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Abstract On the basis of data from the synthetic and agglutinative South American language Wichi (Mataguayan, Argentina/Bolivia), I argue in favor of regarding interface phenomena as typological variables. In particular, in this paper I discuss what type of interactions these are, arguing that they do not affect wordhood but do contribute to its formation.

I will defend the hypothesis that linguistic level interactions within the word are of two types and different in nature: overlapping on the one hand and conditioning and alteration on the other. Conditioning only takes place in morphophonological and morphosemantic interactions and it follows the wordhood requirements of the language. Conversely, the interaction of morphology with all linguistic levels shows overlapping of units: the phonological word and the grammatical word in the morphophonological relation; the word and the simple clause or nominal phrase in the morphosyntactic relation; and the word and the semantic unit in the morphosemantic

The term *wichi* is a Wichi word meaning ‘people’, referring both to the people and the language they speak. The Bolivian Wichi groups call themselves *wikyí weenhayek* or simply *weenhayek* ‘the different people’.

Different spellings are used for this word: <wichi> or <wikyi> in Wichi, <Wichi> or <Wikyi> in English, and <wichí> in Spanish. The term *Mataco* was also used to refer to this language in the past, but Wichi people replaced it with the Wichi term.

The name *Mataguayan* has been used by Najlis (1984) and Fabre (2014) to refer to the language family. In the literature, other names have been alternatively used, including *Matacoan* or *Mataco* (Loukotka 1968:53; Greenberg 1987:73), *Mataco-Mataguayan* (Tovar 1951:400, 1961, 1964), *Mataco-Maka* (Kaufman 1990:46). I prefer to use *Mataguayan* for two reasons. First, *Mataco* has acquired a pejorative connotation in Bolivia and the north of Argentina. Second, according to Fabre (*Ibid.*: 1), *Mataguayan* was used for some time to refer to an extinct group presumably related to the Wichi people (cf. Lozano 1941); making it a useful term to refer to all four members of this language family.

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relation. This explains why the word is generally defined by phonological, morphological, syntactic and semantic criteria.

It is to be hoped that the conclusions arrived at in this paper would contribute to deepen our knowledge of the notion of wordhood in synthetic languages in South America as well as our understanding of language structure and functioning.

Keywords Wordhood · Linguistic interface · Synthetic language · South America · Wichi

Abbreviations

APPL	applicative
ASSOC	associative
CAUS	causative
CL	classifier
CONJ	conjunction
CONT	continuative
COP	copula
DEM	demonstrative
FUT	future
IC	incorporation closer
IN	inalienable
INCL	inclusive
INDF	indefinite
INTERR	interrogative
INTR	intransitive
IRR	irrealis
LOC	locative
MAN	manner
NEG	negative
NMLZ	nominalizer
NVIS	non-visual
OBJ	object
PL	plural
POSS	possessor
PST	past
REAL	realis
REC	recent
REM	remote
SBJ	subject

1 Introduction

Morphology is generally assumed to interact heavily with other modules of language, like phonology, semantics, and syntax, leading to different types of interface phenomena. On the basis of data from the Mataguayan language Wichi (Argentina/Bolivia),

I argue in favor of regarding interface phenomena as typological variables. This enables us to achieve a better understanding of wordhood in different languages.

In studying interface phenomena, linguists have directed their questions towards determining the linguistic level where these interface phenomena occur and their exact nature (phonological vs. morphological/morphological vs. syntactic). In some cases, a special language component has even been proposed for interfaces (i.e. Natural Morphology) and, in other cases, morphology ended up being subsumed under syntax (i.e. Generativism). These kinds of approaches moreover seem to assume there is a certain language structure in our mind that impedes the simultaneous application of processes to a single linguistic unit on different levels, thus ruling out the possibility that a (bidirectional) interplay of levels can occur due to this simultaneity. These kinds of questions also presuppose a type of language structure that does not allow for the manipulation of phonological structure by morphological processes, or the manipulation of bound morphemes by syntactic processes to create predicates at the same time that morphology combines them.

Before continuing the discussion of the place where interface phenomena occur and the language structure that they requires, we need to go deeper into the analysis of the interplay of linguistic levels within the word. The purpose of this paper is to discuss what type of interactions these are, arguing that they do not affect wordhood but do contribute to its formation. From the analysis of Wichi (Mataguayan), a synthetic and agglutinative¹ South American language, I will defend the hypothesis that linguistic level interactions within the word are of two types: overlapping on the one hand and conditioning and alteration on the other. I will argue that conditioning only takes place in morphophonological and morphosemantic interactions and that it follows the wordhood requirements of the language. Conversely, the interaction of morphology with all linguistic levels shows overlapping of units: the phonological word and the grammatical word in the morphophonological relation; the word and the simple clause or nominal phrase in the morphosyntactic relation; and the word and the semantic unit or concept in the morphosemantic relation. This explains why the word is generally defined by phonological, morphological, syntactic and semantic criteria.

