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Adam J. R. Tallman

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Tallman Adam (Orcid ID: 0000-0003-3524-9300)

Beyond grammatical and phonological words

Abstract:

This paper reviews recent research on the cross-linguistic comparison of wordhood domains. A prominent solution to misalignments in wordhood domains is to distinguish between grammatical (morphosyntactic, morphological) words and phonological (prosodic) words. Recent studies reveal problems with this solution insofar as it is meant to serve as a basis for cross-linguistic comparison. Language-internal divergences within morphosyntactic domains and the phonological domains are not straightforwardly handled by the grammatical-phonological word distinction. Moreover, cross-linguistic variation in the motivation for these constituents is such that it is not clear that the grammatical/phonological word of one language is comparable to that of the next. Recent descriptive and typological studies seek to overcome these problems by questioning some of the methodological and conceptual assumptions underlying the concept of a word and the interpretation of wordhood diagnostics.

Keywords:

wordhood, typology, constituency diagnostic, morphological autonomy, syntax, phonology, misalignment

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1 Introduction

This paper provides a critical overview of some of the most recent descriptive and typological literature on the issue of wordhood. The literature on wordhood, in its morphological, syntactic, phonological and semantic dimensions is vast and has a long history (e.g. Pike 1952 and see Dixon and Aikhenvald 2002; Elordieta 2014 for more recent reviews). In this paper I narrow the focus down to a view which has achieved a degree of orthodoxy in the practice of grammar writing, description and to a large extent in linguistic typology.

Briefly the orthodoxy posits that all languages have identifiable grammatical (or 'morphosyntactic', 'morphological') and phonological (or 'prosodic') words. For ease of exposition I will focus on Dixon's (2009) formulation, since it is commonly cited in descriptive grammars.¹

(1) The word bisection thesis:

'Units 'phonological word' and 'grammatical word' can, without doubt, be recognized for all languages.' (Dixon 2009: 7).

The word bisection thesis purports to account for misalignments in wordhood domains by bifurcating the notion of a word into two constituents which need not align. The goal of this review is to show how recent literature has challenged the word bisection thesis insofar as it is understood as an established typological finding or purports to lay the basis for cross-linguistic comparison.

¹ See Hall and Kleinhenz 1999 for an important review of the topic of phonological constituency.

Dixon and Aikhenvald state that "Before the idea (followed here) that one should deal separately with 'grammatical word' and 'phonological word' and then examine the relationship between the two units, there was confusion about exactly what a word is" (Dixon and Aikhenvald 2002:9). The authors review some of the earlier positions on the word (e.g. Bloomfield 1933; Nida 1944; Pike 1947; Ullmann 1957; Bazell 1953). Apart from the fact that linguists have not come up with a set of jointly sufficient and necessary criteria for identifying words, more evidence for the "confusion" regarding the word comes from the fact that some linguists argued that words were not motivated categories in some languages. Furthermore, recent literature on morphological theory (e.g. Matthews 1991) could not arrive at a definitive position on how the constituent should be defined (Matthews 2002 for some discussion). The word bisection thesis resolves these problems by recognizing the existence of two underlying categories.

The word bisection thesis stated in (1) can reasonably be considered an orthodoxy in the practice of grammar writing at this point. The basic premise is rarely (or never) questioned (e.g. Epps 2004:115-117; Timberlake 2004:176; Post 2007:156; Bowerman 2012:161-163; Frajzyngier 2015:61, *inter alia*). Different typologies emerge out of the basic premise², but the most fundamental distinction that Dixon draws is one between languages where phonological and

² The distinction between grammatical and phonological words is foundational for the prosodic hierarchy and theories that depend on it like prosodic phonology (Nespor and Vogel 1986). Prosodic phonology is perhaps the most influential theory on the interface between syntax and phonology (Elordieta 2011; Scheer 2011). A detailed review of this theory is outside of the scope of this paper.

grammatical words 'tend to coincide', and languages where they do not: "one grammatical word may consist of more than one phonological word, and/or vice versa" (Dixon 2009:2).

