Thoughts on diagnosing morphomicity: A case study from Ulwa

Andrew Koontz-Garboden

1 This paper draws on joint work with Itamar Francez (Koontz-Garboden and Francez, 2010; Francez and Koontz-Garboden, 2010, 2011, 2012). For discussion and helpful feedback I thank Mark Aronoff, John Beavers, Ricardo Bermúdez-Otero, Erich Round and participants at the Coimbra Workshop on the Morphome. Although not all of them agree with me, I have benefited from the exchanges. I am particularly grateful to the community of Karawala and the Ulwa Language Project, especially Alberto Santiago, Lorinda Martínez Lacayo, Clementina Simon, Abanel Lacayo, Francisco Santiago, and Kandler Santiago for collaboration in work on Ulwa. This work is supported financially by Arts and Humanities Research Council Grant AH/H033645/1.
0.1 Introduction

In the documentation of any understudied language there are all kinds of analytical problems that arise in laying out in a descriptively adequate fashion the morphological, syntactic, and semantic facts of the language. A particularly acute descriptive problem is posed by what Haspelmath (2003) calls multifunctionality—when faced with morphology of the same phonological shape but which appears in seemingly different morphosyntactic and semantic environments, how does the linguist go about determining whether the multifunctionality is morphosyntactically motivated or accidental? This, in the abstract, is the problem of morphomicity that the present volume aims to address. In this paper, I consider this issue in the context of what is at root a case study in descriptive linguistics, but one that sheds light on problems in the diagnosis of morphomicity more generally.

The descriptive question centers on the analysis of the affix –ka in Ulwa, an endangered Misumalpan language spoken on Nicaragua’s Atlantic Coast. In Ulwa this affix is found, inter alia, in two contexts. First, it appears on the possessed noun in a possessive NP, as illustrated by the data in (1).

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2 See §0.2 for a brief overview of the language family and sources of data. See Green (1999, Chapter 1) for an overview of the language in sociohistorical context.
Alberto’s stick’ (0405-829)

The curiosity that this paper is concerned with is the fact that an affix with the same phonological shape is implicated in the grammar of attribution and predication of property concept (PC) words, i.e., words naming concepts that are expressed by adjectives in languages with this lexical category and as nouns or verbs in other languages (Dixon, 1982). Specifically, –ka can be found on both predicative and attributive uses of PC words in Ulwa, as illustrated by (2a,b) respectively.

(2) a. Yang as-ki-na minisihi-ka.

1SING shirt-1SING dirty-3SING.POSS

‘My shirt is dirty.’ (Green, 2004, asna)

b. Al adah-ka as tal-ikda.

man short-3SING.POSS INDEF see-1SING.PAST

‘I saw a short man.’ (0405-438)

The basic descriptive questions that I aim to address are:

- Is the fact that –ka appears on both possessed nouns in a possessive NP and on PC words simply an accident? Or, does this multifunctionality reflect something about the grammar of Ulwa?
- If the multifunctionality is non-accidental, is its explanation morphomic? If not, why not?

In exploring the answers to these questions, I address questions related to the diagnosis of morphomicity more generally, by trying to understand in the general case how it is that one knows when to give up on syntactic/semantic explanation and concede that the analysis of a multifunctional pattern is morphomic. The conclusion, in short, is that there is no easy answer—the formal underpinnings of the morphome are not yet sufficiently described to a level such that a morphomic analysis makes positive falsifiable predictions. I suggest that this is an issue in morphomic theory in need of urgent theoretical attention, for reasons to do with falsifiability (see §6 for further discussion). In spite of this, however, I do not argue that there are no convincing cases of morphomes, nor do I argue that morphomic theory, when applied in crosslinguistic context, makes no predictions at all. There is at least one negative prediction a morphomic analysis makes—namely, that the multifunctional pattern so analyzed is not a crosslinguistically robust one. Given that morphomes are language specific
morphological objects, the patterns of multifunctionality they exhibit should not be widely attested crosslinguistically. If such syncretism is observed, then by definition, as discussed in more detail below, it cannot be morphomic. This allows for the identification of non-morphomes, but as I discuss further below, positive confirmation that a syncretism is morphomic remains problematic.

I begin by considering whether the –ka syncretism in Ulwa is a case of accidental homophony or not, considering diachronic facts from the Misumalpan language family that show this demonstrably to not be the case. Given this observation, the question remains whether the pattern is morphomic or not. In order to address this question, I first consider how morphomicity has been defined in the literature and consider the predictions a morphomic analysis of –ka makes, focusing on typological predictions. I then show that the same kind of pattern, if not the same syncretism, is observed in repeated cases crosslinguistically. In this way, I argue that a morphomic analysis of the facts fails to capture a robust crosslinguistic generalization about different uses of possessive morphosyntax. I conclude by considering the nature of the argument and its implications for the nature of morphomic analysis generally. I suggest that although there do seem to exist convincing cases of morphomes that have been discussed in the literature, there is at present no convincing positive empirical diagnostic of morphomicity. The development of a better definition of the morphome and derivative positive diagnostics, I argue, should be an urgent focus of future work on the morphome.

0.2 Diachronic evidence that the distribution of –ka is not accidental

In this section I show on the basis of an argument from Misumalpan diachrony (reproduced from Koontz-Garboden and Francez 2010, 204–208) that it is not an accident that –ka is used in both nominal possessive and property concept environments.

In order to understand the argument, I first give a brief sketch of Ulwa and the Misumalpan family in general. The Misumalpan family tree, given in (3), illustrates the fact that Ulwa is one of two members of the Sumu sub-branch of the Misumalpan family, the other being Mayangna, also spoken in Nicaragua, though traditionally in areas further north than Ulwa. More distantly related to Ulwa, as shown also in the tree, are the extinct Matagalpan languages. Yet more distantly related is Miskitu, still widely spoken along Nicaragua’s Atlantic Coast, including in Karawala, the only remaining village in which Ulwa is still spoken, today by approximately 350 (mostly) adults (Green, 1999, Chapter 1).
Ulwa’s typological profile, like Misumalpan more generally, includes default (but flexible) SOV word order, more head than dependent marking, nominative–accusative alignment, a theoretically interesting system of verb class morphology (Hale and Salamanca, 2002; Koontz-Garboden, 2009), a typologically rare type of verb chaining construction (Young and Givón, 1990; Hale, 1991, 1997), and the possessive marked property concept words already illustrated above, among other features. With this as background, I now turn to property concept marking in Sumu more generally and to considerations that show that the possessive/property concept syncretism is synchronically motivated in the grammar of the Sumu languages (if not Misumalpan more generally).