In this analysis, morphophonological relations refer either to automatic phonological alterations or to traditional morphophonological processes. The correspondence between the phonological word and the grammatical word is also considered a morphophonological relation. In a similar way, morphosemantic relations refer to the interaction between the meaning of each of morpheme and their combination by morphological processes so that a word expresses a single meaning. Morphosemantic relations also refer to the correspondence between the morphological unit (such as a word) and its integral meaning. A morphosyntactic relation is defined as the syntactic relationships that take place within a morphological unit (such as a word), probably—but not exclusively—because some syntactic categories are encoded by bound morphemes in the language, so that grammatical relations can be established at the morphological level. This definition of ‘morphosyntactic’ is very similar to that proposed by Kibort (2010). The correspondence between a word and a syntactic

¹Following Comrie (1981:48), the index of synthesis measures the number of morphemes per word (low in isolating languages, high in polysynthetic languages), and the index of fusion measures the degree of segmentability of the morphemes and the invariance of the morphemes.

unit (such as a predicate or a nominal phrase) are also considered morphosyntactic relations. In sum, the above-mentioned relations between morphology and other modules of the language occur when a level conditions rules or manipulates elements from another level, or when two units formed at different levels are aligned.

The Wichi language—from which all the data in this study comes—belongs to the Mataguayan family together with Chorote, Maka and Nivacle. It is spoken in the Gran Chaco region, in two countries: Argentina (in the provinces of Formosa, Salta, and Chaco along and between the Bermejo and Pilcomayo Rivers) and Bolivia (along the banks of the Pilcomayo River from Yacuiba in the south to Villamontes in the north, in the Tarija department). The data analyzed here were collected during several field-work trips and come mainly from the Bermejo River region in Argentina. I contrasted them with data collected by myself in Bolivia in order to confirm that the two types of interplay of linguistic levels (overlapping, and conditioning and alteration) are not restricted to a single geographical area within the Wichi speaker community.

It is to be hoped that the conclusions arrived at in this paper would contribute to deepen our knowledge of the notion of wordhood in synthetic languages in South America as well as our understanding of language structure and functioning.

2 The Wichi word

A Wichi word is basically recognized on the basis of its stress pattern and morphological structure, together with its meaning. Both basic and derived words (including compounds) are stressed on the rightmost syllable of the phonological word: [ʔi.nót] ‘water’, [ʔa.f^wèn.čé] ‘bird’, [la-.qà.ti^h.-jèn.-nú] 2SBJ-jump-CAUS-1OBJ ‘you made me jump.’, [to-.mò.-wét] INDF.POSS-to.sleep-place ‘bed’, [to-.f^wèf^w.-tu.k^wé] INDF.POSS-finger-father ‘somebody’s thumb’. The stress is applied rhythmically by parsing iambic feet from left to right, except in the case of noun incorporation, in which the word is parsed in two unbounded feet from the juncture of the verbal and nominal roots, and stressed according to the stem-stress rule (Nercesian 2011a, 2011b). In addition, phonological processes such as deletion of the glottal fricative before other fricative consonants, palatalization, aspiration, and sonorant devoicing occur within the phonological word but not between words (Nercesian 2014a). The minimal word in Wichi consists of one stressed syllable, e.g. [ʔá] ‘fruit’, [lúp] ‘winter’, [ʔéʔ] ‘white snail’.

With respect to verbs and their morphological structure, most categories coded by bound morphemes are suffixes except for the pronominal subject (first and second person, the third is zero),² the reflexive marker, the verbal class markers, prohibitive and hortative mood, negatives and two T/A clitics. The same happens with nouns;

²In other authors’ analyses of Wichi verbs, the prefixes *y-*, *i-* and *t-* have been interpreted as overt morphological markers of the third person (Viñas Urquiza 1974; Claesson 1994; Vidal and Nercesian 2005a; Terraza 2009). However, a study on valency and verb classes (Vidal and Nercesian 2005b) revealed that the prefixes *i-* (and its allomorphs *y-*, *yi-*, *hi-*) and *t(a)-* are in fact markers of transitive and (agentive) intransitive verb classes, respectively. These prefixes change in causative derivation (e.g. *Ø-ta-katay* ‘(s)he cooks’, *Ø-i-katah-yen-n’u* ‘(s)he makes me cook’) and are present throughout the basic paradigm of most transitive and intransitive verbs (e.g. *n’-y-’aj-’am* ‘I hit you’, *la-y-’aj-n’u* ‘you hit me’, *Ø-y-’aj-n’u* ‘(s)he hits me’, *to-y-’aj-’am* ‘we hit you’; *n’-t-katay* ‘I cook’, *la-ta-katay* ‘you cook’, *Ø-ta-katay* ‘(s)he cooks’,

only pronominal possessors, noun classifiers and negative affixes (expressing ‘lack of’) are prefixes. Additionally, all of these categories have a fixed position within the word.

