spoken in New Guinea, and since this region only accounts for a small subset of the sample underlying this work, grams that not only cumulate indexation and switch-reference meanings but are also involved in a wordhood issue are subsequently unlikely to emerge.

The second phenomenon that shows a close connection with indexation concerns reflexivity (the subject/agent has the same real-world referent as the object/patient) and reciprocity (A does to B as B does to A). Like switch-reference markers, reflexive and reciprocal grams do not typically index themselves but instead refer to arguments introduced elsewhere by the primary indexation strategies. Yet, as well-known languages like German and Spanish demonstrate, those functions may be conflated with regular indexation, and functionally equivalent grams would therefore be considered eligible loci for wordhood issues as well. As will be seen below, though, no examples of this type came to light either.

5.0.3 Pronominal and agreement “clitics”

As briefly pointed out in Chapter 1, indexes are often described as “clitics” even when there is no discussion of the syntactic and prosodic properties that would license this label. Subsequently, Siewierska (2004: 26, 39) warns that elements called person “clitics” might turn out to be affixes or words. A likely reason for this indiscriminate use of the “clitic” label is that the prosodic criteria defining “simple” clitics and the syntactic criteria defining “special” clitics have been conflated, despite the fact that they are logically independent (cf. Anderson 2009: 158). Therefore, many elements are classified as clitics if either the prosodic or the syntactic criteria are satisfied, even though the remaining set of criteria might suggest another analysis. A further contributing factor seems to be that clitics are commonly defined on functional rather than on formal grounds so that any pragmatically unmarked index is categorized as a clitic, regardless of whether either the prosodic or the
syntactic criteria are met.

It follows from this terminological homonymy that indexes that are classified as “clitics” in the grammatical descriptions used for this study do not necessarily or obviously constitute wordhood issues, and such elements will then not be part of the database below. Note, though, that this approach is likely to impact the representation of Australian languages in this chapter. On the one hand, the languages of that region are commonly argued to have indexation clitics, and the general differences between Australian affixes and clitics discussed by Harvey (2003a: 186-187) and Baker (2014: 168, 176) suggest that this distinction can be drawn in principle. On the other hand, however, both Dixon (2002: 147) and Harvey (2003b: 477-478) admit that they do not try to distinguish between affixes and clitics in their overviews of Australian case markers and indexes, respectively. Crucially, a similar lack of differentiation also characterizes some of the grammars of the Australian languages in the sample, and the implications of this descriptive practice for the present work and morphological theory more generally will be expanded on in 5.2.2.

5.1 WORDHOOD ISSUES

The presentation of the wordhood issues in this chapter follows the same template as in the preceding chapters. That is, the analyses are ordered alphabetically, based on the names of the macro-areas and of the languages within them.

5.1.1 Africa

5.1.1.1 Dangla

Shay (1999: 123-128) posits a difference between subject prefixes and “enclitics,” where the former occur in independent clauses and the latter signal that the subject is the same as that of the preceding clause. However, the statements and examples provided in the grammar unambiguously suggest that the alleged prefixes and enclitics have parallel distributions, which Shay (1999: 88) explicitly describes as “immediately adjacent to the verb.” More specifically, the sequence of a subject prefix and a following verb cannot be interrupted by adverbs or other constituents, and in a future tense construction consisting of an auxiliary verb and a “verbal noun” (Shay 1999: 211), the prefix occurs on the auxiliary
Virtually the same description is given for the “enclitics” (cf. Shay 1999: 127), which of course follow rather than precede the verb. One issue that Shay’s (1999) terminological choice runs into is that the subject “enclitics” can be followed by object “suffixes” (Shay 1999: 126, 130), despite Zwicky & Pullum’s (1983: 504) well-known diagnostic that affixes do not occur outside of clitics. The latter generalization is retained by the analysis offered here, which will argue that the postposed subject markers are not in fact clitics.

While the syntagmatic behavior of the prefix and the “enclitic” markers is largely identical, there are certain aspects concerning the prosodic properties of the latter that suggest that they indeed pose a wordhood issue. Since there is no explicit discussion of wordhood in the grammar, the present analysis will rest on the behavior of the “enclitics” with respect to advanced tongue root (ATR) harmony. Generally, all mid vowels in the root are either [+ATR] or [-ATR], with suffixes adjusting to the value found in the root (Shay 1999: 21). However, the subject “enclitics” do not behave like suffixes in this regard (Shay 1999: 127), as shown in the following examples. The relevant difference is only explicitly illustrated with the first-person plural inclusive marker, and hence the present analysis will limit itself to this element.

(5.1)  (a)  ṭmil-iy-tê  
        leave.PST-3PL-REF  
        ‘(So) they left.’

(b)  ṭmôl-tê  
     leave.SBJV-1PL.INCL  
     ‘(So) we should leave.’

(Shay 1999: 127)

In (5.1a), the vowel of the referential marker (cf. Shay 1999: 199-201) agrees in [-ATR] with the only other mid vowel found in the string, the initial segment of the root. Due to this harmonic behavior, the referential marker is analyzed as a suffix by Shay (1999). By contrast, the first-person plural inclusive marker in (5.1b), which is otherwise segmentally

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4 Frajzyngier & Shay (2012: 252) state that in addition to ATR harmony, mid vowels in Dangla are also subject to rounding harmony. However, if true, both examples in (5.1) would be disharmonic, and the analysis that Shay (1999) herself provides would fail. Since Shay (1999) is the most comprehensive description of the phenomenon, my analysis will be based on the facts as presented there. Note also that Frajzyngier (2012: 517) only mentions ATR harmony for Dangla.
identical to the referential marker, has a [+ATR] vowel despite the fact that it follows a root with [-ATR] mid vowels. This disharmonic nature is the basis for its analysis as a clitic. On the parameters underlying this work, the subject “enclitic” thus emerges as independent on the parameter of prosodic features. Note that while Shay (1999: 126) gives the unmarked form of the first-person plural inclusive marker as ye, there is no information about its allomorphy, and none of the general phonological processes mentioned by Shay (1999: 27-33) seems to account for the stop-initial form in (5.1b). Since the latter could thus be grammatically conditioned or an error in the source, I will not consider the parameter of phonological rules in this analysis.

The argument that the subject “enclitics” are independent on the parameter of prosodic features appears to find further support in their behavior with respect to tone assignment. For instance, the form tí expresses third-person singular feminine subjects and indirect objects. However, while the object marker triggers leftward H tone spread (5.2a), the subject “enclitic” in (5.2b) does not (Shay 1999: 37).

(5.2) (a) gẹ́tèr-gí-tí  
    dig.PRS-PRS-3.F.OBL  
    ‘(He) is digging for her.’
(b) gẹ́tèr-gí-tí  
    dig.PRS-PRS-3.F.SBJ  
    ‘She is digging.’

(Shay 1999: 37)

In fact, the subject “enclitic” not only spreads its H tone to a preceding syllable, but it may even spread it to the right. This is shown below with the referential suffix, whose unmarked form has an L tone, as seen in (5.3b).

(5.3) (a) kàt-tí-té  
    go.PST-3.F.SBJ-REF  
    ‘She went.’
(b) kàt-d’i-tè  
    go.PST-3.M.SBJ-REF  
    ‘He went.’

(Shay 1999: 37)

However, even though Shay (1999: 37) cites the above behavior as evidence for the claim that the postposed subject markers are clitics, she argues herself that tone spreading is subject to lexical, syntactic, and morphological constraints (cf. Shay 1999: 35). Hence, the entire
system has to be considered lexicalized, and it is therefore not a reliable indicator of wordhood boundaries. Yet, given that vowel harmony and tone assignment are both subsumed under the parameter of prosodic features, this ultimately has no impact on the analysis here.

Since Shay (1999: 127) explicitly states that the present tense marker seen in (5.2) is the only item that may intervene between the verb stem and the postposed subject grams, the latter have the distribution of syntagmatically dependent affixes. However, this fixed position conflicts with their independence on the parameter of prosodic features. While this mismatch thus clearly constitutes a wordhood issue as defined in this work, it involves the mirror image of a prototypical clitic and will therefore be classified as an “anti-clitic” here.

5.1.1.2 Fwe

Subject, object, and reflexive/reciprocal markers are fully integrated into the verbal template in that they all have a fixed position and undergo some of the morphophonological processes found in the verb (cf. Gunnink 2018: 263-271). As such, they are clear-cut affixes and will not be relevant here. However, in addition to the above-mentioned argument types, locatives can also be indexed in the verb, and the relevant grams are classified as enclitics by the author. There are three locative indexes in the language, which correspond to the three locative noun classes 16-18. While the indexes thus have slightly different base meanings and significantly different polysemous extensions (Gunnink 2018: 271, 273-275), neither of these semantic factors will impact the analysis offered here, and I will treat their behavior as a single wordhood issue.

Gunnink’s (2018: 271) claim that the locative indexes are clitics crucially relies on the fact that they “behave as separate from the verb they attach to,” which refers to the fact that they follow all derivational and inflectional suffixes. However, she also states that the locative markers are “the very last morpheme in the verb” (Gunnink 2018: 271). Put differently, then, the indexes have the distribution of affixes in that they occupy the final slot in the verbal template. While the elements are thus not clitics as understood in the present work, there is evidence that they differ from verbal suffixes after all. Specifically, when a verb stem is reduplicated to express pluractionality, the locative markers are excluded from this process. This is crucial because the verb stem includes the root as well as all derivational
and inflectional suffixes (Gunnink 2018: 199-200, 249). The following example illustrates this pattern.

(5.4) ndi-a-endi-end-i=ko

1SG-PST-RDP-go-PST=LOC

‘I kept going there.’

(Gunnink 2018: 272)

In (5.4), the domain of reduplication extends across the root end- and the past tense suffix -i, which together form the reduplicant endi\(^5\) that is preposed to the original verb stem. Clearly, if the locative ko fell within the domain of reduplication, the reduplicant in the above example would have to be endiko rather than merely endi.

As mentioned above, the locative markers appear to be restricted to post-verbal position, which suggests that they are dependent on the parameters of cohesiveness, fixed order, and non-selectivity. However, the fact that they are treated as a separate grammatical domain for the purpose of pluractional reduplication suggests that they are not dependent on the parameter of conventionalized meaning. That is, since processes like that exemplified above explicitly target the verb root plus all following verbal morphemes other than the locative indexes, the latter must be assumed to begin a new morphological word domain for Fwe speakers.

The independence of the locative indexes on the parameter of conventionalized meaning contrasts with their prosodic behavior. While the expression of TAM functions in Fwe is highly complex, the crucial point for the present analysis is that most TAM exponents add at least one H tone to the verb, a phenomenon referred to as “melodic tone” (Gunnink 2018: 278). The present tense construction, for instance, involves the addition of an H tone to the final mora of the verb, but this H retracts to the penultimate mora if the verb is in clause-final position (Gunnink 2018: 272). The following examples, which are to be understood as clause-final, show that for the purposes of melodic tone assignment, the locative markers are considered part of the verb.

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\(^5\) The H tone on the reduplicant in (5.4) in the preceding example is presumably a concomitant of TAM marking. Based on the overview in Gunnink (2018: 279), the pattern in which the second stem syllable bears an H tone corresponds to different TAM functions, but only ‘near past perfective’ is at all plausible in the present case. Cf. below for more on TAM-marking tone.
(5.5)  
(a)  ndi-ngòngót-á
1SG-knock-FV
‘I knock.’
(b)  ndi-ngòngót-á=hò
1SG-knock-FV=LOC₁₆
‘I knock on it.’
(Gunnink 2018: 272)

In (5.5b), the H tone can only be on the “final vowel” -\(a\) if the following locative accounts for the final mora of the verb. This behavior thus shows that the locative indexes are dependent on the parameter of prosodic features. Since vowel harmony is sporadic (cf. Gunnink 2018: 64-67) and thus not a reliable indicator of wordhood, and no other parameters are discussed in the grammar, the locatives will be classified as more prosodically than syntagmatically dependent. However, given that they essentially have the distribution of affixes, and only one relatively marked construction shows that they have word-like properties at all, they are much closer to affix than to clitic status on the cline of bound morphemes. Yet, in light of the fact that they are neither suspended nor mobile affixes, they constitute another phenomenon that is not adequately captured by existing morphological terminology.

5.1.1.3 Koyraboro Senni

Heath (1999: 10) argues that there is no verbal indexation in Koyraboro Senni, but the language has a full paradigm of personal pronouns that are subject to various allomorphic processes (cf. Heath 1999: 54-59, 68-69, 79-81). Heath (1999: 10, 37, 44) variably describes the relevant third-person object markers as affixes and clitics, which is presumably because they predominantly occur immediately after the verb (Heath 1999: 284). That is, to the extent that they follow the verb, they would appear to be suffixes, whereas they could not be so analyzed if they retain a greater degree of syntactic freedom. However, since this distribution is not sufficiently discussed or exemplified, this question cannot be resolved here. Note that Heath (1999: 28, 37, 56) also invokes the fact that the object markers are often unstressed as an argument for their clitic status, but since no stress system is described for the language,⁶

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⁶ The only information provided on prosodic prominence is that the language has neither lexical nor grammatical tone (Heath 1999: 71).
this ultimately does not inform the analysis of their formal status either. Given these empirical gaps, the object markers will not be discussed here.

Instead, there is one syntactic context that suggests that the subject rather than the object markers pose a wordhood issue. The relevant construction involves a mood-aspect-negation (MAN) marker, which intervenes between the subject and the VP (Heath 1999: 191), whereas object grams occur between the MAN marker and the verb (Heath 1999: 8). This gives the overall clause template subject-MAN-object-verb (Heath 1999: 8). Since the MAN markers are described in the chapter on the VP (cf. Heath 1999: ch. 7), I will assume that subject grams interacting with MAN markers also fall within the verbal domain and thus qualify for inclusion in this chapter. Note, finally, that even though the functional range covered by the MAN markers is closely related to the phenomenon of TAM, the wordhood issue in question clearly involves the subject markers and will therefore be discussed here rather than in the next chapter.

The MAN markers come in a “primary” and a “strong” paradigm (cf. Heath 1999: 192, 201). While the functional nuances contributed by the strong forms compared to the primary forms are not entirely clear (Heath 1999: 201-203), the formal issue in question here only arises with the strong forms, and I will therefore focus on the latter for the remainder of this analysis. Example (5.6) shows the first-person singular subject pronoun without a following strong MAN marker.

(5.6) ay nee ir kul ga buu

1SG.SBJ say 1PL all IPFV die

‘I said we (= they and I) would all die.’ (Heath 1999: 78)

The crucial difference between the “primary” MAN markers (such as ga above) and the members of the “strong series” is that some of the latter begin with complex onsets, which in turn are essentially limited to sequences of nasals plus homorganic stops and mostly found in grams (Heath 1999: 31). The following example shows one token of the first-person subject marker before a verb and another one before the cluster-initial gram ŋka. While Heath (1999: 201) calls the meaning of the latter element “elusive,” he also provides a table in which its function is characterized as ‘positive’ and ‘perfective.’ The gloss in example (5.7) is based on
that description.

(5.7) irkoo hin-oo ra ya ŋka zumbu hinne,
god power-DEF LOC 1SG.SBJ PRF descend immediately
ay dii ay bor-ey
1SG.SBJ see 1SG person-DEF.PL

‘By the power of God, as soon as I had gotten out (of the taxi), I saw (= found) my relatives.’

(Heath 1999: 204)

Crucially, Heath (1999: 78) suggests that the allomorph ya before the cluster-initial perfective gram is chosen because a sequence of three consecutive consonants would be “phonologically awkward.” While there is no explicit formulation of the syllable structure in the grammar, the discussion and data provided by Heath (1999: 27-31) strongly suggest that there are indeed no triconsonantal sequences within a phonological word. On that assumption, the formal variation of the first-person marker appears to be determined by the fact that ŋka is interpreted as part of the same phonological word, in which case the subject marker is dependent on the parameter of phonological rules.

In sum, the non-selective distribution and allomorphic behavior of the first-person subject marker render it a prototypical proclitic. While other potentially relevant wordhood parameters are not discussed in the grammar, it should be noted that the remaining subject grams are also sensitive to cluster-initial MAN markers (cf. Heath 1999: 201) and might thus pose the same type of wordhood issue described here. The reason the present analysis focused on the first-person marker is that its allomorphic behavior is the most transparent and that it is the paradigm member most thoroughly exemplified in the grammar.

5.1.1.4 Krongo

There are two paradigms of verbal indexes in Krongo: prefixes in the “independent” conjugation and suffixes in the “dependent” conjugation (cf. Reh 1985: 184-187).\footnote{The functional differences between these paradigms are of no concern here. However, note that all quotations from Reh (1985), including in the examples below, are my translations.} While the description of these paradigms does not give any indication that the relevant elements show a
formal mismatch, the interactions of the subject pronouns with preceding verbs poses a wordhood issue. Reh (1985: 58-59) explicitly argues that the subject pronouns are free morphemes because they can be focused and occur before the verb. The following examples show the unmarked postverbal and the marked (i.e., focused) preverbal occurrence of the first-person singular subject marker, respectively.

(5.8)  n-ollà                      à’àŋ kòtú
       1/2SG-love.IPFV                1SG  2SG.LOC
‘I love you.’  (Reh 1985: 59)

(5.9)  à’àŋ n-ollà                      kòtú
       1SG  1/2SG-love.IPFV         2SG.LOC
‘I love you.’  (Reh 1985: 59)

The examples clearly demonstrate that the first-person pronoun can occur before and after the verb. Hence, even though it is unclear from the examples provided in the grammar whether it can follow non-verbal elements, or whether any other elements can occur between it and the verb, it is not tied to a specific word class preceding or following it, and it is therefore non-selective.

While their syntactic behavior suggests that the subject pronouns are morphological words, they undergo segmental and tone sandhi with preceding verbs except in very careful speech (Reh 1985: 59). The following example shows a tone sandhi process with the first-person pronoun, where the string to the left of the arrow is the “underlying” form and the one to the right is the “surface” form. While no glosses are provided in the grammar, the necessary information can be gathered from the relevant context as well as from Reh (1985: 185).

(5.10)  n-òffì                      à’àŋ → nòfyá’à
       1/2SG-make                     1SG
‘I make.’  (Reh 1985: 59)
In (5.10), the phonological L tone on the first syllable of the pronoun is rendered as an H tone due to a regular process in which the H tone of a deleted vowel at a morpheme boundary (here: \(i\)) replaces an L tone on the initial vowel of a following morpheme (Reh 1985: 77). In addition, example (5.10) demonstrates the effects of a segmental sandhi process whereby a morpheme-final vowel before a morpheme-initial vowel is replaced by the corresponding glide (Reh 1985: 59). In the present case, this explains the change from /\(i/\) to \(\gamma\), where the latter symbol represents the palatal glide (cf. Reh 1985: 11). The final process that accounts for the above form is one that deletes word-final velar nasals (cf. Reh 1985: 40-41).

Crucially for the present analysis, Reh (1985) discusses various degrees of “boundary strength,” which manifest themselves across vowels at morpheme boundaries. A full word boundary is only posited in cases where no morphophonological processes occur (Reh 1985: 54), whereas in all other cases word and morpheme boundaries are blurred to some extent. Since pronouns such as the first-person singular marker were shown to be affected by tone and segmental sandhi above, it follows that Reh (1985: 63) places them in the second-highest boundary category, below the one that identifies “autonomous” phonological words. With respect to the present work, then, the first-person singular pronoun is dependent on the parameters of prosodic features and phonological rules.

By contrast, the parameter of segmental structure cannot be readily applied. That is, there is no statement regarding minimal word size, and hence the fact that the first-person singular pronoun may occur in a monosyllabic shape following a verb (cf. Reh 1985: 59) will not be considered here. Note also that while ATR harmony is generally found in the language, it is blocked by different factors in different circumstances (cf. Reh 1985: 45-50). Due to this complication, vowel harmony does not appear to be a robust criterion for assessing the wordhood status of the first-person singular pronoun. Yet, given that the latter is already dependent on the parameter of prosodic features due to its involvement in tonal sandhi, this has no impact on the final analysis.

While the wordhood issue described here would seem to suggest that the pronoun is a prototypical clitic, Reh (1985) does not employ that label. This might be because the index cannot be separated from the verb and must always occur immediately before or after it. In that case, it might be more appropriately categorized as a mobile affix. However, that analysis would conflict with the fact that the pronoun shows prosodic dependence in
postverbal but not in preverbal position, which suggests that it is a suffix in some constructions but a free function word in others. In light of this combination of formal properties, it is ultimately unclear how the subject pronoun should be categorized given existing morphological terminology.

Finally, note that the different distributions of the pronoun illustrated in (5.8) and (5.9) were treated as relevant data for the present analysis even though they correlate with a functional distinction. Here, it must be recalled that the grams of interest in this work need to be semantically rather than pragmatically uniform across constructions. Since this criterion appears to be satisfied by the two above-mentioned examples, they were considered here. While the difference between semantics and pragmatics is of course gradient, the overall body of data discussed in the present work includes few pragmatically differentiated elements, and they subsequently do not distort the database.

5.1.2 Eurasia

5.1.2.1 Kharia

As stated in the previous chapter, Peterson (2011a: 1, 18) rejects a division between nouns and verbs for Kharia, but I will disregard this word class analysis throughout this work and refer to a nominal and a verbal domain in the language. Another analytical issue already mentioned in Chapter 4 pertains to Peterson’s (2011a, b) treatment of clitics, some of which are claimed to fit into the LH pitch pattern that characterizes the phonological word, while others do not, or not necessarily (cf. Peterson 2011a: 36, 37, 2011b: 95-96). Since there is no detailed account of which grams are compatible with the LH pattern, the parameter of prosodic features cannot be applied in the present analysis.

Only subject arguments are indexed (Peterson 2011a: 212), and the only bound indexes that show allomorphy are the first- and second-person singular markers (cf. Peterson 2011a: 65). While these indexes usually attach to the preverbal negation marker, the second-person singular gram can occur either on the negation marker or on the verb (Peterson 2011a: 58). In fact, Peterson (2011a: 335) states that the predicate-final position of the index, as in (5.12), is the more common option. Anderson (2007: 151) suggests that the reasons for this distribution “may in part be phonological,” but he does not elaborate on this idea, and the
conditions that determine the placement of the second-person index therefore cannot be elucidated here. The following examples illustrate both the distributional variation and the allomorphy of the relevant marker.

(5.11) ubhroŋ um=em ḍe=na
these.days NEG=2SG come=MID.IRR
‘These days you do not come.’ (Peterson 2011a: 58)

(5.12) ubhroŋ um ḍe=na=m
these.days NEG come=MID.IRR=2SG
‘These days you do not come.’ (Peterson 2011a: 58)

The word classes that Peterson (2011a: 77-78, 92) posits are an open class containing “contentive” morphemes and a closed class whose two sub-classes comprise the remaining elements. Since he defines the contentive morphemes in terms of their ability to function predicatively, referentially, and attributively, I will classify the host of the index in (5.12) as belonging to the open class and the negator in (5.11) as belonging to the closed class. However, it must be pointed out that Peterson (2011a) does not explicitly subsume the negator under either class. To the extent that the present classification is accurate, however, the second-person singular marker is non-selective even against the background of Peterson’s (2011a) reduced word class inventory.

Meanwhile, the allomorphy of the second-person marker follows from a principle defined specifically for clitics. That is, clitics whose “elsewhere” form begins with or ends in /i, e/ have allomorphs that prevent hiatuses (Peterson 2011a: 64). This pattern is borne out by the above examples, in which the index occurs in its sub-syllabic form following a vowel but in its syllabic form following a consonant. This behavior renders it dependent on the parameter of phonological rules. Furthermore, since Kharia clitics are subject to a monosyllabic minimum (Peterson 2011a: 63), the second-person marker is also dependent on the parameter of segmental structure.

The mismatch described here suggests that the second-person marker is a prototypical clitic. Yet, given that the other markers in the paradigm only occur with verbs and most of
them do not have (sub-syllabic) allomorphs, it is unclear why they are also described as clitics. Apart from the fact that Peterson (2011a) generally posits a large number of clitics, this choice might also be motivated by the tendency to group all members of a paradigm into the same form class (cf. Siewierska 2004: 4). Given that new grams constantly emerge, though, it is highly likely that many paradigms contain elements with diverse formal behavior, and this descriptive practice subsequently leads to imprecisions. On the other hand, this terminological tradition might help to explain why many grams are classified as clitics without obvious justification (cf. also 5.0.3).

5.1.2.2 Kokota

The primary indexes in Kokota divide into preverbal subject markers and postverbal object markers (Palmer 2009: 67). That is, Palmer (2009: 173) points out that the “subject” and “object” labels are only superficially appropriate since the participants to be indexed follow from a hierarchy of semantic roles (cf. Palmer 2009: 176 for details). Yet, given that these details are not crucial here, I will simply refer to the relevant elements as “subject” and “object” markers for the remainder of the analysis. Furthermore, since the further are described and represented as free items that are not subject to allomorphy, whereas the latter are said to encliticize to the verb complex (Palmer 2009: 173), the focus here will be on the object markers.

The “verb complex” is a layered template that, in addition to the verbal head, comprises slots for TAM markers, adverbs, and object indexes (Palmer 2009: 271-272). As such, the verb complex corresponds to the kind of structure often described as a VP, and I therefore classify the object markers as occurring within the verbal domain. Crucially, there is a slot between the verbal head and the one reserved for object indexation, which is why the object indexes do not necessarily follow the verb. This clearly distinguishes them from verbal suffixes on the syntagmatic dimension. The present analysis will be based on the third-person singular marker because it is the one most thoroughly exemplified in the grammar and

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8 There is another paradigm of so-called “independent focal pronouns” (Palmer 2009: 67-69), whose semantic and pragmatic properties are not discussed in detail. Presumably, though, they contribute emphasis and are thus the marked option, which would be cross-linguistically common. Nothing will be said about these pronouns here.

9 The verb complex is argued to additionally split into a core and an outer layer (Palmer 2009: 271-272), but this distinction is not relevant for the analysis presented here.
because it is the paradigm member with the most elaborate allomorphy. However, the other object indexes appear to show the same behavior and most likely constitute the same wordhood issue. The following example shows the third-person singular object marker immediately after a verb.

(5.13) o la hoda mai=nì=u ia raro ta
2.SBJ go take come=3SG.OBJ=CONT ART.SG pot SUBR
dou
be.big
‘Go [and] bring me the big pot.’

(Palmer 2009: 175)

Palmer (2009: 175) argues that the occurrence of the object marker in (5.13) illustrates its clitic status because the sequence *hoda mai* is analyzed as a serial verb, in which the latter verb modifies the former. Hence, since the object marker occurs on the modifier rather than the head (as it would with simple verbs), it should be considered a clitic. However, given that this putative serial verb is potentially lexicalized, the entire string could also be analyzed as a compound verb, in which case the position of the object marker in (5.13) would not differ from the one it shows with simple verbs. Ultimately, though, this issue is immaterial to the present analysis because the third-person object marker can also follow a non-verbal element, as seen in the example below.

(5.14) ge e teo ġe lao ge hoda
SEQ 3.SBJ not.exist NT go SEQ take
fakamo=i=u gai
always=3SG.OBJ=CONT 1PL.EXCL
‘We don’t always go and take turtles…’

(Palmer 2009: 176)

The word to which the object marker attaches above, *fakamo*, is classified as a modifier and an adverb (Palmer 2009: 260, 268), and it is one of only two elements that can occupy the
slot between the verb and the object indexes (Palmer 2009: 271-272). The examples above thus show that the third-person singular object marker is non-selective. The comparison of the two examples also shows that the relevant index is dependent on the parameter of phonological rules. Specifically, the monosegmental allomorph in (5.14) seems to be the “elsewhere” form, whereas Palmer (2009: 173-174) states that the /n/-initial variant in (5.13) appears when the final vowel of the preceding host is identical to the initial vowel of the object marker. However, since he also argues that this process optionally occurs after other vowels, the fact that the allomorph with the nasal onset follows a host with a final diphthong (cf. Palmer 2009: 16) is accounted for.

While the non-selective and allomorphic behavior of the object marker supports Palmer’s (2009) clitic analysis, the facts bearing on the other wordhood parameters are not described in detail for the element in question. Yet, since Palmer (2009: 37) states that suffixes and enclitics fall within the stress domain of their stem/host, and the third-person object marker is not mentioned as an exception, I will classify it as dependent on the parameter of prosodic features. Finally, Palmer (2009: 25) makes a distinction between a minimal word and a minimal stress-bearing word. Either unit is monosyllabic, but the latter has to be bimoraic. Given that the object index discussed here is monomoraic but integrated into a stress domain and therefore capable of bearing stress, I will also classify it as dependent on the parameter of segmental structure.

5.1.3 North America

5.1.3.1 Huave

Some of the indexes in Huave can occur as prefixes or suffixes. Yet, since their exact position is usually determined by the presence or absence of other affixes in the verb, there are typically no semantically equivalent verb forms that are distinguished by different index orders (cf. Kim 2008: ch. 7, 2010 for details). Put differently, the vast majority of the indexes

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10 Meanwhile, the ‘continuous’ marker, seen in both examples above, is the only element that can follow the object index in the core of the verb complex (Palmer 2009: 271-272). These rigid restrictions on either side of the object indexation slot support the idea that the verb complex is a salient unit that can be equated to the “verbal domain.”

11 For details of the stress system, cf. the discussions of the Kokota wordhood issues in the previous two chapters.
and the relevant constructions do not bear on the parameter of fixed order as defined in this work. However, it will be shown below that there is at least one case of free variation between the pre- and the postverbal location of an index, and this phenomenon will form the basis of the wordhood issue discussed here. Given that the relevant facts are described by Kim (2008) for the San Francisco variety but not by Salminen (2016) for the San Dionisio variety, the analysis proposed here will exclusively be based on the former. Throughout this sub-section, though, I will only speak of “Huave” in general terms.

The following examples show the second-person subject marker, whose position relative to the verb stem varies freely in the presence of the subordinate gram. The two strings are described as “apparently equally acceptable variants of the same word” (Kim 2008: 346), and the two markers involved are the only ones that show this kind of freedom (Kim 2008: 347). Subordinate verb forms are widely used in dependent clauses as well as in negative main clauses (Kim 2008: 263), and the role that the subordinate marker plays for the construction at issue here will be discussed in more detail below.

(5.15) (a) m-e-chutu-r
    SB-2-sit-2.INTR
    ‘that you (sg.) sit’

(b) chutu-m-ia-r
    sit-SB-2-2.INTR
    ‘that you (sg.) sit’  (Kim 2008: 347)

Salminen (2016: 45) states that the main criterion for identifying the phonological word is primary stress on the final syllable, which is also the pattern found by Kim (2008: 36) for the variety at issue here. Since the stress properties of the indexes are not discussed in either source, however, it must be assumed that they do not show exceptional behavior with regard to this phenomenon.12 Given that vowel harmony is only found with epenthetic vowels (Kim 2008: 143-145) and the index above has a clear-cut morphological function, the parameter of prosodic features generally does not inform the present analysis. In the absence of a discussion of minimal wordhood, this also holds for the parameter of segmental structure.

Despite these empirical gaps, though, there is clear evidence that the second-person

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12 Several other sources report a tone system for Huave (e.g., Noyer 1991; Yip 2002: 220-221, 226-227; van der Hulst et al. 2010: 253-255). However, since Heaton (2018: 234) claims that tone is only found in the San Mateo variety described by Noyer (1991), and given that Kim (2008: 35) explicitly claims not to have observed tone in the San Francisco variety from which the above data come, I will ignore the issue of tone in this analysis.
marker is part of a larger phonological word. Specifically, the variation between the two allomorphs shown above, *e* and *ia*, is due to a general process by which monophthongs diphthongize before a plain (i.e., non-palatalized) coda (Kim 2008: 53). Since closed syllables only occur word-finally, it follows that diphthongs can also only appear in word-final syllables (Kim 2008: 98). Overall, this allophonic alternation accounts for both forms of the second-person marker in (5.15). It is a monophthong in a non-final syllable and a diphthong in a final syllable closed by */r/*, which is a plain consonant (cf. Kim 2008: 20, 196). In sum, then, the second-person marker is dependent on the parameter of phonological rules.

The degree of prosodic dependence to which the second-person marker is subject is at odds with the fact that it is not dependent on the parameter of fixed order. While there is no explicit information on the other syntagmatic parameters, Kim (2008: 10) classifies person-marking as part of the verbal morphology. Furthermore, her extensive discussion of the latter (cf. Kim 2008: ch. 6) does not reveal any cases in which the second-person marker can variably be marked on only one of several verb stems. Hence, it must be concluded that it is dependent on the parameters of non-selectivity and cohesiveness. Given the terminology adopted in this work, it is therefore neither a clitic nor a suspended affix but rather a mobile affix.

Finally, Kim (2008: 348-350) suggests another analysis for the combination of the subordinate marker and the second-person index, according to which they have become a single cumulative morpheme. However, since the parameter of conventionalized meaning serves to distinguish between words and bound forms rather than between different affixes, that analysis would not necessitate the consideration of this parameter. In fact, as long as the putative cumulative marker expresses indexation and shows free variation such as in the cases illustrated above, the assumption of such a reanalyzed item would not require any changes in the analysis presented here. I will therefore disregard Kim’s (2008) alternative proposal.

5.1.3.2 Lillooet

In Lillooet, both subjects and objects are marked by elements described as suffixes (van Eijk 1997: 142). However, the third-person plural subject marker varies in terms of
where it attaches when there is both a full verb and an auxiliary (van Eijk 1997: 153). This situation is claimed to hold for the subject markers of subjunctive and indicative clauses (cf. van Eijk 1997: 153), but the contrast is only explicitly illustrated for the former. Note that the ‘subjunctive’ meaning falls within the domain of mood rather than tense and that it is overtly marked by a separate gram in Lillooet. Hence, the relevant wordhood issue clearly concerns an index and is therefore discussed in this chapter (cf. 5.0.2). Also, recall from the previous chapter that the data in van Eijk (1997) often contain partial and/or unconventional glosses. The presentation of the examples below is therefore considerably adjusted in the interest of uniformity, and the relevant information is partly gathered from other sections of the grammar. The following examples show the variation in the position of the third-person plural subject marker.

(5.16)  waˀ-wit-ás=mal=ƛˀu’  ṭiƛ’əm
AUX-3PL-SBJV=HORT=well  sing
‘Let them sing/they might as well sing.’ (van Eijk 1997: 153)

(5.17)  waˀ-as=má=ƛ’u’  ṭiƛ’əm-wit
AUX-SBJV=HORT=well  sing-3PL
‘Let them sing/they might as well sing.’ (van Eijk 1997: 153)

In the above examples, waˀ functions as the auxiliary (van Eijk 1997: 152) to which the third-person plural marker attaches in (5.16) but not in (5.17). While van Eijk (1997: 152) states that any verb with a temporal, aspectual, or modal function can be used in auxiliary function, the semantic contribution of waˀ in the above examples is not obvious. Beyond that, the combination of =mal, described as an “adhortative” marker, and =ƛ’u’, whose meaning is given as ‘well, but so,’ produces the meaning ‘might as well’ in optative constructions, which in turn fall within the functional range of the subjunctive (van Eijk 1997: 147, 153). Finally, note that there is no information about what conditions the different options for subject marker placement and that the present case will therefore be treated as one of free variation.

As stated above, auxiliary verbs are drawn from the pool of lexical verbs, and since the subject marker is therefore limited to verbal stems, it is selective. Furthermore, given that
its syntagmatic freedom only emerges in the context of multiple verb stems, it is also dependent on the parameter of fixed order. In light of the fact that van Eijk (1997) does not discuss whether the subject index is considered a separate word by Lilooet speakers, this leaves the parameter of cohesiveness. The examples that invoked this parameter in the preceding chapter as well as in 2.4 all involved constructions in which a gram could either occur on all members of a coordinated sequence or only on the final conjunct. In that sense, the gram at issue here clearly differs in that it cannot occur multiple times in either construction and in that the auxiliary and the lexical verb are not coordinated. Overall, however, the example of the third-person marker is sufficiently similar to those previous instances. This is because it involves a gram that can be variably placed across a sequence of words belonging to the same syntactic category without bringing about a semantic difference. Due to these considerations, I will classify the subject index as free on the parameter of cohesiveness.

The analysis of the wordhood issue rests on the following phonological facts. Within a phonological word, the first full vowel (i.e., neither of the two schwa types) is stressed (van Eijk 1997: 14), where stress is marked by an acute accent (van Eijk 1997: 5). This straightforwardly accounts for the stress pattern on the verb ‘sing’ in both examples above. By contrast, the stress within the auxiliary element is explained by the fact that, upon encliticization, stress may fall two syllables to the right of the first full vowel, as long as it does not fall on the final syllable (van Eijk 1997: 17). The effect of this principle can clearly be seen in both of the above examples. That is, without enclitics, the auxiliary itself would have to be stressed because it accounts for the first full vowel. Instead, however, the stress is found two syllables further into the word. As (5.17) shows, even an enclitic may thus be stressed, provided it does not account for the final syllable. That the third-person plural subject marker is integrated into the relevant pattern can best be seen in (5.16), where it accounts for the second syllable of the word and thus precedes the one that bears stress. Meanwhile, its behavior in (5.17) at least does not contradict any of the facts reported here. Given this picture, the index is dependent on the parameter of prosodic features. Yet, since most roots in the language have the same CVC shape as wit (van Eijk 1997: 32), and since the latter does not show phonological allomorphy (cf. van Eijk 1997: 143-145), the parameters of segmental structure and phonological rules do not apply in the present case.
The analysis provided here has argued that the third-person subject gram is characterized by a higher degree of prosodic than of syntagmatic dependence. However, this item is yet another instance of an element that cannot easily be captured by existing morphological terminology. Since it is dependent on the parameters of non-selectivity and fixed order, it is neither a clitic nor a mobile affix. Yet, unlike the other grams that are free on the parameter of cohesiveness, it cannot be categorized as a suspended affix because it does not have to occur on the last member in a sequence of verbs. As in the similar wordhood issue from Kharia discussed above, though, the Lilooet index is limited to a position within the predicate. Hence, where many of the case markers discussed in the previous chapter fall within the nominal domain, the indexes from these two languages are clearly restricted to the verbal domain. The fact that the distribution of many grams is limited in such a way arguably strengthens the assumption that the nominal and verbal domains (or their phrasal equivalents) are formally and psychologically plausible structures.