As it happens, it is not only Ulwa, but also Mayangna that has the third person singular possessive/property concept syncretism. This is shown by the table in (4), which gives the third singular possessive and the property concept markers in both Ulwa and Mayangna. In addition to the mere fact of syncretism in each of the languages, it also shows that the affix has a different phonological shape in both languages—while it is \(-ka\) in Ulwa, it is \(-ni\) in Mayangna.

(4) 3rd singular possessive and property concept marking across Misumalpan

<table>
<thead>
<tr>
<th>Misumalpan</th>
<th>3sing poss</th>
<th>Property concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ulwa</td>
<td>(-ka)</td>
<td>(-ka)</td>
</tr>
<tr>
<td>Mayangna</td>
<td>(-ni)</td>
<td>(-ni)</td>
</tr>
</tbody>
</table>

Given that there is no rule of phonological change in Sumu diachrony that would cause a suffix with the phonological shape \(-ka\) to have the shape \(-ni\) (or vice versa), it highly unlikely that the syncretism is the result of accidental homophony. Perhaps in one language such an accident could happen. And
0.2 Diachronic evidence that the distribution of –ka is not accidental

Perhaps even it could happen in two related languages, with a morpheme of the same phonological shape. But for such an accident to strike twice, targeting the same functions but with phonologically different morphemes that are not relateable to one another by any phonological change seems extremely unlikely.

Further investigation of the nature of verbal and nominal inflectional morphology shows even more convincingly that this situation is not an accident, but rather a consequence of synchronically active multifunctionality, whatever the explanation for this multifunctionality might be. The starting point for understanding what happens comes from appreciating that there was a shift in the history of Sumu so that in the current state of the languages, Ulwa first inclusive inflectional morphology has the same phonological shape as Mayangna third singular inflectional morphology, as observed by Benedicto and Hale (2000, 98). This is illustrated by the table in (5). For example, while the noun a ‘house’ exists in both languages, so does the possessed form ã ū-ni. However, while in Ulwa this has the meaning ‘our (incl.) house’, in Mayangna, it is rather ‘his/her house.’

(5) Ulwa first inclusive=Mayangna third singular (Benedicto and Hale, 2000, 98)

<table>
<thead>
<tr>
<th></th>
<th>Ulwa</th>
<th>Mayangna</th>
</tr>
</thead>
<tbody>
<tr>
<td>3SING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘hand’</td>
<td>ting-ka</td>
<td>ting-ni</td>
</tr>
<tr>
<td>‘house’</td>
<td>ū-ka</td>
<td>ū-ni</td>
</tr>
<tr>
<td>‘vulture’</td>
<td>kus-ka-ма</td>
<td>kus-ni-ма</td>
</tr>
<tr>
<td>1INCL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘hand’</td>
<td>ting-ni</td>
<td>mā ting-ki</td>
</tr>
<tr>
<td>‘house’</td>
<td>ū-ni</td>
<td>mā ū-ki</td>
</tr>
<tr>
<td>‘vulture’</td>
<td>kus-ni-ма</td>
<td>mā kus-ki-ма</td>
</tr>
</tbody>
</table>

According to Benedicto and Hale, the Ulwa system is the system of proto-Sumu, with the Mayangna system coming about as a result of a shift. Specifically, they claim that Mayangna underwent a “…rather spectacular “person shift”, or “Mayangna Shibboleth”, according to which Northern Sumu [=Mayangna] third person morphology corresponds to Ulwa first person inclusive morphology, replacing the original Misumalpan construct and third person morphology” (Benedicto and Hale, 2000, 98). In this way, what was proto-Sumu first inclusive shifted to third singular.³

³ Benedicto and Hale do not discuss why such a shift might have come about, but it seems quite possible that the source may lie in impersonal uses of the first inclusive,
As Benedicto and Hale (2000) observe, this shift took place not only in the nominal paradigm, but also in the verbal morphology of the language. As a consequence of this shift, then, there is also a systematic correspondence throughout the various verb-class morphological paradigms between Ulwa first inclusive morphology and Mayangna third singular. This is shown by the data in the tables for each verb class in (6)–(9).

(6)  –ra– class verbs (Benedicto and Hale, 2000, 99)

<table>
<thead>
<tr>
<th>Ulwa</th>
<th>Mayangna</th>
</tr>
</thead>
<tbody>
<tr>
<td>3SING</td>
<td></td>
</tr>
<tr>
<td>'run'</td>
<td>ırai</td>
</tr>
<tr>
<td>1INCL</td>
<td>k-ıri</td>
</tr>
<tr>
<td>'run'</td>
<td>yak-ırai</td>
</tr>
<tr>
<td></td>
<td>ıri</td>
</tr>
</tbody>
</table>

(7)  –da– class verbs (Benedicto and Hale, 2000, 99)

<table>
<thead>
<tr>
<th>Ulwa</th>
<th>Mayangna</th>
</tr>
</thead>
<tbody>
<tr>
<td>3SING</td>
<td></td>
</tr>
<tr>
<td>'play'</td>
<td>yisda-yak</td>
</tr>
<tr>
<td>1INCL</td>
<td>isi</td>
</tr>
<tr>
<td>'play'</td>
<td>yak-isda</td>
</tr>
<tr>
<td></td>
<td>ısi</td>
</tr>
</tbody>
</table>

(8)  –wa– class verbs (Benedicto and Hale, 2000, 99)

<table>
<thead>
<tr>
<th>Ulwa</th>
<th>Mayangna</th>
</tr>
</thead>
<tbody>
<tr>
<td>3SING</td>
<td></td>
</tr>
<tr>
<td>'pass, get up'</td>
<td>lavg-yak</td>
</tr>
<tr>
<td>1INCL</td>
<td>lavgwi</td>
</tr>
<tr>
<td>'pass, get up'</td>
<td>yak-lavgwi</td>
</tr>
<tr>
<td></td>
<td>lavgwi</td>
</tr>
</tbody>
</table>

which are still observed in the modern language, as in (i), and which could plausibly be reanalyzed as third singular.