Despite the linguistic analysis and criteria to define the Wichi words, written words still show inconsistencies on their spelling and boundaries due to the mid-stage of language standardization and the low degree of literacy in the majority of Wichi people (see the discussion on orthographic Wichi words by Terraza and Cayré Baito in this volume). The elaboration of written materials, thus, necessarily requires a discussion of the notion of words in linguistic terms and it should also take into account speakers’ intuitions (cf. Nercesian 2014c).³ Nowadays, young Wichi people tend to use written language more frequently by sending text messages over their cellphones, emails and even online social networks. These new contexts of usage may also influence written Wichi, together with school and the exposure to a traditional written language like Spanish.

Finally, with respect to the word-formation processes of Wichi, they are derivation (including conversion), composition, and one type of noun incorporation.⁴ Wichi also has onomatopoeic words (like ideophones) referring mainly to birds and a few intransitive action verbs by sound imitation (e.g. *m'alh-m'alh* [ˈmaʎˈmaʎ] ‘greater wagtail-tyrant’; *hakhaktaj* [hãqˈhãqˈtaɰ] ‘bare-faced ibis’; *kow-kowtaj* [qowqowˈtaɰ] ‘dark-billed cuckoo’; *tanatshan* [tanaˈtsʰãn] ‘to sneeze’; *kokok* [qoˈqoq] ‘to snore’; *isamsama* [ʔisamˈsama] ‘to whisper’; *ch'ilijtaj* [çʰilixˈtaɰ] ‘rattle’). Inflection does not create new words, but inalienable nouns must take a pronominal possessor prefix to be recognized as words by speakers.⁵ The open word classes in Wichi are nouns, verbs, and adverbs, whereas the closed word classes are pronouns, conjunctions, illocutionary markers, interrogatives, numerals, and interjections. Adjectives

to-t-katay ‘we cook’). In addition, they are absent in the imperative mood: ‘*aj* ‘hit him/her!’’, *katay* ‘cook!’’. According to Nercesian (2011a), the prefix *i-* is synchronically fused together with some verbal roots, and with other verbs it is lost from the verb paradigm except for the third person, whereas *t(a)-* still occurs with most agentive intransitive verbs. The diachronic process of phonological fusion between the root and the prefixes, and the eventual loss of these markers with first and second person subject, depend on the form of the root and on the deletion of the prefix vowel. For further discussion see Vidal and Nercesian (2005b), Vidal (2010), Nercesian (2011a), Nercesian and Vidal (2014).

³As Terraza and Cayré Baito (this volume) hold, the second edition of the textbook *Tsalanawu*, as well as its complementary activity book—both revised by the linguists Alejandra Vidal and Verónica Nercesian from the DOBES Chaco Languages team—shows that the written word has been subject to discussion prior to the publishing of this new edition so that now the written word reflects even more the phonological word in Wichi. The elaboration of this second edition of *Tsalanawu*, as well as of other written materials, included a debate that not only involved linguists but also Wichi native speakers.

⁴In the Wichi language, noun incorporation has two formally and functionally different mechanisms and triggers the interplay of prosody, morphosyntax and semantics. One mechanism, the lexical incorporation, is a word formation process. It is linked to a special stress pattern structure, uses only two verbs: *iwuyé* ‘to do’ and *yenlhi* ‘to make’, attaches a suffix closing the morphosyntactic construction, allows possessor raising and classificatory incorporation, and frequently has a verb as a synonym. Constituent stems lose their identity under noun incorporation so the meanings of the verbal compounds are not often exactly equivalent to the meanings of each of their parts. The other mechanism is a strategy to manipulate discourse-information and is less morphologized than lexical incorporation. It follows the regular stress assignment of the language, uses any verb for incorporation, lacks the incorporation closer suffix *-a*, and has a syntactic counterpart.

⁵A study on word formation in the Mataguyan languages will appear in Nercesian (2014b).

do not constitute a separate word class; rather, they are state verbs (they inflect like other verbs—compare *n'-t'ischey* ‘I laugh’/*n'-t'ischey=hen* ‘we laugh’ with *n'-lupen* ‘I am slim’/*n'-lupen=hen* ‘we are slim’, and they combine with the same verbal derivatives—compare \emptyset -*ikatah-yen-n'u* ‘(s)he makes me cook’ with \emptyset -*yotaj-yen-n'u* ‘(s)he makes me fat’). Lastly, Wichi distinguishes alienable from inalienable bases in nouns, and classifies verbs into transitive and agentive intransitive classes (the former use the prefix *(y)i-* ~ *hi-* attached to the verbal root, whereas the latter use *t(a)-*; synchronically, these verbal prefixes are in some cases co-lexicalized with the verb and in others they are lost; cf. Vidal and Nercesian 2005b, and footnote 2). Both noun and verbal classification have morphological and syntactic implications.