5.1.4 Oceania

5.1.4.1 Bardi

Bowern (2014: 500) states that subject arguments are indexed by prefixes, whereas other arguments are marked by postverbal clitics. Since the subject markers are integrated into the regular stress pattern, show significant amounts of allomorphy, and take a fixed position with regard to the verb and other verbal morphemes (cf. Bowern 2012: 112, 119, 364, 372), their analysis as affixes is straightforward. Subsequently, the focus here will be on the non-subject markers. While the latter split into separate paradigms of direct object and oblique indexes (cf. Bowern 2012: 364, 402, 410), they show essentially the same behavior on the parameters of interest here. Yet, since the discussion and illustration of the direct object grams is more substantive, I will limit myself to the members of that paradigm in the present analysis.

One reason not to classify the object markers as affixes is that they can occur with several word classes (Bowern 2012: 377) and are therefore non-selective. For instance, the
following example shows the first-person minimal marker on a noun (cf. Bowern 2012: 298-299). Note that while the object markers can also attach to free pronouns, their functional contribution in such cases is emphasis (Bowern 2012: 299). Since this is arguably not a polysemous extension of the indexation function, and since the argument here can be made on the strength of the nominal examples alone, I will omit occurrences with pronominal hosts from this analysis.

(5.18) Arra nyoo-ngoo=jarrngay
       NEG 2-stomach=1MIN.OBJ
       ‘You don’t like me.’

While the juxtaposition of (5.18) and the example below clearly shows that the object markers are non-selective and thus not affixes, it does not suffice to support a clitic analysis. In fact, the phonological properties of the object markers largely suggest that they are prosodically independent. In conjunction with their non-selective nature, they might thus be function words instead. Specifically, Bowern (2012: 161) does not posit a minimum size for the phonological word in Bardi, and the general phonotactic restrictions that might identify word boundaries do not apply due to the specific segmental shapes of the object markers. This rules out the parameter of segmental structure. With regard to phonological rules, meanwhile, Bowern (2012: 122) defines the difference between affixes and clitics in terms of their lenition patterns. However, the discussion of the relevant facts suggests that most clitics do not show lenition at all and that the variation they do show is either free or conditioned by what is described as an external sandhi process (cf. Bowern 2012: 106, 122). Hence, the segmental variation of the object markers is not a reliable indicator of their dependence either.

The above facts leave the parameter of prosodic features as a possible explanation for the clitic analysis. Since vowel harmony is limited to “some affixes” (Bowern 2012: 131) and thus lexicalized (cf. also Chapter 4 for problems with Bardi vowel harmony), it is not a useful criterion for assessing the wordhood status of the object markers. However, the latter are

13 The “minimal” and corresponding “augmented” forms express number (and, to some extent, clusivity) distinctions in systems that cannot be neatly described by the more established values of those categories (e.g., “singular”). This phenomenon is relatively common among the non-Pama-Nyungan languages of Australia; cf. Dixon (2002: 244-246); McGregor (2004: 113-114) for concise overviews.
clearly dependent in terms of stress assignment. Bowern (2012: 112, 161) defines the phonological word as a domain that has a primary stress, which is consistently on the initial syllable. Yet, the indexes at most receive secondary stress (Bowern 2012: 112, 118), the distribution of which is complex but in any case determined at the word level (cf. Bowern 2012: 112-119). The following example shows the third-person augmented object marker bearing secondary stress. The phonetic representation is taken from the source.

(5.19) [ˈi-r-a-,ma-n=cir=ˌır]
3-AU-TR-put-CONT=3AU.OBL=3AU.OBJ
‘They put theirs there.’ (Bowern 2012: 118)

The fact that the object grams are integrated into the stress domain of the preceding phonological word contrasts with their non-selective behavior at the syntagmatic level. In sum, then, they indeed show the properties of prototypical clitics. However, it is also noteworthy that Bowern (2012: 162-163) explicitly addresses the psychological reality of certain grams and concludes that the elements she classifies as clitics can be identified by speakers in isolation even though they are not felt to be full words. On the one hand, this ambiguous result lends credence to the idea that clitics combine traits of both affixes and words. On the other hand, it might also suggest that the sole property that justifies the analysis of the object markers as formally dependent (i.e., their behavior with respect to stress assignment) is sufficient to impact their mental representation. This, in turn, would argue for primary stress as a rather powerful indicator of Bardi wordhood, which is the argument that Bowern (2012) pursues throughout.

5.1.4.2 Mauwake

The bound subject indexes, which are cumulated with tense meanings, are described as suffixes by Berghäll (2015: 149-151), and there is no evidence to suggest otherwise. However, the accusative pronouns, which primarily express objects (Berghäll 2015: 95), are stated to be in a process of cliticization (Berghäll 2015: 44, 96). The examples available involve the first-person accusative marker, and hence the analysis presented here will focus on that element. The following example shows the first-person accusative in its full form.
In the above example, the accusative marker is described as a full phonological word because it bears primary stress on the second vowel (Järvinen 1991: 67; cf. also Berghäll 2015: 41-42). Since the requirement for two vowels corresponds to a bimoraic minimum, the pronoun is thus free on the parameters of prosodic features and segmental structure.

Yet, while the accusative indexes cannot be used in isolation (Järvinen 1991: 67) and are thus dependent on the parameter of free occurrence, the prosodic autonomy they show on the above-mentioned parameters contrasts with their overall syntagmatic behavior. Järvinen (1991: 67) states that they only attach to verbs and verbal nouns, but since this is neither elaborated nor exemplified, I will follow Berghäll’s (2015: 96) analysis here, according to which the accusative pronouns “immediately” precede the verb and might be prefixes. This decision appears justifiable considering that Järvinen and Berghäll are the same author (cf. Berghäll 2015: 95 fn. 35) and Berghäll (2015) is thus presumably a revised analysis. In terms of the wordhood parameters underlying this work, the obligatorily preverbal position of the accusative grams would clearly render them syntagmatically dependent. Nevertheless, though, the overall analysis of the present wordhood issue is complicated by the fact that the accusative pronouns may also occur in reduced form. While neither source discusses the factors that condition the variation between the two variants, such information would be tangential to the analysis in any case. Example (5.21) illustrates the reduced form of the first-person marker seen above.

(5.21)  Ef-’uruf-a-mik

1SG.ACC-see-PST-3PL

‘They saw me.’  (Järvinen 1991: 67)

Here, the pronominal element is monomoraic and subsequently cannot bear stress. Instead, the fact that primary stress is on the next vowel clearly shows that the reduced pronoun is
integrated with the following verb and thus dependent on the parameter of prosodic features. Furthermore, the reduced index above is of the form VC, which is the one shape that monosyllabic words cannot have (Berghäll 2015: 43). Therefore, the reduced pronoun also violates the wordhood parameter of segmental structure. Since allomorphy is defined by complementary distribution and the full and the reduced pronouns can occur in the same environments, the parameter of phonological rules does not factor into the analysis.

Given that the reduced pronoun is both prosodically and syntagmatically dependent, it is best analyzed as a verbal prefix. By contrast, the full form of the pronoun has retained a considerable degree of prosodic freedom. On the core assumption of this work that wordhood issues are caused by grammaticalization patterns, the processes leading to syntagmatic dependence have thus outpaced the processes that bring about prosodic dependence. The one fact that might argue against this interpretation is that literate speakers of Mauwake consistently separate the accusative pronouns from the verb in spelling (Järvinen 1991: 67). This might suggest that the indexes are psychologically real words for native speakers and thus free on the parameter of conventionalized meaning. However, since literate speakers are also the ones most likely to know languages in which pronouns are spelled as separate words, it is unclear to what extent such evidence should be admitted (cf. also Evans et al. 2008: 105-106). More generally, orthography is at best an indirect reflection of mental representations, and given this methodological uncertainty, I will omit the parameter of conventionalized meaning from the present analysis.

Finally, recall that the synchronic variation the accusative pronouns show is categorized as an instance of cliticization by Berghäll (2015). However, in light of the fact that the relevant index above is limited to preverbal occurrence while retaining some properties of phonological words, the underlying process would be more accurately described as one of “anti-cliticization.” Furthermore, since the reduced form in (5.21) is a straightforward affix, neither of the pronominal variants shown above is actually a clitic. Hence, while the diachronic transition from function word to affix status often involves a clitic stage, examples such as the ones discussed here prove that this is not necessarily so. This ultimately supports Hopper & Traugott’s (2003: 6-7) argument that grammaticalization should not be conceived of in terms of a cline with fixed points to be checked off.
5.1.4.3 Wardaman

The verbal indexes in Wardaman are described as affixes, and given that they follow a rigid templatic order and show many instances of allomorphy as well as signs of fusion, there is no indication that they might be formally independent (cf. Merlan 1994: 40, 123-136; Dixon 2017: 635). Given this behavior, the focus here will instead be on the dual marker, which can freely occur on nouns, verbs, or both nouns and verbs within the same clause (Merlan 1994: 89). This distinguishes it from the plural gram, which also has considerable syntagmatic freedom but is usually not attached to verbs (Merlan 1994: 90) and thus not an obvious component of the verbal domain.

The functional contribution of the dual marker in verbs is relatively straightforward. Given that the verbal indexes neutralize the distinction between dual and plural with second- and third-person arguments (Merlan 1994: 90), the dual marker specifies that the non-singular indexes refer to a dual rather than a plural argument. The syntagmatic flexibility of the dual gram can clearly be seen in the examples below, where (5.22) shows it on both a noun and a verb and (5.23) shows it on a verb only.

(5.22) nganburr-ga-ndi-ya-wuya mulurru-wuya
3NSG>1SG-take-PST-NARR-DU old.woman-DU.ABS
‘The two old women used to take me.’ (Merlan 1994: 331)

(5.23) ya-wurr-ng-e-yi-n wirrig ya-wurr-bu-ying-gan-guya
3-3NSG-argue-MEDP-PRS tomorrow 3-3NSG-fight-REFL.RECP-POT-DU
‘They are arguing, tomorrow they may fight.’ (Merlan 1994: 89)

The dual marker does not fall below the CV minimum that Merlan (1994: 24) posits for Wardaman words, and the process of vowel assimilation (or harmony) that Merlan (1994: 40-45) describes is largely lexically conditioned and thus too irregular to be used as an indicator of wordhood here. However, primary stress usually falls on the penultimate syllable of the phonological word, and the dual is regularly integrated into this stress domain (Merlan 1994: 53, 56). This renders it dependent on the parameter of prosodic features. In addition, the examples above show that the dual gram is subject to allomorphy. Merlan (1994: 38) posits
the stop-initial allomorph as the basic form, which follows stops and nasals, while the glide onset occurs in other environments. Crucially, this alternation is only found with (certain) suffixes, and it is described in a chapter on “process phonology,” which deals exclusively with word-internal phenomena. Hence, the dual marker can also be taken to be dependent on the parameter of phonological rules.

The above facts clearly show that the dual is non-selective yet prosodically dependent. However, it does not lend itself to a straightforward classification with respect to established morphological terminology. Merlan (1994: 89), for instance, calls it a suffix but points out its “chameleon” nature, which refers precisely to what is called “non-selective” here. It might therefore be proposed that the dual is an enclitic rather than a suffix. Yet, the fact that it can optionally occur multiple times per clause aligns it with suspended affixes. Clearly, though, it is not any type of affix because of its above-mentioned non-selectivity. Note also that its distribution is less rigid than that of the Kharia and Lillooet indexes described above, both of which occur exactly once and within the predicate. In sum, then, the formal profile of the Wardaman dual marker is unique among the grams discussed so far, and this rare combination of properties might explain why the gram escapes traditional descriptive labels.

5.1.4.4 Yeri

All subject as well as first- and second-person object arguments are indexed via markers that occur in a fixed slot of the verbal template (Wilson 2017: 166, 343) and that show various types of phonological allomorphy (Wilson 2017: 86, 345, 348, 349). Overall, there is no evidence to suggest that they have prosodic or syntagmatic freedom, which supports the prefix analysis adopted by Wilson (2017: 36). By contrast, third-person object markers do not have a fixed templatic position, and the wordhood issue described here will pivot on this fact. Specifically, third-person objects are either marked by infixes, by suffixes, or by “augmented” suffixes, the latter of which are preceded by a semantically empty syllable called the “augment” (Wilson 2017: 350, 355). Most verbs choose only one type of third-person object index, but a subset of them employs the infix and the augmented suffix strategy interchangeably (Wilson 2017: 351). The following examples show this variation with the verb akubil ‘cover in,’ whose third-person singular masculine object is an
augmented suffix in (5.24) and an infix in (5.25). The remainder of the present analysis will be based on this member of the paradigm.

(5.24) te-i  ki  Ø-akubil-a-n  pilokua
       3-PL  already  3PL-cover.in.RL-AUGM-3SG.M.OBJ  mud
danua-n  te-n
PREP-SG.M  3-SG.M
‘They covered him with mud.’ (Wilson 2017: 360)

(5.25) yem  ta  y-aro  y-a<ne>kubil
       2PL  FUT  2PL-cover.in.RL1<3SG.M.OBJ>cover.in.RL2
te-n  yot-u-n  y-oki-Ø  pilokua
3-SG.M  DEM-MED-SG.M  2PL-use.RL-SG.F  mud
‘You (pl.) will go and cover that boy with mud.’ (Wilson 2017: 360)

While the (augmented) suffixes immediately follow the verb root, the infixes follow the first syllable of the root (Wilson 2017: 343, 454; cf. also Wilson 2014). Since both affix types thus occur within the verbal template, the third-person singular masculine object marker is clearly selective. Also, since neither affix type appears to be capable of being suspended, it cannot be argued that the gram lacks cohesiveness with the verbal stem. Instead, the distribution of the relevant object marker shows that it is free on the parameter of fixed order because it can occur in different positions within a single morphological word without semantic effect.

This syntagmatic freedom contrasts with its phonological behavior. Most importantly, primary stress usually falls on the penultimate syllable, with secondary stress on every other syllable before that and unstressed vowels usually reduced or deleted (Wilson 2017: 36, 73). Given that the phonologically syllabic variant in (5.25) occurs in the antepenult, its vowel should be affected by reduction or deletion. In fact, Wilson (2017: 84) states explicitly that /e/, the relevant vowel in (5.25), is usually deleted, and this process also manifests itself in the nuclei of object infixes, provided the resulting sequence is phonotactically acceptable (Wilson 2017: 352-354). Since the alveolar nasal is indeed one of the few consonants
allowed in coda position (Wilson 2017: 69), it can thus be assumed that both object markers above have the same shape /n/ phonetically. In sum, then, the object marker is dependent on the parameter of prosodic features because it is integrated into a stress domain and on the parameter of phonological rules because it has allomorphs determined by the stress pattern and/or the syllable structure.

By contrast, there is no discussion of minimal word size, and the parameter of segmental structure therefore does not inform the present analysis. Finally, while the augments participate in vowel harmony\(^{14}\) (cf. Wilson 2017: 356-359), they are not analyzed or glossed as part of the actual indexes by Wilson (2017). However, to the extent that the augments always co-occur with the relevant indexation suffixes and do not contribute a separate meaning, they could be considered part of those suffixes, in which case the indexes themselves would be harmonic. Yet, given that the object markers are already dependent on the parameter of prosodic features due to their behavior with respect to stress assignment, nothing hinges on this issue, and I will therefore follow Wilson’s (2017) analysis here.

The third-person object marker described above constitutes an interesting case for morphological theory and terminology. Specifically, given that only 40 out of 330 verb types in the available corpus choose the infixal strategy (Wilson 2017: 351), one might argue that the (augmented) suffixes are the unmarked forms. However, since the two strategies are partly in free variation, as shown above, and their distribution is otherwise lexically determined, it is unclear how the infixes could be “derived” from the suffixes on any phonological or morphological account. Put differently, the third-person object index might not lend itself to a classification as either a suffix or an infix, and the superordinate “affix” label might thus be the most precise term available for this item.

5.1.4.5 Yimas

The verbal indexes in Yimas are described as prefixes (cf. Foley 1991: 200), and the

\(^{14}\) Wilson (2017: 100-101) actually describes this process as vowel disharmony, but it needs to be emphasized that the principle at work is crucially different from disharmony as defined in Turkish, for instance. In the latter, disharmonic elements have a fixed vocalic quality and are therefore only “accidentally” harmonic with preceding vowels (i.e., when the preceding vowels happen to have the same articulatory features as the fixed vowel). However, the “disharmonic” vowels in Yeri are not fixed. Rather, they predictably take on the height feature that the preceding vowels do not have. Since every instantiation of these vowels is thus dependent on preceding vowels, this process appears to be closer to the phenomenon of “anti-harmony” as defined by Rebrus & Törkenczy (2015: 5).
description of nominal and adjectival morphology (Foley 1991: 92, 93) makes clear that they at least do not occur with these two word classes. Hence, the indexes appear to be selective with respect to their collocates. Since there is no evidence to the contrary, it will also be assumed here that they are dependent on the parameter of cohesiveness. Finally, the order of multiple indexes within the same verb form is fixed due to a highly complex interaction of principles (cf. Foley 1991: ch. 5). One exception to this rigid order involves cases in which the negative prefix occupies the initial slot of the verbal template and thereby causes an argument-marking prefix that would otherwise occur in this position to appear as a suffix (Foley 1991: 82-83). However, this does not bear on the parameter of fixed order as defined here because the constructions in which the indexes occur pre- and postverbally are not semantically equivalent (i.e., they necessarily differ in terms of polarity). This approach also seems to be in line with Foley (1991: 81), who himself defines the morphological word in terms of the parameter of fixed order.

In contrast to their syntagmatic properties, the prosodic behavior of the indexes is more complex and constitutes the basis of the wordhood issue to be analyzed here. The following is the only example that has stress marked in the source and that illustrates most of the other relevant facts, all of which will be discussed below.

(5.26) na-mpu-wapát-ɲcut

3SG.OBJ-3PL.A-climb-REM.PST

‘They climbed it (the tree).’

(Foley 1991: 80)

According to Foley (1991: 80), the two criteria for identifying a phonological word in Yimas are regular processes, which fall under the parameter of phonological rules, and stress placement. The example above crucially demonstrates the relevant aspects with respect to the latter. Generally, primary stress is on the initial syllable, with secondary stress falling on the third syllable if the word is more than three syllables long (Foley 1991: 2, 75). While this pattern only refers to vowels that are “underlyingly” present and excludes the many vowels argued to be inserted epenthetically (Foley 1991: 75), even in the “surface” forms including the epenthetic vowels stress must fall on one of the first two syllables (Foley 1991: 76-77). However, this principle is violated by the indexes, which are “normally” unstressed (Foley...
1991: 79-80, 84). In (5.26), for instance, stress is instead on the second syllable of the root and fourth syllable overall, due to another principle by which many di- and trisyllabic words containing /a/ are variably stressed on the first or second syllable (Foley 1991: 78).

There is no conclusive evidence to suggest that the indexes are otherwise prosodically independent. For instance, while there is vowel rounding harmony, this process is highly limited, marked by lexical exceptions, and most clearly found in roots (Foley 1991: 58-60). Hence, this phenomenon is insufficient to determine the status of the indexes with regard to the parameter of prosodic features. In addition, Foley (1991) does not posit a minimum word size, but the assumption of widespread epenthesis due to “underlyingly” vowel-less roots (cf. Foley 1991: 2) would render this concept difficult to apply in any case. Therefore, the parameter of segmental structure also does not factor into the present analysis. Finally, the paradigm of indexes does not list any phonologically conditioned allomorphs (cf. Foley 1991: 200), which also excludes the parameter of phonological rules from consideration.

Given the analysis proposed here, the Yimas indexes constitute another instance of the general problem sketched in 2.4. That is, since every phonological word must carry a primary stress (Foley 1991: 80), they would seem to be dependent on the parameter of prosodic features due to their lack of stress. Yet, since they are not integrated into the stress domain of the structure of which they otherwise form a part, they would also appear not to be dependent on the same parameter. As argued throughout this work, the combination of syntagmatic dependence and extrametricality will be taken as a sign that the relevant grammar lags behind in terms of its phonological integration and has thus retained a degree of prosodic independence. In this context, it also seems relevant that several of the indexes have the same segmental shape as the corresponding free pronouns (cf. Foley 1991: 199, 200), which suggests that they have generally undergone little phonological change and are thus appropriately classified as anti-clitics.

5.1.5 South America

5.1.5.1 Apurinã

Facundes (2000: 385) does not classify the preverbal subject markers as affixes because they also express possession with nominal stems. As argued in 5.0, however,
indexation and possession are considered different semantic categories in the present work, and hence this distribution does not constitute evidence for the non-selectivity of the subject grams. Since the object markers are not obviously prosodically independent and seem to be limited to postverbal position (Facundes 2000: 305, 406, 422), neither of the paradigms of bound indexes in the language appears to cause any wordhood issues.

Instead, the interest here will be in the reduced form of the free first-person singular pronoun. That is, while Facundes (2000: 127) states that all independent pronouns have reduced forms, only the first-person marker occurs frequently enough to allow for description, and the present analysis will thus be limited to this marker. The following unglossed examples present an /h/-initial verb with the independent full pronoun nota (5.27a), the reduced form no (5.27b), the first-person singular prefix ni- (5.27c), and the third-person singular feminine prefix o- (5.27d). The marking of primary stress is taken from the source, as is the word boundary symbol #. The motivations for this usage will be outlined below.

\[(5.27)\]

\[
\begin{align*}
(a) & \text{ nota hǐma'rota } & \text{‘I know.’} \\
(b) & \text{ no#hǐma'rota } & \text{‘I know.’} \\
(c) & \text{ ni-ǐma'rota } & \text{‘I know.’} \\
(d) & \text{ o-ǐma'rota } & \text{‘She knows.’}
\end{align*}
\]

(Facundes 2000: 83)

The relevant fact shown by the above examples is that the reduced form no does not trigger the deletion of a following /h/. This deletion is a general allophonic process that affects every /h/ preceded by a vowel in the same word (cf. Facundes 2000: 83, 127, 146), and its effects can be seen in (5.27c, d). Hence, the behavior of the reduced form illustrates that it is not yet part of the following phonological word on the parameter of phonological rules.

Unlike its behavior with regard to /h/-deletion, though, the remaining prosodic and syntagmatic evidence does not support the idea that the reduced pronoun is a separate word. In addition to processes such as /h/-deletion, Facundes (2000: 122-124) adduces primary stress on the penultimate mora, a bimoraic minimum, and the ability to pause between words as criteria for the identification of the phonological word. Primary stress appears to be regular in the examples above, and while secondary stress falls on every other syllable.

\[15\] Cf. the Apurinã wordhood issue in the previous chapter for more information on the stress system.
preceding the one bearing primary stress (Facundes 2000: 95), the workings of secondary stress are not discussed for any of the above examples. Hence, it is unclear whether the reduced pronoun is integrated into this pattern. Similarly, it is not mentioned whether speakers may pause after the reduced form, and hence this criterion, which most closely corresponds to the parameter of free occurrence, cannot be applied either. However, it is obvious that the relevant index falls short of the bimoraic minimum. Specifically, while Facundes (2000: 101) considers syllables with nasal vowels or diphthongs bimoraic, the reduced form at issue is a single, open syllable with an oral monophthong and thus sub-minimal on the parameter of segmental structure.

The syntagmatic behavior of the reduced first-person index is even more difficult to gauge. The only explicit statement about its distribution is that it “cliticizes to the verb” (Facundes 2000: 115). On the definition of clitics used in the present work, of course, an element that invariably occurs with a verb is not a clitic but a syntagmatic affix. The latter classification appears appropriate given that the free pronouns can generally occur pre- and postverbally (Facundes 2000: 382-384) but the reduced form does not seem to have the same freedom. That is, the grammar offers few examples of the reduced index beyond that shown above, but in those contexts it also occurs in immediately preverbal position (cf. Facundes 2000: 527, 612). In light of this limited evidence, the reduced form will here be assumed to be syntagmatically dependent. More precisely, it could be argued to occupy the initial position in the verbal template, in which case it would be selective and subject to fixed order. Since indexation is consistently marked on the auxiliary in the respective constructions (Facundes 2000: 295-296), the relevant exponents also appear to be cohesive within the verbal domain.16 In sum, then, the parameter of phonological rules suggests that the reduced pronoun is a separate phonological word, whereas all other evidence points to affix status. Therefore, the item will be categorized as more syntagmatically than prosodically dependent.

Finally, while Facundes (2000: 432) is generally aware of the problems surrounding the “clitic” label, he nevertheless opts for this term in the description of the reduced first-person marker (e.g., Facundes 2000: 115, 349 fn. 3). As suggested above, though, this is a misleading choice in the present case because this element does not seem to have any

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16 Note that this statement in the grammar refers to indexation in general. However, there is no indication that the reduced index is an exception in this regard.
syntagmatic freedom. Given that it lacks full prosodic integration, however, it would therefore be more appropriately classified as an anti-clitic.

5.1.5.2 Awa Pit

The verbal indexation of arguments in Awa Pit follows a cross-linguistically rare pattern, which divides the three grammatical persons into “locutor” and “non-locutor” roles, which in turn depend on the type of speech act (Curnow 1997: 189-190). The locutor role is assigned to the speech act participant that has the “epistemic authority” (Curnow 1997: 209; Siewierska 2004: 261) such that in declarative clauses, the locutor role corresponds to first person, while second and third persons are non-locutors. Meanwhile, in interrogative clauses, the locutor role corresponds to second person, with first and third persons relegated to non-locutor status (Curnow 1997: 190-191). Only one slot in the verbal template is available for argument marking, and whenever a locutor argument exists, it will be expressed in that slot, at the expense of any co-existing non-locutor argument (Curnow 1997: 192). The following examples show a first-person locutor as well as second- and third-person non-locutors in declarative clauses.

(5.28) (na=na) pala ku-mtu-s
      (1SG.NOM=TOP) plantain eat-IPFV-LOCUT
‘I am eating plantains.’ (Curnow 1997: 190)

(5.29) (nu=na) pala ku-mtu-y
      (2SG.NOM=TOP) plantain eat-IPFV-NLOCUT
‘You are eating plantains.’ (Curnow 1997: 190)

(5.30) (us=na) atal ayna-mtu-y
      (3SG.NOM=TOP) chicken cook-IPFV-NLOCUT
‘He’s cooking chicken.’ (Curnow 1997: 190)

This system of indexes is further sensitive to the distinction between past- and non-past contexts (cf. Curnow 1997: 192-203), but this aspect can be ignored here because the indexes
do not express tense overtly (cf. 5.0.2). By contrast, it is crucial for the argument to be
developed here that the above non-past indexes show phonological allomorphy. For instance,
the locutor gram is syllabic following consonants, as in (5.31), whereas the non-locutor gram
is zi following /ɨ/, as seen in (5.32); cf. (Curnow 1997: 200).

(5.31) nyam way-is
salt lack-LOCUT
‘I feel that salt is lacking.’ (Curnow 1997: 201)

(5.32) kaztila kayl-ni-zi
day.after.tomorrow return-FUT-NLOCUT
‘He will come back the day after tomorrow.’ (Curnow 1997: 343)

These alternations illustrate that the (non-)locutor indexes are dependent on the parameter of
phonological rules. However, since the stress system in the language is insufficiently
understood (Curnow 1997: 46) and no vowel harmony is described, the parameter of
prosodic features cannot inform the present analysis. Similarly, in the absence of a discussion
of minimal word size, the parameter of segmental structure will also have to be disregarded
here.

The reason the (non-)locutor grams constitute a wordhood issue is that they can occur
on word classes other than verbs (Curnow 1997: 202) despite their prosodic dependence
outlined above. Specifically, the indexes may also follow negation grams, as shown in (5.33),
and interrogative markers, as seen in (5.34). Both of these elements are distinguished from
the verbal word class by the fact that they cannot bear tense marking (Curnow 1997: 202),
and the indexes are therefore non-selective. Since the past tense paradigm of the indexes only
occurs with verbs that are overtly marked by a past tense suffix (Curnow 1997: 192), the
indexes on non-verbal elements inevitably occur with the non-past allomorphs seen above.
The examples provided below show the postvocalic allomorph of the locutor index.

(5.33) na=na inkal awa shi-s
1SG.NOM=TOP mountain person NEG-LOCUT
‘I am not a mountain person (i.e., I am not an Awa).’  

(Curnow 1997: 202)

(5.34) tilawa     a-n     sa-s
    tomorrow     come-INF     Q-LOCUT

‘Would you be coming tomorrow?’  

(Curnow 1997: 202)

The syntactic property that the negative and interrogative markers share is a clause-final position (Curnow 1997: 202). This unites them with verbs, which are usually clause-final in the language (Curnow 1997: 50). Therefore, the above examples show that the position of the (non-)locutor markers is strictly determined with respect to the clause in that they attach to the final element in that domain. While this element is usually the verb, and that is why the (non-)locutor markers are considered part of the verbal domain, the indexes retain their clause-final distribution even when the preceding element belongs to a different word class. Overall, then, they are characterized by a higher degree of prosodic than of syntagmatic dependence. Interestingly, Curnow (1997) does not refer to these elements as affixes or clitics and instead uses the general term “marker” throughout.17 In the present case, however, a clitic analysis would be in line with the prototypical definition because the elements in question have a syntactically determined distribution and their allomorphy is conditioned by a preceding item. Hence, they could plausibly be described as clause-final enclitics.

5.1.5.3 Guna

Guna has a plural marker that occurs with both (pro)nouns and verbs (Newbold 2013: 191).18 In the verbal domain, this gram references the grammatical number of the subject argument (cf. Newbold 2013: 202 fn. 20), and it therefore counts as an index for the purposes of this chapter. The following examples illustrate the plural marker with different host types.

(5.35) inna     gobe-gobe     an=mar     imak-oe
       inna (corn drink)     drink-drink     1=PL     do-FUT

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17 However, note that Curnow & Liddicoat (1998: 404) do refer to these elements as “verbal suffixes.”
18 Newbold (2013) is part of an edited volume that gives page numbers in the table of contents but not on the pages of the individual papers. Hence, page references to Newbold (2013) are based on the information provided in the table of contents.
‘We would drink a lot of inna.’

(5.36) mas-mala
    boy-PL
    ‘boys’

(5.37) immar dak=mal=oe
    thing see=PL=FUT
    ‘(They) will see the thing.’

Smith (2014: 107) does not offer any details as to when the plural gram occurs in the verbal domain other than that it “may” be marked on the verb regardless of whether there is an overt conominal in the clause.19 Yet, what matters for the present analysis is that the above examples clearly show that the plural marker expresses the same function in both the nominal and the verbal domain. Therefore, the plural index is non-selective.

Meanwhile, it is unclear whether the formal differences between the above instances of the plural gram can be accounted for by an allomorphic alternation. Smith (2014: 47, 48) states that many morphemes drop their final vowel, and since /l/ cannot be a coda, the form mar appears in contexts like (5.35). However, he does not explain what conditions the vowel deletion process beyond saying that the shorter forms of the alternating grams are preferred (Smith 2014: 106 fn. 54). On that account, then, the alternants would seem to be in free variation. By contrast, Newbold (2013: 198 fn. 19) claims that affixes delete their final vowel when they precede another affix. Yet, even if the plural marker were classified as an affix for the purposes of this principle, the latter would not explain the shape of the plural marker in (5.35). Since there is ultimately not enough information on this topic in either source,20 I will disregard the factor of phonological rules here. On the other hand, given that a phonological word must be at least bimoraic (Smith 2014: 43) and all forms of the plural marker meet this threshold, it is clearly not dependent on the parameter of segmental structure.

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19 Similarly, Quesada (1999: 250) calls the element a “free plural marker,” but without elucidating the principles of this freedom.

20 Adelaar & Muysken (2004: 63-64) discuss the same phenomena but do not reach a firm conclusion, and hence their account has no impact on the present analysis either.
In contrast to its behavior with regard to allomorphy and minimality, the plural gram is clearly dependent on the parameter of prosodic features. The assignment of primary stress is described as a “very straightforward” process in that it always targets the penultimate syllable of di- or trisyllabic words (Smith 2014: 48-49).21 However, enclitics such as the plural marker are extrametrical for this purpose, as illustrated by the following example.

(5.38) ób-de=mar ‘PL started bathing.’ (Smith 2014: 49)

Yet, in words longer than four syllables, primary stress falls on the root, and the penultimate syllable instead bears secondary stress (Smith 2014: 49). Crucially, the plural marker is part of the secondary stress domain. This can be seen in the example below, which has to form a single phonological word given the principles of stress assignment outlined above.

(5.39) ná=mar=bal=òe ‘They will go again.’ (Smith 2014: 49)

Finally, Newbold (2013: 192) also states that the plural gram cannot be used as an independent word, which renders it dependent on the parameter of free occurrence. Given its non-selective distribution, its degree of prosodic dependence thus clearly exceeds its degree of syntagmatic dependence. Yet, while both Smith (2014: 107) and Newbold (2013: 192) suggest that the plural marker is an enclitic, this element poses the same descriptive issue as the Wardaman marker analyzed above. That is, it can express the same function multiple times within a clause in a type of agreement construction, and it is not limited to either the verbal or the nominal domain. Both of these properties distinguish it from the majority of clitics discussed in this work and in the relevant literature. On the other hand, though, it is also clearly not a type of affix because it can co-occur with words from different syntactic categories, and it is not a free word because it is dependent on two wordhood parameters.

5.1.5.4 Hup

There is no person indexation in the Hup verb, but the third-person singular subject

21 For other accounts of stress in Guna, both conflicting and agreeing with Smith (2014), cf. van der Hulst et al. (2010: 298); Wetzels & Meira (2010: 340-341).
pronoun is argued to be the only proclitic in the language (Epps 2008: 123, 371). This analysis seems to rest on the fact that the pronoun only “typically” occurs before the verb (Epps 2008: 285), which in terms of the parameters underlying this study suggests that it is non-selective. The following example shows the third-person singular marker without a following verb.

(5.40) maŋgá táʔ-ay híd-ān yamhīdɔʔ-nih ti₄h?

Margarita RI-INCH 3PL-OBJ sing-NEG 3SG
‘What about Margarita, didn’t she sing to them?’ (Epps 2008: 172)

While the data throughout Epps (2008) suggest that the above distribution of the index is highly marked, its position in (5.40) sufficiently illustrates that it cannot be analyzed as a verbal prefix (cf. also Epps 2008: 755-756). By contrast, some of its prosodic properties are less conclusive. For instance, stress in verbs is largely lexicalized (Epps 2008: 87-88), and the fact that preverbal pronouns are unstressed (Epps 2008: 285) is therefore not a robust indicator of their formal status. Furthermore, Epps (2008: 116) lists the ability to pause before and after words as a criterion of wordhood. Yet, since the relevant options are not described for the index in question, the parameter of free occurrence will also not factor into the present analysis. However, there are other phonological traits that clearly align ti₄h with dependent forms. These will be discussed against the background of the following example, which illustrates the typical preverbal position of the index.

(5.41) “hît tå=hm-āʔ?” tō=n=hm-āh

where 3SG=go-Q 3SG=say-REP-DYN
‘“Where did he go?” he said.’ (Epps 2008: 135)

In (5.41), the third-person markers undergo consonant cluster simplification and vowel harmony. This results in the loss of their final /h/ and in the assimilation of their vowel quality to that of the following vowel in the verb. Epps (2008: 103) describes these two

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22 Epps (2008: 285, 382) states that the facts leading to the proclitic analysis manifest themselves “in some contexts.” However, since these contexts are not specified, this issue cannot be illuminated here.
processes as occurring within the phonological word, and she explicitly states that they reveal the proclitic behavior of *tih* (Epps 2008: 103-104). Given these facts, the third-person singular marker is dependent on the parameters of prosodic features and phonological rules. While the phonological word in Hup must end in a bimoraic syllable and usually has a CVC structure (Epps 2008: 82), the CV syllables that do exist typically lengthen their vowel (Epps 2008: 79). In the absence of evidence to the contrary, it will therefore be assumed here that the reduced forms of the third-person marker in (5.41) also follow this pattern. On that assumption, they would then not be dependent on the parameter of segmental structure.

In sum, the third-person index is more prosodically than syntagmatically dependent, and its overall formal profile would seem to support a clitic analysis. Yet, like the structurally similar Krongo index discussed above, the element is not a typical clitic because it can occur on either side of its putative host and only shows prosodic interaction with it in one of the two positions. Hence, here too, the gram never actually manifests itself as a clitic but appears to be an affix in some constructions and a function word in others. However, this usage of the “clitic” label might of course be a further reason for the apparent cross-linguistic frequency of clitics.

The processes described above are only found in a single regional variety of Hup (Epps 2008: 285), which suggests that the pronouns are in the initial stages of grammaticalizing toward prefix status (cf. also Epps 2008: 286, 756). In fact, this scenario is particularly likely because the third-person marker discussed here is the most frequent one in narrative (Epps 2008: 285) and thus expected to show signs of formal dependence before the other members of the paradigm do. Finally, it is of interest that one of the demonstrative paradigms is frequently used instead of the third-person index described above (Epps 2008: 285). This, too, would straightforwardly align with the idea that the third-person marker is becoming a prefix, in which case the demonstratives would have to be regarded as the innovating strategy for the (emphatic) expression of third-person arguments. Ultimately, then, Epps’ (2008) detailed documentation of the synchronic facts also enables a plausible diachronic analysis.

5.1.5.5 Jarawara

With the exception of the first- and second-person singular subject markers, all
indexes in the Jarawara predicate are explicitly described as separate phonological and morphological words (Dixon 2004: 77). Hence, the focus here will be on the former two grams. As discussed in the relevant sub-section of the previous chapter, the phonological word in Jarawara is minimally bimoraic (Dixon 2004: 29) and has stress on the penultimate mora as well as on every other mora before that (Dixon 2004: 27). Since the elements at issue here have monomoraic shapes (/o/ and /ti/, respectively; cf. Dixon 2004: 77), both clearly fall short of phonological wordhood on the parameter of segmental structure. Furthermore, their monomoraic size renders them ineligible for stress on the penultimate mora, and hence they also run afoul of wordhood on the parameter of prosodic features.