Taking off from the latter possibility some linguists have argued that the misalignments can be radical. Post argues that the prosodic word in Galo (Sino-Tibetan) maps onto subword constituents in morphosyntactic structure. In the related Sino-Tibetan language Tangam, the reverse situation is found: the prosodic word maps onto syntactic phrases (Post 2009, 2017). From Dixon's typological distinction, a large number of analyses of polysynthetic languages have emerged arguing that phonological phrases map onto grammatical words (Slave (Rice 1993); Cayuga (Dyck 2009); Cree and Dakota (Russell 1999a); Dalabon and Kayardild (Evans et al. 2008; Ross 2012); Kiowa and Saulteaux-Ojibwe (Miller 2018)). Perhaps equally prevalent are cases where prosodic words project over subword morphemes or constituents. Chintang, Kyirong Tibetan, Atkan-Aleut and Mapudungun have been argued to contain affixes that project their own prosodic words (Bickel et al. 2007; Hall and Hildebrandt 2008; Woodbury 2011; Zúñiga 2014, respectively). Post argues that while there might be some "functional pressure toward ... unification of a generalized notion of 'word'", the situation in Galo "support[s] a view of language in which "phonological word" and "grammatical word" were defined in independent terms, and in which neither type of unit was viewed as a simple projection or correlate of the other" (Post 2009: 936; see Woodbury 1996:334 for a similar point).

Dixon is, therefore, justified in claiming that "recent work has shown that best practice is not to try to combine criteria of different types, but to apply them separately and then compare the

results" and he immediately bifurcates the criteria into two types, a practice that is implicitly or explicitly followed in the literature cited above. (2) is a direct quotation from Dixon.

- (2) (a) Recognize 'phonological word', determined on entirely phonological principles.³
- (b) Recognize 'grammatical word', determined on exclusively grammatical (that is, morphological and syntactic) principles.
- (c) Compare the two units. In some languages, grammatical word and phonological word may coincide. (Dixon 2009:2)

The distinction between morphosyntactic and phonological words can capture misalignments between morphosyntactic and phonological criteria. However, it does not straightforwardly capture misalignments between different types of phonological criteria (e.g. vowel harmony versus stress domains (Olawsky 2002); stress domains versus syllabification domains (Russell 1999a)) and different types of morphosyntactic criteria (see Tallman 2018 for a detailed study in Chácobo) (see comment in Matthews 2002:275). Tallman, for instance, shows that free occurrence and cohesiveness ('interruptability') do not align in Chácobo. The situation is depicted in (3).⁴ The brackets refer to spans of structure identified by different morphosyntactic wordhood tests. The minimum free form test identifies a combination of the verb root (*tsaya* 'see'

³ Dixon does not define exactly what is meant by phonological principles.

⁴ Data from Chácobo are from my own fieldnotes based on approximately 22 months in the field or from Tallman (2018).

the criteria is arbitrary. No empirical study has been conducted to show that the 'main' and 'universal' criteria identified by Dixon and Aikhenvald (2002) (cohesiveness, nonpermutability, conventionalized meaning) display any statistical tendency to coincide across languages. The second problem is that it is not clear why a word identified by a 'main' or 'universal' diagnostic should be comparable to a word identified by a criterion of lesser importance. Thirdly, recent descriptive work has shown that even the main criteria are ambiguous such that they can result in the identification of distinct word domains depending on how they are interpreted (Russell 1999b; see Section 3). Finally, problems in identifying the morphosyntactic word aside, a ranking solution is not suggested for the phonological domain at all.

These problems do not seem to be explicitly addressed by Dixon and Aikhenvald (2002). Matthews (2002) points in the direction of another solution when he states:

No criterion is either necessary or sufficient, as Bazell...made clear long ago. But they are relevant insofar as, in particular languages, they tend to coincide (Matthews 2002:274)

However, we are not told how much the criteria should coincide. Nor are we provided with a clear method for determining when two criteria coincide if they do. Recent literature has honed

affix per word; (f) a speaker may pause between words, but not within a word; (g) a word may constitute a complete utterance, all by itself. The first three (a-c) are considered main and universal, while the last four (d-g) are described as varying across languages in terms of their importance.

in on these weaknesses in the wordhood concept showing that a sweeping distinction between grammatical and phonological words is too coarse grained for cross-linguistic comparison.