3 Interplay of linguistic levels within the word

The ‘word’ has been defined as a two-dimensional or bilateral unit since in a ‘word’ two types of units overlap: the phonological word and the grammatical word (cf. Lyons 1968; Booij 1983; Spencer 1991; Mithun 1998; Hall 1999; Dixon and Aikhenvald 2002; Aikhenvald 2007, among others). The formation of a phonological word may involve phonological processes of adjustment. In turn, the phonological word is the domain where these phonological processes take place. On the other hand, morphological structure, lexical category, and semantic integrity are compositional properties of the grammatical word. Hence, all linguistic levels are intrinsic to the word itself. As a consequence, phonological, morphological, syntactic, and semantic criteria are always required to define it.

Additionally, languages with a polysynthetic tendency allow syntactic relationships to be established within the word. In fact, some nominal and verbal roots are not recognized as words by the speakers if they lack the pronominal affixes of possessor or subject person (cf. Mithun 1998), as is the case in Wichi. Another well-known example of this phenomenon (i.e. word-internal syntactic relations) is noun incorporation, also present in Wichi.

In most cases, the interplay of linguistic levels favors word formation and follows the wordhood requirements of the language, hence, this interplay does not obscure the wordhood of the unit. The two types of interplay between linguistic levels proposed here, conditioning (and alteration) and overlapping, are different in nature. Conditioning is the type of interaction by means of which an element (or rule) depends on a certain environment that works as a condition for its occurrence. Conditioning might cause an alteration to the form or rule. When conditioning occurs at the interplay of levels, the condition and the element being conditioned belong to different levels. The level to which the condition belongs will be the one that is prioritized in forming the word. On the other hand, overlapping is a kind of interplay in which the boundaries of units formed on different linguistic levels are aligned to each other. These units are considered acceptable as long as they fulfill the requirements of the level in which they have been formed. In this sense, overlapping is inherently a multi-level interplay.

The kind of interplay depends on the levels involved. Interactions between morphology and phonology or semantics are different from those between morphology and syntax. Morphology and syntax are the levels that basically combine morphological elements (either unbound or bound forms), though they form different type of

units, a word in the first case and a predicate in the second case. And the morphological elements combined by syntax and morphology consist of a phonological structure associated to a semantic unit. So, it is from the combination of these elements and its properties that morphology (and syntax) interacts with phonology and semantics. These differences in the interplay of morphology with phonology and semantics, on the one hand, and morphology with syntax, on the other hand, largely explain why conditioning (and alteration) occurs in the interaction of morphology with phonology and semantics but not with syntax. Overlapping is the type of interaction to be observed between morphology and syntax.

The following sections explore Wichi data and analyze the interplay between the three linguistic levels—morphology-phonology, morphology-syntax, and morphology-semantics—within the Wichi word in order to discuss conditioning and alteration and overlapping of units as two kinds of interplay of linguistic levels.

3.1 Morphology and phonology

The interplay between morphology and phonology becomes apparent with the overlapping of units on the one hand, and the morphophonological conditioning and alterations on the other. In the case of alterations, a distinction has been made in the literature between phonologically motivated alterations, known as ‘automatic alterations’ or ‘phonetic alterations’, and morphophonological processes. Both of them will be included in this analysis, since, although automatic alterations are phonologically motivated, they occur at morphological junctures within the word and are due to the formal properties of the morphemes being combined. Thus, the morphology-phonology interplay can occur in two directions: phonological information conditioning morphology, and morphological information conditioning phonology.

3.1.1 Conditioning and alteration at the segmental level

A phonological rule can be blocked in certain specific morphological environments. This is the case of the rule stating that the glottal fricative is to be deleted when preceded by any other fricative (i.e. /f^w/, /s/, /ʃ/, /χ/)⁶. This rule is blocked at the morphological edge of a N+V compound.⁷ Compare examples (1), with the missing

⁶There is general consensus on the phonological status of [h], but not on the phonemic status of [x] and [χ]. On the basis of my own data of the so called Bermejo variety, the phonological analyses of these phones in other languages of the same family, and the reconstructions of Proto-Mataguayan (Najlis 1984; Viegas Barros 2002), I proposed two phonemes /χ/ and /h/, [x] being the allophone of /χ/—preceded by the front vowels /i/ and /e/, which usually cause the fronting of the point of articulation and/or palatalization of other consonants as well (Nercesian 2011a). The differences in the phonological analyses of [x] and [χ] may suggest the existence of dialectal variation.