(i)  Asing-ni ya yak i-wai kau hung-pi ya-wai. soul-1PL.INC the 1PL.INC die-1PL.INC when exit-SS go-3SING

    ‘When we die (one dies), our soul (one’s soul) exits and goes away.’ (Green, 2004, asung)

Such shifts are not without precedent—a similar evolution of an indefinite one-type pronoun to 3rd singular in Athabaskan is posited by Jung (1999, 153), for example.

Benedicto and Hale (2000;99) divide Missumalpan verbs into morphological classes according to whether they are “intransitive” or “transitive.” Some of these classes, however, allow both transitive and intransitive verbs, as discussed for Ulwa by Koontz-Garboden (2009). The names for the verb classes below are the names given to the Ulwa classes by Green (1999, Chapter 7). For a description of the Mayangna verb classes see Norwood (1997, Chapter 5).
0.3 Does –ka realize a morphome?

A prerequisite for determining whether –ka is a morphome is a definition of the morphome itself. I thus begin by considering what has been said about the morphome abstractly, drawing on this to consider what kinds of diagnostics for morphomicity follow as a consequence of it.
The morphome, as defined in Aronoff (1994) is a function from lexemes to morphological forms, independent of syntactic or semantic considerations. While morphomes can have a syntactic or semantic function associated with them, if they do, they are indistinguishable from traditional morphemes—canonically, the term morphome has been used in the literature specifically for the case in which there is no such associated function. This is what Aronoff (1994:25) calls a neutralizing morphome, a classic example of which is meant to be English past and passive participles. Aronoff observes that the past and passive participle in English are always identical to one another. At the same time, analyses of English passive that Aronoff cites (e.g., Baker et al. 1989) shed no light on why the same form should also be used in the perfect. Similarly, analyses of the perfect which inspire Aronoff (e.g., Klein 1992) say nothing about why the form used to construct a perfect should also be used to form a passive. Aronoff (1994, 24) concludes from this that there is no semantic or syntactic explanation for the identity of form in the English passive and the perfect. Rather, he suggests, it is simply a property of the morphology of English that the same form is used in these two contexts. I.e., there is a morphome, \( F_{en} \), which given any verbal lexeme of English, returns its participial form. This form, in turn, is used in two (claimed) unrelated syntactic and semantic contexts; from the perspective of the synchronic grammar of the language, anyway, the reason the same form appears in these two contexts is purely morphological—there is no deeper syntactic or semantic explanation.

The logic of the argument as presented is that if there was a syntactic or semantic analysis of the syncretism, then the analyst would be able to recognize it. Since s/he can’t, there must not be one. This is worrying, however, for obvious reasons; one would rather have a positive diagnostic for morphomicity that does not presuppose that the analyst would be able to come up with a syntactic/semantic analysis if one existed (see §6 for further discussion). Are there any? Aronoff hints at one—typology—suggesting in the context of the English passive/perfect syncretism that:

\[ ^{5} \text{Aronoff does not give an explicit general definition of the morphome, but rather develops the definition through examples. Speaking of the plural marking in the past tense, Aronoff says “though the distribution of plural markers and such may seem complicated, from a simple mathematical point of view, it is not. Such distributions may be described mathematically as functions. Consider the English Past Tense. For each verb lexeme, which we may call the elements in the domain of the plural, there is a single past-tense form, which we may call the range of the plural. The morphophonology of the Past Tense is . . . a function from verb lexemes to past-tense forms” (Aronoff, 1994, 23). Similarly, the morphome deriving perfect participles in English is “. . . a morphophonological function from verb stems to perfect participles” (Aronoff, 1994, 24).} \]

\[ ^{6} \text{Erich Round notes that Aronoff observes in this same discussion that there are good diachronic motivations for the syncretism. This, however, does not affect the argument that} \]
From a universal perspective, it would be odd for passive and perfect constructions to be identical at some deep syntactic level, since the two only rarely coincide morphologically. (Aronoff, 1994, 24)

In actual fact, I think it is an open question whether Aronoff is correct about the typology of passive/perfect syncretisms, not least because there is no crosslinguistic study showing the pattern is not attested in other languages. This, however, is beside the point; the logic of the argument is clear—a morphome is a function from a set of lexemes of a language to a set of forms of the same language, where crucially, it is claimed, the latter set cannot be identified based on syntactic or semantic criteria. I.e., there is no syntactic or semantic uniformity in the forms found in the range of the morphomic function. If there were, then the claim would be that there is indeed some particular (syntactic/semantic) uniformity to the class, and a morphomic explanation would no longer be required. But the claim is, rather, that a morphome is simply a function from some a set of lexemes to a syntactically/semantically random set of forms—this is the essence of the claim that there is no syntactic or semantic explanation for why the morphological marking under investigation appears in the contexts it does (and not others). Given that the function makes reference to no syntactic/semantic category, but rather simply to a set of forms (however they may be used in syntactic/semantic context), and that the sets of forms are language specific sets, the morphome then is necessarily a language specific construct. I.e., any syncretism that a morphome is responsible for will be language specific and cannot possibly be crosslinguistically general. Why? The morphome takes a set of lexemes and maps it into a set of morphophonological forms. At least the range of the function is language specific the claim goes, since there is no syntactic/semantic explanation for the contexts in which the forms appear. They are picked out, rather, on purely morphophonological grounds—e.g., all those forms taking the –en morphology (and its allomorphs) and nothing more. Given that morphophonological forms there should be no typological generality, as Maiden (this volume, 24) argues. There may well be cases where the same diachronic process gives rise to a morphomic pattern, but it should be the same process in the event of a morphomic analysis; other processes should not be able to give rise to the syncretism in the event that it has a morphomic explanation. The idea implicit in Maiden’s argument is that diachronic processes leading to morphomic patterns are accidental and are not of a kind that are naturally repeated across unrelated language families (unless they co-exist under circumstances of language contact). They are not, then, processes of the kind that are often called “grammaticalization paths”, but rather processes idiosyncratic to particular language families that are borne out of very specific linguistic circumstances.