2 The phonological word

In a handful of papers by Bickel, Hildebrandt and Schiering, the idea that there is a cross-linguistically universal category of prosodic word was scrutinized. While the main purpose of these papers is to refute certain assumptions associated with the prosodic hierarchy (the idea that there is a universal set of hierarchically organized prosodic domains), these papers also challenge the word bisection thesis, at least insofar as it attempts to provide a basis for typological comparison.⁷ The problems with the phonological word (and prosodic hierarchy) can be summarized in two complementary findings.

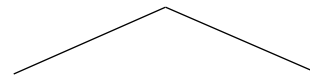
- (4) (i) There are (too often) too many non-overlapping phonological constituents.
- (ii) There are (too often) not enough overlapping phonological constituents.

⁷ Despite the fact that accounting for misalignments between phonological and morphosyntactic domains is one of the primary goals of prosodic phonology, a detailed discussion of this theoretical framework is outside of the scope of this review. There are two reasons for this. First, the existence of the phonological word and its fundamental distinctiveness from the morphosyntactic word in all languages is never questioned in this literature (to my knowledge). Secondly, the literature has not arrived at a set of jointly and necessary criteria for determining which phonological domains correspond to the phonological word in any given language, nor has any methodology been developed that allows one to resolve the ambiguous cases discussed in this section.

First, I elaborate on (4i). Often a number of non-overlapping phonological constituents can be posited between the foot and the phrase. It is unclear which of these should be labeled the phonological word. To provide an illustration of the problem, consider the phonological wordhood phenomena of Limbu (Sino-Tibetan) discussed in Schiering, Bickel and Hildebrandt (2010). To describe the morphophonology of Limbu one needs to posit two phonological words: one to account for stress and regressive labial assimilation, and another smaller phonological constituent to account for [l]~[r] alternation and ʔ-insertion. The problem is depicted below (adapted from Schiering, Bickel and Hildebrandt 2010: 694).

(5) stress + regressive assimilation:

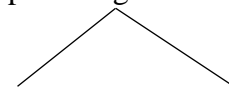
phonological word 1



[l]~[r] alternation + ʔ-insertion:

phonological word 2

phonological word 2



ʔa-

ʔoŋ

-ŋ-e:

1POSS

-bro_in_law

-VOC

‘My brother in law!’

One might argue that, in fact, the higher phonological word is a phonological phrase and that there is a mismatch between morphosyntactic and phonological constituency such that the phonological phrase maps onto a grammatical word. However, Schiering et al. show that there is already a candidate for the phonological phrase based on voicing assimilation, which identifies a larger constituent than phonological word 1 (Schiering et al. 2010: 692).

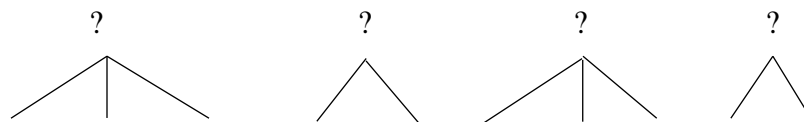
Following the suggestion by Matthews (2002:274) discussed above, one approach might be to assume that the label phonological word should be assigned to spans of structure where the phonological domains tend to converge to the highest degree. However, in the Limbu phonological word 1 and phonological word 2 are the same in this regard, each being supported by two phonological processes. Furthermore, there does not appear to be any tendency for phonological domains to converge typologically. Bickel, Hildebrandt and Schiering (2009) coded 63 languages for 19 different types of prosodic word patterns, coding the prosodic domains for the span of structural categories that they operated over (root+suffix, prefix+root, root+suffix+enclitic, etc...). There was no tendency for prosodic domains to overlap. Another approach might be to assume that certain phonological processes should be assigned a heavier weighting with respect to whether they identify a phonological word constituent. An obvious candidate in the case of Limbu would be stress. However, Schiering, Bickel and Hildebrandt (2012) show that there is no typological evidence that stress domains correlate with other domains beyond chance. The only generalization is that stress domains tend to be larger than other phonological domains. Thus, there appears to be no non-arbitrary method for solving the problem of nonoverlapping phonological word domains.