⁷The highly productive use of this type of compound words (including the verb *ihi* ‘there is/are, to exist’) favors the grammaticalization of the verbal root, and these words are, synchronically, midway between composition and derivation. The free word *ihi* coexists with the locative bound form =*hi* meaning ‘in’, ‘the container of’. Morphophonological processes, which occur when affixes and clitics are added to the base within the phonological word, are blocked on the morphological edge between the locative form and the base, and combine with nominal and verbal word classes (generally, derivational affixes select only one word class). However, not only is the bound form =*hi* highly productive (it is also frequently used for

/h/ by virtue of the rule, and (2), with the glottal fricative following the alveolar fricative /s/.

- (1) [ičes-hat] → [i.č̣e.sat]
 [3SBJ]cure(INTR)-CAUS
 ‘(S)he cures him/her.’
- (2) [to-’wujis=hi] → [to.’wu.jis.hi]
 INDF.POSS-blood=exist
 ‘somebody’s spleen’

The blocking of the phonological rule enhances morphosemantic transparency within the word, since it preserves the morphological edges. In this case, a phonological process is conditioned by morphological information. The opposite occurs when a morphological process is conditioned by phonological constraints. This is typical in the case of allomorphs when the syllable structure determines the selection of one allomorph. A case in point is plural marking in Wichi: since *CVCC syllables are avoided in Wichi, when the nominal base ends with a consonant it combines with the allomorphic VC (i.e. [-Vs], [-Vʔ] and [-Vj]), instead of C (i.e. /-s/, /-ʔ/ and /-j/). See examples (3) through (5):

- (3) a. /-s/ *fwinchu-s* ‘fish scales’
 b. [-Vs] *tolhet-es* ‘firewood’ (PL)
- (4) a. /-j/ *hal’o-y* ‘trees’
 b. [-Vj] *totkwey-ay* ‘somebody’s arms’
- (5) a. /-ʔ/ ~[-l] *tots’e-lh* ‘bellies’
 b. [-Vʔ] *chos-elh* ‘tails’

A wordhood phonological requirement is prioritized in this type of morphophonological interaction. Other Mataguayan languages, such as Nivacle, may either create allomorphs in some cases or apply a metathesis rule in other cases under the same syllabic restriction for complex codas (as in /paset-s/ → /pastes/ [lip-PL]; /tisux-j/ → /tisuxj/ [quebracho.tree-PL]; cf. Gutiérrez 2010).⁸

innovations and neologisms), but it has also lost phonological material and has a recognizable recurrent meaning which makes the meaning of the new word considerably predictable. That many suffixes and prefixes come diachronically from the first or second member of a compound is a highly common phenomenon (Olsen 2000:901–2). A free form can serve as base for a compounding pattern, and when this pattern has consolidated and becomes productive, the original constituent is detached from its correspondent free form or its meaning, developing as an affix.

⁸According to Campbell and Grondona (2007), there is no metathesis in Nivacle but rather vowel addition after consonant-final roots (the vowel determined by (a copy of) the last vowel of the root: /paset-Vs/ → /paset-es/, /tisux-Vj/ → /tisux-uj/), and then a loss of the penultimate vowel, as long as it does not result in consonant clusters of more than two consonants: /paset-Vs/ → /paset-es/ → /past-es/, /tisux-Vj/ → /tisux-uj/ → /tisx-uj/.

3.1.2 Conditioning and alteration at the prosodic level

Another example of morphophonological interaction within the word is the conditioning and alteration of stress assignment at prosodic level determined by the word-formation process.

Noun incorporation shows a stress assignment pattern that differs from the one of basic and derived words. The regular stress pattern assigns primary stress to the head of the rightmost iambic foot in the phonological word and secondary stress to alternating syllables from left to right. By contrast, incorporation is linked to a specific prosodic structure that consists of two unbound feet, formed by the two constituting elements (V+N), and a stem-stress rule. Primary stress is placed on the first syllable of the incorporated nominal root and secondary stress on the verbal root (which is reduced to one syllable).⁹

Note the place of the primary stress in example (6a), where the noun appears on its own, and in (6b), where the noun is incorporated into the verb.

- (6a) (x)
[te.nék]
tenek
'singing'
- (6b) (x)(x)
[i.wù.té.ne.čá]
iwu-tenek-a
[3SBJ]do-singing-1C
'(S)he prays.'

Additionally, stress assignment is determined by the type of morphological elements that form the word. Extrametrical locative and directional suffixes (Type I) do not count for metrical parsing and are never stressed, even if they are in iambic position on the rightmost foot of the word.

Examples (7) and (8) are verbs with an extrametrical suffix and a metrical suffix, respectively:

- (7) Extrametrical suffixes—Type I
(x)<x>
[n.t'ó.nej]
n'-t'on-ey
1SBJ-shout-APPL.very.far
'I call for her/him (she/he is far away).'
- (8) Metrical suffixes—Type II
(x)(x)
[n.tì.jox.péʔ]
n'-tiyoj=pe'
1SBJ-jump=APPL.over
'I jump over it.'