While the two grams in question are thus clearly prosodically dependent, their degree of syntagmatic dependence is more difficult to ascertain. On the one hand, Dixon (2004: 29-30) lists the few instances in which phonological and morphological words do not overlap in the language, and verbal indexes are not among them. This would suggest that the first- and second-person markers are also syntagmatically dependent and thus full-fledged affixes. On the other hand, however, there is a reduplicating construction that calls this conclusion into question. The relevant type of reduplication involves the copying of an initial (C)V unit (Dixon 2004: 268). Crucially, where a prefix other than the two indexes is verb-initial, this prefix will be the reduplicated string (Dixon 2004: 269). The following example illustrates this pattern with the causative marker na-.

(5.42) jomee habo ni owa na-na-tafi
dog bark AUX.COMP 1SG.OBJ RDP-CAUS-waken
to-he-himari ama-ka
away-AUX-REM.PST.VISL.M extended.in.time-DECL.M

‘The dog’s barking used often to waken me.’ (Dixon 2004: 270)

However, when the first mora of a verb corresponds to the first- or second-person subject index, reduplication disregards this element and instead applies to the following CV

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23 The function of this reduplication pattern is not always straightforward but typically expresses the notion of doing something ‘a bit’ (cf. Dixon 2003: 133, 2004: 276). While this meaning is not obvious from the free translations below, the exact function is immaterial to the argument developed here.
sequence. Examples (5.43) and (5.44) show this for the first-person marker.

(5.43) aba o-koba o-ke
  fish 1SG-eat 1SG-DECL.F
  ‘I eat fish.’
  (Dixon 2004: 270)

(5.44) aba ka-kaba o-hi-ne o-ke
  fish RDP-eat 1SG-AUX-CONT.F 1SG-DECL.F
  ‘I eat lots of fish.’
  (Dixon 2004: 270)

In (5.44), the subject marker o- is expressed on an auxiliary, which also appears to fall within the verbal word class (cf. Dixon 2004: 75-76, 114). Incidentally, example (5.43) provides additional evidence that the subject index is prosodically dependent. That is, the first vowel of the verb form koba, whose root is kaba (cf. [5.44]), takes on this quality because of a general process by which /ka/ becomes /ko/ if the prefix preceding it ends in /o/ (Dixon 2004: 43). Given that all such alternations are limited to the phonological word (Dixon 2004: 29),24 the first-person marker is subsequently also dependent on the parameter of phonological rules.

That the subject markers do not reduplicate even though prefixes of the same phonotactic structure do suggests that the former are separate words on the parameter of conventionalized meaning. That is, as in the case of the similar example found in Fwe above, the general reduplication pattern argues for the affix-stem combination as a robust unit in the minds of language users, and the exceptional behavior of the indexes subsequently shows that they are not psychologically real prefixes. By contrast, since the position of the indexes within any given verb form is rigid, they are dependent on the parameter of fixed order. In addition, they do not seem to show free variation in terms of which verbs in a sequence they attach to, and they are therefore also dependent on the parameter of cohesiveness. Finally, while examples (5.43) and (5.44) show the first-person index with a declarative element, which Dixon (2004: 31) analyzes as a suffix, this will not be considered evidence for the non-selectivity of the index. This follows from the fact that the parameter of non-selectivity

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24 There are two exceptions to this statement (cf. Dixon 2004: 29), but they do not impact the present analysis.
refers to word classes and thus does not bear on affixes. While the putative combination of a prefix and a suffix without an intervening stem might be of interest to morphological theory, this will simply be considered a lexicalized string here.

In sum, the indexes are dependent on all wordhood parameters other than that of conventionalized meaning, and this raises the question as to how they should be categorized. Crucially, Dixon (2003: 147-148, 2004) himself does not consider their anomalous behavior with respect to reduplication relevant for the parameter of conventionalized meaning, and he classifies them as full-fledged affixes. However, to the extent that the analysis proposed above is valid, the “affix” label is not fully appropriate. As in the case of the Fwe index, though, it must be emphasized that while no established term appears to exist for such elements, the only construction that undermines their affixal nature is a highly marked one. Hence, the items in question are much closer to affix than to clitic or anti-clitic status.

5.1.5.6 Kukama-Kukamiria

There is no indexation in the verb (Vallejos 2016: 28, 262), and both subject and object arguments are instead expressed by the same three series of pronouns: long forms, short forms, and clitics (Vallejos 2016: 149, 162). The clitics are themselves further reductions of the short forms, and they are defined as prosodically dependent (cf. Vallejos 2016: 30, 92, 149). Specifically, they lose stress and delete their final vowel before another vowel, whereas with following consonants, they retain their vowel but also do not bear stress (Vallejos 2016: 150, 157). The present analysis will focus on the first-person singular marker of the male genderlect, which is the most thoroughly illustrated member of the paradigm. The examples below show the relevant clitic variant before consonant-initial and vowel-initial elements, respectively. The syllabic form of the clitic in (5.45) differs from the corresponding short form only in its lack of stress (cf. Vallejos 2016: 157).

(5.45) \text{timə məɾi=ɾa tə=kumitsə yuti} \\
NEG what=PURP 1SG.MS=talk stay \\
\text{‘I keep talking for no reason.’}  \hspace{1cm} \text{(Vallejos 2016: 180)}

(5.46) \text{timə t=ikua-tə ni=awa=utsu}
NEG 1SG.MS=know-CAUS  NEG=person=FUT

‘I won’t tell anyone.’

(Vallejos 2016: 101)

(5.47)  t=ikua    kukama=kana    chita
        1SG.MS=SUBR  Kukama=PL.MS    a.lot

‘Because of me the Kukamas are a lot.’

(Vallejos 2016: 515)

The clitic pronouns usually occur immediately before the verb (Vallejos 2016: 196, 262), and the first two examples show this distribution. However, it can be seen in (5.47) that the first-person marker is not a verbal prefix because it may also precede non-verbal elements such as subordinators (cf. Vallejos 2016: 514-516). This renders it non-selective with respect to the word class of its collocates. By contrast, the fact that the index occurs in unstressed and sub-syllabic form distinguishes it from full-fledged phonological words in the language, which are subject to a monosyllabic minimum (Vallejos 2016: 60) and bear stress (Vallejos 2016: 62, 83). This shows that the first-person gram is dependent on the parameters of segmental structure and prosodic features. Yet, given that it has allomorphs conditioned by the segmental shape of the following element, it is also dependent on the parameter of phonological rules. In light of these properties, it is indeed a prototypical clitic.

Siewierska (2004: 24-40) distinguishes between two types of indexes that she calls “weak forms” and “clitics,” respectively. While those two terms are often used interchangeably, Siewierska (2004: 34-38) argues that weak forms differ from both independent and clitic pronouns on phonological and syntactic criteria. Kukama-Kukamiria appears to be a language in which precisely such a trichotomy exists. As described above, the short forms and the clitics in the language show differences in their suprasegmental properties, but all three sets additionally differ in their segmental make-up (cf. Vallejos 2016: 149) and in the range of syntactic constructions and semantic functions they can occur in (Vallejos 2016: 162). Overall, however, the concept of “weak forms” does not readily extend to, or shed light on, other grammatical domains. That is, there are few areas of grammar in which three paradigms for the expression of essentially the same function are likely to exist (but cf. Cardinaletti & Starke 1999: 207, 212). Even where such an inventory is found, however, the formal properties of the relevant paradigm members might not lend themselves
to a division into weak forms on the one hand and clitics on the other hand. Since it is unclear if any of the other wordhood issues discussed in this work could be captured by the former concept, it will not play a role in the remainder of this study.

5.2. INTERIM SUMMARY

Table 5.1 summarizes the wordhood issues discussed in this chapter and follows the format established in the corresponding tables of the previous two chapters. A preliminary discussion of the patterns that emerge from the data will be provided below.

Table 5.1. Overview of wordhood issues: Indexation.

<table>
<thead>
<tr>
<th>Macro-area</th>
<th>Language</th>
<th>Description and form</th>
<th>Summary</th>
<th>Dependence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>Dangla</td>
<td>Clitics -tè</td>
<td>Syntagmatically dependent, but independent in terms of vowel harmony (prosodic features)</td>
<td>S &gt; P</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(post-V)</td>
<td></td>
<td></td>
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<tr>
<td>Fwe</td>
<td>Clitics =ko, =ho (V-final)</td>
<td>Free on the parameter of conventionalized meaning, but dependent in terms of tone assignment (prosodic features)</td>
<td>P &gt; S</td>
<td></td>
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<tr>
<td>Koyraboro Senni</td>
<td>Word, clitic ay/ya (VP-initial)</td>
<td>Non-selective but dependent in terms of allomorphy (phonological rules)</td>
<td>P &gt; S</td>
<td></td>
</tr>
<tr>
<td>Krongo</td>
<td>Word à’ày (pre-/post-V)</td>
<td>Non-selective but dependent in terms of tone assignment (prosodic features) and allomorphy (phonological rules)</td>
<td>P &gt; S</td>
<td></td>
</tr>
<tr>
<td>Eurasia</td>
<td>Kharia</td>
<td>Clitic =(e)m</td>
<td>Non-selective but dependent in terms of sub-minimal size (segmental structure) and allomorphy (phonological rules)</td>
<td>P &gt; S</td>
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<tr>
<td></td>
<td></td>
<td>(post-V)</td>
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<td></td>
<td>Kokota</td>
<td>Clitic -(n)i</td>
<td>Non-selective but dependent in</td>
<td>P &gt; S</td>
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<tr>
<td>Macro-area</td>
<td>Language</td>
<td>Description and form</td>
<td>Summary</td>
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<tr>
<td>North America (2)</td>
<td>Huave</td>
<td>Affix (-)e(-)/-ia (pre-/post-V)</td>
<td>Free on the parameter of fixed order, but dependent in terms of allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>Oceania (5)</td>
<td>Bardi</td>
<td>Clitics =jarrngay, =ir (post-V/N)</td>
<td>Non-selective but dependent in terms of stress assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>Mauwake</td>
<td>Word, clitic ef(a) (V-initial)</td>
<td>Syntagmatically dependent, but independent in terms of stress assignment (prosodic features) and minimal size (segmental structure)</td>
<td>S &gt; P</td>
<td></td>
</tr>
<tr>
<td>Wardaman</td>
<td>Affix -guya, -wuya (post-V/N)</td>
<td>Non-selective but dependent in terms of stress assignment (prosodic features) and allomorphy (phonological rules)</td>
<td>P &gt; S</td>
<td></td>
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<tr>
<td>Yeri</td>
<td>Affix -n(e-) (intra-V, post-V)</td>
<td>Free on the parameter of fixed order, but dependent in terms of stress assignment (prosodic features) and allomorphy (phonological rules)</td>
<td>P &gt; S</td>
<td></td>
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<tr>
<td>Macro-area</td>
<td>Language</td>
<td>Description and form</td>
<td>Summary</td>
<td>Dependence</td>
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<tr>
<td></td>
<td>Yimas</td>
<td>Affixes na-, mpu-</td>
<td>Syntagmatically dependent, but independent in terms of stress assignment (prosodic features)</td>
<td>S &gt; P</td>
</tr>
<tr>
<td>South</td>
<td>Apuriná (6)</td>
<td>Clitic no# (pre-V)</td>
<td>Syntagmatically dependent, but independent in terms of allophony (phonological rules)</td>
<td>S &gt; P</td>
</tr>
<tr>
<td>America</td>
<td></td>
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<tr>
<td></td>
<td>Awa Pit</td>
<td>Markers –(i)s, y/zi</td>
<td>Non-selective but dependent in terms of allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(clause-final)</td>
<td></td>
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<tr>
<td></td>
<td>Guna</td>
<td>Clitic/affix =mala/mar (post-N/V)</td>
<td>Non-selective but dependent in terms of free occurrence and stress assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Hup</td>
<td>Clitic tV(h)=</td>
<td>Non-selective but dependent in terms of vowel harmony (prosodic features) and allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(pre-/post-V)</td>
<td></td>
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<tr>
<td></td>
<td>Jarawara</td>
<td>Affix o- (V-initial)</td>
<td>Free on the parameter of conventionalized meaning, but dependent in terms of sub-minimal size (segmental structure), stress assignment (prosodic features), and allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Kukama-Kukamiria</td>
<td>Clitic t(a)= (pre-V)</td>
<td>Non-selective but dependent in terms of sub-minimal size (segmental structure), stress assignment (prosodic features), and allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
</tbody>
</table>
5.2.1 Analysis

The present chapter revealed 19 wordhood issues involving indexes, which is considerably more than were found with definiteness markers (8) but fewer than were found with case markers (29). While the fact that there are more formally ambiguous indexes than definite grams straightforwardly follows from the overall cross-linguistic frequency of those two categories, the quantitative discrepancy between the indexes and the case markers requires a more detailed explanation. One likely factor is that verbal indexes are not as widely found as case markers (where this category includes adpositions). In the present sample, for instance, Cavineña, Ao, Kayardild, Khwe, and Hinuq all have considerable amounts of verbal morphology but none or almost none for the indexation of arguments. Since many of the issues discussed in this chapter concern indexes that are mostly part of the verbal template, this presumably impacted the size of the database shown in Table 5.1.

Another difference between the case markers and the indexes is that several languages have multiple case markers that pose wordhood issues but that do so with respect to different combinations of parameters. As mentioned in 4.2.1, these case markers were counted separately, and therefore some languages account for more than one wordhood issue in the domain of case marking. By contrast, the above table makes clear that this pattern was not found in the realm of indexation. As can be gleaned from the information provided in the respective analyses above, this is mostly because languages only have a single index that poses any kind of wordhood issue. On the assumption that paradigms of case markers and indexes are of roughly the same size, it could therefore be concluded that indexes, on average, are less likely to show formal ambiguities than case markers.

With respect to the hypotheses underlying this study, the most important insight from the indexation data is that both the wordhood parameters involved and the types of dependence mismatches found are more variegated overall than in the case of the nominal categories. In terms of the latter, for instance, the 19 indexes discussed here include four grams whose degree of syntagmatic dependence is greater than their degree of prosodic dependence. By contrast, only three of the 37 wordhood issues found among the two nominal categories are of this type. On the one hand, these results lend credence to the general idea that there are differences between verbal and nominal morphology. On the other hand, though, they work against Hypothesis 2, which predicts that wordhood issues in the verbal
domain should more often be characterized by a higher degree of prosodic dependence than those in the nominal domain.

As for the parameters involved, the 19 indexes in this chapter include two markers that generally behave like affixes but can assume different positions with respect to the verb stem (Huave, Yeri). Here too, an obvious difference between the two domains emerges in that the parameter of fixed order only accounts for one of the 37 nominal wordhood issues (the Huallaga case markers). This finding is generally compatible with Hypothesis 3, but recall that the latter states that both the parameters of fixed order and cohesiveness will be more frequently involved in wordhood issues of the verbal domain. Since cohesiveness only factored into a single wordhood issue in this chapter but into two issues in the nominal domain, a substantive assessment of this prediction must await the tense data in the next chapter.

Note that the relatively less prominent role of non-selectivity in the above wordhood issues is not brought about by the constraints imposed on this parameter for the purposes of this chapter (cf. 5.0). That is, it might be assumed that a comparatively low number of indexes is non-selective because their co-occurrences with predicative adjectives and adpositions were disregarded here. Yet, this argument fails for at least two reasons. First, the data above clearly show that non-selectivity is the major contributor to wordhood issues involving indexes, and hence the above-mentioned restrictions did not render this parameter inapplicable. Second, even if this operationalization had caused an absence of wordhood issues pivoting on non-selectivity, it would not explain the presence of wordhood issues defined by other parameters. Put differently, if the other parameters of morphological wordhood did not bear on the behavior of indexes, the latter should then pose few wordhood issues in general. As the present chapter has shown, however, that is not the case.

It was mentioned in 5.0.2 that indexes expressing oblique functions should account for a relatively large share of wordhood issues because previous research found that they are generally less formally dependent than indexes marking “core” functions such as subject and object. However, this prediction is clearly falsified by the data presented in this chapter. While the pure number grams in Wardaman and Guna cannot be classified along a scale of grammatical relations, all indexes other than the Fwe locative and the Awa Pit locutor grams are described as subject and/or object markers in the relevant grammars. Furthermore, the
subject indexes in this chapter clearly outnumber the object grams, the latter of which are limited to Kokota, Bardi, Mauwake, and Yeri (which in turn might imply some kind of areal pattern). Since many of the indexes discussed here are indeed described as affixes even though they are not fully dependent, cross-linguistic generalizations about the distribution of specific morphological phenomena might thus have to be based on more detailed formal analyses.

As in the previous two chapters, the wordhood issues discussed here show a notable geographical bias. Specifically, while the two macro-areas that lie entirely within the northern hemisphere (Eurasia, North America) only account for a total of four grams in this chapter, more than half of the relevant indexes (11/19) are from Oceania or South America. While this divergence might be due to different numbers and/or sizes of indexation paradigms in the relevant areas, it is ultimately unclear whether these distributions are caused by anything other than chance. However, since areal skews of this sort do not immediately bear on any of the goals of this study, their exploration will be left for further research.

Finally, it should be noted that the indexes discussed in this chapter can be grouped into a number of distinct and interesting sub-types. The most specific pattern involves the indexes that behave like affixes but, unlike the relevant full-fledged affixes, fall outside the domain of reduplication (Fwe, Jarawara). Other categories subsume number markers that can occur on the argument and/or on the verb (Guna, Wardaman), indexes that can assume different slots within the verb (Huave, Yeri), and indexes that can appear on the verb or on another element of the predicate (Kharia, Lillooet). Furthermore, two indexes are united by the fact that they can occur on either side of the verb but only show prosodic interaction with it when they occur on one of the sides (Hup, Krongo). Lastly, there are indexes that are syntagmatically fixed before the verb but retain signs of prosodic independence (Mauwake, Yimas, Apurinã). The obvious question is whether any of these sub-types is an instance of a broader cross-linguistic phenomenon or whether their emergence here is coincidental. While there is no space in the present work to investigate these patterns, most of them have scarcely been addressed in the literature and thus merit further study.

5.2.2 Second-position clitics

None of the grams analyzed in this chapter are second-position clitics, even though
the literature on the latter phenomenon predominantly deals with indexes. As stated briefly in 1.1, the relevant second position refers to the clausal level, where the first position preceding the alleged clitic is occupied by either a word or a phrasal constituent. Given this inherent structural flexibility of the first position and the fact that words and phrases cannot be reliably distinguished across languages and constructions, the second position is arguably an artifact of descriptive practice rather than a genuine linguistic phenomenon. In any case, however, there are concrete structural and methodological reasons why the wordhood issues in this chapter do not involve elements that are described as second-position clitics in the relevant grammars.

One major explanation for the absence of second-position clitics is that the items classified as such are primarily enclitic. With respect to the present work, this means that second-position elements would only fall within the verbal domain in verb-initial languages, which are well-known to be an infrequent type. While several of the languages in the sample have verb-initial basic word order (e.g., Itzaj, Kokota, Lillooet), none of them have second-position indexes. Conversely, in the few languages argued to have second-position clitics (e.g., Cavineña, Wanyjirra, Savosavo, Apinajé, Ute), these elements either do not express indexation or their putative hosts are largely non-verbal. Hence, even the second-position indexes in Wanyjirra, which follow an auxiliary, fall outside the domain of the present inquiry because the auxiliary in question no longer expresses modal functions and is instead a mere “catalyst” to which the index attaches (cf. Senge 2015: 485).

An equally important factor that contributes to the absence of second-position indexes in the present database is that it is frequently unclear why the elements claimed to occur in the second position are classified as clitics in the first place. For example, Wegener (2012: 80) explicitly states that the free pronouns and the second-position clitic pronouns in Savosavo are formally similar and difficult to distinguish. This indistinguishability, in turn, primarily derives from the fact that even the putative clitics may have inflectional potential. In Cavineña (cf. Guillaume 2008: 577) and Wanyjirra (cf. Senge 2015: 305), for instance, the clitic indexes are analyzed as roots based on which morphologically complex and often polysyllabic words are formed. Clearly, this structure and behavior associates the alleged clitics with morphological and phonological words, and it separates them from the vast majority of grams discussed in the present work, which are neither polysyllabic nor internally
complex. It thus seems that second-position clitics are at best “special” clitics that differ from the free pronouns in the respective language in terms of their syntactic distribution. Since the “clitic” label in this work is only used for prosodically dependent items, it follows that many grams described as second-position clitics in the sample languages are categorized as function words here.

A function word analysis of such elements might also be justified because the limitation to a fixed syntactic slot\(^\text{25}\) is not generally considered an indicator of clitic status. That is, there are many other types of elements that tend to occupy a specific position at the clause level and which are not typically analyzed as clitics. Relevant examples are interrogative markers, which commonly occur in utterance-final position, or conjunctions, which typically appear between clauses. Furthermore, the “clitic” label is never applied to finite main clause verbs in languages like German even though they reliably occur in second position (i.e., after the first phrase). Hence, it is obvious that no syntactic slot, including the so-called “second” one, is reserved for clitics. The upshot of the present discussion is that, like clitics in general, the items described as second-position clitics do not necessarily constitute wordhood issues as defined here, and their absence from this chapter follows naturally from the methodological principles applied throughout this work.

\(^{25}\) I will assume here that second-position clitics really do have a fixed slot, however defined (cf. above). Yet, this itself is questionable. For instance, in Ute, where pronouns are described as second-position clitics (Givón 2011: 56), their most common position is nevertheless not the second one (cf. Givón 2011: 182). It thus stands to reason that a cross-linguistic study of alleged second-position clitics might render this notion even less substantive.
6. TENSE

6.0 DEFINING THE CATEGORY

Tense markers express the temporal relationship between the situation referred to in an utterance and the deictic context (cf. Comrie 1985: 9, 35; Nurse 2008: 80). This distinguishes the category of tense from the category of aspect, the latter of which encodes the internal temporal structure of a situation (Comrie 1976: 3, 5) and is therefore not inherently deictic. Tense also differs from the concepts of mood and/or modality, which express assessments of the speaker toward the content of the utterance. However, it is well-known that many languages have grams whose functions cumulate meanings from several of these theoretically distinct domains, and some of the implications that follow from this fact for the data presented in this chapter will be outlined below.

As outlined in Chapter 1, the choice of grammatical categories investigated in this work is primarily based on Bybee’s (1985a) notion of “semantic relevance.” Yet, in light of the fact that Bybee (1985a: 4-5) rates tense as more relevant than mood, which in turn is more relevant than indexation, the present study focuses on categories that are discontinuous on the relevance cline rather than on the two least relevant ones (i.e., mood and indexation). The main reason for this decision is that the definition of mood/modality is too imprecise, as Bybee (1985a) herself acknowledges (cf. also 6.0.3). One manifestation of this is Heine’s (1993: 69) diachronic cline of TAM markers, where some modal functions are less grammaticalized than aspect markers while others show a higher degree of grammaticalization than both tense and aspect grams. This suggests that mood/modality is neither a formally nor a functionally coherent phenomenon, and subsequently it does not lend itself to a comparison with the other categories considered here.

By contrast, the position of aspect within the TAM cluster is uncontroversial. Bybee (1985a: 4-5) places it behind only valency and voice in terms of relevance, and at least the former category is usually argued to have such a strong semantic effect on the verb stem as to produce new lexical entries. Given Bybee’s (1985a) argument, aspect markers should thus be characterized by a rather tight bond with the verb stem and therefore be involved in relatively few of the wordhood issues of interest here (cf. also Dahl 1985: 73). It thus follows that tense is the only function within the TAM network that can be clearly defined and that parallels the
other categories discussed in this work in terms of its degree of semantic relevance.

However, even an exclusive focus on tense is likely to unearth grams that might equally be considered aspectual and/or modal markers, given the aforementioned cumulation across TAM functions. One way to limit the present database to tense markers is thus to take into consideration the co-occurrence restrictions to which TAM grams are subject. Specifically, on the assumption that it is not generally possible to mark more than one value of a grammatical category in the same verb form, an exponent of TAM that cannot co-occur with tense markers is presumably a tense marker itself. Yet, while this approach manages to solve some analytical issues, markers of non-indicative moods commonly neutralize tense functions and therefore do not co-occur with tense grams either. In order to make sure that such modal markers are not classified as tense grams in this chapter, the primary evidence used throughout will be the semantic description of the TAM grams in question. If this description is incompatible with a deictic function, the element at issue will not be considered a tense marker.

To the extent that tense marking is cumulated with categories that fall outside the TAM domain, the relevant exponents will generally be eligible for inclusion in this chapter. As mentioned in 5.0.2, however, tense markers may also correlate with the indexation system, and the decision as to whether such markers are considered exponents of tense rather than indexation will be based on the same general reasoning outlined in the preceding chapter. To reiterate, one way to categorize such elements is to consider the meaning they express overtly. If, for instance, a verb marked for first person triggers past tense allomorph A while one marked for second person triggers past tense allomorph B, only the tense meaning is overtly expressed by A and B, and these grams would therefore be classified as tense markers. In addition, the approach sketched above can of course also be applied to cumulative grams. That is, if a cumulative tense/indexation marker were mutually exclusive with grams that encode tense, it would be classified as a tense marker. Ultimately, however, these operationalizations had little effect on the database because cumulated tense/indexation markers are rare and the ones found in the sample languages did not pose a wordhood issue. Hence, none of the grams analyzed in this chapter could have been included in the previous one.

As in the preceding chapter, I will limit myself to grams found on morphosyntactic
heads. In the present case, this primarily serves to exclude markers of converbs and medial verbs from the database. Converbs are non-finite verb forms that typically do not express tense overtly (cf. Haspelmath 1995: 3-4; Timberlake 2007: 308-309). Rather, they tend to occur in subordinate contexts, and their tense value can only be interpreted relative to the actual tense markers found on the main clause verbs (cf. also Comrie 1985: 102). While there are certain differences between converbs and the medial verbs found in Papuan languages, the crucial point for the present chapter is that medial verbs also do not mark tense overtly (Haspelmath 1995: 23). The function of converb and medial verb markers is thus somewhat analogous to that of switch-reference grams in the domain of indexation. That is, both types of exponents refer to a semantic value expressed elsewhere rather than expressing it themselves. Yet, given that switch-reference grams were considered for the preceding chapter if they were cumulated with actual indexation, it follows that markers of converbs and medial verbs that are cumulated with tense marking were eligible for inclusion in the present chapter. However, elements of the latter type did not emerge in the sample, and hence no gram discussed below doubles as a converb or medial verb marker.

Finally, it was stated in 5.0 that an index would not be considered non-selective simply because it can occur on verbs and predicative adjectives. Recall that this measure derived from the fact that predicative adjectives are often a proper subset of verbs in terms of their inflectional potential. Specifically, they are usually limited with regard to the TAM meanings they can co-occur with, which follows straightforwardly from their property semantics. Hence, while a tense marker would also not be considered non-selective if it occurred with only verbs and predicative adjectives, the fact that the latter are frequently incompatible with tense markers (cf. Stassen 1997: 573) essentially rendered this restriction moot for the purposes of this chapter.

6.0.1 The structure of tense systems

According to Comrie (1985: 1), tense systems are based on three components: a deictic center, different locations with respect to the deictic center, and remoteness distinctions. While the deictic center is typically the moment of speaking, tense marking may also (partly) rely on other pivots (cf. Comrie 1985: 65). One well-known example of the latter type is the function of the pluperfect, as found in the English sentence I had already...
eaten when they arrived. Here, arrived is in the past tense and the corresponding event is thus located before the moment of speech. However, arrived also serves as a reference point for the earlier pluperfect situation (had already eaten). That is, the eating event is located with respect to a past event rather than with respect to the moment of speaking, which is inevitably the present. Despite this difference, though, pluperfects necessarily locate situations before the present as well, and they are thus also dependent on the deictic context. While they were subsequently included here as potential loci of wordhood issues, pluperfect constructions are infrequent in the sample languages, and no clear-cut marker of this function is found among the data below.

The second parameter, location with regard to the deictic center, accounts for the distinction between past, present, and future tenses, which refer to situations preceding, coinciding with, and following the moment of speaking, respectively. Both Comrie (1985: 37-38) and Nurse (2008: 116), however, point out that present tense constructions are usually underspecified in that they do not overtly express if the relevant state of affairs also holds prior to or after the moment of speaking. Similarly, Comrie (1985: 41) emphasizes that the temporal endpoint encoded by past tense grams is often a mere implicature as well. While this lack of explicit semantic boundaries constitutes one major confound for the distinction between tense and aspect, its impact on the present work is nevertheless limited. This is because most languages mark present tense covertly (i.e., via the absence of past and future tense markers), and none of the few overt present tense grams found in the sample pose a wordhood issue. By contrast, the semantic contributions of the past tense grams discussed below are largely straightforward, and hence they cannot usually be analyzed as aspect markers.

Comrie’s (1985) third parameter, remoteness distinctions, refers to finer divisions that can be expressed along the dimensions of past and future tense. For instance, a ‘hodiernal past’ marker refers to situations that occurred earlier on the same day, whereas a ‘remote past’ gram might refer specifically to situations that held many years prior. Such remoteness distinctions are widely found across tense systems (Comrie 1985: 83), but while Comrie (1985: 85) and Dahl (1985: 121, 126) agree that they are more common among past than among future markers, Timberlake (2007: 307) claims that they distribute evenly across the two temporal axes. What matters for the present study, though, is that all grams expressing
temporal remoteness distinctions are strictly deictic, and they will thus be considered eligible data for this chapter. In fact, as will be seen below, tense grams that express specific degrees of remoteness account for a sizable share of the overall wordhood issues found in this grammatical domain. This is presumably due to the fact that they are relatively recent grammaticalizations. That is, the emergence of a ‘hodiernal’ past tense marker is only expected in languages that already have a general past tense gram (whose functional range most likely narrows upon the addition of the new paradigm member).

Unlike indexation, tense marking is essentially restricted to the verbal domain (e.g., Comrie 1985: 12). This would seem to suggest that the parameter of non-selectivity will play a limited role in the wordhood issues presented in this chapter. However, this prediction will be disconfirmed here, which may tie in with the fact that auxiliaries, the diachronic ancestors of many tense markers, do not necessarily target verbal hosts during their grammaticalization (Heine 1993: 56). Another difference between indexation and tense is that languages without grammaticalized tense systems are relatively common (Comrie 1976: 6, 1985: 50-52; Timberlake 2007: 305; Tonhauser 2015). This, in turn, might lead to the prediction that there will be fewer wordhood issues in the domain of tense than were found for the category of indexation. Yet, as the data below will show, this difference is actually rather marginal, which might derive from the fact that a large share of TAM grams does express past or future tense (cf. Dahl 1985: 185). That is, while such markers might not be analyzed as members of tense systems if they are the only overt tense gram in the language, the paradigmatic relationships of grams are of course largely immaterial to the interests of the present investigation.

Finally, Comrie (1985: 7-12) points out that all languages have means to locate situations in time but that these means differ in terms of semantic precision. That is, grammaticalized markers for meanings such as ‘hodiernal past’ notwithstanding, lexical elements with temporal meanings tend to be more specific and to have more limited distributions than grammatical tense markers (cf. also Bhat 1999: 15, 30, 35). The relative

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1 Recall from 1.3.3 that TAM marking on nouns is claimed to occur but that this often refers to the formal similarities and/or diachronic relationships the relevant grams share with verbal TAM markers. That is, putative TAM markers on nouns rarely express the same functions they do on verbs. Hence, while they are relatively infrequent to begin with, they are further unlikely to factor into the analyses below for purely functional reasons.
independence of tense markers and other temporal expressions also manifests itself on the diachronic dimension, and specifically in the fact that the former rarely derive from the latter (e.g., Bybee 2015: 132). It follows that the risk of analyzing a lexical temporal expression as a tense marker, and hence of including a false positive in the database, is rather low.

6.0.2 Tense and aspect

A major problem for the present project is that tense meanings tend to grammaticalize from aspectual meanings (Bhat 1999: 182-183; Timberlake 2007: 314; but cf. also Bybee et al. 1994 for a more fine-grained view). One consequence of this tendency is that tense and aspect meanings are often cumulated (Comrie 1976: 9, 1985: 7) and/or difficult to distinguish in individual cases (Dahl 1985: 25). Furthermore, the decision as to whether any given marker expresses tense or aspect is also complicated by the historical usage of the former label. For instance, Comrie (1976: 1, 1985: 6-7) reports that the term “tense” has traditionally been used to cover functions now classified as aspects, and Bhat (1999: 100, 176) states that many languages formerly analyzed as having tense systems are now considered to have aspectual systems (cf. also Coon 2013: 176-177). Due to this complication, care will be taken to include in the present chapter only those grams that clearly meet the functional definition rather than those whose labels merely suggest that this definition is satisfied. As outlined above, the distinction between tense and aspect crucially relies on the idea that a tense marker must have a deictic function, while no such requirement applies to aspectual grams.

Nevertheless, there remain certain functions that challenge a division between the categories of tense and aspect. The most problematic one is the “(present) perfect,” which indicates that the result of a past event is relevant to the moment of speaking (e.g., Comrie 1976: 62). As such, perfects highlight the endpoint of a situation, which aligns them with aspects, but they also relate a temporal location to the time of utterance, like tenses (cf. Comrie 1976: 52). Meanwhile, Nurse (2008: 94-95) argues that perfects are particularly likely to be used when the temporal gap between the relevant result and the moment of speaking is brief, as a consequence of which perfects frequently come to express recent past. Further support for the analysis of the perfect as a tense comes from languages like German and French. Here, as in English, the “perfect” label is applied to a construction consisting of an auxiliary plus a past participle (cf. also 1.0). However, unlike in English, these
constructions have become the general expressions of the past tense, without any restrictions in terms of present relevance or recency. In sum, these facts suggest that the perfect is either a tense to begin with or has such a strong tendency to develop into one that reference grammars are unlikely to reliably illustrate the differences between perfects and tenses. In light of these factors, I will err on the side of inclusion and classify the perfect as part of the tense domain for the purposes of this work.²

Finally, it should be highlighted that even though discussions of the perfect tend to revolve around its semantics and exponence in Indo-European languages, Dahl (1985: 129) finds that it is a cross-linguistically common function. In addition, Bybee & Dahl (1989: 56, 67, 74) argue that perfect grams are less formally grammaticalized than more clear-cut tense markers. Taken together, these findings suggest that perfect markers should be involved in a relatively large number of wordhood issues, and this is indeed borne out by the data analyzed below.

6.0.3 Tense and mood

As suggested in 6.0, the category of mood and/or modality does not lend itself to a straightforward definition (cf. Bybee 1985a: 191; Bybee & Dahl 1989: 97; Bybee et al. 1994: 176; Traugott & Dasher 2002: 105).³ On the one hand, traditional “moods” such as indicative, interrogative, and imperative correlate with specific speech acts, which typically manifest themselves in different morphosyntactic constructions. On the other hand, “modal” markers may express functions such as ‘possibility’ or ‘probability.’ Since the latter meanings are generally compatible with indicatives and interrogatives, they are not obviously part of the same paradigm. However, these functions are arguably grouped into the same category because they all encode assessments or attitudes of the speaker toward the content of the utterance. This would also explain why Bybee (1985a: 28) subsumes evidentiality

² It should be noted here that perfects do not only become tense grams but also commonly develop into inferential markers (Comrie 1976: 110; Dahl 1985: 152). Since the latter fall within the domain of evidentiality, which will generally not be considered here, perfect grams that mark inference but not tense were not eligible for the database presented in this chapter.

³ Bybee et al. (1994: 181) as well as Timberlake (2007: 326) suggest that “modality” refers to a conceptual domain, whereas “mood” is the label for the formal expressions of that domain. Yet, this leaves the question as to why such a distinction is necessary given that it is rarely found in other areas of linguistic description (e.g., person, number, case, aspect). Also, it does not seem compatible with the claim below that alleged moods and modal markers can co-occur. In this work, I will use the noun “mood” and the corresponding adjective “modal” to describe all phenomena traditionally subsumed under the categories of mood and modality.
under mood even though the former is usually considered a category of its own. While this lack of semantic coherence is responsible for the fact that modal markers are not investigated in this work, it should be noted that the indicative mood will nevertheless bear on most of the examples discussed below. This is because, as mentioned in 6.0, non-indicative moods commonly neutralize TAM distinctions, and the majority of tense grams that are found should thus occur in indicative verb forms.

Despite these conceptual gaps, there are certain points of contact between tense and mood, and the most important one for the present study concerns grams that mark ‘future.’ The relevant exponents commonly grammaticalize from markers of “irrealis” mood (cf. Comrie 1985: 45-46; but cf. also Bybee 2015: chs. 6, 7), and the two notions often cannot be neatly separated. This close synchronic and diachronic connection explains why future markers are often subsumed under the category of mood rather than tense (cf. Ultan 1978: 118; Bhat 1999: 17, 175-176; Timberlake 2007: 306, 323; Nurse 2008: 19, 92). However, most grammars explicitly state whether a functionally ambiguous marker of this type is primarily a future or an irrealis gram, and therefore the relevant items will be classified as tense markers here unless the respective descriptions state that they are mostly used to express irrealis functions.

Finally, it is worth highlighting Ultan’s (1978: 91, 116) finding that markers of future tense are often less formally bound than those expressing present or past. A lower degree of fusion might of course correspond to a wordhood issue as defined here, which in turn suggests that future markers should account for a relatively large portion of the data analyzed in this chapter. As in the case of perfect grams, this prediction will be confirmed below.

6.1 WORDHOOD ISSUES

The presentation of the wordhood issues below follows the pattern established in the preceding chapters, with the macro-areas and languages within them sorted alphabetically.

6.1.1 Africa

6.1.1.1 Fur

Fur has a past tense marker that is plausibly classified as a syntagmatic suffix, but the
behavior of this element with respect to tone assignment, vowel harmony, and segmental composition does not permit a firm conclusion as to whether it is also a prosodic suffix (cf. Waag 2010: 35, 150-151, 164, 172). Therefore, the focus here will be on the future marker, which Waag (2010: 99) describes as a clitic. While this item shares its segmental make-up with a ‘past irrealis’ gram, the two items differ in terms of their floating tones (Waag 2010: 174). Hence, even though Waag (2010: 174-176) treats them as a single element, I will consider them separate units here. Waag (2010: 106) also suggests that the difference between the syllabic and the sub-syllabic variant of the future gram may be due to distinctions in emphasis. However, only the monoconsonantal and presumably less emphatic marker constitutes a wordhood issue, and I will therefore limit myself to an analysis of that form. This is of course in line with the larger goal of capturing grammatical elements, which are typically devoid of emphatic connotations.