The problem in (4ii) is the converse to the one just discussed. In the same study as the one referenced above, Bickel, Schiering and Hildebrandt (2009) note that 7 languages in their database were not described as having any phonological word patterns. The claim that a hierarchically organized inventory of phonological constituents (syllable, foot, prosodic word, clitic group, phonological phrase, intonational phrase, utterance phrase, etc...) can form the basis for typological comparison requires that we are able to identify the relevant constituents in a consistent manner across languages. Unless we have a rigorous procedure for associating a specific (morpho)phonological process or rule with a specific level in the hierarchy (we do not), then we must assume that a comparable hierarchy emerges in each case because there is evidence for all of the levels in each language considered. Otherwise, if a given language has fewer phonological levels than that which is in the set provided by the prosodic hierarchy (7 or 8 depending on the linguist), then phonological domains in this language cannot be associated with the levels of the prosodic hierarchy in a determinate fashion.

Schiering et al. (2010) show that Vietnamese does not contain *enough* phonological levels in precisely this sense. It is, therefore, not clear whether the domains of stress and syllabification should be considered a phonological word or phonological phrase. The situation is depicted in (6) below (adapted from Schiering et al. 2010: 677).

(6) Phonological word domains in Vietnamese

stress



footing	?	?	?	?	?	?	?	?	?	
	<i>toi</i>	<i>'đén</i>	<i>nha</i>	<i>má</i>	<i>'tôi</i>	<i>mở'</i>	<i>củ'a</i>	<i>'ra</i>	<i>tôi</i>	<i>'vô</i>
	I	arrive	house	mother	I	open	door	exit	I	enter

'I arrived at the house, my mother opened the door, and I went in.'

Apart from refuting the assumptions of the prosodic hierarchy, a more general conclusion emerges from these studies. They reveal that there is no clear methodology for associating a given phonological constituent with a particular level in the prosodic hierarchy. This means that the phonological word cannot be taken as a well-grounded concept for typological study unless it is anchored with respect to some category in another domain. The obvious candidate for this other domain is morphosyntactic structure.

For instance, one might methodologically anchor phonological words to morphosyntactic words in the following way: for a set of phonological constituents in a given language, assume the one which is the closest in its span of application to the morphosyntactic word is the phonological word. This methodology depends on the assumption that the morphosyntactic word can be defined independently from the phonological word in the first place and as a constituent that is clearly distinct from the phrase or any other constituent. However, it is not clear whether this assumption can be maintained.

3 The grammatical word

In a detailed review of the tests and diagnostics for morphosyntactic wordhood, Haspelmath (2011) argues that there are no jointly necessary criteria that distinguish a word from a phrase or any other non-word constituent cross-linguistically. Haspelmath suggests that the apparent tendency for wordhood tests to converge is plausibly based on a sampling bias implicit in much of the literature on wordhood.

Following an argument made by Croft (2001, 2010) concerning constituent structure generally, Haspelmath (2011) argues that allowing the justification for the morphosyntactic word to be based on any number of potentially conflicting wordhood tests leads to diagnostic fishing (Croft's "methodological opportunism"). Diagnostic fishing undermines the possibility for cross-linguistic comparison between 'word' constituents found in descriptive grammars, because there is a serious danger of infelicitous conflation of distinct constituents. In other words, a 'word' in language A is not the same a 'word' in language B. Perhaps the word is simply the constituent where the criteria 'tend to coincide' as suggested by Matthews (2002: 274). But the problem with presupposing that an a priori, but undefined and latent, word category must exist emerges again, because we have no methodology for assessing how well the criteria converge and whether the same criteria are being selected across languages. Haspelmath explains