⁹See Nercesian (2011b) for a deeper analysis of stress in Wichi.

The extrametrical suffixes could have developed from free verbal roots, as happens with metrical locative/directional suffixes (Type II). Therefore, their extrametrical stratus could be a trace of their former lexical nature.

3.1.3 Phonology supporting morphosemantic transparency

A third example of conditioning and alteration in morphophonology interplay consists of several phonological factors that favor morphosemantic transparency, and therefore word intelligibility. They are (1) a wide range of consonantal combinations between syllables; (2) availability of contiguous homorganic consonants; (3) epenthetic palatal glide; (4) fortition of consonants in intervocalic and postcoda position in morphological edges; (5) blocking of phonological adjustments in compounds; and (6) stem-stress rule and stress clash in noun incorporation. Cases (1) to (4) are analyzed here, whereas (5) and (6) have been explained in the previous sections from another perspective.

1. A wide range of consonantal combinations between syllables: VC.CV. There are few phonotactic constraints that cause phonological changes, e.g. the uvular and glottal fricatives [χ] and [h] do not occur in onset position if they are preceded by another consonant (*[VC.χV], *[VC.hV]); glottalized (and ejective) and aspirated consonants¹⁰ generally appear in intervocalic position, only in a few cases are they preceded by a consonant.

This phonotactic tolerance reduces the number of phonological changes, which tend to make morphotactics opaque. In addition, Wichi phonotactic tolerance, by allowing a wide variety of consonants to appear in syllabic coda position, contributes to the particular tendency of this language to reduce morphological elements (stems and two-syllable affixes) to a single CVC syllable, which are more perceptible than CV syllables.

2. Availability of contiguous homorganic consonants between syllables: VC.CV. This makes morphological edges more perceptible since the length of geminated consonants is marked (they are much longer than a non-geminated consonant, at least twice as long).

¹⁰The phonological status of the aspirated stop consonants in Wichi is another issue that requires special treatment from both dialectal and diachronic perspectives. Different analyses of these sounds are not uniform and partly depend on the geographical area where the data were collected. On the one hand, the studies based on data from the so called Pilcomayo variety (e.g. Claesson 1994; Avram 2008) identify either the presence of a complete series of aspirated consonants or only the aspirated allophone of /p/. On the other hand, the studies based on data collected in speaking communities living close to the Bermejo river in the province of Salta (Argentina) state either that the aspirated consonants are allophones of the plain stop phonemes (e.g. Viñas Urquiza 1974; Terraza 2009) or that they are phonemes (Lunt 2003). According to my data, collected in the communities of the Bermejo river in the provinces of Formosa and Chaco, aspirated consonants are also phonemic (Nercesian 2011a; Nercesian 2014a). In addition, Najlis (1984:8) reconstructed three series—plain, glottalized (and ejective) and aspirated—for Proto-Mataguayan: “Las consonantes tienen tres modos de articulación: oclusivo, continuo y nasal, que se subdividen en: eyectivo (sólo para oclusivas), simple y aspirado” [“The consonants have three manners of articulation: stop, continuant and nasal, which are subdivided into: ejective (only for stop consonants), simple and aspirated.”].

- (9) [tot.te.ɬu]
*to-t(V)-telhu*¹¹
 INDF.POSS-IN-face
 'somebody's face'
- (10) [i.f^weɬ.ti]
ifwelh-lhi
 [3SBJ]hang-CONT
 '(S)he/it is hanging.'

3. Epenthetic palatal glide interrupting VV sequences in different but contiguous morphemes: V.jV. This prevents a possible fusion of the two vowels (making morphological edges opaque) and makes the monosyllabic morpheme more perceptible as it becomes a syllable with onset.

- (11) [jen.ɬa.ʝi.ja]
yen-lhayhi-a
 [3SBJ]make-word-IC
 '(S)he gossips.'
- (12) [la.ta.wuj.'nu.jex]
la-tawhuy-n'u-ej
 2SBJ-talk-1OBJ-ASSOC
 'You talked to me.'

4. Fortition of consonants in intervocalic and postcodal position in morphological edges. This contributes to morphological structure transparency and prevents possible phonological changes.