The following examples show the future marker following the polar question particle. The relevant prosodic facts will be described below.

(6.1) ká nuŋ ?-âm=lá-ŋ
1SG food 1SG-eat.SBJV=Q-FUT
‘Will I eat?’
(Waag 2010: 106)

(6.2) ye nuŋ ?amí=lá-ŋ
3SG food 3SG-eat.PRF=Q-FUT
‘Will (s)he eat?’
(Waag 2010: 106)

While the combination of the question particle and the future marker is phonetically identical in both examples above, this identity is caused by different phonological principles. The tone on the question particle is a “polar tone,” which is phonologically H after a falling tone such as in (6.1) but phonologically L after an H tone such as in (6.2); cf. Waag (2010: 265). The fact that the question particle is nevertheless marked by an H tone in (6.2) is due to the floating H tone of the future marker. Specifically, this floating H causes a preceding L vowel to become H but has no effect on a preceding H vowel (Waag 2010: 50, 51). Crucially, Waag (2010: 51) states that tone spreading of this kind does not cross word boundaries, which
shows that the future gram is dependent on the parameter of prosodic features. As mentioned above, the different segmental shapes in which the tense marker can occur are probably not due to allomorphy, which is why I will omit the parameter of phonological rules from the present analysis. Furthermore, since there is no definition of word minimality, the parameter of segmental structure does not factor into the description of this wordhood issue either.

Verbal clitics such as the future marker may occur anywhere in the so-called “verbal unit” (Waag 2010: 99), which largely corresponds to a traditional VP (cf. Waag 2010: 83-85). Since the “verbal unit” essentially acts as the predicate, which in turn is the functional equivalent of the verbal domain, the future gram can be classified as part of the latter for the purposes of the present investigation. While the distributional possibilities of the future gram within the “verbal unit” suggest that it has considerable syntagmatic freedom, Waag (2010: 107) also points out that verbal clitics predominantly occur with hosts from the class of “connectors,” which comprises conjunctions and illocutionary particles (Waag 2010: 90). The following example illustrates this distribution of the future gram.

(6.3) ʔaddan saare j-ɛl dɔg ɓá=ŋ
      even.if tomorrow 2SG-come.PRF also CONN=FUT
    j-ummó na ɲun-ŋ
     2SG-find.PRF CONN 3SG.move-MID.IPFV
‘Even if you come tomorrow, you will find it moving.’ (Waag 2010: 244)

The relevant connector in the above example is ɓá, whose H tone does not undergo any sandhi with the floating H tone of the following tense gram for the reasons outlined above. Waag (2010: 91, 255) argues that ɓá marks declarative mood and/or the apodosis in conditional constructions, and the connectors are crucially defined as a word class distinct from the particles to which the interrogative marker seen in (6.1) and (6.2) belongs (cf. Waag 2010: 89-91, 261). Hence, the future marker is non-selective, and given that its behavior with respect to tone sandhi suggests that it is part of a larger phonological word, it is thus a prototypical clitic.

The future gram discussed here is another element whose formal dependence only manifests itself on neighboring elements. While the data throughout the present work show
that the grams at issue are usually also themselves affected by the formal processes that constitute dependence, it stands to reason that the allomorphic pattern seen here is common wherever floating tones are involved. To the extent that the latter are particularly common in African languages, the type of formal interaction in evidence here might then be an areal phenomenon. Since the present study is not primarily interested in areal features, however, this question must be left for further research.

6.1.1.2 Gumuz

Gumuz has a set of tense markers described as affixes (Ahland 2012: 231-233). However, tense marking differs “quite dramatically” (Ahland 2012: 183) based on regional variety, one manifestation of which is that the perfect is expressed by a suffix in the north but by a different element described as an “enclitic” in the south. The focus here will solely be on the latter item even though I will suggest a different analysis and label for it below. Also, I will speak of “Gumuz” throughout this sub-section despite the fact that the wordhood issue in question is only found in the southern variety. Finally, while Ahland (2012: 243) categorizes the perfect gram as an aspectual marker, it will be subsumed under the category of tense here for the reasons outlined in 6.0.2.

The only unambiguous example of the relevant item in the grammar is given here as (6.4). The free translation suggests that the gram described as the “perfect” marker may also (or instead) be a marker of the pluperfect, but there is not enough discussion of its function to substantiate this claim. However, since pluperfect grams are also considered tense markers in this study, the element of interest would be included in the database in any case.

(6.4) ná=zialá b-ár-fá-gá=náʒigán
    AFF-1SG.TR-drink-NFUT=PFCT
    ‘I had drunk (something) already.’ (Ahland 2012: 243)

While Ahland (2012: 243) does not explain the relationship between the slightly different segmental shapes that she gives for the perfect marker, this has no bearing on the analysis to be presented here. Instead, what makes the perfect gram a wordhood issue is the segmental effect it fails to trigger on the preceding element. Specifically, Ahland (2012: 49, 50) states
that word-internal /a/ is rendered as schwa. Yet, one characteristic that defines the “enclitics,” including the perfect gram, is that an /a/ preceding them manifests itself as [a] rather than as schwa (Ahland 2012: 241). This suggests that the vowel quality of the non-future marker in (6.4) is [a] and that the phonological word ends before the perfect gram. Even though this behavior bears on the parameters of phonological rules and segmental structure, the more important fact for the present analysis is the phonotactic restriction that [a] can only occur at word margins. Therefore, the perfect will be classified as free on the parameter of segmental structure.

Meanwhile, in terms of another parameter of phonological wordhood, the perfect does not behave as if it were a separate word. A tonal downstep rule applies across words such that the H tones of a word should be downstepped when following another word containing H tones (Ahland 2012: 70). Yet, the class of enclitics into which the perfect gram is grouped does not show this process (Ahland 2012: 241), which suggests that the first vowel of the perfect gram in (6.4) bears a regular H tone. Since there is no discussion of a minimum word size and vowel harmony is not phonologized (Ahland 2012: 59), the perfect marker can thus be said to be dependent on the parameter of prosodic features.

In order to meet the prototypical definition of a clitic, an element has to be prosodically dependent but non-selective. However, the description suggests that the perfect gram does not exhibit this combination of formal properties. Specifically, while Gumuz clitics generally occur with both verbal and nominal hosts, the perfect gram is the only exception to this pattern (Ahland 2012: 241). Furthermore, since Ahland (2012: 241) describes the group to which the perfect belongs as one comprising verbal enclitics, the perfect must be assumed to be restricted to verbal collocates. While a lack of additional examples renders a substantive investigation of this issue impossible, the perfect indeed assumes the final slot in the verbal template of the southern variety (Ahland 2012: 185).^4^ Hence, given the available evidence, the perfect gram has retained independence on the parameter of segmental structure but is dependent on all parameters of morphological

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^4^ Interestingly, Ahland (2012: 185) only lists the perfect gram as a member of the non-future verb template, of which (6.4) is an example. However, elsewhere she states that the perfect can also occur in verb forms marked for future tense (cf. Ahland 2012: 243). This might ultimately be relevant for the semantic classification of the perfect gram in that an element that can freely co-occur with other tense values cannot itself be a salient expression of tense (cf. 6.0). Yet, this issue cannot be resolved given the information available, and the element is therefore included here on the understanding that it is a genuine perfect.
wordhood.

The above analysis suggests that the perfect gram is an anti-clitic rather than a clitic. While there is no general discussion of wordhood in the grammar, this conclusion also appears plausible in light of the prosodic weight of the gram. Specifically, Ahland (2012: 71, 182) states that Gumuz verb roots are predominantly monosyllabic and that noun roots are mostly disyllabic. Hence, in terms of weight, the perfect gram is identical to, or even larger than, elements that have not been formally reduced as a consequence of grammaticalization. It might thus be this combination of apparent formal stability and a prototypically grammatical function that leads Ahland (2012: 373 fn. 10) to the claim that the perfect marker is a “frozen auxiliary.”

6.1.1.3 Ik

Schrock (2014: 343-381, 484-489) describes a wide range of suffixes and auxiliary constructions that express modal and aspectual meanings, and there is largely no reason to question those analyses on formal or functional grounds. However, the perfect marker would be considered a tense gram in this work, and it appears to be of interest to this study because of its behavior with respect to ATR vowel harmony. That is, harmony usually proceeds from the root through the phonological word, but the perfect “suffix” is not subject to this principle (Schrock 2014: 80, 378). In spite of these facts, however, this element will not be analyzed here. This is because the opacity of the perfect gram derives from the fact that its only vowel is /a/, which is generally opaque to ATR harmony (Schrock 2014: 79-80, 378). Hence, the perfect marker behaves in accordance with the general principles of harmony, and the fact that it is not free on the parameter of prosodic features suggests that it does not pose a wordhood issue either.

Instead, the focus here will be on the markers that Schrock (2014: 418) himself classifies as tense grams. While the non-past markers among this group are described as free adverbials, the past tense grams are classified as clitics because they attach to elements from different word classes and show ATR harmony with their hosts (Schrock 2014: 418-419). However, since the recent past marker only consists of /a/, which, as mentioned above, is opaque to harmony, it will be ignored here. Furthermore, I will limit myself to an analysis of the ‘removed past/yesterday’ marker because the relevant facts are more clearly illustrated.
for this element than for the remaining member of the paradigm, which expresses ‘remote past/before yesterday.’

Schrock (2014: 419) classifies the past tense markers as second-position clitics and states that they usually follow the main verb. Therefore, they can be taken to fall within the verbal domain. However, the following examples show that in addition to verbs, the relevant past tense marker can also follow nouns.

(6.5)  
ilyam-é-id-a=bēe  \(\text{ŋ}i\text{tsani-ɛ}\)  
get-VEN-2SG-RL=PST troubles-DAT  
‘Did you get trouble yesterday?’  
(Schrock 2014: 283)

(6.6)  
mesi-ŋ=bēɛ  \(bɛɛ\-im-∅\)  
beer-COP=PST want-1PL.EXCL-RL  
‘It was beer (that) we wanted (yesterday).’  
(Schrock 2014: 522)

In (6.5), the host of the tense marker is clearly a verb because it is marked for realis mood (cf. Schrock 2014: 343). Meanwhile, in (6.6), the host must be a noun because it bears the copulative case suffix, one of whose functions is to mark focus in a cleft construction (Schrock 2014: 286). Crucially, the tense meaning in (6.6) scopes over the whole clause rather than only over the noun. This shows that both examples above contain the same past tense gram, which is subsequently non-selective. As mentioned above, however, the past tense marker undergoes ATR harmony, whose primary domain is the phonological word (Schrock 2014: 80, 418). The above examples clearly illustrate this harmonic behavior. The realis marker in (6.5) is a [+ATR] vowel and thus conditions the allomorph of the past tense gram that contains [+ATR] vowels (cf. Schrock 2014: 88-90). Conversely, all the vowels in (6.6) are [-ATR], as a consequence of which the allomorph of the past tense gram is also [-ATR]. This renders the past tense marker dependent on the parameter of prosodic features and a prototypical clitic overall.

By contrast, the remaining prosodic properties of the past tense gram are largely unclear. For instance, there is no discussion of a minimal word size in the grammar, and the parameter of segmental structure subsequently does not inform the present analysis.
Furthermore, Schrock (2014: 114) explicitly states that the tonal sandhi in the language are insufficiently understood and often morphologized, which is why this phenomenon cannot further enlighten the behavior of the tense marker on the parameter of prosodic features. Finally, the past tense gram has another segmental shape before pauses (Schrock 2014: 71), but since this allomorph pattern explicitly depends on the presence or absence of following independent words, I will also disregard the parameter of phonological rules here.

The discussion provided above may have given the impression that opacity with regard to vowel harmony is common in Ik, which in turn would suggest that harmony is not a reliable indicator of word domains and word mismatches. However, a juxtaposition of the total inventory of bound forms in the language (cf. Schrock 2014: xxv-xxxii) and the subsets that do not undergo ATR harmony (cf. Schrock 2014: 89, 96) straightforwardly shows that the latter class is a small minority. Hence, taking the domain of ATR harmony as a criterion of wordhood indeed appears defensible.

6.1.1.4 Ma’di

Blackings & Fabb (2003: 13, 83, 155) state that the only tense marker in the language is a floating L tone “prefix” that attaches to the vowel of a preceding word and marks non-past. Since past tense is expressed by an uninflected verb (Blackings & Fabb 2003: 140) and the description of the “affirmative modal” that also expresses ‘future’ does not suggest a wordhood issue (cf. Blackings & Fabb 2003: 19, 20, 166-167), the focus here will be on the floating L tone. This marker is not found in the ‘Burulo dialects of the north (Blackings & Fabb 2003: 45, 174), and the present analysis will therefore only deal with the Lokai varieties of the south. However, I will simply speak of “Ma’di” throughout this sub-section.

Crucially, Blackings & Fabb (2003: 19, 145-146, 172-173) argue that previous analyses, which posited an asceptual system in Ma’di, are mistaken and that the primary distinctions within the TAM domain instead revolve around tense. This is because the contribution of the non-past gram is interpreted as imperfective in present tense contexts but as perfective in future tense contexts (Blackings & Fabb 2003: 170), which suggests that it is not an asceptual gram. The relevant difference can clearly be seen in (6.7) below, and it is due to this semantic effect that the floating tone will be classified as a tense marker here.

The following examples show the non-past L tone in two different syntactic contexts.
The relevant details will be discussed below.

(6.7) ká dʒó́ sī̀ ðì̄ā
3 house NPST-build here
‘She will build/is building a house here.’ (Blackings & Fabb 2003: 59)

(6.8) àmá tà iré nā
1PL.EXCL thing near NPST-eat
‘We (excluding you) are about to eat/almost eating something.’ (Blackings & Fabb 2003: 155)

The floating L tone manifests itself on a preceding vowel to create a contour tone, and the relevant vowel subsequently lengthens (Blackings & Fabb 2003: 38). However, this process only takes place when the verb following the floating tone begins with a consonant and neither of the tones surrounding the floating tone is itself L (Blackings & Fabb 2003: 59-61). As can be seen above, the examples illustrate the non-past marker in precisely this phonological context. Meanwhile, the fact that the tense gram does not manifest itself in any other phonological environments demonstrates that it is subject to allomorphy, and it is therefore dependent on the parameter of phonological rules.

Since the discussion of tonal sandhi in the language is inconclusive (cf. Blackings & Fabb 2003: 38), I will not consider the behavior of the non-past marker relevant to the parameter of prosodic features. Furthermore, while vowel harmony generally exists in the language and applies to all elements classified as prefixes (Blackings & Fabb 2003: 47, 49), this phenomenon does not factor into the present analysis because non-segmental items are ineligible for vowel harmony by definition. However, the purely tonal make-up of the tense gram automatically renders it incapable of being used in isolation and therefore dependent on the parameter of free occurrence. Finally, the topic of minimality is not addressed in the grammar, and I will therefore not consider the tense marker dependent on the parameter of segmental structure.

With respect to the syntagmatic behavior of the L tone, Blackings & Fabb (2003: 156) argue explicitly that the element that follows it is a verb and not a noun, the latter of
which had been suggested by earlier authors. Since the verb always immediately follows the
non-past marker and furthermore impacts its allomorphy, the L tone can safely be assigned to
the verbal domain. As the above examples show, though, the word preceding the verb, and
hence the actual locus of the L tone, is variable in terms of its syntactic category. While the
non-past gram in (6.7) occurs on a noun, its host in (6.8) is an element that Blackings & Fabb
(2003: 155, 487) subsume under a separate class of adverbials. Given the parameters
underlying this work, the non-past marker is thus non-selective, and it follows from this
distribution that it is a (ditropic) clitic and not, as analyzed by Blackings & Fabb (2003), a
prefix.

6.1.1.5 Tommo So

The TAM system of Tommo So is highly complex, and its exponents are
characterized by considerable segmental and suprasegmental interaction (cf. McPherson
2013: ch. 12). However, with perfective verbs, tense marking is expressed by elements called
“auxiliaries” (McPherson 2013: 286), and the latter items are the only clear-cut tense markers
that cause a wordhood issue. Even though no definition of auxiliaries is provided, McPherson
(2013: 361) lists certain properties of so-called “quasi-verbs,” a term she uses
interchangeably with the “auxiliary” label. These elements are explicitly classified as clitics
(McPherson 2013: 90, 342-343), and the analysis presented below will outline the reasons for
this classification. Note that even though several “auxiliaries” exist in the language, I will
limit myself to a description of the past tense marker, for which the available information is
most explicit.

The following example shows the past tense gram with a perfective verb, which is the
unmarked past tense construction in the language (McPherson 2013: 288, 290). The French
translation of the relevant portion is adopted from the source and further illustrates this
function. While the auxiliary is glossed with a lexical meaning of its own, the description
makes clear that these elements are fully semantically bleached and used solely as carriers of
the tense meaning.

(6.9) ámiru=ge dámmá=ge=ne s∂ō s∂á硅谷 ěg-aa=be-m
chief=DEF village=DEF=OBL speech speak-PTCP hear.PRF=be.PST-1SG
‘I heard (j’ai entendu) the chief speaking in the village.’  (McPherson 2013: 290)

Whereas phonological words in Tommo So must be at least bimoraic and have inherent tones, clitics such as the tense markers are defined by their monomoraic structure and an absence of inherent tone (McPherson 2013: 74, 90, 101, 235). With respect to the present work, the past tense marker thus falls short of phonological wordhood on the parameters of segmental structure and prosodic features. Note that there is essentially no vowel harmony with the verbal inflections (McPherson 2013: 51, 64), which suggests that this phenomenon is not a robust indicator of wordhood in the present case. However, McPherson (2013: 74) additionally defines clitics as incapable of occurring in isolation, and since no information to the contrary is provided for the tense grams, the past marker will also be classified as dependent on the parameter of free occurrence. By contrast, be does not seem to be subject to allomorphy, and hence the parameter of phonological rules does not bear on the present analysis.

The reason McPherson (2013: 283) classifies be as a clitic rather than as a suffix is that it “can be used after nearly any category.” However, the examples throughout the grammar strongly suggest that it primarily attaches to verbs, which is why it is categorized as a member of the verbal domain here. By contrast, the following example shows the relevant tense gram with both a pronoun and a predicative adjective (McPherson 2013: 138-140, 365). As stated in 6.0, however, predicative adjectives will not count as a separate word class for the parameter of non-selectivity, which is why only the occurrence with the pronominal host is crucial for the analysis proposed below. Equally critical is the fact that be also has scope over the entire predicate when it occurs on non-verbal hosts. This guarantees that the element seen below is the same marker as the one discussed above.

(6.10) wàgàdùL  gàdêy  èmmé=be=le  ú=diyè
       time    small  1PL=be.PST=ASSOC  2SG=than
       póó-go=be-m
       fat-ADV=be.PST-1SG
‘When we were little, I was fatter than you.’  (McPherson 2013: 365)
The combination of non-selectivity on the one hand and prosodic dependence on three parameters on the other hand suggests that *be* is a prototypical clitic. However, given that processes impacting the segmental shape of morphemes are otherwise widespread in the language, the fact that *be* is not affected by any of them might explain why it is described as a “quasi-verb” even though it otherwise shows few obviously verbal properties.

### 6.1.2 Eurasia

#### 6.1.2.1 Kharia

Anderson (2007: 101) emphasizes that it is difficult to draw a distinction between tense and aspect in Munda languages. Hence, even though Kharia has a rich inventory of TAM markers, I will limit myself to a discussion of the past tense gram, which is the only member of the paradigm that is explicitly described as neutral with regard to aspect (Peterson 2011a: 240). The functional definition that Peterson (2011a: 240) provides for this marker is that it is “used for events and states which have already occurred at the time of the speech-act.” This makes it straightforwardly deictic and justifies its inclusion in this chapter. Note further that while the past tense marker has grammatically conditioned allomorphs, I will only focus on the one occurring in the active voice because it poses a more straightforward wordhood issue.

The following examples show different allomorphs and different syntactic distributions of the active past marker.

(6.11) ʈʰisɑ= yoʔ
call.out= **ACT.PST**
‘S/he called out.’

(Peterson 2011a: 240)

(6.12) ɪn=ɑʔ ɗe=naʔ=ʔ ɬen=ɡa ɓaʔ=te ɖuruŋ
1SG=GEN come=INF=GEN before=FOC rice=OBL pound
kɑn=oʔ=ki gha’ɗ buŋ ɓhaʔ=ki
CONT= **ACT.PST**=PL therefore finish SUD=MID.PST
‘Before I arrived they had been pounding the rice for a long time, therefore it (= the rice) was quickly finished.’ (Peterson 2011a: 299)

Peterson (2011a: 33, 63, 240) states that the allomorphs of the active past marker depend on the preceding element such that the variant with the glide onset in (6.11) appears following a vowel and the vowel-initial allomorph in (6.12) appears after consonants. This pattern shows that the tense marker is dependent on the parameter of phonological rules. By contrast, since both clitics and content words can be monosyllabic (Peterson 2011a: 63), the tense marker is not dependent on the parameter of segmental structure. Also, as mentioned in the relevant sections of the previous two chapters, the pitch pattern shown by Kharia clitics is insufficiently understood (Peterson 2011b: 95). Given that no vowel harmony is mentioned, the parameter of prosodic features therefore does not factor into the present analysis either.

The preceding two chapters discussed that Peterson (2011a, b) rejects traditional word class analyses for Kharia, specifically the distinction between open classes. Instead, he posits a single open class of “contentive” elements, which is complemented by a class that comprises proforms, deictics, and “grammatical morphemes” (Peterson 2011a: 78). What is crucial to the present analysis is that the continuative marker to which the past gram attaches in (6.12) belongs to a group of “v2s,” which mark a variety of functions in the predicate (cf. Peterson 2011a: 293). While their overall status with respect to the proposed word class inventory seems unclear, Peterson (2011a: 293) states that many v2s are homophonous with contentive morphemes and probably derived from them. For the purposes of the present work, this statement will be taken to mean that v2s are not themselves contentive morphemes. Since the past marker clearly occurs with a contentive element in (6.11), however, the above examples illustrate that the former is non-selective even on the unorthodox word class inventory assumed by Peterson (2011a, b). In light of its allomorphy, the past tense gram is therefore a prototypical clitic.

Note that even though the tense marker is somewhat syntagmatically free, it clearly falls within the verbal domain. This is obvious from the fact that Peterson (2011a: 210) himself locates the TAM markers within the structure he calls the “TAM/person-syntagma.” Since the latter unit subsumes precisely those grammatical categories usually marked on verbs and/or in VPs, it is essentially equivalent to the verbal domain as understood here.
Furthermore, the vast majority of the examples in the grammar show the TAM markers with elements that would be classified as verbs in more traditional approaches. In sum, then, the past tense marker is a clitic because it can phonologically attach to different members of the verbal domain.

6.1.2.2 Lao

Enfield (2007: 177) states that there is “no general or obligatory grammatical marking of tense” in the language, and the TAM markers instead express aspectual and modal distinctions (cf. Enfield 2007: ch. 9). However, the situation is more complex because there is both a perfect marker (cf. Enfield 2007: 180-184) and a gram expressing recent past. Enfield (2007: 204-205) himself acknowledges that the latter expresses tense, but since he considers it the only tense gram, he maintains that the language does not have a tense system (cf. 6.0.1). While neither the perfect nor the recent past gram will be described here, this is due to formal rather than functional reasons. That is, both grams are considered tense markers for the purposes of this study, but neither of them poses a wordhood issue.

Instead, the focus of the present analysis is on two grams in the aspectual-modal class, which are described as irrealis markers (cf. Enfield 2007: 178, 214, 2008: 115). While their distribution seems to be solely conditioned by stylistic factors, si∅ is the more frequent of the two and also more thoroughly illustrated than its alternative ca∅ (cf. Enfield 2007: 214). Therefore, I will limit myself to a description of the former element here. However, I will not follow Enfield’s (2007) semantic classification because the so-called irrealis grams “often function effectively as future tense markers” (Enfield 2007: 214). Given the considerations outlined in 6.0.3, it thus seems justifiable to categorize si∅ as a future marker.

Regardless of whether it actually expresses a future meaning or not, si∅ typically occurs between the subject NP and the verb (cf. Enfield 2007: 173), as shown in (6.13). As mentioned in Chapter 3, the author uses numbers at the end of orthographic words to signal tonal distinctions, while the empty set symbol ∅ marks the preceding element as unstressed, i.e., toneless (cf. Enfield 2007: 35, 38). I will follow this transcription practice here.

(6.13) khòòj5 si∅ paj∅ kin3 bia3 qiik5 kòòn1 dee4
      1SG.POL  IRR  DIR.ABL  eat  beer  more  before  FACT
‘I’m going to go and drink some more beer, y’hear.’ (Enfield 2007: 214)

It can be gleaned from the following examples, though, that the future marker is not confined to a position immediately after the subject noun. In (6.14), it occurs clause-initially, and in (6.15), it follows an element explicitly classified by Enfield (2008: 85) as a verb.

(6.14) si∅ pæj3 tèè1 daa3 han∅ tii4, bɔ∅ pæj3 nam2 kadaqj1
     IRR go only PN TOP Q NEG go with AFTH

‘It’s only going to be Da going, surely? (The others) won’t go along.’

(Enfield 2007: 48)

(6.15) khon2 (thii1) lèèn1 si∅ bɔ∅ pæj3
     person (REL) run IRR NEG go

‘The person who was running will not be going.’

(Enfield 2007: 114)

The three examples above show clearly that the future marker is not tied to a specific word class on either side, and it is therefore non-selective. This analysis is in line with Enfield (2007: 10, 272), who states that Lao has neither inflection nor fixed constituent order (but cf. Smyth 2009: 640). However, the syntagmatic behavior of si∅ contrasts with its prosodic properties, which do mark it as a dependent item. Specifically, in light of the fact that a phonological word must be bimoraic (Enfield 2007: 33), the CV shape of the future marker renders it sub-minimal and thus dependent on the parameter of segmental structure. In addition, the absence of an inherent tone on the future gram also suggests that it is not a full-fledged phonological word. That is, even though Enfield (2007) does not explicitly state that a phonological word must have a tone, unstressed/toneless “minor syllables” are characteristic of clitics (Enfield 2007: 33). Therefore, I will also classify the future marker as dependent on the parameter of prosodic features. By contrast, the tense gram does not seem to undergo or trigger allomorphic processes, and it is therefore not dependent on the parameter of phonological rules.

While the prosodic dependence and syntagmatic freedom of the Lao future marker suggest that it is a straightforward particle (cf. 3.2.2), it does pose a problem for the design of
this study. That is, since Lao has free constituent order but no inflection, formal factors cannot help delineate the verbal domain in this language. Yet, this crucial unit can still be identified on semantic grounds given that in all the examples seen above, the future meaning scopes over the entire predicate. As discussed throughout this chapter, the predicate is essentially the functional analog of the verbal domain, and it is thus reasonable to posit that the Lao future gram falls within the latter structure.

6.1.2.3 Xong

There is no tense marking in the verb (Sposato 2015: 4, 470-471, 476), and Sposato (2015) neither discusses wordhood nor clitics for Xong. However, based on the overall information available in the grammar, it seems reasonable to posit that the perfect marker lah causes a wordhood issue. This gram marks a situation that occurred or began to occur in the past and has relevance to the present (Sposato 2015: 433). It therefore qualifies as a tense marker for the reasons discussed in 6.0.2, and this classification seems to be further borne out by the translations of the examples below. Both (6.16) and (6.17) show lah in its typical clause-final position (cf. Sposato 2015: 423; cf. also Panov 2020 for a cross-linguistic overview).

(6.16) Beul baox monl lah
    3 father go PFCT

    ‘Their father left.’ (Sposato 2015: 433)

(6.17) Beul doub geud gaons beul deb-geud lah
    3 then hold give 3 DIM-younger.sibling PFCT

    ‘She gave (her own drinking water) to her younger sister.’ (Sposato 2015: 433)

In the above examples, most of the final consonant letters represent (a combination of) specific tones rather than actual phonetic or phonological consonants (Sposato 2015: 96-97, 142-143). However, a final h marks the preceding syllable as toneless (Sposato 2015: 143), and it can therefore be seen that while most words in the language do bear tones, the perfect marker does not (cf. Sposato 2015: 433). The only other elements in the language
characterized by an absence of tone are the interjections (Sposato 2015: 96, 423), and this fact is arguably crucial given that the latter are well-known to frequently deviate from the phonological patterns found elsewhere in the respective language (e.g., Jespersen 1922: 415; Maddieson 1984: 162; Ohala 2011: 109; McMahon & McMahon 2013: 4). In light of these facts, I will classify the tense marker as dependent on the parameter of prosodic features. By contrast, it appears to be free on the parameter of phonological rules because Sposato (2015: 93-94) states that the language does not show segmental sandhi processes. Finally, given that there is no discussion of minimal wordhood in the grammar, the parameter of segmental structure does not factor into the present analysis.

As mentioned above, particles like lah are clause-final and hence have a syntactically determined distribution. Since Hmong-Mien languages, including Xong, have SV and SVO as their pragmatically neutral constituent orders (Sposato 2014: 111-114), a clause-final element should minimally be able to follow nouns and verbs. In fact, these are precisely the two contexts shown in the examples above. The immediately preceding element in (6.17) is a noun due to its diminutive prefix (Sposato 2015: 444), whereas monl in (6.16) is explicitly categorized as a verb (cf. Sposato 2015: 5). Therefore, the perfect gram is non-selective, and its classification as a particle ties in with the proposal sketched in 3.2.2.

Due to the fact that verbs are not clause-final in every construction, the Xong perfect gram resists a straightforward classification into the formally defined verbal domain. Yet, the semantic argument invoked for Lao above can also be applied in the present case. That is, the relevant translations show that the meaning of the tense gram in question scopes over the entire predicate, which corresponds to the verbal domain. This approach is ultimately also supported by Sposato (2015: 407), who states that no meaningful distinction can be drawn between clauses and putative VPs in Xong.

6.1.3 North America

6.1.3.1 Huave

There appear to be certain differences between the forms and functions of the TAM markers in the San Dionisio and the San Francisco variety. However, since Salminen (2016: 103, 193) states that the future “proclitic” is restricted to verbal hosts and can also express
habitual functions, this element is neither a clear-cut tense gram nor does it pose an obvious wordhood issue. The remaining tense marker in the San Dionisio variety, which marks past (cf. Salminen 2016: 138), does not seem to constitute a relevant mismatch either. Meanwhile, Kim (2008: 279-280) describes the above-mentioned future gram as a straightforward prefix in the San Francisco variety, and I will therefore restrict myself to an analysis of the perfect gram in the latter variety. This marker is primarily used to refer to situations in the recent past, which optionally have relevance to the present (Kim 2008: 281). As such, it qualifies as a tense marker for the purposes of the present work (cf. 6.0.2). Note further that this perfect gram seems to correspond to the marker that Salminen (2016: 140, 195) labels a “completive” and whose main function he also describes as marking recent past.

The perfect gram *la* is described as a “preposed particle” by Kim (2008: 281), and the following examples show different variants of this marker. The apparent mismatch between the third-person plural marker in the gloss of (6.18) and the first-person plural argument in the corresponding translation cannot be resolved here.

(6.18)  

\( la \) mbajka-u-j  

\textit{PFCT} separate-INTR-3PL  

‘(We came together, and) now we have separated.’  

(Kim 2008: 283)

(6.19)  

\( l=i \)-witi-o-r  

\textit{PFCT}=2-rise-2.INTR  

[no translation provided]  

(Kim 2008: 283)

(6.20)  

\( la=aw \) a ion  

\textit{PFCT}=exit DET wind  

‘The north wind has now come out.’  

(Kim 2008: 262)

The unmarked form of the perfect gram appears before consonants, as seen in (6.18). Meanwhile, in cases where the following verb begins with a vowel, as in (6.19), the nucleus of the perfect marker deletes. Note that while Kim (2008: 282-283) describes this process as vowel coalescence, examples such as (6.19) suggest that the vowel of the verb remains intact.
Finally, even though the perfect occurs before a vowel-initial verb in (6.20), it remains syllabic. Kim (2008: 261-262) proposes that this is due to the fact that a verb form must not be monosyllabic, which the relevant string in (6.20) would be if the vowel of the perfect gram deleted. Note, however, that this tentatively formulated word minimum is only claimed to hold for verbs and that there is no general discussion of minimum word size in the grammar. In light of this empirical gap, I will therefore omit the parameter of segmental structure from the analysis.

By contrast, the allomorphic alternations of the perfect gram are entirely predictable from the phonological structure of the following element, and hence it is clearly dependent on the parameter of phonological rules. Lastly, while phonological words are defined by a stress on the final syllable (Kim 2008: 36; Salminen 2016: 45), there is no description of how the perfect gram behaves in this regard. However, on the assumption that the sub-syllabic allomorph in (6.19) cannot bear stress, the perfect will also be classified as dependent on the parameter of prosodic features. Note that vowel harmony only applies to epenthetic vowels (cf. Kim 2008: ch. 4), and this phenomenon subsequently also cannot shed light on the behavior of the tense marker with respect to the latter parameter.

The reason that Kim (2008: 286-287) analyzes the perfect gram as a particle or a clitic rather than as a verbal prefix is that a negator can occur between the tense marker and the verb. The following example illustrates this construction.

(6.21) la ngo m-atiots ndili-m-e ti mi-iot

**PFCT** NEG SB-think turn-SB-REFL to POSS-land

‘He no longer thinks of returning to his country.’ (Kim 2008: 287)

No further details about the syntactic distribution of the negator are provided, but the examples suggest strongly that it is the only element that can intervene between the perfect marker and the verb. On that assumption, the perfect gram clearly falls within the verbal domain. While there is no statement about which word class the negator belongs to, it is described as a “particle” throughout the grammar. However, the crucial fact for the present analysis is that the negator is not itself a verb given that verbs cannot occur without affixes (Kim 2008: 189). Hence, the juxtaposition of the above examples illustrates that the perfect
gram is non-selective. Yet, since it shows allomorphy with a following element, it would clearly be categorized as a proclitic rather than as a particle on the definition suggested in 3.2.2.

6.1.3.2 Lillooet

Van Eijk (1997: 42) states that Lillooet does not make any tense distinctions (cf. also Davis 2020: 467), but he specifies elsewhere that this only applies to the morphological level (cf. van Eijk 1997: 139). The latter claim presumably refers to the fact that there are two tense enclitics in the language, a definite past and a remote future gram (van Eijk 1997: 200, 201). Since van Eijk (1997: 201) mentions ‘possibility’ as another function of the latter and English *might* as a common translation for it, this element is presumably a modal rather than a tense marker. Meanwhile, the only functional description that van Eijk (1997: 200) provides for the definite past marker is that it indicates “that a time period has definitely been concluded.” This might mean that the element also expresses a certain degree of emphasis, but absent further details, the analysis presented here will treat it as an expression of tense.

As mentioned in the discussion of the Lillooet examples in the preceding chapters, van Eijk (1997) does not usually provide interlinear glosses with the examples, and part of the information below is thus filled in based on information provided elsewhere in the grammar. However, the acute accents, which signal stress locations (cf. van Eijk 1997: 5) and will prove crucial for the following analysis, are taken directly from the source. While the formal details will be discussed below, note that the ‘irrealis’ meaning of (6.23) can plausibly be attributed to the modal marker =*ka*, which van Eijk (1997: 153) translates as ‘should, would.’

(6.22) 갔ʷ̃l̃p=tuʷ̃
i=citxʷ-s=a
  burn.down=PST  ART₁=house-3SG.POSS=ART₂
  ‘His house burned down.’ (van Eijk 1997: 200)

(6.23) plan-ıkal=ká=tuʷ̃
  already-1PL.IND=MDL=PST  AUX  get.there
  ‘We should have been there already.’ (van Eijk 1997: 153)
Van Eijk (1997: 182, 199) states that the principles of stress assignment are one major criterion for the identification of clitics in the language. Generally, word stress falls on the first syllable whose nucleus is not a schwa, and this pattern accounts for both roots and suffixes (van Eijk 1997: 14). However, this principle is suspended with enclitics, which do not attract stress even if preceded by a single syllable containing a schwa (van Eijk 1997: 17). This shows that the past tense gram in (6.22) is an enclitic; if it were a phonological word of its own or a suffix, it would have to bear stress in that environment. Meanwhile, the stress pattern in (6.23) is due to a process also outlined in the previous chapter. Given sufficient word length, stress is placed on the third syllable, and this principle also manifests itself if enclitics create the necessary length (van Eijk 1997: 14, 17). Subsequently, stress may also fall on an enclitic provided it is not on the last syllable (van Eijk 1997: 17). It follows that the stress location in (6.23) can only be explained if the tense marker is analyzed as the word-final syllable. Since the grammar does not mention allomorphs of the tense marker or word minima in general, the past gram will only be classified as dependent on the parameter of prosodic features here.

As discussed in the preceding two chapters, the word class inventory proposed by van Eijk (1997: 41, 46) comprises full words and clitics, where the former class splits into variable and invariable words. Hence, the fact that the past tense marker can follow both full words, as in (6.22), and clitics, as in (6.23), shows that it is non-selective. While the combination of non-selectivity and participation in a larger stress domain generally supports van Eijk’s (1997) clitic analysis, he also states that most enclitics occur in the second position of the clause, with the first position taken up by a full word (van Eijk 1997: 199). As is clear from (6.23), however, the enclitic tense marker can also be the third morphological word in the clause, which sheds doubt on the robustness of the phenomenon of second-position clitics in the language (cf. also 5.2.2). Crucially, though, the basic constituent order in Lilooet is predicate-initial (van Eijk 1997: 226), and the classification of the tense marker as a member of the verbal domain is thus justifiable if it predominantly follows the verb.