7 As noted above, some might still adopt a morphomic analysis in such cases, but it is these cases of neutralizing morphomes that make the best case for the existence of morphomes in general.
are language specific, and that it is on morphophonological criteria that the
range is identified (again, there being no syntactic or semantic generalization
covering which forms are in the range and which are not), the syncretic pattern
that a morphome gives rise to is necessarily language specific. For a morphomic
pattern to be crosslinguistically general would necessarily mean that an accident
has happened on two separate occasions— that a morphomic function has in its
range, completely by syntactic/semantic accident, words that happen to be used
in the same syntactic/semantic contexts in two different languages. But when a
pattern repeats itself, it is no longer an accident, and one is then forced to
conclude that any syntactic/semantic pattern in the range of the function is also
not accidental. Given these considerations, then, we have not quite a diagnostic
for morphomicity, but at least a diagnostic for non-morphomicity—if the same
syncretic pattern turns up in other languages, a morphomic analysis is not
responsible for the syncretism.  

With this as background, what would a morphomic analysis of Ulwa –ka look
like and what predictions would it make? The idea would be that the morphome,
$F_{ka}$, would be a function mapping what we might pre-theoretically call nouns
and PC roots to their –ka marked forms. For some of these forms, they are used
in one kind of syntactic environment, while others are used in another; that these
environments are distinct to one another, of course, is expected on a morphomic
analysis. Given the current state of elaboration of morphomic theory, such an
analysis makes two predictions. First, it predicts that there is no syntactic or
semantic explanation for why –ka is found both on nouns and PC roots. As
already hinted at, for obvious reasons, this is not such a great prediction.
Nevertheless, if a plausible syntactic or semantic analysis can be found, the
morphomic theory of –ka is falsified. The second prediction is typological.
Specifically, we should not systematically find other bits of morphology
crosslinguistically that appear in the same syntactic/semantic contexts as –ka. In
the following sections I suggest that both predictions are false, though not
entirely obviously so. I begin with crosslinguistic observations showing that
possessive morphosyntax is commonly used in ways similar to the way in which
–ka is used in Ulwa, even if the exact pattern observed in Ulwa is otherwise not
elsewhere, or rarely, attested. Secondly, I turn to a semantic analysis of –ka
proposed by Koontz-Garboden and Francez (2010) and Francez and
Koontz-Garboden (2011). Whether the analysis is correct is of course an open
question. I consider what the analysis captures and what would be lost by
denying that there is any semantic explanation to the Ulwa syncretism.

8 See Maiden (this volume, 24) for precisely the same conclusion reached on the basis
of completely different, diachronic considerations.
0.4 Crosslinguistic considerations

What we observe in Ulwa, to reiterate, is a multifunctional use of nominal possessive morphology—it appears not only on the head noun in a possessive noun phrase to indicate possession, but also on roots with property concept meanings in a range of contexts. The question bearing on whether the right analysis of this set of facts is morphemic or not is whether this same pattern is observed in other languages or not. This question turns out to be less easy to answer than one would like. We know of no other language in which nominal possessive morphology robustly occurs on PC words in both attributive and predicative constructions.\(^9\) One could take the view that there is therefore no crosslinguistic generalization and that a morphemic analysis is therefore supported, at least by the crosslinguistic facts. And the tenet of Aronoff’s discussion above would seem to support this. As I show on the basis of data discussed below, however, I believe that such a view misses a robust crosslinguistic generalization that the Ulwa facts fall under—namely, that in languages in which PC words are lexicalized as nouns, predication is often effected in some manner crucially implicating morphosyntax elsewhere used in the expression of possession. This is done crosslinguistically in a number of ways. One way involves the use of nominal possessive morphology, as already seen for Ulwa above. A second way is through use of some kind of *have* predicate. A final, more marked way, is through the use of an existential construction, in a language in which an existential is the way possessive predication is done more generally. I illustrate these strategies below, drawing on the discussion of these patterns and facts in Francez and Koontz-Garboden (2010, 2011). Ultimately, the point is that although the Ulwa pattern is not robustly attested crosslinguistically (so far as I am aware), the pattern falls under a broader generalization. So, looking narrowly at whether a particular syncretism is crosslinguistically attested or not is not sufficient in testing the predictions of a morphemic analysis. Rather, one must look more broadly at the

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\(^9\) One potential counterexample to this generalization is Huave, an isolate spoken in Oaxaca, Mexico (Kim and Koontz-Garboden, 2012). In this language, however, the class of PC words exhibiting this behavior is restricted, numbering between ten and twenty. Additionally, the language also does show some differences to Ulwa, not least in the possessive morphology on PC words agreeing in person/number with the subject. Otherwise, many languages have possessive morphology on PC words in attributive position only, as in Koss (1998), Malchukov (2000), and Nikolaeva and Spencer (2007) but at least some of these cases seem best analyzed as linker constructions (Matisoff, 1972; den Dikken and Singhapreecha, 2004) and thus seem unrelated to the phenomenon at hand, though this is admittedly at least in part a matter of analysis (which is, of course, part of the problem with the current state of morphemic theory, i.e., that the predictions are not immediately clear). This is seen more clearly below.
syntactic and semantic contexts in which the morphology is used to see whether the syncretism might fit into a broader pattern.

0.4.1 The ‘have’ strategy

For languages with nominal PC words, if they also have a transitive predicate encoding possession, a natural way of expressing PC predication is by having the PC word as a complement of that predicate. This is sometimes the case in Ulwa, with the verb *watah* ‘have’, as in (10).

(10) Yäka å-ka yäka yåh-ka. An tarat watah
    that house-3SING.POSS that long-3SING.POSS and tall have ka.
    SENT-KA
    ‘That house is long. And it’s tall.’ (Oct09-109)

To a limited degree, this strategy is also found in Indo-European, e.g. Romance and Germanic, with the small set of nominal PC notions that lexicalize human propensities (the most likely type of PC to be lexicalized as a noun according to Dixon 1982). The pattern is illustrated by the Portuguese data in (11), where *fome* ‘hunger’ is a nominal PC word with no adjectival counterpart.