Since there is not one single criterion that identifies words, and attempts at coming up with a set of jointly necessary and sufficient conditions have not been successful either, in practice linguists have often adopted the strategy of persuasion via test

batteries. In this strategy, a number of criteria are selected and applied and in the published accounts usually all of them point in the same direction. The more criteria converge, the more persuasive the argument becomes, but the method is not rigorous, because the criteria can be selected opportunistically by the author. (Haspelmath 2011:59)

In a detailed study of morphosyntactic and phonological wordhood domains in Chintang and Mapundugun, Bickel and Zúñiga (2017) seem to provide support for Haspelmath's skepticism. Based on a typologically informed list of wordhood variables, Bickel and Zúñiga (2017) show that divergences in wordhood domains are more likely than convergences in Chintang and Mapudungun. A basic schema of the Chintang facts is provided in (7) below (adapted from Bickel and Zúñiga 2017: 182-183).

(7) Chintang: syntactic wordhood domains

<i>u</i>	<i>ca</i>	<i>ŋa</i>	<i>ta</i>	<i>hai?</i>	<i>ya</i>	<i>ʔā</i>	<i>na</i>	<i>kina</i>
3A.SG	eat	1O.SG	FOC	move_away:TR	1O.SG	IND.NPST	INSIST	SEQ
{	insertion + displacement potential						}	
{	cross-slot dependencies						}	
{	}	{	}	{	}	fixed ordering		}
'After (the cat) will eat me.'								

While insertion and displacement potential converge on the same span of morphosyntactic categories, cross-slot dependencies and fixed ordering identify different spans of structure. In Mapundugun there are similar divergences in wordhood domains. Moreover the convergence that is found in Mapundugun is based on a different set of wordhood variables than that for Chintang (insertion and fixed ordering rather than insertion and displacement potential). Thus, the data from Chintang and Mapundugun justify Haspelmath's (2011) skepticism in that divergences in wordhood domains appear to be just as likely as convergences.

It is not clear whether a cross-linguistically valid ('com measurable') word constituent emerges when Chintang and Mapundugun are compared. If anything the wordhood domains (converging or not) are the variables that are comparable. The problem runs even deeper, however. In the context of a discussion about the problems in identifying com measurable words in polysynthetic languages, Russell (1999a:127) points out that wordhood diagnostics found in the literature are often ambiguous such that they can be applied in distinct ways and achieve different results even in the same language. The problem can be illustrated with reference to some of the 'main' and 'universal' criteria listed by Dixon and Aikhenvald (2002). They state concerning the criterion of fixed ordering that 'it is in fact sometimes possible for affixes to occur in alternative ordering within a word, but there must then be a difference in meaning' (Dixon and Aikhenvald (2002: 20). But this leads to the possibility that there are (at least) two answers as to which span is identified by the criterion of fixedness.

Tallman (2018) reports the results of two interpretations of fixedness in Chácobo, one where the ordering of elements is rigidly fixed and another whether variable ordering conditions an obligatory difference in scope. There are 4 morphosyntactic positions in Chácobo flanking the verb root (one prefix position and four suffix positions) where all elements must occur in a fixed order with respect to one another. Another span of structure can be identified where if variable ordering occurs it conditions an obligatory difference in scope that includes three more positions to the right of the rigidly fixed span. Thus, the morphemes *ta-* ‘foot’ and *niş* ‘tie’ cannot be variably ordered, whereas *=ma* ‘causative’ and *=biki* ‘interactional’ can be, but with an obligatory difference in scope. Morphemes that occur outside of the rigid order and obligatory scope domain can variably order, but with no necessary difference in scope (Tallman 2018: 292-299 for discussion). The situation is depicted in (8) below.

- (8) *ta* *niş* *ma* *biki* *ki*
 foot tie CAUS INTRC DEC:PST
 [rigid ordering]
 [rigid ordering + obligatory scope]

‘They (in cooperation) made him/her tie someone's (e.g. the monkey's) foot.’