6.1.4 Oceania
6.1.4.1 Komnzo

Komnzo marks most distinctions in the TAM domain via a combination of stem allomorphy and various morphs before and after the stem (Döhler 2018: 117; Evans et al. 2018: 695-696). In many cases, the individual formatives do not have definable meanings in isolation, and this type of morphology is thus an example of “distributed exponence” (cf. Döhler 2018: 175-179, 183, 237; Arkadiev & Klamer 2019: 446-447). Since distributed exponence creates a particularly high degree of formal integration, the tense distinctions expressed in Komnzo do not generally cause the kind of wordhood issues that are of interest to this study. Specifically, while non-past and recent past are expressed by the above-mentioned means, the general past marker is a straightforward suffix, and the future gram is a function word (cf. Döhler 2018: 121, 122, 235). However, the remaining tense marker, which encodes immediate past, is expressed by an element called a “proclitic” (Döhler 2018: 128). While I will diverge from this formal classification below, this gram will be the focus of the analysis here.5

The function of the immediate past gram is to describe situations that took place a short time before the moment of speech (Döhler 2018: 256). This renders it straightforwardly deictic and thus a tense marker as defined for the purposes of this chapter. While Döhler (2018: 249) suggests that the element might be falling into disuse, it is still part of the contemporary language and will therefore be included here. The grammar offers few examples of the relevant gram, but the most crucial fact for the analysis proposed here is that it immediately precedes the verb (cf. Döhler 2018: 116, 127, 237, 249). This suggests both that it is part of the verbal domain and that it syntagmatically behaves like an affix.

Therefore, the following example can be taken to be representative of its distribution. Note that due to the aforementioned morphological structure of the Komnzo verb, the grammar uses a partly idiosyncratic glossing style (cf. Döhler 2019: 179). In the interest of consistency with the remainder of this work, however, these glosses are modified in the relevant places of the example below.

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5 Note that an element of the same segmental shape as the immediate past gram is a free particle expressing the sense of ‘about to’ (Döhler 2018: 128). This item would constitute a different type of wordhood issue than the one described below. However, it is not analyzed here because Döhler’s (2018: 248-249) description strongly suggests that it is a modal rather than a tense marker.
A syllable in Komnzo can only have a complex onset if the second consonant is either /r/ or /w/ (Döhler 2018: 63). Where tautosyllabic consonant clusters violating this condition would arise, as in the case of the immediate past marker and the following verb in (6.24), a short epenthetic schwa is inserted (Döhler 2018: 57, 67). This principle results in the creation of syllabic allomorphs of the monoconsonantal “proclitics” (Döhler 2018: 127), and even though this allomorphy is not reflected in the orthography of the above example, the tense marker at issue is thus dependent on the parameter of phonological rules.

Primary stress falls on the word-initial syllable, including in cases where the relevant nucleus is an epenthetic schwa in verbal prefixes (Döhler 2018: 71, 127). However, the epenthetically augmented “proclitics” such as the above past tense marker are extrametrical with respect to this principle and do not bear stress (Döhler 2018: 71, 127). Put differently, the relevant gram in (6.24) does not participate in a larger stress domain but also does not constitute a stress domain itself. As in analogous examples of syntagmatically fixed items, this will be analyzed as an instance in which the element is free on the parameter of prosodic features and therefore an anti-clitic. Finally, while Döhler (2018: 68) formulates a bimoraic minimum, this is explicitly restricted to units that have specified (i.e., non-epenthetic) vowels. Given this complication, I will omit the parameter of segmental structure from the present analysis.

The discussion above suggests that the immediate past marker is an item whose degree of syntagmatic dependence exceeds the degree of prosodic dependence. Yet, while Döhler (2018: 127) acknowledges that the elements he categorizes as “proclitics” are not clitics on the usual criteria, he chooses the label because the relevant markers are “reduced...
forms of independent lexical items.” Since virtually all grams are derived from lexical items, though, this criterion is not sufficient to define clitics, and terminological decisions of this sort may thus further contribute to a false impression of how frequent clitics are across the languages of the world.

6.1.4.2 Yeri

Yeri expresses imperfective aspect by means of a verbal infix, but Wilson (2017: 343, 417) explicitly states that this element does not function as a present tense marker, and hence it is not of interest to this study. In addition, Wilson (2017: 464-468) discusses whether another gram might be a perfect marker, but she does not commit to this analysis, and the element at issue will therefore also be disregarded here. That leaves the exponents for past and future tense, which are optional elements that Wilson (2017: 38, 460) classifies as “clause particles.” There is no precise description of the temporal meanings that these grams encode, but the translations suggest that they are straightforward expressions of tense. Yet, since the future marker is also commonly used for several modal functions (Wilson 2017: 462), the past gram appears to be a more clear-cut member of the tense domain, and I will therefore limit myself to an analysis of the latter item.

While the tense markers can occur clause-initially or before the predicate (Wilson 2017: 158), the latter is their default location (Wilson 2017: 30, 460). On the one hand, this justifies the classification of the past tense gram as a member of the verbal domain. On the other hand, however, it also follows from these distributional facts that the past marker can co-occur with members of different word classes. The following examples show it in clause-initial position and before a verbal and a nominal predicate, respectively.

(6.25) la ki nua w-nobia-da-n
     PST already mother 3SG.F-talk.RL-AUGM-SG.M
     ‘His mother told him already.’ (Wilson 2017: 488)

(6.26) te-Ø la w-ori yati w-darku
     3-SG.F PST 3SG.F-hit.RL sago 3SG.F-run.RL
     ‘She scraped sago quickly.’ (Wilson 2017: 564)
The above examples sufficiently illustrate that the past tense gram is non-selective, and the function word analysis proposed by Wilson (2017) would also be compatible with certain aspects of its phonological behavior. For instance, *la* is not reported to undergo or trigger any kind of allomorphy based on the nature of immediately adjacent segments, and it is therefore free on the parameter of phonological rules. By contrast, there is no discussion of minimal wordhood, which renders the parameter of segmental structure inapplicable in the present analysis.

What argues against the analysis of the past gram as a free element, however, is a process of optional regressive vowel harmony that commonly targets clause particles (Wilson 2017: 88) and specifically manifests itself between the tense markers and “a variety of verbs” (Wilson 2017: 474). Hence, even though this type of harmony is not mentioned as a defining criterion of the phonological word, I will assume here that it constitutes the initial stage of morphologization rather than simply an instance of coarticulation. The effects of the relevant process are as follows. When a morpheme whose nucleus is /a/ immediately precedes a morpheme whose first syllable contains the nucleus /o/, the former vowel harmonizes to /o/ or /ɔ/ (Wilson 2017: 88). Since the past marker in (6.26) occurs in the conditioning environment, its nucleus is a round vowel, as Wilson (2017: 88) explicitly demonstrates on the basis of an analogous example. Due to this property, the past marker is dependent on the parameter of prosodic features.

Note that the grammar does not contain enough information on stress to decide whether the tense gram is also dependent with respect to that phenomenon. While primary stress usually falls on the penultimate syllable of a word (Wilson 2017: 4, 72), this principle is not entirely regular (Wilson 2017: 57) and does not account for the monosyllabic tense marker in any case. It might thus be of more interest that prefixes and proclitics generally do not affect stress assignment (Wilson 2017: 74-75, 80). However, given that Wilson (2017) herself does not classify the tense markers as clitics, their behavior with respect to stress
cannot be resolved here. Seeing as stress assignment would also bear on the parameter of prosodic features, though, this gap ultimately does not impact the present analysis.

The fact that the past tense gram combines non-selectivity and prosodic dependence suggests that it is a prototypical clitic. However, since both its very occurrence and the vowel harmony process in which it participates are optional, it is more accurately described as an element in the process of becoming a clitic. That is to say, it is still closer to function word status than to being a bound marker. Yet, in light of Wilson’s (2017: 27) language-specific definition of clitics as forms that are neither free words nor tightly bound morphemes, the question arises as to why she does not also categorize the past gram as a clitic. To the extent that this decision follows from the optional application of the harmony process, the wordhood issue analyzed here would show yet again that the formal classification of grams is not only complicated by diachronic gradience but also by synchronic variation.

6.1.5 South America

6.1.5.1 Apurinã

Facundes (2000: 519) reports that the gram he calls “perfective” can also function as an ‘anterior,’ the traditional label for which is “perfect.” As such, this gram would fall within the purview of this chapter. Yet, the general description suggests that this element primarily expresses aspectual functions, and since the aspectual system is poorly understood (cf. Facundes 2000: 516), it will be disregarded here. Instead, the focus will be on the future marker, which is the only overt tense gram that Facundes (2000: 513-530) acknowledges. Crucially, this item only takes on a conditional meaning when combined with the frustrative gram (Facundes 2000: 514). Hence, it seems justifiable to conclude that the future gram itself marks tense rather than irrealis mood more generally. Since the zero-marked non-future tense extends into the realm of the immediate future (Facundes 2000: 514-515), it might be more appropriate to describe the element in question here as a remote future gram. However, its precise semantic range is not critical to the analysis, and I will therefore simply speak of a future marker throughout.

The following examples illustrate the distributional possibilities of the future gram, the relevance of which will be discussed below.
The examples show that the future marker can occur on a verb, as in (6.28a), or on a pronoun, as in (6.28b). Crucially, Facundes (2000: 138, 410-411) states that the position of the future marker has no impact on the interpretation of the overall utterance. That is, the tense gram always contributes the same ‘future’ meaning to the entire predicate, and this semantic effect justifies its classification as part of the verbal domain on the reasoning outlined elsewhere in this chapter. The future marker can also occur with word classes other than verbs and pronouns, and it is this non-selective behavior that causes Facundes (2000: 410, 420, 422, 423) to classify it as part of the group he calls “special bound formatives.” It will be recalled from the descriptions of Apurinã wordhood issues in previous chapters that this concept is essentially identical to the prototypical notion of clitics. However, the present work will of course only apply the latter label to elements that combine non-selectivity with certain types of prosodic dependence.

Facundes (2000: 122) states that the phonological word in Apurinã is defined by the possibility to pause before and after it, which largely corresponds to the parameter of free occurrence. However, this phenomenon is not discussed for the future marker in particular, and hence this parameter will not factor into the present analysis. Also, there are certain allophonic processes that delineate the phonological word (cf. Facundes 2000: 123-124), but none of them are obviously operative in the above examples. Since no allomorphy is mentioned for the future gram itself either, the parameter of phonological rules also does not apply. However, the tense marker is clearly dependent in other ways. For instance, Facundes (2000: 123) posits a bimoraic minimum for the phonological word, and while nasal vowels would count as bimoraic (cf. Facundes 2000: 101), the shape /ko/ falls short of this minimum. Hence, the future gram is dependent on the parameter of segmental structure. In addition, the phonological word is defined by primary stress on the penultimate mora (Facundes 2000: 101, 123), and the future marker falls within such a stress domain (Facundes 2000: 103-104). In the following examples, stress is marked as in the original source. While
these examples are not glossed in the grammar, they are explicitly described as containing the future marker.

(6.29) (a) \[ni\_ta\_ka\_ri\_ko\]  
‘I will put/plant it.’

(b) \[.ni\_ta\_ka\_pe\_ri\_ko\]  
‘I will have put/planted it.’

(Facundes 2000: 103)

The location of the primary stress in both (6.29a) and (6.29b) can only be explained if the future marker accounts for the final mora of the phonological word. Given this integration into the stress domain of its host, the future gram is also dependent on the parameter of prosodic features, which in turn justifies its categorization as a clitic.

Given that clitics are not usually considered inflectional elements, and since the non-future value in Apurinã is formally unmarked, traditional analyses might arrive at the conclusion that the language does not have a tense system. Yet, even more so than in the similar case described for Lao above, there is a straightforward functional division between the future and the non-future, and the marker of the former shows several formal properties that align it with inflectional affixes. Hence, the Apurinã future gram suggests that phonological details may ultimately also impact morphological and semantic analyses.

6.1.5.2 Guna

Smith (2014: 97) claims that Guna does not have tense markers. However, while he convincingly shows that the perfective gram does not express past tense (Smith 2014: 102-104), he does not provide an analogous account for the so-called “prospective” marker, which he also considers an exponent of aspect rather than tense (Smith 2014: 99, 106). The functional description Smith (2014: 106) provides for the latter item is that it marks “the beginning of an event and anticipates its continued relevance.” Yet, there are reasons to question this analysis. Specifically, the alleged aspect marker is sometimes glossed and even labeled as a future gram and consistently translated as such (cf. Smith 2014: 68, 106-110). Furthermore, Quesada (1999: 222) and Adelaar & Muysken (2004: 64) both state that Guna has a tense system, and Newbold (2013) explicitly refers to the element in question as a future gram. On the basis of these facts, I will consider the “prospective” a marker of future
The following examples show that the future marker can occur in different locations within certain constructions without causing a difference in the resulting semantics. The relevant details will be discussed below.

(6.30) (a)  dak=o=sunna  
           see=PROS=truly  
       ‘will truly see’  

(b)  dak=sunn=oe  
       see=truly=PROS  

Adelaar & Muysken (2004: 63-64) describe a wide-ranging process of morpheme- or word-final vowel deletion for Guna. However, their examples predominantly show the deletion of word-internal vowels and the retention of word-final ones. Such a principle would also seem to account for the variation of the morphemes in (6.30) provided that the relevant word unit is the phonological word including the elements glossed as clitics. To the extent that this analysis is accurate, the future marker would then show phonological allomorphy and therefore be dependent on the parameter of phonological rules. In addition, while stress in Guna is predictably on the penultimate syllable (Wetzels & Meira 2010: 340; Smith 2014: 48), it never falls on the future marker and instead manifests itself on the antepenult when the future gram constitutes the penult (Newbold 2013: 196 fn. 17).\(^6\) It follows that the stress in (6.30b), which should be on the antepenult /u/, can only be accounted for if the future marker is integrated into the phonological word. If it were not, the /u/ would constitute the word-final syllable nucleus, and primary stress in that location would be anomalous. On that assumption, the future marker is also dependent on the parameter of prosodic features. Finally, a phonological word in Guna is minimally bimoraic (Smith 2014: 43), and while the full form of the future marker does consist of two vowels (Newbold 2013: 196 fn. 17), the variant in (6.30a) shows that it may fall below that threshold. Therefore, the future gram is also dependent on the parameter of segmental structure.

This considerable degree of prosodic dependence contrasts with the syntagmatic

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\(^6\) Recall that Newbold (2013) is assigned page numbers in the table of contents but that these are not reproduced in the actual article. Hence, the page numbers given here are extrapolated from the page range provided in the table of contents.
freedom of the future gram. Smith (2014: 107) states that it usually occurs immediately after the verb root, but as (6.30b) shows, it can also follow elements belonging to the category of adverbs, such as *sunna* (cf. Smith 2014: 108). Crucially, adverbs are defined as a separate word class whose members are limited to VP-internal occurrences (Smith 2014: 71). Hence, both the regular postverbal position of the future marker and its less frequent post-adverbial location mark it as a member of the verbal domain. Overall, though, the future gram has a non-selective distribution, and given its prosodic behavior, it is a prototypical clitic. However, note that while Smith (2014: 106) labels it accordingly, he classifies all verbal grams, including the future marker, as suffixes elsewhere in the grammar (cf. Smith 2014: 69).

Finally, it should be pointed out that the present wordhood issue might lead to a different analysis if another source were taken as the descriptive basis. Specifically, Newbold (2013: 197-198) claims that both the future marker and the element *sunna* are verbal suffixes and that they can occur in either order with respect to each other. On the assumption that Newbold (2013) also considers both of the orders to be semantically equivalent, as in (6.30), that analysis would then force the conclusion that the tense marker is free on the parameter of fixed order rather than non-selectivity. While this would also characterize the future gram as an item that is more prosodically than syntagmatically dependent, the involvement of the parameter of fixed order would critically bear on Hypothesis 3. However, an informed treatment of this issue would require a more substantive description of the modal/adverbial class to which *sunna* belongs. The reason I follow Smith (2014) here is that his brief illustration of adverbs suggests that they are not limited to postverbal occurrence (cf. Smith 2014: 71), from which it would follow that they are not verbal suffixes either.

6.1.5.3 Jarawara

Dixon (1999: 301-302, 2003: 126, 131, 2004: 89) classifies the Jarawara grams that cumulate tense and evidentiality meanings as suffixes. Yet, as discussed in the relevant section of Chapter 4, Dixon (2004) does not consider non-selectivity a relevant criterion to distinguish affixes and clitics. This methodological difference is the reason why the present analysis will deviate from the one that Dixon (2004) himself proposes. In the following, I will limit myself to a discussion of the marker that expresses ‘recent past/eyewitness
evidentiality’ because that is the gram for which the most illustrative examples exist. However, most of what is argued here would seem to apply to several other members of the paradigm as well.

The following example shows the relevant gram occurring within a verb. As can be gleaned from the gloss, the members of this paradigm encode gender in addition to tense and evidentiality. Yet, while the examples given here will focus on the masculine forms, this choice has no bearing on the overall analysis.

(6.31) o-kabe-ri-ka
1SG-eat-REC.PST.VISL.M-DECL.M

‘I ate it.’ (Dixon 2004: 208)

The allomorph of the past gram in the above example is conditioned by its position within the phonological word. Specifically, all tense grams have allomorphs with an initial /hV/ syllable (cf. Dixon 2004: 197), but this syllable does not manifest itself when it is unstressed and follows /e/, /o/, or /i/ (Dixon 2004: 50). Hence, the relevant syllable /hi/ is absent from (6.31) because it would have followed an /e/ and accounted for the antepenultimate mora, whereas stress falls on the penultimate mora and on every other mora before that (Dixon 2004: 27). This omission clearly shows that the tense marker is integrated into a larger phonological word for the purposes of stress assignment, and it is thus dependent on the parameter of prosodic features. In addition, given that a phonological word minimally consists of two moras (Dixon 2004: 29), the monomoraic allomorph seen above is also dependent on the parameter of segmental structure. Finally, in light of the fact that the allomorphic pattern outlined here is phonologically conditioned, the past gram would also appear to be dependent on the parameter of phonological rules. However, this issue is more complex and will be discussed further below.

While the above-mentioned facts support Dixon’s (2004) affix analysis, the tense grams pose a wordhood issue as defined here because many of them can also attach to NPs. Crucially, Dixon (2004: 306) states that the tense markers “primarily” occur in the predicate and have a “limited” distribution with NPs. This justifies their classification as part of the verbal domain, as does the fact that their meaning scopes over the entire predicate even when
they occur on an NP. The tense grams can appear with NPs in different syntactic functions (Dixon 2004: 307), but the following examples only show them in copular constructions. The constituent brackets in (6.33) are taken over from the source.

(6.32) Wakari-ri-ka

PN-REC.PST.VISL.M-DECL.M

‘It was (a man called) Wakari.’

(Dixon 2004: 307)

(6.33) [mee kaa awi ino]-ri ama-ka maone

3NSG POSS tapir name-REC.PST.VISL.M be-DECL.M PN

‘Their name for tapir (literally: their tapir name) was ‘Maone.’

(Dixon 2004: 308)

The aforementioned /hV/-initial allomorphs of the tense markers never occur after NPs (Dixon 2004: 306), and the tense grams are subsequently not dependent on the parameter of phonological rules in that syntactic context. Due to this complication, I will disregard this parameter in the present analysis.

In sum, then, the recent past eyewitness marker is non-selective but dependent on the parameters of prosodic features and segmental structure. This combination of properties suggests that it is a prototypical clitic. However, if so, the tense clitic would appear to be followed by the declarative mood suffix in both (6.31) and (6.32), which would violate the traditional assumption that clitics occur further from the root than affixes. Yet, given that Dixon (2004) categorizes elements as affixes even when they are non-selective, the declarative mood marker might itself emerge as a clitic on the definition used in the present work. Since this issue does not impact the analysis of the tense gram, though, it will not be further investigated here.

6.1.5.4 Kukama-Kukamiria

TAM distinctions in Kukama-Kukamiria are marked by a variety of exponents, but only a small subset of this inventory will be of interest here. Specifically, the auxiliary verbs express aspectual rather than tense functions (Vallejos 2016: 366-367), and the aspectual suffixes exhibit neither the formal nor the semantic properties at issue in the present chapter.
Furthermore, while modal meanings are expressed by clitics, the relevant functions also do not fall within the domain of tense (cf. Vallejos 2016: 399-422). This leaves the tense clitics, which split into three markers of past tense values and two grams expressing future tense values (Vallejos 2016: 388-399). However, most of these markers bear stress (Vallejos 2016: 65-66, 389, 392, 397), which is the primary criterion of wordhood in the language (Vallejos 2016: 62, 83), and this supports Vallejos’ (2016: 365) suggestion that these tense markers might be auxiliaries instead. Another factor that narrows the range of tense grams that can be analyzed here is that some members of the paradigm are highly infrequent (cf. Vallejos 2016: 389). Since the present analysis requires the exemplification of the relevant gram in different syntactic contexts, this essentially necessitates a focus on the more frequent tense markers.

Given the above caveats, the most compelling case of a wordhood issue can be made for the immediate future marker, which will subsequently be the only tense gram analyzed here. This element expresses “events that will take place right after the moment of the utterance,” and it “implies relative certainty” (Vallejos 2016: 389). This makes it a clear-cut deictic marker that furthermore crucially lacks the irrealis connotations of the remote future gram (cf. Vallejos 2016: 398). While Vallejos (2016: 377, 389) highlights that the immediate future marker is polysemous and sometimes difficult to distinguish from its non-temporal functions, no such ambiguity seems to arise in the examples chosen below.

Vallejos (2016: 92, 98, 100) relies on the prototypical definition of clitics, according to which they are prosodically dependent but not tied to hosts from a specific syntactic category. The reason the tense markers are classified as clitics is that they appear at the end of the VP, which typically has the internal order VO. It follows from this distribution that the tense grams are part of the verbal domain and that they are preceded by verbs in intransitive constructions but by object nouns in transitive clauses (Vallejos 2016: 388). The following examples illustrate these two syntactic contexts for the immediate future marker.

(6.34) iki=a=kɑ t=umanu=utsu
\quad this=LOC 1SG.MS=die=FUT

‘Here I will die.’ (Vallejos 2016: 395)
The focus marker in (6.35) can occur with multiple word classes itself (Vallejos 2016: 192), but since it is not a verb, the above examples demonstrate that the tense marker is non-selective in any case. While its syntagmatic behavior is therefore that of a clitic, its prosodic properties are somewhat more difficult to gauge. As mentioned above, the primary criterion for the word in Kukama-Kukamiria is primary stress, which canonically falls on the penultimate syllable (Vallejos 2016: 62). Hence, even though the future marker in question is not among the tense grams that bear inherent stress, it should be stressed in both of the above examples given that it accounts for the penultimate syllable of the respective phonological words. To the extent that this analysis is accurate, the future marker would then be dependent on the parameter of prosodic features. By contrast, its disyllabic shape does not render it dependent on the parameter of segmental structure because the minimal phonological word is monosyllabic (Vallejos 2016: 60).

Finally, Vallejos (2016: 67-70) also describes two phonological processes that occur in word-internal environments and whose effects can be seen in the above examples. One process leads to the coalescence of two adjacent identical vowels, which would seem to affect the future marker and the preceding verb root in (6.34). Vallejos (2016: 70) explicitly demonstrates how this process manifests itself with one of the past tense markers, and on the assumption that the future gram behaves identically, it is then dependent on the parameter of phonological rules. Similarly, the basic shape of the focus marker is pura (Vallejos 2016: 557), and the fact that it occurs without its final vowel in (6.35) is due to the second process relevant here, which deletes morpheme-final /a/ if the next morpheme is vowel-initial (Vallejos 2016: 67-69). This also shows that the future marker is dependent on the parameter of phonological rules, and given its phrasal distribution, it is therefore indeed a prototypical clitic.
6.2 INTERIM SUMMARY

Table 6.1 provides an overview of the wordhood issues discussed in this chapter. It follows the format established for the corresponding tables in the preceding chapters. Some of the major insights that emerge from the data displayed in the table will be discussed below.

Table 6.1. Overview of wordhood issues: Tense.

<table>
<thead>
<tr>
<th>Macro-area</th>
<th>Language</th>
<th>Description and form</th>
<th>Summary</th>
<th>Dependence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa (5)</td>
<td>Fur</td>
<td>Clitic = ƞ (pre-/post-V)</td>
<td>Non-selective but dependent in terms of tone assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Gumuz</td>
<td>Clitic = nỳgàn (post-V)</td>
<td>Syntagmatically dependent, but independent in terms of phonotactic constraints (segmental structure)</td>
<td>S &gt; P</td>
</tr>
<tr>
<td></td>
<td>Ik</td>
<td>Clitic = bee/bee (post-V/N)</td>
<td>Non-selective but dependent in terms of vowel harmony (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Ma’di</td>
<td>Affix {L tone} (pre-V)</td>
<td>Non-selective but dependent in terms of free occurrence and allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Tommo So</td>
<td>Word, clitic =be (post-V/PRN)</td>
<td>Non-selective but dependent in terms of free occurrence, sub-minimal size (segmental structure), and tone assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>Eurasia (3)</td>
<td>Kharia</td>
<td>Clitic = (y)oʔ (post-V/v2)</td>
<td>Non-selective but dependent in terms of allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Lao</td>
<td>Clitic, word</td>
<td>Non-selective but dependent in terms of phonological rules</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>Macro-area</td>
<td>Language</td>
<td>Description and form</td>
<td>Summary</td>
<td>Dependence</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>----------------------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td></td>
<td>si∅</td>
<td>(pre-V)</td>
<td>terms of sub-minimal size (segmental structure) and tone assignment (prosodic features)</td>
<td></td>
</tr>
<tr>
<td>Xong</td>
<td>Word lah</td>
<td>(clause-final)</td>
<td>Non-selective but dependent in terms of tone assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>North America (2)</td>
<td>Huave</td>
<td>Word, clitic l(a)= (pre-V)</td>
<td>Non-selective but dependent in terms of stress assignment (prosodic features), and allomorphy (phonological rules)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Lillooet</td>
<td>Clitic =tuʔ (post-V/clitic)</td>
<td>Non-selective but dependent in terms of stress assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>Oceania (2)</td>
<td>Komnzo</td>
<td>Clitic n(δ)= (pre-V)</td>
<td>Syntagmatically dependent, but free in terms of stress assignment (prosodic features)</td>
<td>S &gt; P</td>
</tr>
<tr>
<td></td>
<td>Yeri</td>
<td>Word la (pre-V/N)</td>
<td>Non-selective but dependent in terms of vowel harmony (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>South America (4)</td>
<td>Apurinã</td>
<td>Formative -ko (post-V/PRN)</td>
<td>Non-selective but dependent in terms of sub-minimal size (segmental structure) and stress assignment (prosodic features)</td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Guna</td>
<td>Affix, clitic =oe (post-V/ADV)</td>
<td>Non-selective but dependent in terms of sub-minimal size (segmental structure), stress assignment (prosodic features), and allomorphy (phonological</td>
<td>P &gt; S</td>
</tr>
<tr>
<td>Macro-area</td>
<td>Language</td>
<td>Description and form</td>
<td>Summary</td>
<td>Dependence</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>----------------------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>Jarawara</td>
<td>Affix -ri (post-V/NP)</td>
<td>Non-selective but dependent in terms of sub-minimal size (segmental structure) and stress assignment (prosodic features)</td>
<td>P &gt; S</td>
<td></td>
</tr>
<tr>
<td>Kukama-Kukamiria</td>
<td>Clitic =utsu (post-VP)</td>
<td>Non-selective but dependent in terms of stress assignment (prosodic features) and allomorphy (phonological rules)</td>
<td>P &gt; S</td>
<td></td>
</tr>
</tbody>
</table>

**6.2.1 Analysis**

The category of tense produced 16 wordhood issues and thus three fewer than the category of indexation. Overall, then, the verbal and the nominal domain account for almost the same number of wordhood issues (35 vs. 37), but whereas those in the verbal domain distribute roughly evenly across the two categories (19 vs. 16), those in the nominal domain show a major discrepancy in this regard (29 case markers vs. 8 definiteness grams). As mentioned in the relevant chapters, this can largely be attributed to the fact that definiteness is an infrequent category and its exponents often do not form paradigms, while adpositions are commonly part of comparatively large classes and furthermore approach the status of a language universal.

Unlike the indexation data, however, the wordhood issues involving tense markers are very homogeneous. That is, while there are two anti-clitics in Table 6.1, the remaining 14 grams are all characterized by some kind of prosodic dependence in conjunction with non-selectivity. Put differently, the parameters of fixed order, cohesiveness, and conventionalized meaning do not bear on the behavior of the tense markers at all, and this degree of uniformity distinguishes the latter from the exponents of the three other categories investigated here.\(^7\)

One consequence of this result is that the grams discussed in this chapter will not affect the

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\(^7\) Recall, however, that the Guna future marker has also been described as a mobile affix, which might implicate the parameter of fixed order (cf. 6.1.5.2).
assessment of Hypothesis 3, which is solely dedicated to the parameters of fixed order and cohesiveness. By contrast, the preponderance of tense grams whose degree of prosodic dependence exceeds their degree of syntagmatic dependence is generally compatible with Hypothesis 2, which predicts that this type of mismatch will emerge more frequently in wordhood issues of the verbal domain.

The insight that the tense markers are defined by a considerable degree of syntagmatic freedom is further confirmed by the fact that their location often cannot be described in terms of tight syntactic constituents. Specifically, while the non-selective nature of definiteness and case markers typically derives from their distribution with regard to the NP, and indexes are commonly restricted to the verb, some of the tense markers discussed here occur not only with verbs but also with pronouns (Apurinã, Tommo So). Furthermore, the tense grams in Xong and, to a lesser extent, Yeri and Huave do not target word- or phrase-level units but instead occur in a specific clausal position. The data presented in the preceding chapters suggest that the latter type of distribution is rather rare for grams in general. Despite the somewhat divergent behavior of the tense markers, however, the data presented in this chapter again corroborate Bybee’s (1985a) general finding that semantically less relevant grams are frequently formally ambiguous.

The number of wordhood issues analyzed in the present chapter is largely due to the fact that both future and perfect grams were considered tense markers here even though these functions are commonly argued not to fall within this grammatical category. Specifically, perfect and future markers combine for exactly half of the wordhood issues in the tense domain (8/16), and a stricter definition of this category would thus have led to a considerably smaller database. Also, while tense paradigms commonly consist of only two values, and the one subsuming the moment of speech is often formally unmarked, this low type frequency is balanced out by systems with remoteness distinctions. It was mentioned in 6.0.1 that grams expressing specific degrees of remoteness are usually comparatively recent additions to their paradigms, and the fact that they account for a large share of the wordhood issues here is therefore expected.

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8 While I will not attempt an explanation for collocations of pronouns and tense markers here, they are of course plausible origins of cumulated TAM/indexation grams (cf. 5.0.2).
As discussed in 6.0.3, previous research found that future grams tend to be more loosely bound than other tense markers. However, to the extent that this finding corresponds to the prediction that future grams should pose wordhood issues more often than exponents of other tense values, this result was not confirmed here. Specifically, the 16 elements analyzed in this chapter divide into ten markers that express past or perfect and six that express future or non-past. This distribution may of course have a probabilistic explanation. That is, if remoteness distinctions are more frequent among past tense grams than among future markers (cf. 6.0.1), the likelihood that a past tense gram will be involved in some kind of wordhood issue increases accordingly. While this leaves open the possibility that future markers pose wordhood issues relatively more often (i.e., in proportion to their type frequency), the cross-linguistic distribution of remoteness distinctions appears to be insufficiently explored, and this issue must therefore be left for future research.

As in previous chapters, there is a noticeable areal bias in the tense data. While Africa and South America account for more than half of the wordhood issues (9/16), North America and Oceania are only represented by two languages each. Yet, this pattern also seems to follow from general structural differences. That is, the African and South American languages in the sample tend to have more clear-cut tense systems to begin with, and the relevant markers are also commonly part of larger paradigms. This obviously increases the probability that tense grams from those macro-areas will show the kind of formal mismatch at issue here. However, the question of whether the present sample is representative in this regard, and the possible causes of this apparent discrepancy, will not be addressed here.

Finally, it should be pointed out that few of the tense markers described in this chapter seem to involve (erstwhile) auxiliaries. In fact, only the descriptions of Gumuz, Tommo So, and Kukama-Kukamiria explicitly invoke auxiliaries in their analyses of the relevant tense grams. The most likely reason for this is that the term “auxiliary” tends to be reserved for elements that are transparently derived from verbs and that this diachronic origin is often no longer discernible by the time those items have grammaticalized into tense markers. On that assumption, the grams discussed above do not necessarily call into question the diachronic connection between auxiliaries and tense markers. However, since the specific

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9 Note that even though I sometimes analyzed a past tense marker when a future gram from the same language would have led to the same analysis (or vice versa), these cases do not have a major impact on this count.
labels used in reference grammars do not bear on the analyses of the wordhood issues in the present work, this topic will not be pursued any further here.

6.2.2 The exponence and coherence of TAM

A comparatively large number of functions within the TAM domain are expressed by non-concatenative morphology. More precisely, TAM-marking strategies frequently produce word forms whose internal constituents do not occur successively and/or do not pair a fixed form with a fixed function. Arguably the best-known instance of the latter type is reduplication for the expression of imperfective aspects. In the present sample, some version of this phenomenon can be found in Manambu, Khwe, and Ute, among others. Reduplication clearly deviates from pure agglutination in that the form of the reduplicant is not segmentally fixed but dependent on the shape of other structures.

Yet, while reduplicants often follow straightforward phonological principles and are typically attached like affixes, the TAM domain also shows a wide array of more complex morphological patterns. Recall, for instance, that many of the relevant distinctions in Komnzo are expressed by a combination of stem allomorphy and various morphs before and after the stem, none of which necessarily have an independent function. As mentioned in 6.1.4.1, this type of morphology is an example of “distributed exponence” (cf. Caballero & Harris 2012: 170-171), and this strategy is also used for at least some TAM constructions in Tanacross and Bardi. Meanwhile, TAM marking in Fwe is even more complex because it relies on distributed exponence in combination with specific tonal contours, the latter of which cannot be assigned inherent meanings either. However, many languages in the sample encode TAM meanings via strategies that are neither distributed exponence nor straightforward affixation. For example, in Yaitepec, Dangla, Creek, Tommo So, and Arapaho, a variety of TAM functions is expressed by tonal changes, vowel lengthening, and/or by a combination of such processes with affixation. Finally, whereas Jalkunan marks aspect purely by means of stem allomorphy, Yeri encodes the difference between realis and irrealis mood through ablaut of the verbal root vowel.

While TAM markers thus seem to show a crucially larger degree of formal interaction with the stem than the exponents of the other categories discussed in this work, it must be emphasized that most of the grams referred to above mark aspe ctual or modal distinctions.
Hence, the exclusive focus on tense in the present chapter appears justified. On a more general level, though, these apparent differences between tense markers on the one hand and aspect/mood markers on the other hand reinforce the idea that TAM is not a coherent category and should be divided into several separate domains. However, given the difficulties that arise with the definitions of mood and/or modality (cf. 6.0.3), this undertaking would require a substantial semantic component, and it therefore goes beyond the scope of the present work.
7. MORPHOPHONOLOGICAL FACTORS

7.0 THE DATABASE

The preceding four chapters described 72 wordhood issues from 41 languages. Table 7.1 provides an overview of those 72 issues, sorted by macro-area, language, grammatical category, and type of dependence. With regard to the latter, I will continue to use the abbreviation “P > S” for wordhood issues defined by a larger degree of prosodic dependence than of syntagmatic dependence and the shorthand “S > P” for the reverse case. For the remainder of this work, I will also describe the relevant wordhood issues as “P > S issues” and “S > P issues,” respectively. In Table 7.1, the S > P issues are highlighted in red, whereas the P > S issues are rendered in black. Meanwhile, in the leftmost column listing the macro-areas, I also indicate how many different languages from that macro-area show a wordhood issue (L) and how many wordhood issues were found in that macro-area overall (WI). The 19 languages in the sample for which no wordhood issues were recorded are not listed in the table and will not factor into the remaining discussions unless explicitly stated otherwise.

The numbers in square brackets in the header row of the table refer to the number of wordhood issues that the respective grammatical category produced. However, this information is only provided here in the interest of completeness given that the interaction between different types of wordhood issues and different morphosyntactic domains will be the topic of the next chapter. Also, it will be recalled from Chapter 4 that several languages have multiple case markers of interest to this study. Where these case markers cause wordhood issues with respect to (a combination of) different parameters, they are counted as separate issues and also listed separately in the respective cells below. Finally, an attempt is made here to distinguish between different causes for the absence of wordhood issues in any given language. That is, a language might not have a wordhood issue in a specific grammatical category because it lacks that category entirely or because the relevant exponents of that category do not show the kind of mismatch of interest here. The relevant cells in the former case are marked by a dash, whereas those in the latter case are empty. It should be mentioned, though, that the absence of a category is only posited in the table below when the relevant descriptions are sufficiently explicit on that score. Put differently, the table will likely indicate that some languages have a category that they do not in fact have. One
consequence of this conservative approach is that the only categories that are claimed to be absent from any languages are definiteness and tense. This is because all languages in the sample appear to have some type of case marking (i.e., at least adpositions) as well as indexation strategies.

Table 7.1. Overview of wordhood issues by language, category, and type of dependence.