(11) Quando o povo tem fome, tem direito a roubar.
    when the people have hunger have right to steal
    ‘When the people have hunger (are hungry) they have the right to steal.’
    http://www.ionline.pt/conteudo/
    60658-belmiro-azevedo-quando-o-povo-tem-fome-tem-direito-roubar

The same pattern is also found in Huitoto (Huitotoan; Colombia), where PC notions including those naming “perceptions, colors, and conditions” are lexicalized as nouns. (Minor et al., 1982, 49). In Huitoto predicative possession is morphosyntactically distinct from adnominal possession, best one can tell, the latter being accomplished simply by juxtaposition of two nominals, as in (12) (Minor et al., 1982, 12)).

10 See Francez and Koontz-Garboden (2012) for details and analysis of this construction in Ulwa.
0.4 Crosslinguistic considerations

(12) a. cue jofo
    1SING house
    ‘my house’ (Minor et al., 1982, 42)
b. ca i illaima
    1PL captain
    ‘our captain’ (Minor et al., 1982, 42)

The construction of interest invokes the suffix –re, which in canonical uses suffixes to a noun to yield a possessive predicate characterizing the set of individuals who stand in the possessive relation to an element in the extension of the noun, as illustrated by the data in (13).

(13) a. jofó-re-dí-cai
    house-HAVE-NONFUT-1PL
    ‘We have a house.’ (Minor et al. 1982, 101 in Stassen 2009, 183)
b. ifó-re-de
    hole-HAVE-3SING
    ‘(It) has holes.’ (Minor et al., 1982, 49)

For the class of PC words in question, predication and attribution are encoded as predicative possession, facts illustrated by the data in (14) for predication and (15) for attribution.

(14) a. Rozill i naimé-re-de.
    pineapple sweet-HAVE-3SING
    ‘The pineapple is sweet.’ (Minor et al., 1982, 49)
b. Cue camisa ńüe-re-de.
    1SING shirt white-HAVE-3SING
    ‘My shirt is white.’ (Minor et al., 1982, 49)

(15) Afengo móco-re-de intir òi ebi-re-de.
    3SING.FEM green/blue-HAVE-3SING clothing pretty-HAVE-3SING
    ‘Her green/blue clothing is pretty.’ (Minor et al., 1982, 49)

The data in (14) show that, like Ulwa, morphosyntactic structure otherwise implicated in the expression of possessive predication is used for the predication
of this class of PC notions. The data in (15) show the same for NP internal PC words, though I am less certain exactly what the syntax of these is.\footnote{\label{footnote:ulwa}It is possible that as in Ulwa, what looks like modification of a noun by a PC word is really predication, in an internally-headed relative clause construction (see Koontz-Garboden and Francez 2010 for discussion of the Ulwa facts). Only additional work on the language would be able clarify this matter. For the purposes of this paper all that is really important is that the morphology does appear in this context, with the fact that possessive morphology is there being syntactically and/or semantically meaningful (whatever the precise reason).}

Hausa (Chadic; West Africa) is another language in which there is a class of PC nominals that require possessive morphosyntax in order to be used as predicates. It is widely accepted that in Hausa there is a large class of PC words lexicalized as nouns. These are traditionally called in the literature, following Parsons (1955), “abstract nouns of sensory quality”\footnote{\textsuperscript{11}}, or ANSQs (Newman 2000, Chapter 2; Jaggar 2001, 103), and number some sixty PC words, including those in (16).

(16) Some ANSQs in Hausa (Newman 2000, 13; Jaggar 2001, 103ff.)
\begin{itemize}
\item \textit{dad} \textsuperscript{\textdquo}pleasantness, niceness\textdquo;
\item \textit{nauy} \textsuperscript{\textdquo}heaviness\textdquo;
\item \textit{ts} \textsuperscript{\textdquo}sourness, acidity\textdquo;
\item \textit{wari} \textsuperscript{\textdquo}stench\textdquo;
\item \textit{zaki} \textsuperscript{\textdquo}sweetness\textdquo;
\item \textit{zurfi} \textsuperscript{\textdquo}depth\textdquo;
\item \textit{dari} \textsuperscript{\textdquo}bitterness\textdquo;
\item \textit{danshi} \textsuperscript{\textdquo}dampness, moistness\textdquo;
\item \textit{fa} \textsuperscript{\textdquo}breadth, width\textdquo;
\item \textit{gautsi} \textsuperscript{\textdquo}brittleness\textdquo;
\item \textit{kafi} \textsuperscript{\textdquo}sharpness\textdquo;
\item \textit{lami} \textsuperscript{\textdquo}tastelessness\textdquo;
\item \textit{laush} \textsuperscript{\textdquo}softness\textdquo;
\end{itemize}

These words do not follow the pattern of predication with other nouns/adjectives, which involves predication with the copular element \textit{ne}, as illustrated by (17).

(17) a. \textit{Audu darakata n\textdquo;e.} \hspace{1cm} (Jaggar, 2001, 457)
\begin{itemize}
\item Audu \textit{director COP}
\item \textquote{Audu is/was the director.}
\end{itemize}

b. \textit{Audu dogo n\textdquo;e.} \hspace{1cm} (Jaggar, 2001, 457)
\begin{itemize}
\item Audu \textit{tall COP}
\item \textquote{Audu is tall.}
\end{itemize}

Rather, a range of strategies involving possessive morphosyntax is invoked. One of these is the \textquote{have} strategy, commented on by Newman:

\begin{itemize}
\item \textquote{HAVE sentences with complements consisting of abstract nouns indicate predicative qualities (Newman, 2000, 224).}
\end{itemize}
0.4 Crosslinguistic considerations

The construction uses the comitative preposition *da*, in a verbal construction, with continuous aspect marking (Newman, 2000, 222). That this construction is used for normal possessive predication with a nominal is shown by the data in (18).

(18) Yārinyā tanā dā zōbē.
girl she.CONT with ring
‘The girl has a ring.’ (Newman, 2000, 222)

The data in (19) show how this same construction can be used for predication with PC words in the ANSQ class.

(19) Munā dā karfti.
we.CONT with strength
‘We are strong.’ (Newman, 2000, 224)

0.4.2 Existential constructions

Another type of possessive morphosyntax that is sometimes used for predication of nominal PC notions is the existential construction. For current purposes, existential constructions are constructions consisting of an existential lexeme and a single NP, followed by optional modifiers, as illustrated schematically in (20).