- (13) [hop.χila] *[hop.hi.la], *[ho.p^hi.la]
hope-hila
 COP-FUT
- (14) [qa.te.tseɬ] *[qa.te.seɬ]
kates-elh
 star-PL

5. Blocking of phonological adjustments in compounds.
 6. Stem-stress rule and stress clash in noun incorporation.

Of course, this is not to say that factors 1 through 6 are specifically intended to highlight morphological edges, but they serve that purpose. And thus, although they indirectly favor morphosemantic transparency, they indeed show the interplay between phonology and morphology. If a language allows certain syllabic and prosodic

¹¹A few inalienable nouns, which refer to body parts, show the prefix *t-* between the root and the possessor prefix marker (e.g. *n'-t-kolo* 'my leg/foot', *Ø-ta-kolo* 'his/her leg/foot', *n'-t-kwey* 'my arms', *Ø-ta-kwey* 'his/her arms', *n'-t-tey* 'my face', *Ø-ta-tey* 'his/her face', *n'-t-telhu* 'my eye', *Ø-ta-telhu* 'his/her eye'). The source of this prefix in nouns is still unknown. However, its formal identity with the (agentive) intransitive verbal class marker *t(a)-* is noteworthy (cf. footnote 2). For the time being, I have decided to gloss this nominal prefix as 'IN' meaning 'inalienable marker'.

structures that are easily perceived and favor morphosemantic transparency, then these structures could be chosen over others. From a cross-linguistic perspective, Dressler (2005) noted the tendency of languages to prefer morphotactic transparency, that is, to use forms that do not obscure the perception of morphemes. Moreover, agglutinative languages particularly tend to keep morphological edges clearly identifiable (see e.g. Comrie 1981; Aikhenvald 2007).

3.1.4 *Overlapping between the phonological and the grammatical word*

The second kind of morphophonological interplay is unit overlapping. The word is defined using both phonological and morphological criteria by most linguists (Lyons 1968; Booij 1983; Spencer 1991; Mithun 1998; Hall 1999; Dixon and Aikhenvald 2002; Aikhenvald 2007, among others), who think of words as bilateral units. There is an intrinsic relation between the phonological word (Pword) and the grammatical word (Gword). There is no phonological word when there is no morphological element, and the grammatical word is recognized as an integral word by the speaker if it also constitutes a phonological word.

However, the PWord is not necessarily isomorphic with the grammatical word. A PWord may correspond to one or more grammatical words, as is the case with the compound in (15), and a GWord may not correspond to a PWord, hence it needs a phonological host—as happens with clitics in (16).

(15) ((*alhe*)_{GW:PW} + (*poset*)_{GW:PW})_{GW:PW}
 iguana+beak
 ‘centipede’

(16) ((*t'ischey*)_{GW:PW} (= *witho*)_{GW})_{GW:PW}
 [3SBJ]laugh=MAN
 ‘They laugh together.’

Beyond the fact that the PWord may contain another PWord in itself or that the GWord may be composed by more than one GWord, the alignment of boundaries of the phonological word and the grammatical word is necessary for the speakers to recognize words. Accordingly, overlapping is the type of interplay that makes possible the formation of words with phonological and grammatical integrity.

3.2 Morphology and syntax

Unlike the morphology-phonology interplay, the interaction between morphology and syntax consists only of unit overlapping. In Wichi, as in other polysynthetic languages (cf. Bickel and Nichols 2007; Aikhenvald 2007), there can be word-internal syntactic relationships between the root (or stem) and its affixes or between the root and another attached nominal stem. Thus, a word may be a syntactically complex unit in itself: a nominal phrase or a minimal clause.

3.2.1 *Overlapping between the word and the nominal phrase*

Possessor-possessed is one of the syntactic relations that can be contained within the word, since the possessor is morphologically marked by a pronominal prefix attached

to the possessed noun. It is compulsory for inalienable nouns to take a possessor prefix in order to be recognized as words by the speakers, as is the case in examples (17) and (18). In contrast, alienable nouns do not take a possessor prefix obligatorily, but in order to be possessed they do require the classifier prefix, as in (19) and (20).

- (17) *n'-fwcha* (**fwcha*)
1POSS-father
'my father'
- (18) *n'-chethi* (**chethi*)
1POSS-pipe
'my pipe'
- (19) *n'-ka-wun'a*
1POSS-CL-cap
'my cap'
- (20) *n'-lo=hulu*¹²
1POSS-CL=hen
'my hen'

The possessive relationship can be even negated by affixes, so that the construction becomes a nominal predicate. Hence, I will analyze it as a word coinciding with a simple clause in the next section.

3.2.2 *Overlapping between the word and the clause*

The Wichi word can form a simple one-word clause.¹³ As shown by examples (20) and (21), the participants of an event are morphologically marked on the verb by pronominal affixes. Both morphological and syntactic processes occur within the same unit: the word.

- (21) *n'-t'os-yen-la-'a-pe'*
1SBJ-step.on-CAUS-FUT-2OBJ-step.on¹⁴
'I will make you step on it.'

¹²Other analysts do not consider the *-lo* 'possessive classifier' to be a clitic, but rather a word (cf. Terraza 2009:70). I analyze this possessive classifier as a clitic that observes strict adjacency to the noun and is preceded by the possessor prefix. In addition, an inalienable nominal root *-lo* 'pet' (in contrast to *tshowet* 'animal') coexists with the "possessive classifier". The nominal root inflects as other nouns, e.g. *n'-lo* 'my pet', *n'-lo-y* 'my pets', and is the head of a nominal phrase that functions as a verb argument, e.g. *la-lo-y Ø-yihonlhi* 'his pets followed him'. This noun could presumably be the origin of the possessive classifier.