<table>
<thead>
<tr>
<th>Macro-area</th>
<th>Language</th>
<th>Definiteness</th>
<th>Case</th>
<th>Indexation</th>
<th>Tense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>Dangla</td>
<td></td>
<td>S &gt; P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[L = 10]</td>
<td>Fur</td>
<td>—</td>
<td>P &gt; S</td>
<td></td>
<td>P &gt; S</td>
</tr>
<tr>
<td>[WI = 15]</td>
<td>Fwe</td>
<td></td>
<td>P &gt; S</td>
<td></td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Gumuz</td>
<td>—</td>
<td></td>
<td></td>
<td>S &gt; P</td>
</tr>
<tr>
<td></td>
<td>Ik</td>
<td></td>
<td></td>
<td></td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Khwe</td>
<td></td>
<td></td>
<td></td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Koyraboro</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Senni</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Krongo</td>
<td>—</td>
<td></td>
<td></td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Ma’di</td>
<td></td>
<td></td>
<td></td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Tommo So</td>
<td>P &gt; S</td>
<td>P &gt; S</td>
<td></td>
<td>P &gt; S</td>
</tr>
<tr>
<td>Eurasia</td>
<td>Basque</td>
<td>P &gt; S</td>
<td>P &gt; S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[L = 7]</td>
<td>Chukchi</td>
<td>—</td>
<td>P &gt; S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[WI = 13]</td>
<td>Georgian</td>
<td></td>
<td>P &gt; S</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kharia</td>
<td></td>
<td>P &gt; S</td>
<td></td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Kokota</td>
<td>P &gt; S</td>
<td>P &gt; S</td>
<td></td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Lao</td>
<td>P &gt; S</td>
<td></td>
<td></td>
<td>P &gt; S</td>
</tr>
<tr>
<td></td>
<td>Xong</td>
<td></td>
<td></td>
<td></td>
<td>P &gt; S</td>
</tr>
<tr>
<td>North</td>
<td>Creek</td>
<td>S &gt; P</td>
<td>P &gt; S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>America</td>
<td>Huave</td>
<td></td>
<td></td>
<td></td>
<td>P &gt; S</td>
</tr>
<tr>
<td>[L = 9]</td>
<td>Inupiaq</td>
<td>—</td>
<td>P &gt; S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[WI = 14]</td>
<td>Itzaj</td>
<td>P &gt; S</td>
<td></td>
<td></td>
<td>P &gt; S</td>
</tr>
</tbody>
</table>
The most salient result that emerges from the table, and thus from the present work overall, is that P > S issues vastly outnumber S > P issues. Specifically, of the 72 wordhood issues displayed above, 63 are of the former type, and only nine are of the latter kind. This corresponds to a ratio of 7:1. Moreover, it is noteworthy that there are many languages with
multiple \( P > S \) issues but no languages with multiple \( S > P \) issues. Finally, while the quantitative difference between the two types of dependence is particularly stark in the domain of case markers, \( P > S \) issues would still be more than four times as frequent as \( S > P \) issues (35 vs. 8) if case markers were excluded from the above database. All of these facts suggest that \( P > S \) issues are the default scenario in the realm of wordhood mismatches. On the assumption that wordhood issues are a by-product of grammaticalization trajectories, the numerical discrepancy between \( P > S \) issues and \( S > P \) issues obviously has considerable implications for diachronic theories. These will be spelled out in detail in the next chapter.

However, it needs to be emphasized that this result does not readily translate into the conclusion that clitics are the cross-linguistically dominant type of wordhood issue. This is because the \( P > S \) issues also subsume the elements that I classified here as mobile affixes, suspended affixes, and particles, respectively (cf. 2.4; 3.2.2). These three classes all differ from clitics in terms of their syntagmatic or prosodic behavior. In addition, the items that are only morphological words on the parameter of conventionalized meaning but show some type of prosodic dependence also account for a share of the \( P > S \) issues. While no label was suggested for those grams here, they are clearly not clitics either.

Another fact that can be gleaned from the table is that the five macro-areas make up rather different proportions of both the languages and the wordhood issues in the database. For instance, while Africa is represented by 10 languages, wordhood issues were only found in six of the languages from Oceania. Furthermore, the latter area accounts for 11 wordhood issues, whereas the South American languages produce a total of 19. However, it should be underlined that this outcome is most likely an artifact of descriptive foci rather than a reflection of actual structural differences. That is, on average, the grammars of the South American languages in the sample provide more detailed discussions of wordhood than do the grammars of the languages from Oceania, and the above results naturally fall out from this imbalance.

Finally, while the representation of the Eurasian macro-area in the database is also relatively scarce, the relevant patterns differ from those seen in Oceania. Most crucially, the latter area contains three \( S > P \) issues, which is the highest number of any of the five macro-areas. By contrast, Eurasia is the only macro-area that does not contain any \( S > P \) issues. Since Eurasian languages underlie most linguistic theories, this result might then partly
explain why clitics, which fall into the category of P > S issues, have been much more prominent in the literature than anti-clitics.

In section 7.1, I will analyze to what extent the above data are compatible with Hypothesis 1. Meanwhile, in section 7.2, I will discuss the role that the individual parameters of phonological wordhood play in the present database as well as the methodological and theoretical insights that follow from their respective distributions.

7.1 HYPOTHESIS 1

The only one of the hypotheses formulated in 1.4.2 that is exclusively dedicated to the role of (morpho)phonological factors is Hypothesis 1. Therefore, the latter will be discussed in this section, whereas Hypotheses 2 and 3, which predict differences between the two word class domains, will be addressed in the following chapter. Hypothesis 1 is repeated below.

Hypothesis 1:

The more fusional the morphology of a language, the more wordhood issues in that language will be characterized by the fact that the degree of prosodic dependence exceeds the degree of syntagmatic dependence. Conversely, the more agglutinating the morphology of a language, the more wordhood issues in that language will be characterized by the fact that the degree of syntagmatic dependence exceeds the degree of prosodic dependence.

Based on the terminology introduced in the previous section, Hypothesis 1 states that P > S issues should correlate with fusional morphology, whereas S > P issues should correlate with agglutinating morphology (cf. 1.3.2 for the factors that motivate this hypothesis). However, as discussed above, P > S issues clearly predominate in the database, and it therefore seems justifiable to conclude that Hypothesis 1 in the strict sense has been disproven. Put differently, the distribution of P > S issues suggests that they manifest themselves regardless of morphological typology, and the question instead becomes which factors facilitate S > P issues. Given this assumption, the present section will investigate a weaker version of the above hypothesis. Specifically, it will analyze whether the languages in which S > P issues are found can reasonably be classified as agglutinating. To the extent that such a
classification is defensible, agglutination would then be a necessary but presumably not a sufficient condition for the existence of S > P issues.

As mentioned in the preceding section, the nine S > P issues in the database come from nine different languages. These nine languages divide into two sub-classes. On the one hand, there are languages that have a single wordhood issue, which is of the S > P type. On the other hand, there are languages that have an S > P issue in addition to at least one P > S issue. For the remainder of this chapter, I will refer to the former class as “pure S > P languages” and to the latter class as “split S > P languages.” Recall from 1.3.2 that the classification of a morphological system as agglutinating will rely on two factors here. The first one is the predictability of segmental interactions at morpheme boundaries, and the second one is the regularity with which the system of prosodic prominence (i.e., stress, tone, or any combination thereof) applies. The following two sub-sections will discuss these properties for the pure S > P and the split S > P languages, respectively. Section 7.1.3 will then provide a final assessment of Hypothesis 1.

7.1 Pure S > P languages

7.1.1 Dangla

Štekauer et al. (2012: 13, passim) classify Dangla, which they call “Dangaléat,” as agglutinating. However, they do not provide a discussion of the phenomena that lead to this categorization, and the fact that verbal affixation is often accompanied by stem changes (cf. Shay 1999: ch. 3) casts doubt on this conclusion. More generally, the facts described by Shay (1999) suggest that the primary phonological processes in the language are morphologically conditioned. For instance, the widespread principle of morpheme-final vowel deletion in non-prepausal position is subject to a variety of lexically and morphologically specified exceptions and additionally has unpredictable tonal effects (Shay 1999: 5, 13-20, 39-40). In cases where morpheme-final vowels are retained and followed by a vowel-initial suffix, the assimilation across the two vowels is either progressive, regressive, or governed by free variation (Shay 1999: 22). Similarly, word-internal vowels may optionally delete in nouns but not in nominal suffixes (Shay 1999: 11). With regard to consonantal alternations, there are two separate processes in which alveolar sounds assimilate to the manner of articulation
of an adjacent element, but both of them are limited to a small number of morphemes (Shay 1999: 30-31). Finally, where consonants abut across morpheme boundaries, they preferably do not have the same voicing feature, but the principles by which this preference manifests itself are either lexically specified or subject to free variation (Shay 1999: 31-32).

The above list of processes is not exhaustive, but it is sufficient to suggest that the segmental morphology of Dangla is not accurately characterized as agglutinating given that the shape of many morphemes in many different contexts is unpredictable. While the discussion of the tone system in Shay (1999) is very brief, the suprasegmental patterns in the language seem to tie in with this analysis. Specifically, as discussed in 5.1.1.1, Dangla has various processes of tone spreading, which Shay (1999: 35) explicitly describes as “subject to syntactic, lexical, and morphological constraints.” Apart from the indexes mentioned in Chapter 5, different types of tone spreading also occur with the locative marker and one of the possessive grams (cf. Shay 1999: 35-38). Overall, then, the tone spreading patterns show that the suprasegmental shape of Dangla word forms is also unpredictable, not least because the morphosyntactic contexts given above do not lend themselves to a description in terms of natural classes.

Even though Shay (1999) does not classify Dangla morphophonology as agglutinating or fusional, she explicitly highlights that the degree to which phonological processes in the language are conditioned by lexical, morphological, and syntactic factors is remarkable (Shay 1999: 40). Hence, it can be concluded that Dangla is not agglutinating as defined for the purposes of this work, and as such the language provides counterevidence to the weaker version of Hypothesis 1 investigated here. The fact that Štekauer et al. (2012) nevertheless consider it agglutinating may then be due to a conflation of this concept with that of morphological synthesis (cf. also 1.3). That is, given that Dangla word forms can be internally complex but are often formally unpredictable, the morphological system is synthetic rather than agglutinating.

7.1.1.2 Gumuz

Ahland (2012) only describes a few morphophonological processes for either the northern or the southern variety. One of them concerns the epenthesis of a glottal stop at a suffix boundary, and another one involves consonant metathesis in compounds (Ahland
While the southern variety makes use of vowel epenthesis rather than metathesis (Ahland 2012: 45, 62), it is clear from the description that these processes do not apply obligatorily, and they instead appear to be the marked alternatives in the relevant environments. Meanwhile, vowels in some affixes and roots may partially or fully assimilate to adjacent vowels (Ahland 2012: 60-62), but here too, the grammar points out that the application of these processes is the exception rather than the rule.

The only morphologically conditioned suprasegmental processes described refer to different patterns of tonal downstep, one of which was also mentioned in the analysis of the wordhood issue in 6.1.1.2. The discussion in Ahland (2012: 67-70) suggests that the effects of the other two downstep processes are also largely predictable, but they at least partially depend on the morphological make-up of the relevant lexical elements and on whether the latter are nouns or verbs. Crucially, however, Ahland (2012: 67) highlights that she only discusses a subset of all the tonal processes found in the language, and the interaction between morphology and suprasegmental phonology therefore cannot be conclusively assessed here.

In sum, then, the nature of Gumuz morphophonology is fairly difficult to gauge. However, it seems noteworthy that the language is analyzed as having a rather synthetic verbal morphology, which suggests that there should be a large number of contexts in which specific morphemes could produce idiosyncratic phonological effects. Hence, to the extent that the processes sketched above are exhaustive, the system would at least approach an agglutinating status on the segmental dimension, especially because most of the morphologically induced exceptions are optional. On the other hand, though, principles of tone assignment in the other African languages in the sample are often morphologically conditioned, and it thus seems possible that the description in Ahland (2012) omits relevant facts with respect to this phenomenon in Gumuz. It will therefore be concluded here that the language neither confirms nor disconfirms the weaker version of Hypothesis 1.

7.1.1.3 Komnzo

As discussed in 6.1.4.1 and 6.2.2, the verbal morphology of Komnzo is characterized by distributed exponence. This phenomenon runs counter to traditional and more comprehensive definitions of agglutination in that morphemes are discontinuous and
therefore divide into morphs that do not have independent semantics. However, such a morphological arrangement does not necessarily undermine the narrower sense of agglutination that is of interest to the present study because the shape of the individual morphs and the stress or tone patterns in the resulting word forms may still be predictable. For instance, the analysis of the wordhood issue in 6.1.4.1 crucially relied on the presence of an epenthetic schwa, which is the most frequent vowel in the language (Döhler 2018: 57) and commonly found at morpheme boundaries. Yet, since the distribution of epenthetic schwas is fully predictable from general phonological principles (Döhler 2018: 57, 67), it does not constitute a deviation from an agglutinating pattern.

In fact, Döhler (2018: 72-75) only discusses a few truly morphophonological phenomena. One is a process of regressive vowel harmony triggered by the emphatic marker, which is further constrained by the phonological and morphological constituency of the relevant contiguous elements. A similarly restricted process occurs with certain verb stems that raise the vowel of some of the number prefixes. Finally, there are different interactions between verbal prefixes and other elements preceding the verb stem. As a consequence of these interactions, phonological approximants may be rendered as the corresponding high vowels, while /u/ may also be rendered as /w/. Even though none of the above processes are described as optional, the general reasoning outlined for Gumuz above also applies to Komnzo. That is, the verbal morphology is highly synthetic (Döhler 2018: 4), and given the options for morphophonological conditioning that such a template provides, the number of relevant processes actually described is rather low. On the assumption that the description of these processes is reasonably exhaustive, the segmental behavior of Komnzo morphemes could then be described as largely agglutinating.

In contrast to Gumuz, however, the suprasegmental behavior of Komnzo word forms is also straightforward. Specifically, primary stress falls on the first syllable of a word, and the only exception to this pattern other than the “proclitics” analyzed in 6.1.4.1 concerns partial reduplication (Döhler 2018: 71). Since the synthetic structure of Komnzo verbs usually leads to polysyllabic phonological words, the fact that stress marking is consistent to this degree further supports the idea that Komnzo morphophonology is essentially

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1 While secondary stress might be less regular, it is difficult to perceive, and its role is ultimately unclear (cf. Döhler 2018: 71-72). I will therefore omit this phenomenon from the present discussion.
agglutinating. As such, the language corroborates the weaker version of Hypothesis 1. Note again that this conclusion would only be unexpected on accounts whose definition of agglutination references semantic structure and/or issues of exponence. As argued in this sub-section, these aspects of morphological strings are not necessarily correlated with their phonological behavior.

7.1.1.4 Ute

Givón (2011: 30-31, 38-49, 54-58) states and demonstrates that Ute has a synthetic morphology, but he does not address possible morphophonological effects. By contrast, Oberly (2008: 31) claims that the language is “agglutinative with very little fusion,” and this statement clearly refers to the formal rather than to the semantic domain. However, Oberly (2008) is primarily a study of Ute phonetics and therefore does not discuss morphophonology in sufficient detail either. Furthermore, her assessment contrasts with the characterization by Caballero (2011: 489), according to which phonological processes in Uto-Aztecan languages are commonly limited to specific morphological contexts. Yet, she does not discuss any such phenomena for Ute in particular, and the one potentially relevant process she does describe for another language from the Numic branch, Southern Paiute, appears to apply both within and across morphemes (cf. Caballero 2011: 489). If so, its formal effects should be largely predictable, and it would subsequently not argue against an analysis of Ute morphology as agglutinating. Overall, though, the concrete evidence available is too scarce for the purposes of the present investigation, and the segmental behavior of Ute morphemes therefore does not bear on the evaluation of Hypothesis 1.

Unlike the segmental dimension, the stress system in the language is explicitly described by Givón (2011: 19-20). Specifically, stress can only appear on the first or second vowel of a phonological word, but the latter option is the unmarked and much more common one. Since Givón (2011: 20) further suggests that initial stress is largely limited to (lexicalized) reduplicative constructions, the stress pattern is generally predictable. While this would clearly support the status of Ute as an agglutinating system on the definition employed here, the insufficient discussion of possible segmental alternations makes Ute the mirror image of Gumuz. As in the latter case, I will therefore conclude that Ute neither confirms nor disconfirms the weaker version of Hypothesis 1.
7.1.1.5 Yimas

Foley (1991: 2, 3) explicitly classifies Yimas as highly synthetic and agglutinating, but while many of the phonological processes manifest themselves regardless of the specific morphemes involved, there are also several phenomena that are morphologically conditioned (cf. Foley: ch. 2). For instance, stems containing rounded vowels trigger roundness harmony in some adjacent vowels, but this process is subject to lexically and grammatically specified exceptions (Foley 1991: 59). In addition, there are multiple phonological processes that only occur with one or two specific morphemes (Foley 1991: 71) or that optionally apply at morpheme boundaries. The latter affect vowels as well as consonants and occur in both verbs and nouns (Foley 1991: 62, 69-71). As outlined above, a relative lack of morphophonology in synthetic languages argues for their agglutinating status. However, the description of morphophonological principles in Foley (1991) suggests that such phenomena are considerably more widespread in Yimas than they are in Gumuz or Komnzo. Hence, I will not assign the morphological system of the former language to the agglutinating end of the spectrum.

A similarly complex picture emerges with respect to the suprasegmental dimension. Primary stress falls on the first non-epenthetic vowel but always on one of the first two phonetic vowels (Foley 1991: 75-77). While the preverbal indexes discussed in 5.1.4.5 constitute the primary exception to this pattern, there is more irregularity in the assignment of secondary stress. Foley (1991: 75) states that secondary stress is generally on the third syllable in words that are longer than three syllables, but nominal number suffixes usually bear secondary stress regardless of whether they constitute the third syllable of the relevant word (cf. Foley 1991: 78-79). An even more specific process applies to adjectival verbs, whose final root vowels always bear secondary stress when they are followed by the irrealis suffix and a nominal concord marker (Foley 1991: 79). Overall, though, stress assignment is less dependent on the presence of specific morphemes than is the application of the above-mentioned segmental processes, and the suprasegmental facts are therefore at least broadly compatible with an analysis of Yimas morphophonology as an agglutinating system.

Where Gumuz and Ute do not inform the assessment of Hypothesis 1 because the description of the relevant facts is insufficient, Yimas fails to shed light on the present
question because the structural phenomena at issue cannot be neatly categorized. This may explain why Bauer (2007: 364) simply classifies Yimas as polysynthetic; this label does not distinguish between fusional and agglutinating morphophonology (cf. Bauer 2007: 225). Ultimately, then, the language might challenge Comrie’s (1989: 46, 49) claim that a high degree of synthesis should be complemented by a low degree of fusion, but I will leave a substantive investigation of this correlation for further research.

7.1.2 Split S > P languages

7.1.2.1 Apurinã

Facundes (2000: 52) explicitly categorizes Apurinã as polysynthetic and agglutinating, and he highlights that the language has a limited number of morphophonological processes. In fact, such processes are only described in detail for the indexes and possessive grams, while the vast majority of allomorphs for other markers is predictable from general phonological principles (cf. Facundes 2000: 139-148). In addition to the indexes, though, idiosyncratic patterns also occur with at least three /i/-initial suffixes, which anomalously trigger the deletion of a preceding vowel (cf. Facundes 2000: 242, 250), and with some of the vowel-final attributive markers, which delete their nucleus before vowel-initial stems (Facundes 2000: 335, 337). Lastly, the final stem vowel of certain semantically defined sub-classes of nouns nasalizes when they are followed by a suffix which marks that they are unpossessed (Facundes 2000: 155-159). Overall, then, the segmental behavior of Apurinã morphemes is somewhat inconclusive. However, since both the number and the range of morphophonological processes are much narrower than in Yimas, for instance, the system can be classified as largely agglutinating.

As discussed in the analyses of the relevant wordhood issues in Chapters 4-6, primary stress in the language falls on the penultimate mora, and secondary stress is on every other mora before that (Facundes 2000: 92, 95, 100, 102 fn. 8). While no systematic exceptions to these patterns are described, Facundes (2000: 107-112) shows that stress assignment is subject to idiolectal variation with some speakers and some word forms. Given that these deviations constitute a very limited pattern, though, Apurinã stress will be classified as predictable here.
In sum, both the segmental and suprasegmental facts from Apurinã suggest that the morphology of the language can justifiably be categorized as agglutinating. This result clearly violates the strong version of Hypothesis 1. That is, if the posited correlation between S > P issues and agglutinating morphology were robust, split S > P languages like Apurinã should be less agglutinating than pure S > P languages like Dangla or Yimas. Yet, the above discussions strongly suggest that this relationship does not hold. This issue will be addressed in more detail in 7.1.3.

7.1.2.2 Creek

As briefly mentioned in 6.2.2, segmental and suprasegmental morphophonology are closely linked in Creek due to the existence of different verb grades, many of which express tense-aspect distinctions via a combination of affixal and prosodic means. However, there are also phenomena that bear exclusively on the segmental dimension. For instance, Martin (2011: 65-68) describes a range of grams whose shape reduces in certain morphological and/or lexical contexts, and the latter cannot be captured by a general principle. In addition to these processes, the first-person singular agentive prefix has a special allomorph when preceding the negator (Martin 2011: 169-170), and /a/-initial verbs delete this vowel when preceded by the patient prefixes (Martin 2011: 170-171). While the orthographic representation of many other Creek forms in Martin (2011) indicates that they are also subject to formal variation, the topic of allomorphy is not explicitly discussed in the grammar, and it is therefore unclear to what extent this variation is based on general phonological principles (cf. also 4.1.3.1). Overall, then, the question of whether Creek morphemes show the behavior expected of an agglutinating system cannot be satisfactorily answered here.

By contrast, the suprasegmental facts are more straightforward. Creek nouns are divided into feet, and the last syllable of the last foot bears primary stress (Martin 2011: 76). However, several nouns and nominal affixes have or trigger different stress patterns, and in addition there are extrametrical postnominal elements such as the definiteness marker analyzed in Chapter 3 (cf. Martin 2011: 80-82). While Martin (2011: 100) distinguishes between stress and tone, both phenomena are manifested by pitch, and the difference essentially reduces to the fact that tone is limited to the above-mentioned verb grades (Martin
2011: 75). With regard to the latter, there is also a considerable degree of morphological conditioning in that some suffixes fall within the domain of tone assignment while other suffixes do not (Martin 2011: 96). Ultimately, the different patterns for the two word class domains and the large number of morphologically determined exceptions to those patterns make Creek the most suprasegmentally complex language discussed here. Therefore, it clearly violates this component of an agglutinating system as defined in the present work.

Even though the information on allomorphic patterns in Martin (2011) is limited, the facts described above strongly suggest that Creek morphology cannot plausibly be classified as agglutinating. On the one hand, this is compatible with the fact that it is a split S > P language. On the other hand, though, this conclusion seems to contradict the statements by Booker (2009: 264), who describes Creek as “largely agglutinating,” and by Fitzgerald (2016: 682, 683), who characterizes Muskogean verb morphology in general as agglutinating. Both of these classifications are remarkable because the respective authors also highlight the wide range of morphological strategies found in the language(s), the very existence of which conflicts with traditional definitions of agglutination. However, it is clear from the discussion in Fitzgerald (2016) that this apparent discrepancy comes about because the term “agglutinating” is used in the sense of “synthetic.” Since both Creek verbs and nouns are part of complex templates (cf. Martin 2011: 24, 26), the morphology of the language is indeed highly synthetic. Yet, as shown with Dangla and Yimas above, agglutination and synthesis do not necessarily coincide, and the corresponding terms should therefore be strictly distinguished.

7.1.2.3 Kotiria

Stenzel (2013: 76) explicitly describes Kotiria as polysynthetic and agglutinating, and she highlights elsewhere that the segmental phonology is relatively simple while the suprasegmental dimension is relatively complex (cf. Stenzel 2013: 22). With respect to the segmental level, the analysis of the system as agglutinating seems straightforward. For instance, Stenzel (2013: 37-38) discusses a previous proposal, according to which Kotiria has vowel backness harmony between roots and some suffixes. However, she explicitly states

2 Broadwell (2020: 399) concurs that prosodic prominence differs for verbs and nouns in Muskogean languages, but he describes the system as one of pitch accent.
that the contemporary language does not offer sufficient evidence to posit even such a low-level pattern. Beyond that, she only discusses one morphologically conditioned phonological process, which involves the fusion of identical vowels across morpheme boundaries (Stenzel 2013: 69-70). While this might also be described as a process that deletes one of the two identical vowels in the relevant environment, this is immaterial to the present concern.

The characterization of the suprasegmental phonology as complex primarily derives from the fact that, in addition to prosodic prominence, the language also has a process of nasal spreading (cf. also 4.1.5.7) and a process of glottalization, the latter of which is limited to a subset of root morphemes (cf. Stenzel 2013: 70). Yet, given the definition of agglutination adopted in this work, the latter two phenomena do not bear on the present investigation, and the focus here will only be on the system of prosodic prominence. While it is unclear whether this system is best described as one based on pitch accent or tone (Stenzel 2013: 48-49), its effects on the phonological word are largely predictable. Specifically, the lexically inherent tonal contour of the (initial) root is mapped onto the remaining phonological word, and the only exceptional element with respect to this process appears to be the negator (Stenzel 2013: 52-53). In light of the fact that both verbs and nouns in the language are indeed highly synthetic (cf. Stenzel 2013: 152, 245), this suprasegmental uniformity is an indicator of agglutination for the reasons outlined above. Since the prominence patterns thus converge with those in the segmental realm, Kotiria is the most clear-cut agglutinating language discussed so far. As such, it poses a problem for the strong version of Hypothesis 1, which states that prototypical agglutination should not produce the kind of P > S issues that the language also has. A more general account of the extent to which Morphological Typology can inform the empirical patterns found here will be mentioned in section 7.1.3.

### 7.1.2.4 Mauwake

Berghäll (2015: 17) describes the verbal morphology of the language as agglutinating, and she furthermore states that “there is very little morphophonology” (Berghäll 2015: 16). Among the morphophonological phenomena actually found are several lexically specified reduplication patterns as well as a process that deletes morpheme-final /a/ in a variety of contexts (Berghäll 2015: 44-46). In addition, the vowel quality of some of the past tense and
medial verb suffixes, which is usually predictable, does not follow from a phonological rule in a considerable number of cases (cf. Berghäll 2015: 49). Meanwhile, in the consonantal domain, the coda of the inchoative suffix is partly lexically conditioned, whereas the onset of the completive marker depends on the shape of a preceding medial verb suffix (Berghäll 2015: 50).

While the range of processes outlined above seems to call into question whether the segmental manifestation of the morphology is truly agglutinating, it needs to be highlighted that the verbal system is highly synthetic. In fact, the templates provided by Berghäll (2015: 131-132) illustrate that Mauwake verbs can bear a large number of affixes even when they are imperative or medial forms. This is significant in that such types of verbal forms tend to have a lower inflectional potential than finite indicative verbs cross-linguistically. In light of this, the number of morphophonological processes in the language is relatively low, and Mauwake morphology can therefore be classified as agglutinating on the segmental dimension.

The suprasegmental system is similarly straightforward. As discussed in the analyses of the relevant wordhood issues in Chapters 4 and 5, primary stress falls on the second vowel of the phonological word, the latter of which includes all affixes but excludes clitics, which are extrametrical (Berghäll 2015: 42). Furthermore, secondary stress is only marked in compounds and reduplications, and its assignment follows purely phonological principles (Berghäll 2015: 42-43). Absent information regarding how many extrametrical clitics there are in the language, the suprasegmental behavior of Mauwake word forms thus seems largely compatible with an agglutinating system. Given this analysis, however, Mauwake emerges as yet another split S > P language that seems to be closer to the agglutinating prototype than most of the pure S > P languages. The overall assessment of Hypothesis 1 in the following sub-section will elaborate on this finding as well as on other salient insights that follow from the analyses presented above.

7.1.3 Evaluation

The previous two sub-sections confirm that agglutinating morphology is a gradient phenomenon (cf. 1.3.1 for references and discussion). As such, it does not lend itself to a rigid operationalization, which in turn complicates its application in empirical investigations
such as the present one. In fact, the above analyses are particularly instructive in this regard. That is, even though the definition of agglutination employed in this work only relies on two basic structural properties, several grammars do not contain sufficient information to determine the morphological type of the relevant language. This suggests that a cross-linguistic study that includes additional potentially relevant indicators of agglutination (e.g., syllable and semantic structure) would lead to an even less clear-cut result than the one arrived at here.

Against the background of these issues, the nine languages discussed above can be divided into several sub-groups. While Komnzo, Apurinã, Kotiria, and Mauwake are plausibly classified as agglutinating given the information in the grammars, this does not hold for Dangla and Yimas. Meanwhile, Gumuz, Ute, and Creek are the aforementioned languages for which the crucial information could not be sufficiently retrieved, and therefore they cannot be assigned to either of these sub-classes. Overall, though, this pattern shows that neither the strong nor the weak version of Hypothesis 1 holds. The strong version fails because three of the four reasonably agglutinating languages are of the split S > P rather than of the pure S > P type. As mentioned in the relevant places above, though, Hypothesis 1 as originally formulated predicts a linear relationship between the degree of agglutination and the different types of dependence. Hence, the pure S > P languages should have been more obvious representatives of agglutinating morphology than the split S > P languages. By contrast, the weaker version of Hypothesis 1, according to which all languages with S > P issues should fall toward the agglutinating end of the spectrum, is disconfirmed by Yimas and particularly by Dangla. Therefore, the general conclusion to be drawn from this section is that the concept of agglutinating morphology does not inform the distribution of S > P issues in the present database.\(^3\)

Another result obtained from the above case studies is that the degree of agglutination does not seem to correlate with a specific type of prosodic prominence. That is, while the nine languages distribute evenly into those that are stated to have stress (Komnzo, Ute,

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\(^3\) Recall from 1.3.2 that I essentially equate agglutinating morphology with mora-/syllable-timed “rhythm.” Hence, it might also be concluded that rhythm does not explain the distribution of S > P issues. However, since rhythm is understood as a combination of phonological properties in this work, it remains possible that a traditional phonetic approach to this subject might enlighten the patterns obtained here. Given the lack of acoustic information in most grammars, however, such a project is beyond the scope of this study.
Yimas, Apurinã, Mauwake) and those that are argued to have tone and/or pitch accent (Dangla, Gumuz, Creek, Kotiria), neither group associates with more agglutinating or more fusional morphology. For instance, the two least agglutinating languages, Dangla and Yimas, differ in their respective systems of prominence, as do Komnzo and Kotiria, two of the most clearly agglutinating ones. Furthermore, it cannot be claimed on the basis of these nine languages that stress assignment is generally more regular than tone/pitch assignment or vice versa. Where Ute and Kotiria have fairly regular stress and tone/pitch systems, respectively, Yimas has rather irregular stress, and Creek has rather irregular tone/pitch. It follows from this distribution that studies of Ute and Creek morphophonology might shed light on the extent to which different suprasegmental systems impact the segmental manifestation of morphemes (cf. Bybee et al. 1998).

Finally, while the concept of agglutination cannot explain the existence of S > P issues, the analyses provided in the above sub-sections suggest that the nine languages instead behave alike with respect to the other structural dimension on which traditional Morphological Typology rests. Specifically, they all have a highly synthetic morphology. The relevance and explanatory potential of this fact will be addressed as part of the larger diachronic discussion provided in the next chapter.

7.2 THE PARAMETERS OF PHONOLOGICAL WORDHOOD

This section will discuss the relative contribution of the four parameters of phonological wordhood to the 72 wordhood issues in the database. In doing so, it will highlight both conceptual problems and empirical complications that arise with the different parameters. In 7.2.5, I will then suggest a more workable set of criteria for cross-linguistic studies of the phonological word. Finally, while the present section will elaborate on the interaction between different parameters of phonological wordhood, possible correlations of the latter with the parameters of morphological wordhood will be discussed in the next chapter.

7.2.1 Free occurrence

Table 7.2 gives an overview of the number and kinds of wordhood issues that involve the parameter of free occurrence. Relevant conclusions that emerge from the table will be
discussed in detail below. Note that wordhood issues that reference multiple parameters of phonological wordhood will be included in the tables for all the relevant parameters. Hence, the sum total of wordhood issues across the four tables provided in this section exceeds 72.

Table 7.2. Distribution of the parameter of free occurrence in the database.

<table>
<thead>
<tr>
<th>Combination of parameters</th>
<th>$P &gt; S$ issues</th>
<th>$S &gt; P$ issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Occurrence + Phonological rules + Prosodic Features +</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Segmental Structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free Occurrence + Prosodic Features</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Free Occurrence + Prosodic Features + Segmental Structure</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

As stated in 2.4, the parameter of free occurrence applies to a comparatively low number of wordhood issues. Table 7.2 shows that it is only involved in six cases, which corresponds to one twelfth of the database. Furthermore, the parameter is limited to $P > S$ issues, which is to say that among the grams discussed in this work there are no syntagmatically dependent elements that can be uttered in isolation. Another crucial difference between free occurrence and the remaining phonological parameters is that the former does not account for wordhood issues on its own. That is, it only comes into effect with grams that are also prosodically dependent on at least one other parameter. With respect to the present work, this means that the database of wordhood issues would have included the same (number of) elements even if free occurrence had not been selected as a parameter of phonological wordhood. In four of the six cases, free occurrence combines with the parameter of segmental structure, which plausibly suggests that there is a relationship between minimal size and the ability to be used in isolation. However, the number of overall cases is too small, and the proportion of the exceptions to this pattern is too large, to argue that free occurrence could be subsumed under segmental structure.

In addition to these reasons, there are several factors that further diminish the relevance of free occurrence for the present work and/or the concept of wordhood in general. First, half of the wordhood issues relying on this parameter come from Tommo So, which is due to the fact that McPherson (2013) is one of the few grammars in the sample that
explicitly mentions the ability to occur in isolation as a relevant criterion of wordhood. The other three elements in question are the Tiipay case marker, the Guna number index, and the Ma’di tense gram. However, while the dependence of the latter on the parameter of free occurrence logically follows from its purely tonal structure, the second problem concerning this parameter is that none of the other descriptions sufficiently explain what is meant by an inability to occur in isolation. Arguably, the conclusion that any given element cannot be used on its own would have to be based on extensive experimental or corpus studies. Yet, it is precisely investigations of this kind that are not usually feasible in the case of underdocumented languages, and no such research is actually discussed in any of the relevant sources.

Furthermore, it is unclear to what extent the idea of free occurrence differs from other parameters of wordhood or linguistic properties. For instance, free occurrence appears to be closely related to the parameter of conventionalized meaning in that both concepts state that language users are unlikely to produce or interpret bound elements without an accompanying lexical item (cf. also Bybee 2001: 30). Meanwhile, as mentioned in several places across the preceding four chapters, some grammars suggest that the inability to pause within a given phonetic string identifies that string as a single phonological word. Yet, while pauses in spontaneous speech are unlikely to be limited in such a principled way, this diagnostic would generally be difficult to apply in a study such as the present one because the relevant descriptions do not discuss the relationship between the ability to pause and the ability to be used in isolation. Presumably, the former refers to natural speech, whereas the latter refers to elicitation contexts, and this pragmatic difference would suggest that they are distinct phenomena. However, even the grammars that consider the distribution of pauses a criterion of wordhood do not typically describe how individual (strings of) morphemes behave with respect to this criterion, which renders this potential distinction moot for practical purposes.

The arguments outlined above illustrate that the definition of the parameter of free occurrence is underdeveloped. On the one hand, this complicates its application (cf. also Croft 2019: 119), while on the other hand, this raises the possibility that its intension is a proper subset of the phenomena covered by other parameters. It follows that substantive investigations of this parameter may show that it is not only dispensable in practice but also in theory.
7.2.2 Phonological rules

Table 7.3 shows the distribution of the parameter of phonological rules across the 72 wordhood issues. A discussion of salient patterns and crucial issues relating to this parameter will be provided below.

Table 7.3. Distribution of the parameter of phonological rules in the database.

<table>
<thead>
<tr>
<th>Combination of parameters</th>
<th>P &gt; S issues</th>
<th>S &gt; P issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phonological Rules</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>Phonological Rules + Free Occurrence + Prosodic Features +</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Segmental Structure</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Phonological Rules + Prosodic Features</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Phonological Rules + Prosodic Features + Segmental Structure</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>2</td>
</tr>
</tbody>
</table>

The contribution of the present parameter differs from that of free occurrence in essentially every aspect. Specifically, phonological rules are involved in almost half of all wordhood issues (34/72), and the parameter most commonly applies on its own rather than in combination with other parameters of phonological wordhood (18/34). Both of these facts suggest that processes of grammaticalization often include an early stage at which an item is still somewhat syntagmatically free but already the trigger or the target of segmental alternations. However, the parameter is not restricted to P > S issues given that it also accounts for two cases in which a gram is syntagmatically dependent but not yet subject to all of the relevant phonological alternations in the language.

For the purposes of this study, the parameter of phonological rules covers patterns of allophony and segmental allomorphy across adjacent structures, i.e., alternations whose trigger and target are contiguous and produce a phonologically predictable effect. However, the application of this parameter runs into several minor complications. As discussed in more detail in 3.2.2, the effects of a segmental alternation in which a given gram is involved may
manifest themselves on a neighboring item rather than on the gram itself. Yet, to the extent that the relevant alternation occurs word-externally, such processes demonstrate that the gram in question is part of the same phonological word as the alternating element, and this fact is the only one on which the analyses performed here rely. Furthermore, the data reveal that it is usually the exponents of the four categories at issue in this work that show the effects of the alternation. This suggests that the exclusion of elements that trigger rather than undergo an alternation would not have had a significant impact on the size of the database.

A similar argument can be made with regard to the role of allophony in the definition of the parameter. That is, while the relevant grams in the database are often subject to complex and/or reductive alternations that can only be captured by allomorphic principles, the analysis of certain grams (e.g., the Awa Pit case markers) crucially required reference to allophonic patterns. However, the inclusion of the latter phenomenon is justified because the analysis of a wordhood issue based on the parameter of phonological rules merely has to show how a given element behaves in terms of word-internal segmental processes. Hence, the question of whether the respective processes affect all tokens of a segment or whether they are sensitive to morphological constituency has no bearing on the classification of wordhood issues pursued in this work.

The above discussion has emphasized the word-internal application of segmental alternations. This seemingly ignores the phenomenon of external sandhi, which are typically defined as allomorphic processes that cross boundaries between morphological words (cf. Trask 2000: 296; Mel’čuk 2006: 567; Campbell & Mixco 2007: 177; Carr 2008: 153-154). However, Nespor & Vogel (2007: 24) state that the processes described as external sandhi also tend to apply within words. It follows that many of the grams discussed in Chapters 3-6, which are syntagmatically free but undergo patterns of word-internal alternation, might be argued to exhibit external sandhi. Yet, it is noteworthy that few of the grammars consulted for the present work use that label. While this is presumably due to the fact that it is misleading, the terminology introduced in this work also negates the need for this concept and thus further obscures the potential presence of external sandhi in the database.