(20) Ex NP (XP)

There are at least three ways in which a construction of this type is used crosslinguistically to attribute nominal PC notions to an entity. In order to schematize these, we use the following notation: EX stands for an existential lexeme. The BEARER is the NP describing the entity to which a PC is attributed, the PROPERTY is the PC noun. With this in mind, we describe the three strategies, the first two involving prepositions and an existential in Hausa, and the third a transparent existential strategy found in Bisa, a Voltaic Niger-Congo language spoken in West Africa.

0.4.2.1 Prepositional strategy 1: Hausa  The first existential strategy, exemplified by Hausa, involves an existential predicate with the bearer as the pivot of the construction and the PC nominal as the argument of modifier prepositional phrase. This is schematized in (21).
This construction is given an informal characterization by Newman that succinctly summarizes how it works:

“An existential structure made up of àkwai plus a pronoun extended by dà plus an NP indicates possession . . . The thing possessed, indicated by the dà phrase, is usually a quality rather than a concrete object” (Newman, 2000, 179).

The data in (22) exemplify this construction.

(22) a. àkwai shì dà wàyô
   exists him with cleverness
   ‘He is very clever.’  (Newman, 2000, 179)

b. àkwai sù dà kyàa!
   exists 3PL with beauty
   ‘They’re really beautiful!’  (Jaggar, 2001, 465)

c. mutânen nàn, àkwai sù dà ròwà.
   men these, exists them with miserliness
   ‘These men, they are misers.’  (Newman, 2000, 226)

As expected if this construction is implicated in the grammar of possession more generally, it can also be used to express possession of concrete nouns (though this is not the canonical way of doing so), a fact illustrated by the data in (23).

(23) Râshidaâ mò ìfà gidda, àkwai mò dà tuwo-n-mò à gidda!.
    Rashida 1PL go home exist 1PL with food-of-1PL at home
    Rashida, let us go home, we HAVE our food at home!  (Abdoulaye, 2006, 1139)

There are a number of features that are not yet well-understood in relation to the syntax and semantics of this construction. For example, according to Abdoulaye (2006), it can only host pronouns, not full NPs, a fact illustrated by (24).

(24) *àkwai Bâlki dà wàyô
    exists Balki with cleverness
    ‘Balki is really clever’.  (Abdoulaye, 2006, 1126)
0.4 Crosslinguistic considerations

Abdoulaye also claims that the PP hosting the PC noun in this construction can only host mass nouns and plurals. He conjectures that this is related to the emphatic/exclamative nature of the construction, evidenced in the glosses (see Francez and Koontz-Garboden 2011 for an alternative explanation of this fact). Whatever the explanation, what is important for current purposes is simply the fact that a construction that can be used to attribute possession of a nominally encoded entity to some other entity can also be used to attribute possession of some nominally encoded property to another entity.

0.4.2.2 Prepositional strategy 2: Hausa

According to both Wetzer (1996, 178) (via personal communication with Russell Schuh) and Jaggar (2001, 465), in Hausa “there is also a semantically equivalent topic structure . . . where the quality-denoting NP is the existential subject” (Jaggar, 2001, 465). I.e., rather than having the entity possessing the property serve as the pivot of the existential, in this construction the pivot is the property itself, with the bearer of the property the argument of a prepositional phrase. This construction is schematized in (25) and exemplified by the data in (26).

(25) \[ \text{EX PROPERTY} [PP \text{P BEARER}] \]

(26) a. (ákwaï) hankanli gärë ši.
exists cleverness at 3SING.MASC
‘This boy, he’s clever alright!’ (Jaggar, 2001, 465)
b. akwai fad’i ga kogin nan
exists width at river this
‘This river is wide.’ (Wetzer 1996:178, via personal communication with Russell Schuh)
c. akwai häziƙanci gärë ši.
exists cleverness at him
‘There is cleverness with him.’ (Newman, 2000, 182)

As with the first prepositional construction, this one too can be used to assert possession of a nominal by some entity. In parallel to the use of the construction with PC nominals, with normal nouns, the possessed noun is the pivot of the construction, and the possessor the argument of the prepositional phrase, as illustrated by the data in (27).12

12 Note that ga and gärë in (26) and (27) are allomorphs of the same morpheme, the latter used when followed by a personal pronoun, the former used everywhere else (Newman 2000:467).
“Do you have any money on you?” (Jaggar, 2001, 466)

0.4.2.3 Possessive NP pivot: Bisa  Bisa, according to Naden (1982), is another language in which some property concept notions are lexicalized nominally. And in this language, there is yet another, slightly different, way in which an existential construction, which is also independently used for possessive predication, is used in order to attribute a nominally encoded PC to an entity. Schematically, what happens is that the existence of a possessed property is asserted. In this way, the possessed property is attributed to the possessor. This is schematized in (28).

(28) BEARER’S PROPERTY EX

The starting point for understanding this construction is the basic existential, which is formed in Bisa with an existential copula ta-w as in (29).

(29) Wusu ta-w.
God exist-in
‘God exists.’ (Naden, 1982, 212)

Nominal possession in Bisa is then expressed by juxtaposition of possessor and possessed, as shown in (30).

(30) Mɔɔ lu  bor naa-w
I wife came this-at
‘My wife came here.’ (Naden, 1982, 212)

These two constructions come together in Bisa in possessive predication, so that e.g., for $x$ to have $y$ is literally for $x$’s $y$ to exist. This is exemplified by (31).\(^{13}\)

(31) Mɔɔ lu  ta-w.
I wife exist-in

\(^{13}\) As Mark Aronoff (p.c.) points out, there is nothing particularly special about this construction per se—it is found in other languages. What is special about Bisa is that, as shown below, it is extended to nominal PC predication.
0.4 Crosslinguistic considerations

'I have a wife.' (Naden, 1982, 212)

This same strategy is then used with some PC nouns to achieve the effects of predication, so that literally, for something to e.g., be heavy is for its heaviness to exist, a fact illustrated by (32a), and further by (32b,c) (with (32c), being an example with a pro-dropped possessor, Naden reporting the pronoun can be dropped when recoverable from context).