It is not clear which of these domains is supposed to reflect the results of the application of the criterion of fixedness, and, therefore, which domain is the ‘true’ candidate for morphosyntactic wordhood according to this criterion. Another example of a potentially ambiguous test is the criterion of non-interruptability (which seems to most closely match Dixon and Aikhenvald's

(2002: 19) cohesiveness). According to the test of non-interruptability a word cannot be interrupted by some element *I* where *I* is traditionally defined as a word (Bloomfield 1933:180). But defining *I* as a word is self-evidently circular to the extent that non-interruptability is supposed to identify word constituents to begin with (Mugdan 1994:2552). *I* must be fixed according to independently verifiable criterion. Tallman (2018) shows that in Chácobo the span structure identified by non-interruptability varies depending on how *I* is defined. Defining *I* as a singular free form ('particle') or a combination of free forms (a noun phrase) results in the identification of distinct spans of structure, neither of which correspond to the domains identified by the criteria of fixedness (Tallman 2018:278-284,292-299 for discussion).

It is important to point out that despite the emphasis on divergences, Bickel and Zúñiga (2017) and Tallman (2018) do find that some morphosyntactic wordhood criteria coincide at the level of individual languages, perhaps supporting Matthews (2002:274) claim that wordhood diagnostics 'tend to coincide' overall as discussed in Section 1. Regarding Chintang, for instance, one could argue that it is enough that Bickel and Zúñiga (2017) identified two morphosyntactic tests that converge (insertion and displacement potential). The data from Chácobo, however, do not lend themselves to such a clear interpretation. As with the phonological wordhood domains of Limbu described in Section 2, there is more than one domain where the morphosyntactic wordhood diagnostics converge and with the same number of convergences (two) (see Tallman 2018: 278, 292).

The Chácobo case aside, one might respond to these arguments by interpreting Matthews (2002: 274) comment statistically. Perhaps it does not matter that there is no fixed definition of wordhood because the criteria converge around the same domain beyond chance. Anticipating this statistical argument, Haspelmath (2011: 62-64) points out that no one has shown that the criteria tend to coincide (or "cluster") in a statistically meaningful fashion. Haspelmath's (2011) comments suggest a new area of research that seeks to motivate words as emerging from statistically meaningful clustering based on criterial wordhood variables. Research programs of this type are only in their initial stages (see Section 4).

This review would not be complete without mention of one of the most prevalent proposals regarding the distinction between morphology and syntax. Morphological theorists have emphasized that morphological elements and patterns are distinct from syntactic ones in that they display deviations from biuniqueness (Matthews 1991; Anderson 1992; Aronoff 1994; Blevins 2016, *inter alia*). Biuniqueness between form and meaning refers to cases where one form corresponds to one meaning and vice versa: 'the agglutinating ideal'. Deviations from this property are cases where one meaning is associated with multiple forms (allomorphy), multiple meanings are associated with a single form (portmanteau morphs), meanings are associated with a lack of form (zero realizations) or cases where a given form appears to bear no meaning (cranberry morphs). In yet another type of deviation, the exponents of a given category are interrupted by other isolatable morphs (e.g. circumfixes). These cases of 'exponence complexity' are understood to be unique to morphology (see Anderson 2015). For linguists who associate morphology

uniquely with wordhood, non-biunique relations are thought to cluster on the level of the word and syntax refers to a level of structure which organizes elements that display biunique relations between form and meaning.

However, such studies do not directly address the problem of commensurability in wordhood domains cross-linguistically. The prevalence of agglutinating structures in many parts of the world suggest that it is too simplistic to identify morphology only with exponence complexity. Indeed, proponents of morphological autonomy recognize that some elements have a liminal status falling at the boundary between morphology and syntax (Maiden 2013). Morphemes that, on the one hand, are low in exponence complexity and tend towards displaying a biunique relation between meaning and form, but, on the other hand, fail to pass as canonical words are obvious candidates for such a liminal status. Providing the semantic case suffixes of Estonian as an example of such elements, Blevins states ‘this can be seen to be a limiting rather than a normative case’ (Blevins 2006: 555).