Finally, it is worth highlighting that the definition of the parameter of phonological rules might plausibly be extended to the phenomenon of syllabification. This connection is scarcely drawn in the descriptions that underlie this study and also does not reliably factor
into theoretical discussions of the phonological word. Yet, syllabification would seem to be an apt addition in that it falls within the domain of the phonological word (e.g., Nespor & Vogel 2007: 109) and in that it is clearly distinct from allomorphy and allophony. One cross-linguistically common context in which it could inform wordhood analyses involves consonant-final elements followed by vowel-initial ones. If the morpheme-final consonant acts as the onset of the syllable headed by the morpheme-initial vowel, the two elements could then be argued to fall within a single word on the parameter of phonological rules. However, further empirical research will have to establish to what extent this revised definition would capture cases that do not also bear on the traditional formulation of phonological rules or on other parameters of phonological wordhood.

Given the limited data available for the majority of the world’s languages, phonological rules are a more readily applicable wordhood parameter for cross-linguistic studies than is free occurrence. This is because the manifestation of phonological rules can be gleaned from the existing corpus of utterances, whereas the argument that an item cannot occur independently would require negative evidence (cf. Stefanowitsch 2020: 3). The following sub-sections will argue that the remaining parameters of phonological wordhood also differ in the degree to which they inform linguistic analyses.

### 7.2.3 Prosodic features

Table 7.4 shows the distribution of the parameter of prosodic features in the database. The discussion below will address empirical insights and theoretical conclusions that can be drawn from this distribution.

<table>
<thead>
<tr>
<th>Combination of parameters</th>
<th>( P &gt; S ) issues</th>
<th>( S &gt; P ) issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prosodic Features</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Prosodic Features + Free Occurrence</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Prosodic Features + Free Occurrence + Phonological Rules + Segmental Structure</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

4 Consider French “enchaînement,” for instance, which mostly occurs with strings involving grammatical elements (cf. Bybee 2015: 80), that is, the items most likely to produce wordhood issues.
The parameter of prosodic features is involved in a total of 51 wordhood issues, which corresponds to almost three quarters of the database. As such, it is the most frequently invoked parameter of phonological wordhood in this work. Its central status for the present investigation is also obvious from the fact that it accounts for two thirds of the S > P issues. Yet, while it does not usually combine with other parameters in the latter subset, it shows an overall tendency to co-occur with at least one of them (31/51). This finding arguably bears on the diachronic relationship between the different parameters. Specifically, phonological rules appear to be an early indicator of prosodic dependence, whereas a change in terms of prosodic features seems to constitute a later stage such that the corresponding parameter is typically not the only one on which a grammaticalizing item is dependent.

The distribution of the parameter follows straightforwardly from the wide range of phenomena it includes. First and foremost, it subsumes prosodic prominence, which on the definition used in this work divides into stress, tone, and pitch accent systems that target specific syllables (or moras). Since the vast majority of languages in the sample have at least one such system, the wordhood status of a large number of grams hinges on their behavior with respect to prosodic features. For instance, several of the S > P issues in the above table involve “extrametrical” anti-clitics that do not bear prominence even though they are limited to a position that usually is prominent. Conversely, the grams called “particles” in the present work are items that do not bear prominence but otherwise (appear to) show the behavior of free morphological and phonological words. Finally, the present parameter also covers processes of harmony, which are logically independent of prominence. Due to the latter fact, there are grams in the database that are dependent on the parameter of prosodic features because they are integrated into a prominence domain and into a separate harmony domain.
(e.g., the Fwe case marker).

Both the quantitative representation of the parameter in the database and the fact that prosodic features are widely adopted as a diagnostic of wordhood in grammars and theoretical works suggest that the relevant phenomena are robust indicators of word structure. However, unlike in the case of phonological rules, the methodological, empirical, and theoretical issues that emerge during the application of the present parameter are rather serious. Arguably the greatest complication for cross-linguistic studies of prosodic prominence is the fact that grammatical descriptions often rely on auditory impressions rather than on substantive acoustic investigations (cf. Wetzels & Meira 2010: 360). This practice may subsequently lead to a lack of consensus with respect to whether a given language has stress or another type of prominence (cf. Downing 2010: 382). Given that most of the descriptions of prosodic prominence for the languages in the present sample also rely on impressionistic judgments, it must be concluded that a considerable number of the wordhood analyses presented here may be objectively inaccurate. In that context, it is also important to recall that several analyses in Chapters 3-6 rest on the concept of secondary stress, impressionistic descriptions of which are presumably even less reliable. On the other hand, though, the fact that the parameter of prosodic features as applied here does not distinguish between different types of prominence suggests that many of the posited wordhood issues might not rely on incorrect structural analyses but merely on the wrong terminology (e.g., “stress” instead of “tone,” or “tone” instead of “pitch accent”).

Another major difficulty in implementing the present parameter concerns the interplay between prominence on the level of the syllable or mora and prominence on the level of the clause or sentence, i.e., intonation. While the focus of the present work is almost exclusively on the former phenomenon, it stands to reason that it cannot be neatly separated from the latter. Specifically, Ladd (2008: ch. 6) outlines that intonation depends on discourse phenomena such as focus, and on the assumption that grams are essentially never focused, they would then not act as targets of intonational peaks. This, in turn, might also contribute to the suppression of syllable-level prominence on such grams given that the latter often relies on the same acoustic means as intonation. Even though this idea would have to be confirmed by dedicated cross-linguistic studies, this argument would essentially suggest that the absence of prominence on a gram might not necessarily be an indicator of its
grammaticalization. That is, a lack of prominence would then not be a result of diachronic reduction but rather of the integration of the gram into larger synchronic intonational pattern.⁵ As is obvious from the analyses in the preceding chapters, though, the present work closely followed the relevant descriptions on this point. Hence, it analyzed a gram as dependent whenever it lacked prominence and the latter was named as a property that generally defines all words in the language. However, the issue of whether lexical and grammatical items should truly be characterized in terms of the same prominence patterns certainly merits further investigation, and such research might then argue for the exclusion of most particles from the present database.

It was pointed out in the preceding sub-section that many of the phenomena traditionally subsumed under the label of “external sandhi” are inherently wordhood issues as defined here. An analogous situation is found in the domain of prosodic prominence. Specifically, the analyses in the previous four chapters discussed several “extrametrical” elements and “floating tones.” This relative abundance of terms illustrates that exceptions to definitions of wordhood have been well-known. However, these concepts obviously do not resolve any of the problems because they simply serve to factor out those structures that violate the respective majority pattern. This is essentially why Nolan & Jeon (2014: 7) call extrametricality a “sleight-of-hand” device. With respect to the present work, the popularity of such concepts thus reinforces the point that wordhood issues have to be identified on the basis of substantive structural descriptions rather than on the basis of the specific labels employed.

As mentioned above, the second strand in the definition of the present parameter concerns processes of harmony. The most crucial result in this domain is that harmony only accounts for eight of the 51 wordhood issues in which the parameter is involved overall. However, it should be noted that even this number only comes about because I diverged from Wilson (2017) and analyzed the Yeri tense gram as harmonic and because I accepted Bowern’s (2012) harmony analysis for the Bardi case marker even though the principles at work are not straightforward. In addition, the relevant process in Kotiria involves nasal rather

⁵ Note that this does not affect the definition of “dependence” underlying this work. That is, a particle as understood here would then be dependent in that it lacks prominence because surrounding elements are prominent.
than vowel harmony, which further demonstrates that the latter is a marginal phenomenon in the database. On the one hand, this sparse distribution follows directly from the fact that there are considerably more languages with a system of prominence than languages with a system of harmony. On the other hand, however, vowel harmony is also more often limited to a subset of the inventory and/or subject to wide-ranging lexical and morphological exceptions. Due to these tendencies, vowel harmony domains are frequently not useful as indicators of word structure, and many alleged vowel harmony systems are more similar to umlaut as found in German than to harmony as found in Turkish. Hence, while discussions of wordhood in languages like Turkish must make reference to vowel harmony (cf. 1.0), the present study suggests that this property plays a rather negligible role cross-linguistically.

In sum, then, the parameter of prosodic features shares with phonological rules the characteristic that its effects can be observed in positive corpus evidence. However, given that many descriptions of prominence in reference grammars are dubious, it also illustrates the need for a more thorough investigation and documentation of the acoustic properties of suprasegmental systems. In light of the limited range of harmony, the relevance of this parameter to the notion of wordhood (issues) ultimately hinges on this empirical desideratum.

7.2.4 Segmental structure

Table 7.5 summarizes the distribution of the parameter of segmental structure in the present database. Relevant insights and issues with regard to this parameter will be discussed below.

<table>
<thead>
<tr>
<th>Combination of parameters</th>
<th>$P &gt; S$ issues</th>
<th>$S &gt; P$ issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segmental Structure</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Segmental Structure + Free Occurrence + Prosodic Features</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Segmental Structure + Free Occurrence + Phonological Rules</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>+ Prosodic Features</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Segmental Structure + Phonological Rules</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Segmental Structure + Phonological Rules + Prosodic</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>
### Combination of parameters

<table>
<thead>
<tr>
<th></th>
<th>P &gt; S issues</th>
<th>S &gt; P issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Features</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Segmental Structure + Prosodic Features</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>21</strong></td>
<td><strong>2</strong></td>
</tr>
</tbody>
</table>

The parameter of segmental structure is involved in 23 wordhood issues, which makes it the third-most frequently invoked parameter of phonological wordhood in the database. However, it predominantly co-occurs with other parameters and only accounts for two wordhood issues on its own. It can therefore be concluded that the present database would essentially have comprised the same set of grams if neither segmental structure nor free occurrence had been considered wordhood parameters for the purposes of this study. The relevance of this result will be discussed in the following sub-section. With respect to the co-occurring parameters, it is notable that 20 of the 23 analyses that rely on the parameter of segmental structure also refer to the parameter of prosodic features. Since it was argued above that dependence on the latter parameter represents a relatively late stage, the parameter of segmental structure also appears to manifest itself toward the end of the grammaticalization process. This is expected in that grams most likely only fall below the threshold of minimality after sustained periods of frequent usage, and by the time they are too small to be words they are also likely to be too small to bear prominence. Finally, only two of the 23 grams in the above table constitute S > P issues. While this crucially distinguishes segmental structure from free occurrence, which does not factor into any S > P issues, this number does not permit any major conclusions.

The present parameter aligns itself with prosodic features in that it also covers two separate phenomena. On the one hand, it subsumes the concept of a minimum word size, while on the other hand it accounts for phonotactic restrictions at the word level. A further parallel with prosodic features is the resulting quantitative discrepancy in the database. Specifically, the parameter of segmental structure usually identifies sub-minimal strings rather than contexts that run afoul of certain distributional constraints on phonemes. Apart from the fact that minimum word sizes are more commonly discussed in grammatical descriptions, this pattern presumably has a probabilistic explanation as well. That is, even in languages that ban certain segments in certain word positions, the proportion of those
segments relative to the entire phoneme inventory is typically small. Since the grams of interest in this study are predominantly made up of few segments, they are thus particularly unlikely to contain one of the relevant phonemes in the relevant position. However, it should be noted that the two instances in which the parameter of segmental structure does not combine with any other parameters of phonological wordhood (i.e., the Lilooet case marker and the Gumuz tense gram) both involve phonotactic restrictions rather than word minimality.

As in the case of free occurrence, there are certain methodological issues with regard to the concept of word minimality. In particular, it is unclear how the existence of a word minimum in underdocumented languages can be proven given the typically limited amount of corpus data available. While psycholinguistic experiments could inform this issue in theory, a more workable solution for cross-linguistic studies might be to assume that a phonological word in a given language must minimally satisfy the structural requirements that hold for a syllable in that language. This approach could be readily applied because syllable structure is more frequently addressed in grammatical descriptions than word minimality. As the preceding chapters showed, however, the present work did not rely on that strategy and instead only considered word minimality when such a principle was actually described in the relevant source. Crucially, though, this decision did not have a major impact on the database. As seen above, items that fall below an explicitly formulated minimum are typically also dependent on other parameters of phonological wordhood. From this, it follows that elements that might have been classified as sub-minimal given the aforementioned method were also usually captured by one of the remaining parameters. In light of these facts, I will leave further empirical and theoretical investigations of word minimality for future research.

In sum, the parameter of segmental structure has several drawbacks. While many grammatical descriptions simply do not address the relevant structural properties, the method by which those descriptions that do discuss them arrive at specific word minima is largely unclear. This, in turn, casts doubt on the general phenomenon as well as on the role that it should play in comparative research. However, even when the concept of word minimality is accepted, as in the present work, the parameter yields a low amount of data compared to phonological rules and prosodic features. Finally, word-level phonotactic restrictions rarely
prove decisive in wordhood analyses and therefore do not bolster the status of this parameter either.

7.2.5 Evaluation

While Chapters 3-6 demonstrated that the concept of wordhood runs into a variety of empirical problems, the foregoing sub-sections illustrate that it also faces a considerable number of ontological issues. Specifically, the above discussion argued that the foundations of phenomena such as free occurrence and word minimaliness are not adequately addressed by descriptive or theoretical works. However, the issue is further complicated because concepts such as vowel harmony and phonotactic restrictions are sufficiently understood in principle, but the present database suggests that they do not shed much light on the nature of wordhood. Similarly, while the general principles of prosodic prominence are largely agreed upon, descriptions of the relevant systems are not always based on rigorous methods.

Overall, then, this section suggests that cross-linguistic approaches to (phonological) wordhood might use a substantially reduced inventory of parameters without sacrificing a significant amount of relevant data. More precisely, this inventory could be limited to the criteria of allomorphy and prominence (bearing in mind the above-mentioned caveats). While these are the same two phenomena that were used for the classification into morphological types in the previous section, this convergence follows from the contents of most grammatical descriptions. That is, even if free occurrence or word minimaliness were conceptually robust, the information typically found in grammars would not permit a substantive comparison of those properties across languages.

Crucially, however, the above proposal does not claim that other linguistic properties should generally be discounted in discussions of wordhood. Rather, as stated in 7.2.3, any analysis of the phonological word in Turkish will have to incorporate the phenomenon of vowel harmony, and any corresponding analysis for Russian needs to take into account that voiced obstruents do not occur word-finally (cf. Comrie 1987: 335). Similarly, the existence of sufficiently large corpora might indeed support the idea that certain elements in the relevant languages cannot occur on their own. Finally, the contribution of the remaining parameters also extends to the cross-linguistic dimension. As mentioned in the preceding sub-section, for instance, the co-occurrence patterns between segmental structure and
prosodic features seem to afford interesting diachronic insights. Those will be critically investigated in the next chapter.
8. MORPHOSYNTACTIC FACTORS

8.0 THE NATURE OF MORPHOLOGICAL WORDHOOD (ISSUES)

In the present database, the distribution of the parameters of morphological wordhood crucially differs from that of the parameters defining phonological wordhood. Specifically, while no P > S issue makes reference to more than one parameter of morphological wordhood, S > P issues are defined by the combination of all morphological parameters. The reasons for these distinct patterns as well as the conclusions to be drawn from them will be discussed throughout this chapter. In addition to these differences, however, another important insight concerns the fact that the parameter of non-selectivity accounts for six sevenths of the P > S issues on its own. The precise breakdown for the 63 wordhood issues in question is shown in Table 8.1.

<table>
<thead>
<tr>
<th>Wordhood parameter</th>
<th>Number of P &gt; S issues in the database</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohesiveness</td>
<td>3</td>
</tr>
<tr>
<td>Conventionalized Meaning</td>
<td>3</td>
</tr>
<tr>
<td>Fixed Order</td>
<td>3</td>
</tr>
<tr>
<td>Non-selectivity</td>
<td>54</td>
</tr>
</tbody>
</table>

This skewed distribution has clear implications for the concept and definition of (morphological) wordhood. For instance, it bears on Tallman’s (2020: 3) claim that the connection between the three parameters of morphological wordhood suggested by Dixon & Aikhenvald (2003) has not been sufficiently demonstrated. On the one hand, the low representation of fixed order, cohesiveness, and conventionalized meaning in Table 8.1 suggests that grams usually do show uniform behavior across those parameters. On the other hand, though, this finding might be due to the fact that many grammars do not discuss the phenomena that bear on those parameters. In addition, Dixon & Aikhenvald’s (2003) list of wordhood parameters crucially omits non-selectivity, and the present work thus suggests that a strict reliance on their set of diagnostics would misrepresent the number of wordhood issues in any case.
The predominance of non-selectivity among the morphological parameters will also be reflected in the structure of the present chapter. In particular, while the next sub-section will include an assessment of Hypothesis 3, which revolves around the parameters of cohesiveness and fixed order, the discussion of the four parameters in 8.2 will largely focus on non-selectivity. That section will also investigate whether the wordhood issues in the database are defined by specific combinations of the phonological and the morphological parameters. The insights derived from that discussion will then form the basis for 8.3, which provides a comprehensive account of how the synchronic data gathered in the database can inform approaches to, and theories of, grammaticalization.

8.1 HYPOTHESES 2 AND 3

Hypotheses 2 and 3 both predict that the verbal and the nominal domain show different patterns of wordhood issues, and due to this commonality they will be discussed here in turn. The theoretical and empirical motivations for the two hypotheses were outlined in 1.3. Hypothesis 2 is repeated below.

Hypothesis 2:

*In wordhood issues of the verbal domain, the degree of prosodic dependence exceeds the degree of syntagmatic dependence more often than it does in wordhood issues of the nominal domain.*

Given the terminology introduced in the preceding chapter, Hypothesis 2 can be reformulated such that the verbal domain is expected to show more P > S issues than the nominal domain. In order to evaluate this prediction, Table 8.2 classifies the 72 wordhood issues in the database by type of dependence and word class domain. The results will be discussed below.

<table>
<thead>
<tr>
<th>Type of dependence</th>
<th>Nominal domain</th>
<th>Verbal domain</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>P &gt; S</td>
<td>34</td>
<td>29</td>
<td>63</td>
</tr>
<tr>
<td>S &gt; P</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>35</td>
<td>72</td>
</tr>
</tbody>
</table>
Table 8.2 illustrates that Hypothesis 2 is not borne out. That is, the absolute number of P > S issues is higher in the nominal domain than in the verbal domain, and the proportion of P > S issues is also higher within the nominal domain than within the verbal domain. Specifically, while the ratio of P > S issues to S > P issues in the nominal domain exceeds 11:1, the corresponding ratio in the verbal domain is less than 5:1. However, it should be highlighted that the above distribution is not statistically significant at the level of .05 (p = 0.3; Fisher’s exact test). That is, while Hypothesis 2 has been disconfirmed, the opposite prediction would also have proven too strong. Overall, though, it is likely that the lack of statistical significance partly derives from the rather small sample size, and hence the possibility remains that P > S issues are in fact more closely associated with the nominal than with the verbal domain.

The formulation of Hypothesis 2 was motivated by the finding that prefixes are cross-linguistically more tightly fused than suffixes as well as by the insight that nouns have relatively few prefixes compared to verbs. It thus stands to reason that the non-significant distribution shown in Table 8.2 might have come about because the grams making up the present database do not accurately represent this relationship between pre- and postposing. This idea can be investigated against the background of Table 8.3, which classifies the wordhood issues by word class domain and by their position relative to the lexical item (i.e., noun or verb) in question. Note that seven of the 72 grams in the database have a distribution that does not lend itself to a categorization in terms of pre- or postposing. Hence, the following generalizations are only based on 65 of the wordhood issues.

### Table 8.3. Correlation between word class domain and position of gram.

<table>
<thead>
<tr>
<th>Position of gram</th>
<th>Nominal domain</th>
<th>Verbal domain</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preposed</td>
<td>6</td>
<td>11</td>
<td>17</td>
</tr>
<tr>
<td>Postposed</td>
<td>29</td>
<td>19</td>
<td>48</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>35</strong></td>
<td><strong>30</strong></td>
<td><strong>65</strong></td>
</tr>
</tbody>
</table>

Table 8.3 also shows a discrepancy. While the ratio of postposed to preposed elements in the nominal domain is almost 5:1, it is less than 2:1 in the verbal domain. However, in contrast to
the interaction between type of dependence and word class domain discussed above, the
distribution in Table 8.3 approaches significance (p = 0.09; Fisher’s exact test). Hence, the
database seems to be a reasonably close reflection of the fact that there is a cross-linguistic imbalance between pre- and postposing conditioned by word class domain. It follows that the relative lack of P > S issues in the verbal domain is not caused by a relative absence of preposed elements in that domain. Rather, the juxtaposition of Tables 8.2 and 8.3 suggests that preposed grams are not more prosodically dependent than those that are postposed.

Note, however, that the above argument does not invalidate Bybee et al.’s (1990: 24) conclusion that prefixes show the highest degree of formal dependence among all gram types. That is, since the present database does not contain any full-fledged prefixes, this divergent outcome might instead suggest that the development of prosodic dependence among preposed items is more diachronically condensed. Specifically, prosodic dependence in preposed elements might develop at a relatively late stage of the grammaticalization process but manifest itself on several parameters once it does so. This issue is informed by Table 8.4, which correlates the relative position of the 65 grams with their type of dependence.

<table>
<thead>
<tr>
<th>Position of gram</th>
<th>P &gt; S issues</th>
<th>S &gt; P issues</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preposed</td>
<td>13</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Postposed</td>
<td>43</td>
<td>5</td>
<td>48</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>56</strong></td>
<td><strong>9</strong></td>
<td><strong>65</strong></td>
</tr>
</tbody>
</table>

Overall, Table 8.4 is compatible with the approach outlined above in that preposed grams that are not yet prefixes are more likely than postposed grams to constitute an S > P issue. More precisely, while the ratio of P > S issues to S > P issues is slightly larger than 3:1 among preposed grams, it exceeds 8:1 among postposed grams. Yet, this distribution does not approach significance (p = 0.2; Fisher’s exact test), and the assumption that preposed grams show a less steady diachronic trajectory must therefore remain tentative. More generally, the above discussion suggests that the intersection of word class domain and gram position might have an effect on wordhood issue patterns. However, a larger database than
the one available here will be necessary to reliably determine the role of this effect.

The results discussed here also bear on Berg (2020b), whose cross-linguistic study shows that free grams tend to be preposed whereas bound grams tend to be postposed. While there is only a partial overlap between the six grammatical categories he investigates and the four categories that form the empirical foundation of this work, this interaction is of interest because the present database comprises elements that are neither fully free nor entirely bound. On the one hand, this would lead to the prediction that the grams discussed in the present work should not show a bias in favor of either preposing or postposing. On the other hand, however, Berg (2020b: 378-380) also finds that (elements described as) clitics essentially show the same postposing tendency that is found with affixes; that is, there is an enclitic preference. Since many of the grams analyzed here can be classified as clitics, this would then predict that the majority of the present database should consist of postposed elements. As Tables 8.3 and 8.4 show, this prediction is indeed confirmed given that the number of postposed grams is almost three times that of preposed grams.

In light of the fact that many clitics otherwise share properties with free elements, the abovementioned parallel between the positions of affixes and clitics raises the possibility that grams often shift from a position preceding the lexical head to one following the head toward the beginning of the grammaticalization process. However, seeing as the preposing ratios differ between the nominal and the verbal domain, this diachronic scenario might have to be refined so as to make reference to specific syntactic environments (cf. also Berg 2020b: 384 fn. 7). The interaction of preposing and the verbal domain will also be briefly addressed as part of the theoretical discussion provided in 8.3.

Meanwhile, Hypothesis 3 predicts a relationship between word class domain and two specific parameters of morphological wordhood. It is repeated below.

Hypothesis 3:

Wordhood issues in the verbal domain involve elements that are independent on the parameters of fixed order and cohesiveness more often than do wordhood issues of the nominal domain.

---

1 The gram types considered in Berg (2020b) are articles, demonstratives, case markers, possessives, plural markers, and negators. Hence, he covers the nominal categories analyzed here but neither of the verbal ones.
Table 8.5 shows the wordhood issues that are defined by the parameters of fixed order and cohesiveness and sorts them by word class domain.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Nominal domain</th>
<th>Verbal domain</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed order</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Cohesiveness</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3</strong></td>
<td><strong>3</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

The distribution in the above table reveals a split between the two parameters. That is, while fixed order more often bears on wordhood issues in the verbal domain and thus confirms the hypothesis, cohesiveness is more frequently involved in wordhood issues of the nominal domain and therefore disconfirms it. Overall, however, the empirical status of Hypothesis 3 cannot be established because the number of relevant datapoints is so low as to render statistical testing impossible. Put differently, the present database does not provide any substantive insights about whether the two parameters show a preference for either word class domain. Instead, the most important conclusion to be drawn from Table 8.5 is that the parameters in question are rarely required to describe the formal behavior of grams.

The motivation for Hypothesis 3 drew on the fact that verbal morphology tends to be more synthetic than nominal morphology. A certain degree of synthesis is a prerequisite for the possibility to arrange morphemes in different orders, and it equally increases the likelihood that some morphemes are only loosely bound and thus not obligatorily marked on every verb form. While the data gathered in this work are insufficient to treat this issue in detail here, they seem to suggest that the latter assumption does not hold. Specifically, nominal grams might instead be more likely to be suspended, as defined in 2.4. If generally true, this result would be of interest because nominal grams were found above to show prosodic dependence more often than verbal grams. Hence, the former might be strongly tied to their heads on the morphophonological dimension but more weakly so on the morphosyntactic one.

In this context, it also seems relevant that the most common syntactic context for the
parameter of cohesiveness to manifest itself involves coordinating constructions. Hence, it
might be that cohesiveness tends to factor into wordhood issues in the nominal domain
because nouns are more frequently coordinated than verbs (cf. Schachter & Shopen 2007: 47)
and thus more commonly create the conditions under which the parameter of cohesiveness
can apply at all. In light of the limited empirical basis for this proposal, however, I will leave
an investigation of this topic for future research. Meanwhile, the next section will discuss
aspects of fixed order and cohesiveness that are not immediately tied to the evaluation of
Hypothesis 3.

The two hypotheses assessed in this section have not been confirmed by the present
database. This aligns them with Hypothesis 1, which was discussed in the preceding chapter.
This conclusion is significant because all three hypotheses investigated here rely at least in
part on well-known concepts and facts of synchronic morphology, such as the distinction
between agglutination and fusion, the suffixing preference, and the different degrees of
synthesis found in verbs and nouns. The fact that none of these basic approaches to
morphology makes sufficiently accurate predictions about the nature of wordhood issues thus
suggests that the forces underlying such mismatches are rather different in kind. A general
description of the relevant factors and their interaction will be provided in 8.3.

8.2 THE PARAMETERS OF MORPHOLOGICAL WORDHOOD

As mentioned in 8.0, this section will primarily analyze the role that the parameter of
non-selectivity plays for the present work. In addition, the structure of this section will differ
from that of the corresponding section in the preceding chapter due to the combinatory
patterns of the parameters of morphological wordhood. That is, given that the definitions of
fixed order, cohesiveness, and non-selectivity employed in this work are mutually exclusive,
an element that is independent on one of those parameters cannot also be independent on
either of the remaining two. While each of these three parameters could theoretically co-
occur with that of conventionalized meaning, the absence of such cases from the present
database is most likely due to the scarce discussion of the latter parameter in grammatical
descriptions. A similar argument accounts for the S > P issues. Specifically, the grammars of
the relevant languages do not usually offer evidence that the elements in question behave like
morphological words on any of the parameters. Therefore, S > P issues were simply
categorized as syntagmatically dependent in this work, without specifying any particular (combination of) morphological parameters. Given these gaps, the sub-sections below will instead focus on the co-occurrence patterns between the individual phonological and morphological parameters in the P > S issues, which will subsequently inform the diachronic discussion in 8.3.

8.2.1 Cohesiveness

Most aspects concerning the distribution of the parameter of cohesiveness were discussed in the preceding section, and the present sub-section will therefore focus on remaining issues and potential patterns concerning this parameter. Table 8.6 shows which parameters of phonological wordhood it combines with in the database.

<table>
<thead>
<tr>
<th>Syntagmatic Independence</th>
<th>Prosodic Dependence</th>
<th>Number of P &gt; S Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohesiveness</td>
<td>Phonological Rules</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Prosodic features</td>
<td>1</td>
</tr>
</tbody>
</table>

While the overall number of items is too small to permit any major conclusions, it is notable that elements that are independent on the parameter of cohesiveness do not show dependence on more than one prosodic parameter. This broadly suggests that a lack of cohesiveness indicates a relatively low degree of grammaticalization. Furthermore, the two parameters of phonological wordhood also align with the two grammatical categories involved. Specifically, the two case markers (Georgian, Iñupiaq) are dependent in terms of phonological rules, whereas the index (Lillooet) is dependent on the parameter of prosodic features. Since it was argued in the previous chapter that dependence in terms of phonological rules seems to manifest itself earlier than dependence in terms of prosodic features, the nominal grams might be even more recently grammaticalized than the verbal one.

The parameter of cohesiveness accounts for a low number of wordhood issues in the database because items that lack cohesiveness as typically understood also collocate with elements belonging to different word classes. Therefore, such elements would be subsumed
under the parameter of non-selectivity in the present work, and, as mentioned in the previous section, the main context in which cohesiveness can clearly be distinguished from non-selectivity involves coordination. That is, an item that can either occur on all or on only a subset of conjuncts would have greater freedom than a full-fledged affix but still be limited to a single word class and thus be selective. However, the analysis of the Lilooet gram showed that cohesiveness also factors into other construction types. Recall that the relevant item can occur on either the auxiliary or the main verb, but given that auxiliaries are drawn from the class of verbs, this also does not constitute a case of non-selectivity. Hence, the present parameter subsumes cases in which a single token of a gram can occur in different places within a construction as well as cases in which a gram can occur either once or multiple times within a construction. Since the potential to be ordered freely and the ability to undergo ellipsis are typically properties of lexical elements, the low number of prosodically dependent items that retain these characteristics suggests that the latter are generally lost at an early stage of grammaticalization.

Despite its marginal role in the present database, the parameter of cohesiveness merits further study given that both coordinating and auxiliary constructions are cross-linguistically widespread. Hence, there should be a sufficient number of contexts for the parameter to emerge in principle, and its minor status in this work might instead be due to the fact that it more commonly affects derivational elements such as the Spanish adverbializer exemplified in 2.4. This would of course be compatible with the above idea that a lack of cohesiveness is primarily found among items that grammaticalized recently.

### 8.2.2 Conventionalized meaning

Table 8.7 shows which parameters of phonological wordhood the parameter of conventionalized meaning combines with in the database, and relevant issues concerning the latter parameter will be addressed below.

<table>
<thead>
<tr>
<th>Syntagmatic independence</th>
<th>Prosodic dependence</th>
<th>Number of $P &gt; S$ issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventionalized Meaning</td>
<td>Phonological Rules + Prosodic Features + Segmental Structure</td>
<td>1</td>
</tr>
</tbody>
</table>
Syntagmatic independence | Prosodic dependence | Number of $P > S$ issues
---|---|---
Prosodic Features | 1 | 
Prosodic Features + Segmental Structure | 1 |

The patterns in which the parameter of conventionalized meaning is involved are even less straightforward than those in which the parameter of cohesiveness participates. However, a salient difference between the two is that items that are independent in terms of conventionalized meaning can be dependent with respect to multiple parameters of phonological wordhood. This would seem to suggest that the psychological reality of grams as words is not significantly impacted by their prosodic behavior. Yet, as noted in the preceding sub-section, such general conclusions are largely rendered moot by the low number of datapoints.

Unlike in the case of cohesiveness, the limited role of conventionalized meaning in the database is due to the nature of grammatical descriptions. That is, every morpheme must be represented in the minds of the respective language users, and hence the parameter should be applicable to every gram in every language. However, determining the mental representation of linguistic units would require psycholinguistic experiments, which are difficult to implement during fieldwork. Subsequently, this phenomenon is not usually addressed in descriptive works. This methodological complication unites the present parameter with that of free occurrence and, as mentioned in 7.2.1, the two parameters might ultimately refer to the same phenomenon. Specifically, the inability of certain elements (such as grams) to be used or interpreted in isolation might derive precisely from the fact that language users do not have independent representations for those elements. Yet, while a unification of the two parameters might facilitate approaches to wordhood in theory, the absence of information about the relevant phenomena renders any such decision inconsequential for the purposes of cross-linguistic studies.

In fact, the difficulty in the application of the present parameter can also be inferred from the analyses in which it was actually referenced. More precisely, only the Kotiria definiteness marker was explicitly classified as independent on the parameter of conventionalized meaning, whereas the other two grams (the Fwe and Jarawara indexes)
were not categorized as such by the authors of the respective grammars. The decision to invoke conventionalized meaning in the analyses of the latter two grams was defended in the corresponding sub-sections, but it could be argued that these classifications further illustrate the limited use of this parameter for typology. Overall, then, it might be more economical to discard conventionalized meaning and free occurrence as parameters, which in turn would convert wordhood into a purely structural phenomenon that can be more easily compared on the basis of grammatical descriptions.

8.2.3 Fixed order

Table 8.8 shows which parameters of phonological wordhood the parameter of fixed order co-occurs with in the database. A discussion of relevant aspects and patterns will be offered below.

### Table 8.8. Distribution of the parameter of fixed order in the database.

<table>
<thead>
<tr>
<th>Syntagmatic independence</th>
<th>Prosodic dependence</th>
<th>Number of P &gt; S issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed order</td>
<td>Phonological Rules</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Prosodic Features + Phonological Rules</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Prosodic Features + Segmental Structure</td>
<td>1</td>
</tr>
</tbody>
</table>

The three grams represented in the above table are the Huallaga case marker as well as the Huave and Yeri indexes. While the latter are both dependent on the parameter of phonological rules, the overall distribution does not lend itself to the formulation of any obvious patterns. Instead, given the aforementioned idea that dependence on the parameter of phonological rules precedes dependence in terms of prosodic features and segmental structure, the position of fixed order in this chronological network would be entirely unclear. Hence, the only significant insight to which Table 8.8 contributes is that indexes are the most formally diverse set of exponents among the four investigated here. Specifically, five of the nine P > S issues involving a morphological parameter other than non-selectivity concern indexes. Moreover, indexation is the only one of the four categories that accounts for at least
one wordhood issue with respect to each of the four morphological parameters.

A violation of fixed order was defined here as an instance in which an element that generally behaves like an affix can occur in different positions with respect to the stem or other affixes without causing a difference in the meanings of the resulting word forms. Such mobile affixes thus co-occur with all stems that fall within their semantic scope and that are of the relevant syntactic category. As such, mobile affixes show a more restricted range of freedom than items that lack cohesiveness or selectivity, which can occur with variable stems, either syntagmatically or paradigmatically. The low number of grams whose behavior bears on the parameter of fixed order thus suggests that the diachronic stage at which elements have the distribution of mobile affixes is rare and/or brief. This conclusion would be compatible with Mansfield et al. (2020), who show that even in languages that generally have mobile affixes, there are usually strong preferences for a specific affix order.

While the above arguments would seem to suggest that the parameter of fixed order adds little to the understanding of wordhood (issues), the situation is somewhat more complex. That is, the definition of fixed order suggested by Dixon & Aikhenvald (2003) and adopted here crucially relies on the semantic identity of strings that contain the same elements in different orders. Yet, if this semantic requirement were removed from the intension, the parameter would have a much wider application. Specifically, it would then factor into many cases in which different orders of derivational elements bring about different scope relations (cf. also 2.4). However, since such effects are not generally attested or described for the kinds of inflectional functions of interest here, the question of how a redefined parameter of fixed order would impact a database of wordhood issues will be left for further research.

8.2.4 Non-selectivity

Table 8.9 shows which parameters of phonological wordhood the parameter of non-selectivity co-occurs with in the database. A thorough discussion of the insights and issues that emerge from this distribution will be provided below. Several of these considerations will then be further elaborated upon in section 8.3 as part of the general diachronic account that follows from the data analyzed in this work.
Table 8.9. Distribution of the parameter of non-selectivity in the database.

<table>
<thead>
<tr>
<th>Syntagmatic independence</th>
<th>Prosodic dependence</th>
<th>Number of $P &gt; S$ issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-selectivity</td>
<td>Free Occurrence + Prosodic Features</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Free Occurrence + Prosodic Features + Segmental Structure</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Free Occurrence + Phonological Rules + Prosodic Features + Segmental Structure</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Phonological Rules</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Phonological Rules + Prosodic features</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Phonological Rules + Prosodic Features + Segmental Structure</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Phonological Rules + Segmental Structure</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Prosodic Features</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Prosodic Features + Segmental Structure</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Segmental Structure</td>
<td>1</td>
</tr>
</tbody>
</table>

The prevalence of non-selectivity in the database strongly suggests that the distributional freedom typically posited to define words is indeed a robust criterion and furthermore a property that is lost at a relatively late stage of grammaticalization. The other crucial insight that can be gleaned from the above table is that non-selective items are overwhelmingly dependent on the parameters of prosodic features and/or phonological rules. Specifically, non-selectivity combines with prosodic features in 39 wordhood issues and with phonological rules in 27 wordhood issues. Given that the former parameter accounts for more wordhood issues in the database overall, the patterns in which non-selectivity participates are thus representative of the database in general. More importantly, though, since non-selectivity is involved in a much larger number of wordhood issues than the other
morphological parameters are combined, the present database would only have been slightly smaller if this work had limited itself to a total of three rather than eight parameters. That is, since S > P issues invariably concern selective items, a restriction to the parameters of prosodic features, phonological rules, and non-selectivity would merely have led to the omission of the nine grams discussed in the preceding sub-sections and of the two markers that exclusively show prosodic (in)dependence in terms of segmental structure.

It should be reiterated here that words would not necessarily be more robust units if non-selectivity were disregarded as a relevant parameter, as in Dixon & Aikhenvald (2003). On the one hand, non-selectivity does not bear on any mismatches internal to the phonological word, such as that described in (1.1). Given the argument in the preceding chapter that prominence domains appear to be more reliable indicators of wordhood than harmony domains, such cases should be rather common cross-linguistically. On the other hand, issues that pertain only to the morphological word might also continue to exist after the exclusion of non-selectivity as a parameter. For instance, psycholinguistic work might reveal that many items that behave like affixes on the parameters of cohesiveness and fixed order have the mental representation of words on the parameter of conventionalized meaning.