(32) a. A gwili ta-w.
   3SING weight exists-in
   'It is heavy.' (Naden, 1982, 212)

b. A gweli ta-w.
   3SING beauty exists-in
   'She is pretty.' (Naden, 1982, 213)

c. Panga ta-w.
   strength exists-in
   'S/he/it/you is strong.' (Naden, 1982, 213)

0.4.3 Interim summary

What has been seen in this section (and is shown in more detail in Francez and Koontz-Garboden 2010, 2011) is that languages in which PC notions are lexicalized as nouns often use the morphosyntax of possession, rather than predication, in order to attribute the PC notion to an entity. I have shown that this can take a number of different forms crosslinguistically, observing in particular the patterns schematized in (33).

(33) Possessive strategies of predication

<table>
<thead>
<tr>
<th>TYPE</th>
<th>LANGUAGE</th>
<th>PARAPHRASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal possessive marking</td>
<td>Ulwa</td>
<td>—</td>
</tr>
<tr>
<td>‘Have’</td>
<td>Ulwa, Huitoto, Hausa</td>
<td>She has strength.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existential: BEARER pivot</td>
<td>Hausa</td>
<td>There is her with strength.</td>
</tr>
<tr>
<td>Existential: PROPERTY pivot</td>
<td>Hausa</td>
<td>There is strength at her.</td>
</tr>
<tr>
<td>Existential: possessive NP pivot</td>
<td>Bisa</td>
<td>There is her strength.</td>
</tr>
</tbody>
</table>
As pointed out in Francez and Koontz-Garboden (2010, 2011), it seems very unlikely that the patterns in (33) exhaust the set of possible ways in which nominal PC notions can be predicated with possessive morphosyntax. In fact, they conjecture that any method a nominal PC language has for morphosyntactically encoding possession can also be used to attribute a PC notion to an entity.

What is important in the present context is that in a range of unrelated languages, when PC notions are encoded nominally, predication of them invokes morphosyntax otherwise implicated in the expression of possession. At the same time, however, there is no pattern quite like the Ulwa one, where it is nominal possessive morphosyntax specifically that is so used.\(^{14}\) What does this mean for the morphemic status of –ka? I observed above that crosslinguistically robust syncretism is counterevidence for a claim of morphemicity. The syncretism embodied by Ulwa –ka is not exactly crosslinguistically robust. I have discussed no other case above (nor do Francez and Koontz-Garboden 2010, 2011 observe) in which quite this same pattern is attested; at the same time, it does seem to fall under a robust crosslinguistic generalization regarding the use of particular morphosyntax in particular contexts. In the section that follows I discuss why it is that Francez and Koontz-Garboden (2010, 2011) believe that nominal PC encoding gives rise to patterns of predication that invoke possessive morphosyntax. In doing this, I show what exactly it is that a morphemic analysis of this phenomenon misses; at the same time, nothing I have observed necessarily precludes a morphemic analysis. In the final section I discuss this fact in greater detail, and why I believe this points to an urgent need for more detailed articulation of the theory of the morphome.

0.5  Syntactic/semantic considerations and the morphemic analysis of Ulwa –ka

Predication of PC notions is morphosyntactically different in each of the languages above, but in all cases, predication with the class of PC notions discussed invokes the morphosyntax of possession. Why is this? It is known that crosslinguistically PC meanings vary in their lexicalization, sometimes appearing as nouns, adjectives or verbs (Dixon, 1982). While PC adjectives and

\(^{14}\) The possible exception is Huave (Kim and Koontz-Garboden, 2012), though even Huave is different, since the nominal possessive morphology is agreeing in Huave while it is not in Ulwa.
verbs have meanings of the kind that characterize the set of entities that have the PC property. Francez and Koontz-Garboden (2011) conjecture that in languages where PC notions are encoded nominally that the situation is different. PC nouns, rather than denoting the set of entities that have the property, as is the case with adjectival and verbal PC notions, denote the property itself. Because of this, when lexicalized as nouns, predication cannot be used to relate the property to an entity (at least not with the intended meaning), as can be seen even in isolated cases with nominal PC notions in English (34) and Spanish (35).

(34) #Kim is hunger.
(35) #Kim es/está hambre.
    Kim is hunger
    ‘Kim is hunger.’

Instead, possessive morphosyntax is used, as exemplified by (36) and (37) in English and Spanish respectively and by the facts observed in the previous sections.

(36) Kim has hunger.
(37) Kim tiene hambre.
    Kim has hunger
    ‘Kim has hunger.’

Francez and Koontz-Garboden (2011) hypothesize that all the languages discussed above share the property that the PC words in question are lexicalized as nouns with the denotation of an abstract mass noun (Koontz-Garboden and Francez 2010; Francez and Koontz-Garboden 2011). Because of this, as illustrated above, these nouns cannot act as normal predicates. Possession is used, then, to relate entities to properties, the idea being that possession of a property and predication of a corresponding set denoting word are truth-conditionally equivalent. Possessive morphosyntax is present in these constructions because it introduces this possessive relation. Francez and Koontz-Garboden (2011) spell this analysis out in formal detail, providing a

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15 It remains an open question, as Francez and Koontz-Garboden (2011) and Koontz-Garboden (2012) discuss, whether there are languages with PC nominals that actually are not property-denoting, but rather characterize the set of entities having the property. Basáá, discussed by Hyman (2003) and Hyman et al. (2012), looks potentially like one such case, though more work is needed.
What does this mean for the morphomic alternative analysis sketched out above? I believe that it means that it would miss a deep generalization that Francez and Koontz-Garboden (2010; 2011) observe that ties together crosslinguistic variation in lexical semantics and the morphosyntax of predication. Namely, when PC words are lexicalized as nouns rather than adjectives or verbs, the lexical meaning that they have is also different. This difference in meaning necessitates a difference in the kinds of semantics required to attribute it to an entity. The possessive relation does this, and it is precisely to introduce this possessive relation that we see possessive morphosyntax, however it is expressed, in this range of constructions. The morphomic analysis of Ulwa misses this generalization entirely, making it a syntactic and semantic accident that –ka is used in possessive and PC predicative environments. In this way, the morphomic analysis seems almost certainly wrong in this case—but nothing internal to the grammar of Ulwa tells us this, owing to the fact that the morphomic theory makes no falsifiable positive grammar-internal predictions.