If boundary cases are truly ‘limiting cases’, then we should expect wordhood criterial properties to correlate strongly with exponence complexity (as a measure of deviations from biuniqueness) cross-linguistically. ‘Limiting cases’ should be statistically marginal. Tallman and Epps (*in press*) test this assumption in a group of languages from Southwestern Amazonia. They code formatives across a number of functional domains (valency, nominal classification, tense, evidentiality) in 9 languages of southwestern Amazon. Their results suggest that there is no overall tendency for exponence complexity to correlate with wordhood criterial properties in these

languages. Boundary cases cannot, therefore, be dismissed as statistical aberrations from broader patterns that distinguish morphology and syntax.

4 Discussion and future research

While the word bisection thesis perhaps provides a practical guide for terminological selection (but see Tallman 2018), it does not provide a basis for cross-linguistic comparison. The word bisection thesis does not rise above the level of tautology because no one has formulated how it could possibly be refuted. Without a solution to this problem, any number of non-overlapping phonological constituents could be claimed to be the phonological word and any number of non-overlapping morphosyntactic constituents could be claimed to be the grammatical word in a given language. The descriptive contribution of the word bisection thesis is that grammatical and phonological words can be defined because phonological and morphosyntactic diagnostics exist. But by itself the word bisection thesis does not provide us with a rigorous methodology for comparing constituency and assessing candidate word domains cross-linguistically.

Lest the reader think that recent work has closed the case on any notion of wordhood, I end this review by pointing out some of the empirical, methodological and conceptual problems of the studies that are critical of the notion of the word reviewed above. The typological research on phonological wordhood domains conducted by Bickel et al. (2012) and Schiering et al. (2012) did

not focus on morphophonological processes above the word (e.g. phonological phrase).⁸ It is possible that inclusion of higher-level phonological processes may have revealed more significant clustering in patterns. Secondly, the study relied on the structural categories prefix, suffix, proclitic, enclitic, root as they appeared in various grammars to establish the level of a given phonological process. However, it is well-known that such structural categories are defined in a language specific and somewhat inconsistent fashion across grammatical descriptions. For two structural categories x and y , one linguist might categorize x as a suffix and y as an enclitic, while another classifies these as two distinct types of enclitic, while yet another categorizes them as two types of suffix. It is typical to proliferate multiple categories of clitics in grammatical descriptions that are often described as falling on a cline from suffix-like to word-like, the precise boundary being arbitrary (e.g. Meira 1999:122; Fleck 2003:227; Epps 2008:128; Valle 2017:241). This problem could have introduced so much noise in the study as to obscure potential clustering. Ideally these studies should be replicated with a larger sample of languages and more fine-grained coding methods.

On the morphosyntactic side, while Haspelmath (2011) is prescient in critiquing the implicit practice of assuming that orthographic words can form a basis for cross-linguistic comparison, his discussion unnecessarily conflates words and morphology when he states “The conclusion that we do not know what words are also means that we have no good basis for a

⁸ I understand a process as "morphophonological" if it involves a change in form that refers to morphosyntactic structure on any level of representation (see Tallman 2018: Ch. 6 for discussion).

morphology-syntax distinction” (Haspelmath 2011: 72). The conclusion only follows if one assumes that morphology does not operate over phrases (e.g. Anderson 1992, 2005) and/or that morphological constituency does not overlap with syntactic constituency (e.g. Sadock 1980, 1991) (see Stewart 2016 for a guide to contemporary morphological theories). Because exponence complexity need not be associated with wordhood (Tallman and Epps *in press*), it might be useful to consider wordhood and morphological autonomy as distinct but related issues.

An apparent paradox emerges from the aforementioned critiques of wordhood. A large number (perhaps the majority) of the tests described by Haspelmath (2011) (extraction, interruptability, coordination, anaphoric islandhood) have also been described as diagnostics for phrasehood, and as this review has made clear, there is no reason to regard any of the criterial wordhood properties identified in the literature as exclusively defining a word level. It is, therefore, not clear if there is any evidence that a given constituency diagnostic can correspond to a specific level of structure in general taken in isolation. An analogous situation was already mentioned in relation to phonological wordhood domains. Stress domains cannot straightforwardly be associated with the phonological word, because they are frequently described as identifying phonological phrases (e.g. Crowhurst and Michael 2005; Post 2009, *inter alia*).