The most significant challenge to the role of non-selectivity as a wordhood parameter is the fact that it critically relies on distinctions between word classes. The wordhood analyses performed here were largely based on the explicit information that the relevant sources provide on that score. However, the definition and delineation of word classes has proven to be a particularly complex issue for cross-linguistic work, and this problem ultimately also shaped the structure of the present database. For example, Croft (2001: 30-47) criticizes the use of the distributional method to arrive at the word class inventory of a given language because few words behave entirely identically across all relevant constructions. The possible solutions are thus to ignore certain differences between the distributional patterns, which Croft (2001: 30) calls “methodological opportunism,” or to create a separate word class for every individual distribution. While the latter strategy would be faithful to the empirical facts, it is impractical given the number of word classes that would arise from its consistent application.

Given this impasse, Croft (2001) argues that the ontological relationship between syntactic constructions and word classes is the opposite of what has traditionally been
posited. That is, instead of using constructions to determine word classes that are subsequently claimed to be the input for the constructions, the latter should be considered the theoretical primitives. Put differently, the distributional method implicitly acknowledges that syntactic constructions logically precede word classes, and Croft (2001) proposes to make this knowledge the explicit basis of syntactic theory. This approach has concrete implications for cross-linguistic work. Specifically, Croft (2001: 88-89) states that concepts such as “noun,” “verb,” and “adjective” have to be considered typological prototypes that combine both semantic and pragmatic properties. Thus, where prototypical nouns make reference to an object, prototypical adjectives modify by assigning a property, and prototypical verbs predicate an action.

While Croft (2001: 103) emphasizes that the exact boundaries of nominal, adjectival, and verbal categories are language-specific, the analyses throughout Chapters 4-6 showed that some grammatical descriptions do not accommodate this flexible approach. For instance, both Kharia and Lillooet are claimed to only have a single open-class category, which does not reflect the prototypical functional distinctions proposed by Croft (2001). However, it was also illustrated in the respective places of the present work that the functional contrast between reference and predication in those languages correlates with straightforward morphosyntactic differences. Hence, the claim adopted here that both languages can be analyzed as having separate nominal and verbal domains follows directly from an application of Croft’s (2001) prototype approach.

The remaining issue thus concerns the question of whether a similar cross-linguistically applicable method is also available for closed-class elements. Given that the latter are defined by their bleached semantics and inability to express any pragmatic functions on their own, such an approach would have to differ from the one sketched above for open classes (cf. Croft 2007b: 358-363). Yet, it should be noted that the present work would barely be impacted even if a comprehensive account of closed classes were lacking. This is because the grams in the present database can usually attach to nouns or verbs, and they are therefore non-selective as long as they can also collocate with closed-class elements, regardless of whether the latter can be further divided into sub-classes within or across languages. In light of this fact, I will leave cross-linguistic studies of closed-class functions for future research.
It was suggested in the previous sub-section that mobile affixes show a lower degree of freedom than elements that are independent in terms of cohesiveness or non-selectivity. This argument is based on the idea that non-selective items can theoretically occur anywhere in the clause, whereas items that lack cohesiveness are typically tied to units of roughly phrasal size, such as coordinated NPs or complex predicates. By contrast, mobile affixes only have distributional options within a single word form. Since typical grammaticalization processes gradually lead to fewer positional alternatives for the affected elements, non-selective items might be assumed to first become suspended affixes and to develop into mobile affixes thereafter. However, given the overall rarity of suspended and mobile affixes, their diachronic relationship with each other and with non-selectivity is not obvious. For instance, it is conceivable that non-selective items can become mobile affixes without passing through an intermediate stage at which they are suspended affixes. Furthermore, it should be recalled that one of the mobile affixes in the database, the Yeri index, has infixal variants. Since infixes commonly result from phonological processes (cf. Yu 2007: ch. 4), the origins of mobile affixes might thus not even be morphosyntactic in nature. Given the scope of this issue and the scarcity of pertinent diachronic data available, I will not address this topic further here.

Despite the above statement that the distributional domain of non-selective items is the clause, this is primarily true of the verbal grams only. That is, non-selective nominal grams are almost always distributed with regard to an NP constituent, and since most nominal grams in the database are postposed, their non-selectivity typically derives from the fact that they follow both nouns and their modifiers. By contrast, few of the grammars consulted for the present work posit a VP constituent for the relevant language, and therefore few of the verbal grams are distributed with respect to such a unit. Instead, verbal grams may have a specified clausal distribution (e.g., the Xong tense marker), occur in different parts of the clause (e.g., the Yeri tense marker), or even attach to pronominal elements (e.g., the Tommo So tense marker). As argued throughout the analyses in Chapters 5 and 6, the verbal domain essentially corresponds to the predicate, which in turn is often the whole clause. Hence, on the assumption that verbs head clauses (e.g., Spencer 1999: 186), the distributional differences between nominal and verbal grams can be attributed to the fact that verbs head a more internally complex domain than nouns.
The above-mentioned dichotomy ties in with accounts that posit a crucial division between nominal and verbal morphosyntax. For instance, they support Berg’s (2020a, c) argument that verbal forms show a higher degree of “syntacticity” – that is, a wider array of distributional options – than their nominal counterparts (cf. also Chapter 1). While Hypotheses 2 and 3 predicted that this tendency would manifest itself along the parameters of fixed order and cohesiveness, the above discussion instead suggests that the relevant contrast comes about because many grams whose semantic scope includes the verb are not even adjacent to the verb. By the same token, these distributional differences also bear on Himmelman’s (1997: 152) claim that combinations of definiteness markers and nouns act as single constructional “gestalts” whose formal and functional properties go beyond the sum of their parts. Hence, to the extent that this gestalt character holds for the nominal domain in general, it might be argued that non-selective case markers essentially function as “phrasal affixes” to the NP gestalt. Obviously, the present work does not address the cognitive factors responsible for the fact that (parts of) the nominal domain can be characterized as a gestalt whereas the verbal domain apparently does not show such effects. However, the findings arrived at in this work support the general insight that the functional contrast between reference and predication leads to cross-linguistically robust differences in their formal expression (cf. Croft 1991, 2001).

8.2.5 Evaluation

This section has shown that the individual parameters of morphological wordhood inform the present work to very different degrees. As such, they show the same general imbalance that was found with the parameters of phonological wordhood. In contrast to the latter, though, the causes for this discrepancy are primarily empirical rather than methodological. For instance, the conceptual essence of the parameter of conventionalized meaning is mostly straightforward, but grammatical descriptions rarely report how individual grams behave with respect to it. By contrast, there are reasons to assume that the scarce representation of fixed order and cohesiveness is a genuine reflection of linguistic structure. That is, independence on the latter parameter is only evident in a highly limited number of syntactic contexts, and independence on the former parameter has been shown to be a cross-linguistically marked strategy (Mansfield et al. 2020). This leaves non-selectivity as the most
important diagnostic of morphological wordhood, and independence on that parameter in combination with dependence in terms of prosodic features and/or phonological rules accounts for the majority of the wordhood issues in the database. This overarching result will constitute the starting point for the general diachronic discussion in the next section.

8.3 THE CHRONOLOGY OF GRAMMATICALIZATION

Grammaticalization is defined as a process that affects several linguistic dimensions (e.g., Heine & Reh 1984: ch. 1; Lehmann 1985, 2015: ch. 4; Heine et al. 1991: chs. 1, 8; Bybee et al. 1994: chs. 1, 4; Croft 2003: ch. 8; Hopper & Traugott 2003: ch. 1). One major question for approaches to grammaticalization thus concerns the relative timing of the individual changes that eventual grams undergo. The focus in this domain has primarily been on the relationship between semantic and structural changes, and the most widely found view on this topic is that processes of grammaticalization are triggered by semantic changes and only subsequently produce structural effects (e.g., Heine 1993: 58; Malchukov 2010: 147). Nevertheless, Bybee et al. (1994: 19-21) state that form and function largely reduce in parallel, whereas Campbell (2001: 157-158) as well as Hengeveld et al. (2017: 3-4) emphasize that the interaction between functional and formal changes is rather flexible.

The present work cannot shed light on the above question because the semantic properties of the grams in the database were not investigated in sufficient detail here. However, the results described in this and the preceding chapter do permit insights about the diachronic relationship between changes on the prosodic and the syntagmatic dimension. Given that many of the aforementioned accounts subsume the formal concomitants of grammaticalization under unreliable and/or vague labels such as “cliticization,” these processes also merit a detailed study. The purpose of the present section is therefore to present a general account of the ways in which grammaticalization formally manifests itself as well as of the factors that determine the different outcomes. This account divides into two parts, the first of which will focus on P > S issues and the second of which will discuss S > P issues. Meanwhile, minor patterns such as those in which the quantitatively marginal wordhood parameters are involved will play a lesser role because a substantive analysis of the relevant phenomena would require a larger amount of data. The section concludes with a brief discussion of what the patterns obtained in this work imply about the status of
morphology and the nature of the word.

**8.3.1 P > S issues**

The dominant pattern revealed in the present database is that grams retain the non-selective distribution of their lexical ancestors even after they have developed a degree of dependence in terms of allomorphy and/or prominence. This result might thus be taken as a confirmation of the idea that dependence in terms of prominence is an early indicator of grammaticalization. However, as discussed in the preceding chapter, this type of dependence might also be due to synchronic intonation patterns and thus does not necessarily constitute the initial stage in the process. This ties in with the fact that many non-selective items only show dependence in terms of allomorphy, which suggests that this phenomenon is equally likely to constitute the first step on the path toward formal gram status.

The question of whether a given gram is more likely to become dependent in terms of allomorphy or prominence might be informed by functional factors. As will be recalled, non-selective elements that always lack prominence and do not interact with a host were called “particles” in this work (cf. 3.2.2). By contrast, non-selective items whose dependence manifests itself in the interaction with a host were called “clitics” here. The typical instantiations of such interactions are allomorphy or the inclusion in the larger host domain for the purposes of stress or tone assignment. While it was mentioned in 4.2.1 that on this definition the definiteness grams in the database are particles more often than the case markers, the verbal grams do not show a comparably neat picture. In light of this pattern, it might thus be concluded that a lack of prominence is particularly likely to target elements such as definiteness markers, which, as mentioned in 3.0.1, have a pragmatic rather than a semantic function (cf. Aikhenvald & Dixon 1998: 75-77). This difference could then be ascribed to the principle of iconicity in that tighter semantic ties, such as those between NPs and case markers or between verbs and indexes, are also reflected in higher degrees of formal interaction such as allomorphy. Conversely, the fact that the segmental shape of definiteness grams does not usually depend on surrounding elements mirrors the lower semantic impact they have on their collocates.

The prevalence of allomorphy among the grams in the database is largely compatible with the frequency-driven approach to sound change developed by Bybee (2001, 2015: chs.
On that account, the gestural routines that speakers develop in the use of frequent collocations lead to sound changes in those strings. Yet, while it will be assumed here in the absence of counterevidence that the grams in the database are indeed token-frequent, they illustrate that the relevant collocations might involve highly schematic units. For example, case markers, which account for a disproportionate share of the P > S issues, typically show allomorphic alternations as determined by the phonological structure of the NP-final element. This suggests that the decisive collocate of the case markers is the abstract NP constituent rather than any specific lexical element or syntactic category contained in it. Crucially, though, constructional approaches to syntax recognize schematic units of this sort as a fundamental part of linguistic knowledge on a par with fully specified lexical items (e.g., Croft 2001: ch. 1; Bybee 2010: ch. 2). In sum, then, usage-based models can account for most of the prosodic and the syntagmatic patterns in which the nominal grams are involved.

However, it must also be pointed out that Bybee’s (2001, 2015) theory does not readily translate to the suprasegmental dimension and that the formal factors that cause a gram to become dependent in terms of prominence are therefore less clear. Yet, in light of the methodological issues concerning the description of prominence systems (cf. 7.2.3), generalizations in this domain would presumably be unreliable in any case. More generally, it must be concluded that the present database does not justify the formulation of an implicational universal such that dependence in terms of allomorphy generally precedes dependence in terms of prominence (or vice versa). Given that some languages lack word-based prominence or allomorphy entirely, though, any posited relationship between these two phenomena would necessarily not be of a universal nature. By contrast, the data described in 7.2.4 do warrant the claim of an implicational universal. Specifically, they suggest that a gram only becomes sub-minimal when it is already dependent in terms of allomorphy and/or prominence.

The focus above has been on the nominal grams because their verbal counterparts often have a larger range of distributional options (cf. 8.2.4), which complicates generalizations in terms of the collocates they attach to. However, it is crucial to highlight that grams in both domains show the same general formal effects, and verbal grams are therefore also compatible with the frequency-driven model of sound change sketched above. Substantive predictions as to what kind of units verbal grams become prosodically dependent
on would then have to be complemented by language-specific accounts of the precise syntactic range of their diachronic sources. It should also be noted, though, that there might be an important difference in the syntagmatic behavior of the two verbal categories. Specifically, a distribution with respect to the clause appears to be more common for the tense markers (cf. 6.2.1), whereas indexes are bound to verb stems relatively frequently. This discrepancy would contradict Bybee’s (1985a) account, which argues that tense is more relevant to the meaning of the verb than indexation and that its exponents should subsequently also form a tighter formal unit with the verb than do indexes. However, an exploration of this issue would require a larger database than is available here as well as thorough semantic analyses, which go beyond the scope of the present work.

A final insight with respect to the P > S issues concerns the likely origins of the respective grams. Specifically, markers of definiteness, indexation, and tense tend to derive from demonstratives, pronouns, and auxiliaries, respectively (cf. Bybee 2015: ch. 7), all of which are usually closed classes themselves. By contrast, adpositions, which were considered case markers for the purposes of this work, originate from either nouns or verbs (Bybee 2015: 154-155). The latter fact is noteworthy because case markers account for the largest number of P > S issues in the database. Hence, the syntagmatic freedom that case markers exhibit extraordinarily often might be a reflex of their more recent open-class status, whereas their prosodic dependence is a regular product of their frequency in NP-adjacent position (cf. above). Yet, while this line of reasoning seems promising in principle, it will not be pursued further here because the etymological information available for the grams in the database is insufficient.

8.3.2 S > P issues

The above argument obviously does not contribute to an understanding of the conditions that lead to S > P issues. The discussion in the preceding chapter showed that the latter are clearly the marked type of wordhood issue, and it further argued that they are not restricted to languages with agglutinating morphology. Instead, 7.1.3 suggested that both the pure and the split S > P languages are characterized by a highly synthetic morphology. In order to support this point, Table 8.10 shows the number of positions in the morphological templates of the nine S > P languages. The relevant counts include the lexical root morpheme
and all derivational and inflectional affixes but exclude elements represented as clitics. Note that the table gives the number of slots in the noun template for those languages whose S > P issue falls within the nominal domain and the number of slots in the verb template for those languages whose S > P issue falls within the verbal domain. Where an explicit number of slots is provided in the source, I reproduce that number here without modification. By contrast, in cases where grammars do not provide explicit information on the structure of the relevant template, I give the number of slots illustrated in the most morphologically complex example I managed to find in that grammar. In the table, the numbers arrived at via the latter strategy are followed by an asterisk. Those numbers are to be understood as minima, which is to say that languages whose number of slots is marked by an asterisk are possibly more synthetic than that number suggests.

**Table 8.10. Number of templatic slots in S > P languages.**

<table>
<thead>
<tr>
<th>S &gt; P language</th>
<th>Template</th>
<th>Number of templatic slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creek</td>
<td>Nominal</td>
<td>5 (Martin 2011: 24)</td>
</tr>
<tr>
<td>Kotiria</td>
<td>Nominal</td>
<td>7 (Stenzel 2013: 152)</td>
</tr>
<tr>
<td>Ute</td>
<td>Nominal</td>
<td>5* (Givón 2011: 46, 47)</td>
</tr>
<tr>
<td>Apurinã</td>
<td>Verbal</td>
<td>32 (Facundes 2000: 270)</td>
</tr>
<tr>
<td>Dangla</td>
<td>Verbal</td>
<td>4* (Shay 1999: 132)</td>
</tr>
<tr>
<td>Gumuz</td>
<td>Verbal</td>
<td>14 (Ahland 2012: 184)</td>
</tr>
<tr>
<td>Komnzo</td>
<td>Verbal</td>
<td>9 (Döhler 2018: 176)</td>
</tr>
<tr>
<td>Mauwake</td>
<td>Verbal</td>
<td>10 (Berghäll 2015: 131)</td>
</tr>
<tr>
<td>Yimas</td>
<td>Verbal</td>
<td>9* (Foley 1991: 278)</td>
</tr>
</tbody>
</table>

Using the number of templatic slots as a proxy for the degree of synthesis is potentially problematic in that some of the slots may of course be reserved for elements that would not be classified as affixes on the parameters that underlie the present work. Apart from that issue, though, the data in Table 8.10 clearly show that S > P issues exclusively arise in contexts in which the relevant lexical head can be highly morphologically complex. Crucially, this tendency also extends to the nominal domain. That is, the number of slots for nouns in Creek, Kotiria, and Ute is very high considering the relatively low amount of
nominal morphology overall (cf. also 1.3.3). Note, finally, that Dangla appears to be the only counterexample to the posited correlation of synthesis and S > P issues. However, it should be reiterated that the number of templatic slots shown for Dangla in the above table might be too low and that morphological segmentation in the language is additionally complicated by the factors sketched in 7.1.1.1. Therefore, I will not consider Dangla an exception for the purposes of this discussion.

The most straightforward explanation for the connection between S > P issues and synthetic morphology is probabilistic in nature. Specifically, where a large amount of information is expressed by rigidly ordered affixes, the number of positions that a non-affixal gram can assume with respect to the resulting word forms is correspondingly low. This contrasts with languages that encode the same information by means of free morphemes, in which case the grammaticalizing item in question has a much larger number of potential collocates. Put differently, a high degree of synthesis limits syntagmatic options and thereby paves the way for further synthesis. As such, the question of whether a given language will have a P > S issue or an S > P issue essentially depends on the number of fully grammaticalized affixes it already has in the relevant domain. It follows that the preponderance of P > S issues in the database might simply be due to the fact that highly synthetic languages are rare overall.

Obviously, an S > P issue only emerges if the gram in question lags behind in terms of its prosodic integration. It therefore seems noteworthy that three of the six preposed indexes in the database constitute S > P issues. That is, this pattern might come about because indexes develop from free (emphatic) pronouns, which differ from bound indexes precisely with respect to their weight and ability to bear prominence. Hence, such elements are particularly likely to retain some degree of this prosodic independence even after becoming syntagmatically fixed, and the probability of this outcome is further increased in preposed position due to the general factors that lead to the suffixing preference (cf. Himmelmann 2014; Berg 2020b for discussion).

Yet, while the above account is an important qualification of the unmarked diachronic pattern described in the previous sub-section, it only highlights a necessary instead of a sufficient structural prerequisite. This is because the four split S > P languages also have P > S issues despite their synthetic morphology. In addition, several P > S
languages are also highly synthetic (e.g., Bardi, Onondaga), whereas other synthetic languages in the sample do not produce either kind of wordhood issue (e.g., Evenki, Worrorra). Hence, even though the distribution of S > P issues in the database confirms the insight that complex morphological words often contain multiple phonological word domains (cf. 1.1 for references), further research will have to determine which additional criteria have to be met in order for S > P issues to arise. Crucially, such studies will also have to engage with the phenomenon of nominal synthesis, which is underexplored in the literature but, given the patterns discussed above, possibly subject to the same diachronic forces as its verbal analog.

The diachronic approach to S > P issues suggested here is neatly captured by Croft’s (2000b: 156-165) “periphrasis-fusion-erosion” model of grammaticalization. He defines fusion as the stage at which a formerly periphrastic construction (such as the combination of a free pronoun and a following verb) is conventionalized as a single unit, the latter of which essentially equates to the concept of a morphological word. This fusional stage is then followed by processes of erosion, which correspond to the beginning of what is called “prosodic dependence” here. Interestingly, though, this approach might also account for some of the P > S issues such as the case markers. To the extent that the latter derive from nouns and verbs, the fact that they are commonly restricted to immediately NP-final position suggests that they already lost some syntagmatic freedom and are beginning to form a conventionalized unit with the NP (cf. also 8.3.1). If they only begin to show prosodic dependence once they are bound to the NP, they could then also be argued to exemplify the above sequence in which the rigidification of distributional patterns precedes the loss of phonological autonomy.

8.3.3 Grammaticalization, morphology, and the word

The preceding sub-sections have argued that wordhood issues come about via two principal pathways. In the default scenario, grams retain the ability to occur with words from different syntactic categories even after becoming dependent in terms of allomorphy and/or prominence. Meanwhile, the less common trajectory involves the opposite process in which items whose (future) stems are highly synthetic may have the distributional properties of affixes before they are fully prosodically integrated. The existence of this basic dichotomy
would seem to support the claim that grammaticalization is not a unified phenomenon (cf. Campbell 2001). However, what all processes of grammaticalization have in common is an increase of formal dependence as defined in this work. Since this dependence also reliably affects the exponents of certain grammatical functions, it seems more descriptively economical and cognitively plausible to consider grammaticalization a single concept that branches into various sub-types. By contrast, an alternative approach that ignores this cross-linguistically recurring overlap between form and function would suggest that the diachrony of grams is more haphazard than it has been shown to be here or in other comparative work.

While grammaticalization is thus an indispensable concept for approaches to language change, the data discussed in this work suggest that the theoretical treatment of its synchronic reflexes – i.e., bound morphology – also stands to benefit from a diachronic angle. Specifically, the previous sub-sections largely confirmed the claim that bound morphology is a product of the interaction between syntactic and phonological properties (cf. 1.3). As such, it might best be characterized as a “phenomenon of the third kind,” that is, the unintended result of intended actions (cf. Keller 1994, 2003). More precisely, speakers will unwittingly propel the frequency-driven gestural changes described by Bybee (2001, 2015: chs. 2, 3), and they will equally adhere to the conventionalized morphosyntactic patterns in their speech community. The confluence of these two patterns then typically leads to bound morphology in certain contexts even though its creation is neither a communicative goal nor a functional necessity.

The emergent morphology that forms the empirical core of the present work confirms the results of several previous studies on wordhood (issues). For instance, the grams in the database that meet only a subset of parameters of phonological wordhood lend credence to the claim that languages may have competing word domains (e.g., Schiering et al. 2010). Similarly, the grams in the database that behave like morphological words on only some parameters illustrate that the boundary between syntax and morphology is gradient (e.g., Haspelmath 2011). In addition, the set of S > P issues found in this work corroborates the idea that this type of mismatch is primarily a property of highly synthetic languages (e.g., Bickel & Zúñiga 2017). However, the novel contribution made by this study follows from the fact that it does not limit itself to any of those topics. Instead, it shows that wordhood issues cluster in particular grammatical domains, and its consistent consideration of both prosodic
and syntagmatic facts opens up a larger perspective. Specifically, the insight that words usually retain their non-selective distribution even at a stage when they already behave like affixes in terms of their phonological properties should be of equal interest to theories of phonology, morphology, and syntax.

Yet, while this study investigated precisely the minority of cases in which different wordhood parameters do not identify the same strings, it also suggests that certain properties may serve as helpful heuristics in a constructive approach to the word unit. That is, one might abstract from the preceding chapters that a word can roughly be defined as a single domain of prominence (and allomorphy) in which all non-root elements are selective. Clearly, though, several caveats apply to this definition. First and foremost, the type of prominence at issue here is the one defined in 1.3.3 and 2.4, which highlights certain syllables rather than larger stretches of speech. However, since some languages do not have such a type of prominence, they would thus also lack words on the above definition, and (phonological) words in such languages would then have to be defined by other phenomena such as allomorphy. The reason the latter is rendered in parentheses above is that it accounts for fewer cases than prominence in the database, and it might therefore prove to be a less decisive parameter cross-linguistically. Finally, this definition might also run into problems when all of the structural properties referenced in it are found in a language. For instance, mobile and suspended affixes would not emerge as aberrant structures given the present formulation, but they could of course easily be captured by extending it accordingly.

The above approach to wordhood has the advantage that it only relies on structural principles that most grammars contain sufficient information about, either explicitly or implicitly. Hence, typological studies not primarily dedicated to the investigation of wordhood could usually rely on the above definition in the description of specific (strings of) elements and subsequently categorize them as words, (anti-)clitics, affixes, etc. That is, even though the above definition would obviously not allow for an exhaustive division of elements into words and non-words, its application should lead to a greater degree of consistency and comparability than the indifferent adoption of the labels and classifications used across different grammars. Furthermore, the use of this definition might lead to the discovery of further types of wordhood issues, which in turn might inspire helpful revisions to its intension.
Finally, it should be pointed out that the above is not a definition of the word as a “comparative concept” in the strict sense (e.g., Haspelmath 2010; Croft 2016). This is because comparative concepts primarily rely on functional criteria, which the definition suggested here does not refer to at all. More importantly, though, comparative concepts must also be based on universal properties, and the above proposal falls short of this principle because of its reference to language-specific phonological phenomena. Therefore, future research will not only have to determine to what extent the definition offered here can inform typological projects but also whether and how it might be replaced by, or developed into, a true comparative concept.
9. CONCLUSION

9.0 SUMMARY

This work investigated the distribution of wordhood issues, which were defined here as cases in which a morpheme shows the behavior of a word on one subset of wordhood parameters but the behavior of a bound element on another subset of parameters. The overarching assumption guiding this study was that wordhood issues are a consequence of ongoing grammaticalization processes given that during this diachronic stage erstwhile words have already lost some of their formal properties but are not yet full-fledged affixes. The empirical focus of the present work was further informed by Bybee’s (1985a) finding that markers of categories that are less semantically relevant to their (future) stems also show lower degrees of formal interaction with those stems. Subsequently, the exponents analyzed here were chosen so as to express meanings that are of relatively low relevance to their nominal heads (definiteness, case) and to their verbal heads (indexation, tense), respectively. The “grams” marking those four categories were investigated across a balanced sample of 60 unrelated languages from five macro-areas, and the methodological basis of the empirical analyses performed here was a set of eight wordhood parameters that are well-established in the literature.

The resulting database contains 72 wordhood issues from 41 languages. The main pattern that emerges from this database is that grams retain the ability to co-occur with words from different word classes even when they already show phonological interactions with other elements, which usually manifest themselves in terms of allomorphic alternations and/or the assignment of prosodic prominence. While the former property aligns such grams with morphological words on the parameter that was called “non-selectivity” here (following Haspelmath 2011), the latter trait is indicative of a bound status with regard to parameters that are typically used to define the phonological word. As such, grams of this type show a greater degree of prosodic than of syntagmatic dependence (P > S), where dependence is defined as the extent to which the shape and/or distribution of an element is impacted by surrounding elements. By contrast, grams that have the syntagmatic distribution of affixes but retain prosodic independence on at least one parameter (S > P) are considerably less frequent. Specifically, the data gathered here suggest that they are limited to contexts in
which the relevant stem is highly morphologically complex.

The database described above does not bear out any of the three hypotheses formulated in this work. That is, wordhood issues that show a mismatch of the S > P type do not correlate with agglutinating morphology in the relevant language, and they are also not more common among the markers of the nominal categories than they are among the exponents of the verbal categories. Lastly, the number of grams in the database that can assume different slots within a morphological template or that can occur in different slots across a phrase-like unit is too low to decide whether elements with those formal properties are more typical of the nominal or of the verbal domain. Since these hypotheses were ultimately motivated by traditional synchronic approaches to word structure such as Morphological Typology or the suffixing preference, their disconfirmation suggests that wordhood issues must be accounted for by different principles. Here, it was argued that they are best explained by diachronic models such as those developed by Bybee (2001, 2015) and Croft (2000b), which predict the emergence of P > S issues and of S > P issues, respectively. The remainder of this chapter will discuss a number of aspects that could further shed light on the present database and the nature of wordhood (issues) but whose substantive treatment would go beyond the scope of this work.

9.1 REMAINING ISSUES

In 9.1.1, I will highlight empirical desiderata that bear on the present work and/or follow from it. Meanwhile, 9.1.2 will focus on the relationship between this work on the one hand and contemporary synchronic approaches to morphology and wordhood on the other. Finally, 9.1.3 will discuss some implications of the present database for the notion of clitics.

9.1.1 Empirical questions

The main obstacle for cross-linguistic projects is the lack of explicit and/or sufficient information in grammatical descriptions, and this problem also affected this study. The two preceding chapters suggested that several wordhood parameters might be scarcely discussed in grammars because their intension is unclear or because they rarely manifest themselves. However, the study performed here potentially unearthed an additional factor that impacts this issue. Specifically, dedicated accounts of wordhood are often absent from the grammars
of languages that would traditionally be classified as polysynthetic. In the present sample, this applies to Arapaho, Nisgha, and Worrorra, among others.

In light of the fact that the putative concept of polysynthesis has played a major role in discussions of wordhood, this pattern is unexpected. However, a straightforward explanation emerges once the relevant speech communities are taken into account. It was pointed out in Chapter 2 that the degree of language endangerment appears to be particularly high for indigenous languages that compete with English. Given that the properties taken to define polysynthesis are more widely found in North America and Australia than in most other regions (cf. Evans & Sasse 2002: 1), languages claimed to be polysynthetic thus often lack vitality. Crucially, it has been shown that synthetic morphology is one of the first properties that obsolescent languages tend to lose (cf. Mithun 1989: 248-250; Romaine 2010: 335), and this raises the question as to whether structural units such as the word lend themselves to any kind of definition in such languages. That is, obsolescence may cause major differences in the morphological structure of a language within a few generations, and the omission of the topic of wordhood from the relevant descriptions might then simply reflect the uncertainty about which of the possibly co-existing stages represents the “actual” language.

The above argument suggests that the study of decaying polysynthetic systems would constitute a worthwhile topic for further research on wordhood (issues). Specifically, it would be of interest to know whether grams in such systems first regain their prosodic or their syntagmatic independence during the degrammaticalization process. In case of the former scenario, they would be synchronically indistinguishable from S > P issues, whereas the latter development would produce the same mismatch as P > S issues. Overall, though, such an investigation is of course complicated by the very fact that the relevant languages are highly endangered and by the possibility that the formerly dependent grams are replaced or discarded as a consequence of obsolescence rather than simply retained in a less dependent form.

Another point that merits further study is the role of preposing and postposing discussed at some length in the previous chapter. For instance, Enrique-Arias (2002) finds that languages generally tend to avoid long sequences of inflections and are thus more likely to develop prefixes if they already have a large number of suffixes (and vice versa). This
bears on the present work in that S > P issues were found to occur in highly synthetic contexts and furthermore to involve preposed elements relatively more frequently. Hence, the relevant S > P issues in the database might have come about because the domains in question already contained many suffixes and the developing grams were thus fixed in preposed position at the very beginning of the grammaticalization process so as to prevent further suffixation. Enrique-Arias (2002) also argues that this preposing tendency primarily affects indexes because they tend to develop later than TAM suffixes. The latter idea is compatible with the present database in that three of the four preposed elements that cause S > P issues are indeed indexes. However, while this number is too small to further inform Enrique-Arias’ (2002) proposal, the major challenge for the latter is that there are many exclusively suffixing languages that have both TAM marking and bound indexes. Hence, it must be reiterated that a comprehensive typology of wordhood issues cannot be provided until the factors that determine pre- and postposing are fully understood.

The present work has focused on the wordhood properties of grammatical markers and found that the latter tend to be more prosodically than syntagmatically dependent. This suggests that there might be an interesting contrast with the lexical domain given that (nominal) compounds often behave like single morphological words but have internal constituents that retain properties of phonological words (cf. Vogel 2010: 145). Note that this juxtaposition is particularly apt because the grams analyzed in this work are developing into inflectional elements and the members of compounds frequently become derivational markers (cf. Heine et al. 2016). As such, compounds also represent a diachronically intermediate stage. However, the difference between grammar and lexicon suggested here is difficult to substantiate because no cross-linguistic study of compound phonology comparable in scope to the present work appears to exist. Hence, the question of what might cause such a structural discrepancy will have to be deferred until the empirical premise has been established.

Finally, the database illustrates that there are some languages that have wordhood issues in both nominal categories but in neither of the verbal ones (e.g., Basque, Itzaj) and some that show the opposite pattern (e.g., Huave, Yeri). While the preceding chapter did not confirm either of the hypothesized cross-linguistic differences between the structure of the nominal and the verbal domain, these facts suggest that principled contrasts between the two
domains may still be found in individual languages. Specifically, it could be surmised that
the nominal domain in Itzaj is characterized by more formal gradience than the verbal
domain, whereas the latter appears to be less clear-cut in Yeri. However, here too, an
exploration of the possible causes of these patterns would require a more thorough analysis.
For instance, the aforementioned dichotomies might disappear once exponents of other
grammatical categories are investigated. Given these complications, this issue will not be
addressed in more detail here.

9.1.2 Theories of morphology and wordhood

Contemporary theoretical approaches to morphosyntax are not primarily dedicated to
the investigation of wordhood issues or their causes. Instead, they tend to focus on the
paradigmatic and synchronic properties of fully grammaticalized elements. Specifically, the
topics that have received considerable attention in the recent literature are inflection classes,
syncretism, and “morphomes” (e.g., Stump 2001b; Baerman et al. 2005; Brown & Hippisley
2012; Cruschina et al. (eds.) 2013; Stump & Finkel 2013; Luis & Bermúdez-Otero (eds.)
2016). Meanwhile, recent theories of morphophonology often center on phenomena such as
reduplication and infixation, and they also typically restrict themselves to the synchronic
dimension (e.g., Stonham 1994; Inkelas & Zoll 2005; Inkelas 2014). All these empirical and
theoretical concerns clearly differ from those at issue here, which explains why the
aforementioned references did not factor into the preceding discussions. Put differently, it
was argued throughout this work that an explanation for wordhood issues ultimately has to be
informed by a diachronic model that combines syntagmatic and prosodic facts. As such, it
must be concluded that many present-day accounts of morphology do not contribute to an
understanding of the data of interest in the present study.

However, the recent focus on synchronic morphosyntax has also reinforced the
argument for a “word-and-paradigm” approach to morphology, in which words rather than
morphemes are considered the smallest linguistic signs (cf. Blevins 2016: ch. 3). This
approach is based on the claim that relationships between form and meaning below the level
of the fully inflected word are often difficult to posit due to phenomena such as zero and
empty morphs or distributed exponence. Hence, this account is essentially the opposite of the
one advocated by Haspelmath (2011), who argues that the word cannot be defined or serve as
a descriptive unit. By contrast, the present study suggests that any linguistic theory requires reference to both bound morphemes and words. That is, while the elements at issue here share properties with both phenomena, most of the grams in the sample languages can be classified as either clear-cut affixes or straightforward words. It follows that any approach that sacrifices one of these two types in favor of the other would fall short of descriptive accuracy. This need for conceptual breadth obviously aligns morphology with all other areas of linguistic analysis.

As mentioned in the previous two chapters, approaches to wordhood are often divorced from psycholinguistic research, which derives from the fact that the latter is typically only conducted for a few well-known (and mostly Indo-European) languages. However, this disconnect is arguably the greatest drawback of studies such as the present one as well as of the theories and accounts mentioned above. That is, to the extent that the goal of linguistics is to model the mental categories and processes available to language users, the structural data that investigations of wordhood typically rely on might be misleading. For example, elements whose formal behavior suggests a bound status might have the same mental representation as those that are analyzed as words. In fact, recent fieldwork on South American languages suggests that derivational items may be cognitively accessible to native speakers in the same way that full words are (Rosa Vallejos; personal communication). Clearly, such a division would add to the complications surrounding the nature and applicability of the parameter of conventionalized meaning. In sum, then, these possibilities highlight that the merit of all studies and theories of wordhood is ultimately contingent upon the cross-linguistic exploration of its psychological manifestations.

9.1.3 Clitics

Many of the elements in the present database can be classified as clitics in that they are non-selective but prosodically dependent on a host. However, it was also highlighted throughout this work that several of the grams at issue here do not constitute instances of clitics even though they are labeled as such in the respective sources. Furthermore, this study also suggests that certain types of clitics are less cross-linguistically common than the theoretical literature suggests. In particular, the database furnishes little evidence for the existence of “simple clitics,” which are phonologically reduced forms in essentially free
variation with the corresponding full words (Zwicky 1977: 5-6). A typical instance of such an alternation is found in the present-tense forms of the English verb be, which can either be full phonological words (am/are/is) or sub-minimal ('m/ ’re/’s). It should be mentioned, though, that “simple clitics” are likely to be part of non-standard registers, and their apparent absence from most of the languages investigated here might thus follow from constraints on linguistic fieldwork rather than from their actual empirical infrequency.

In any case, the grams collected in this work differ from “simple clitics” in that they can typically only occur in one segmental shape in any given syntactic or phonological environment. Note, however, that some elements in the database closely resemble the kind of “simple clitic” described above. For instance, the Mauwake index can freely alternate between a form that is a phonological word and one that falls short of wordhood in terms of segmental structure and prosodic features. Crucially, though, both the full and the reduced form are restricted to immediately preverbal position, and hence the index is not a clitic of any kind.

Another type of clitic for which the present study has revealed little empirical support is the “ditropic” kind (but cf. 4.1.1.2; 4.1.3.6; 6.1.4.4 for discussion). Recall from 1.4.2 that such elements show prosodic interaction with a preceding item even though they are syntactically and/or semantically associated with a following unit. It should be mentioned, however, that the low representation of such grams in the database might partly have come about because their ditropic status often hinges on scope relations, which were not investigated in detail here. Hence, it must be concluded that the present study does not inform the nature or distribution of ditropic clitics, and their relevance to a general theory of clitics will instead have to be established by a cross-linguistic investigation specifically dedicated to this phenomenon.

In sum, this work suggests that, once they are rigidly defined, clitics as well as specific sub-types thereof are a less widespread phenomenon than commonly stated or assumed. Furthermore, the present study also demonstrates that wordhood issues do not reduce to clitics but involve a rather variegated set of morphological units. It is hoped here that this study will inspire further research on the cross-linguistic distribution and diachronic emergence of those elements.
APPENDICES

Appendix A: The language sample.
Map 1. The sample languages. [Courtesy of Phillip Rogers]
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