0.6 Concluding remarks: Ulwa –ka and morphomic analysis

The point of departure for this paper was the question of what criteria can be used to identify morphemes. Identification of such criteria hinges on a well-defined theory of the morpheme, with diagnostics for morphomicity rooted in it. As discussed above, morphemic theory is very much in its infancy, and such diagnostics are largely lacking. I identified two potential ones, however, on the basis of current elaboration of the theory. The first, the non-existence of a syntactic or semantic explanation for the syncretism, is inherently negative and presupposes that the analyst actually could find the analysis if one existed. When there does exist such an analysis, and it is obviously a good one, then one can indeed be certain that a morphemic analysis is not correct. Of course, what constitutes a good syntactic or semantic analysis is often a somewhat subjective matter. And additionally, in the absence of even a controversial analysis, given that linguists are fallible, one cannot be certain that a morphemic analysis is incorrect on the basis of this criterion. In this way, at best, the existence of a syntactic/semantic analysis is a negative diagnostic—it potentially tells us that a morphemic analysis is incorrect (depending on how plausible one finds the analysis), but it cannot tell us when a morphemic analysis is correct. The situation is similar with the only other diagnostic for morphomicity identified above—lack of crosslinguistic generality of the syncretism. Again,
concluding remarks: Ulwa –ka and morphemic analysis

0.6 Concluding remarks: Ulwa –ka and morphomic analysis

Crosslinguistic generality shows that the syncretism cannot be morphomic. However, it does not follow from a lack of generality that the syncretism is morphomic—it may simply be a rare, yet syntactically or semantically motivated case of syncretism. As such, we are left with no positive predictions that follow from a morphomic analysis, a fact which makes morphomic analyses look, worryingly, impossible to provide convincing corroborating evidence in support of. Erich Round, in a review of this paper, suggests that this is an unfair characterization of morphomic analysis, rightly pointing out that a claim of morphomicity is a hypothesis and that “as elsewhere in linguistics, one does not need to demonstrate that all possible counter analyses are false before a hypothesis can be accepted as worth pursuing. If we lower this impossibly high bar, then morphomes are in fact well defined, even if they are defined negatively.” In one sense, Round is correct, that I do believe that given the lack of positive grammar-internal predictions, an argument for a morphomic analysis will necessarily be what Beavers and Sells (pear, 20) call a “last man standing gambit,” an argument for one hypothesis through the exclusion of others. I am not making an argument, however, that this is how morphomic analysis in general should proceed, but rather stating a concern about why, given its current state of development, it has to proceed this way—because of the lack of positive grammar-internal predictions that the theory makes, a state which I believe is concerning, and which I believe theoretical energies should be directed to rectify, if morphomic theory is to be put to broad empirical test. Thus, while I believe that given the current state of affairs, a morphomic analysis can only be convincingly argued for once alternatives are exhausted (even in the face of crosslinguistic rarity of the syncretism, as noted above), my broader claim is that this being the case, morphomic theory is in a worrying state of development, given that morphomic theories do not make grammar-internal predictions, in the sense noted by Beavers and Sells (pear), where “…what linguists mean by the term ‘prediction’ is precisely the test against additional data, with the hypothesis in mind…[T]he key point is that the coverage of the hypothesis scales up from an initial set of facts to a wider set of facts” (Beavers and Sells, To appear, 3).” Because of this, although there are ways of falsifying a morphomic claim (through typological investigation), there is at present no way of offering support for a morphomic analysis, as is normally the case with a linguistic hypothesis, by showing that the analysis makes empirical predictions beyond the facts that the analysis was developed to explain.

The case study from Ulwa discussed in this paper illustrates these problems. The diachronic facts discussed in §0.2 show that the syncretism is synchronically active. The question is why—because it is syntactically/semantically motivated or because we are dealing with pure morphology? Typology is helpful, but only to a point—to the best of our current knowledge, there is no syncretic pattern that is quite like the one instantiated by Ulwa –ka. Nevertheless, I believe a
morphomic analysis misses a deep crosslinguistic generalization—that the morphosyntax of possession (whatever that may look like in a particular language) can be deployed to express predication in languages where PC words are lexicalized as property-denoting nouns and are thus not possible predicates. Whether there is crosslinguistic generality or not depends on how broadly one conceives of the generality. Strictly speaking, the syncretism instantiated in Ulwa does not seem to appear in other languages Francez and Koontz-Garboden (2010, 2011) have looked at. At the same time, not looking broadly would lead to the missing of what seems to be a relatively robust crosslinguistic generalization: that possessive morphosyntax is used to express predication in languages with nominal PC words. Still, there is nothing in the theory of the morphome from which it necessarily follows that this set of facts entails a non-morphomic analysis. And additionally, there are no predictions internal to the synchronic grammar of Ulwa that could either corroborate or refute a morphomic analysis.

Similarly, although Francez and Koontz-Garboden (2010, 2011) believe that the semantic explanation of the Ulwa syncretism and the related crosslinguistic facts that they propose captures an important generalization, nothing in morphomic theory entails that such an analysis should be accepted. One could very well reject such an analysis and insist on a morphomic one, though again, given the lack of positive evidence for a morphomic analysis, it is not clear on what basis one would be inclined to do this. The moral is that if the morphome is to be taken seriously as a theoretical construct, it is vital that its nature be articulated in better formal detail, in a manner such that the positing of the morphome makes falsifiable predictions beyond the two identified in this paper. The typological one can rule out a morphomic analysis, but does not positively tell us when a morphomic analysis is correct. And the analytical criterion is simply hard to take seriously, given the likelihood of breaking down in the face of poverty of imagination. What is needed, rather, is a level of articulation of morphomic theory such that it makes positive predictions about the grammatical behavior of phenomena tied to those which the morphome is claimed to be responsible for.

Where does this leave us on the broader question of whether morphomes actually exist or not? There certainly do exist cases that look, on the surface, convincing (see e.g., Aronoff 1994, Chapter 2 and Maiden 2005 on the Latin third stem). But why? What empirical diagnostic actually entails a morphomic analysis? What grammatical behavior internal to the language in which the morphome is posited does a morphomic analysis predict beyond the morphemic behavior the analysis itself is posited to explain? The answers to these questions, I believe, may form the starting point for a better understanding the nature of the morphome and how morphomicity can be diagnosed more generally.
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