Thus, on the one hand, rampant misalignments are thought to undermine a clear theoretically valid and cross-linguistically commensurable notion of word. On the other hand, the same studies (especially Haspelmath (2011) and Tallman (2018)) show that there is no clear distinction between a wordhood, phrasehood and (perhaps) subwordhood test to begin with. But

how can one demonstrate that words are problematic through misalignments of wordhood tests if no such tests exist? The assumption that there is a distinction between word and other constituency tests has never been explicitly defended (the issue does not seem to be explicitly taken up in any textbooks on morphology or syntax to my knowledge; see Osborne 2018 for a review). We might be forced to conclude that there is no such thing as a stemhood, wordhood or phrasehood diagnostic, but rather that there are only constituency tests. It is the global patterning of constituency diagnostics that motivates or does not motivate a special word level, not any one or two criteria taken in isolation. Such a conclusion would make the misalignments between ‘wordhood’ domains found in Bickel and Zúñiga (2017) and Tallman (2018) unsurprising. Languages contain more constituents than just words and we should expect misalignments in so-called ‘wordhood domains’ because the diagnostics for motivating such domains signal constituent structure in general.

Thus, it is not simply a question of whether word or constituency tests tend to converge or diverge. We should not expect them to. We should ask whether the results of constituency diagnostics are such to support the idea that there is some latent variable underlying their patterning that implies discontinuity in the tightness of constituency structure from morphs to sentences. Addressing this question will require that studies focus on relating the word to a global assessment of constituency structure. The existence of grammatical and phonological words could then be reformulated as a testable empirical hypothesis, rather than as a terminological prescription. I

conclude with three ways in which research is moving forward on the question of wordhood going beyond the methodological and empirical assumptions of the word bisection thesis.

- The development of a fine-grained taxonomy of constituency tests: A taxonomy of constituency diagnostics should be developed in phonological and morphosyntactic domains that can serve as a set of variables for cross-linguistic comparison (e.g. Bickel and Zúñiga 2017). The constituency diagnostics should not infelicitously conflate different types of diagnostics such as the two types of 'fixedness' discussed in Section 3.
- The development of a more precise method for determining when two or more constituency diagnostics align and when they do not: Currently, it is not clear whether it is enough for constituency tests to align on both of their edges and whether convergence or divergence should be considered a gradient notion and, if so, how such a gradient notion can be operationalized and quantified.
- The exploration and development of statistical and probabilistic methods to test the validity of some notion of word: In order to test the validity of the word as a special or more informative level on a cline of layers from morph to utterance, some idea of how the relevant data should pattern if it were truly random (a null distribution) should be formulated. Some preliminary proposals in this regard are provided in Geertzen et al. (2016), Auderset and Tallman (2018, in progress), and Tallman et al. (2018).

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Short Biography

Adam J.R. Tallman received his PhD from the University of Texas at Austin in 2018. He is currently a post-doctoral researcher at the *Laboratoire Dynamique du Langage* (CNRS), l'Université de Lyon II (France). Prior to this he was a post-doctoral researcher at the University of Ottawa (Canada). His research focuses on the description and documentation of the indigenous languages of Bolivia, the typology of constituency, the morphology-syntax distinction and quantitative methods in description and typology. His publications include articles in *Amerindia* and *Empirical Studies in Language*, among others on descriptive and theoretical topics.

Beyond grammatical and phonological words

Adam J.R. Tallman

Laboratoire Dynamique du Langage, CNRS

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Overview with keywords: This paper reviews recent research related to the cross-linguistic comparison of wordhood domains. A discussion of the morphological, syntactic and phonological diagnostics used to identify wordhood domains is provided. The paper discusses the relationship between wordhood and morphological autonomy and the relationship between wordhood diagnostics and constituency in general. I sketch some ways in which recent descriptive and typological studies has undermined the basis for a straightforward distinction between grammatical and phonological words.