¹³In Nercesia (2011a:462 ff.) I have distinguished two kinds of simple clauses: one-word and multiple-word depending on whether they are formed by a single word or by more than one word. This distinction is useful to analyze their phonological and morphosyntactic particularities and correlate them with their discursive functions.

¹⁴In this example, the root *t'os* and the directional *=pe'* are lexicalized in the lexical item *t'ospe'* 'to step on' (for that reason *=pe'* has not been segmented as clitic), and the meaning of the verbal root becomes obscure. Note that, despite of the lexicalization, *=pe'* preserves its final position; thus, when suffixes are attached to the verbal root, they "interrupt" the complex lexical item. Other verbs that show similar

- (22) *n'-choj-'am-hu* (*atseta(j)-s*)
 1 SBJ-carry-2OBJ-APPL orange-PL
 'I carry oranges for you./'I carry them for you.'

In spontaneous speech, nominal phrases tend to be omitted, which leads to one-word clauses. The brackets in example (22) show that the noun can be omitted and the reference can be retrieved from the linguistic or extralinguistic context.

As has been explained, the possessive relationship in a word (either with alienable and inalienable stems) can be negated by the same negative affixes that are used to negate verbs. The negative possessive construction functions as a copulative predicate like 'x is not mine', as happens in examples (23) and (24).

- (23) *ha-n'-chila-hi*
 NEG.REAL-1POSS-older.brother-NEG.REAL
 'He is not my older brother.'
- (24) [ha'aqatuweʃi]
ha-'a-ka-tuwej-hi
 NEG.REAL-2POSS-CL-clay.pot-NEG.REAL
 'The clay-pot is not yours.'

Noun incorporation is another example of word-clause overlapping. In this case, the object expressed by the noun is incorporated into the verbal root. Furthermore, a possessed noun can be incorporated causing possessor raising (Nercesian 2011a, 2012, 2014d). See examples (25) and (26):

- (25) *n'-wu-poset-a*
 1 SBJ-do-lip/beak-IC
 'I whistle.'
- (26) *n'-wu-ha-w'ey-a*
 1 SBJ-do-2POSS-clothes-IC
 'I dress you.'
- (27) *han'ofwaj yen-lhot-a* *letsi*
 baby [3SBJ]make-liquid-IC milk
 'The baby feeds on milk.'
- (28) *wit ti-ch'es(aj)=hen*
 CONJ 1 SBJ.PL.INCL-cut.in.pieces=PL
to-yen-han'ofwaj-w'ey-a
 1 SBJ.PL.INCL-make-baby-clothes-IC
 'And we cut them [the second-hand clothes] into pieces to make baby-clothes.'

behavior are *t'os-(hi)* 'to step in', *t'e-kwe* 'to look for', *t'e-ye* 'to look at', *t'e-ya* 'to take care', *tun-hi* 'to stretch', *tun-pho* 'to raise', among others. These roots, derived by directional and locative suffixes, seem to be partially lexicalized (for further analysis see Nercesian and Vidal 2014).

A word created through incorporation can function as a simple clause and simultaneously constitute a lexical item with a single meaning. The main discussion about incorporation has focused on whether it is a morphological or a syntactic process, and consequently on the domain of grammar in which it occurs. However, incorporation seems to be both a morphological and a syntactic process: the morphological combination forms a single word (both in grammatical and phonological terms) and at the same time the syntactic combination forms a predicate. This suggests that morphological and syntactic relations occur simultaneously, and also within the same domain, manipulating the same linguistic elements—this phenomenon is similar to what happens in languages with agreement: the inflection is morphologically combined and at the time syntactic relations are established.

3.2.3 A single verb, an independent predicate

A word that constitutes a clause in itself is a predicative syntactic unit, and as such it can be combined with other simple and complex clauses in a text. In examples (29) through (31), a simple one-word clause is combined with multiple-word clauses by means of a conjunction.

- (29) Coordinated predicates
atsinhapa tofwtaj iwulhosa
atsinha-pa tofwtaj iwu-lhos-a
 woman-DEM.NVIS CONJ [3SBJ]do-son-IC
 ‘And it was that woman who had become pregnant.’
- toj iwulhosa tha ζat’ep hope lafwcha?...
 toj iwu-lhos-a tha ζat’e-p hope la-fwcha?...
 CONJ [3SBJ]do-son-IC CONJ INTERR-NVIS COP 3POSS-father
 ‘She was pregnant but... who was the father?’...*
- (30) Causal predicates
Icho’ hal’o lhacha testoj n’katinlhipe’.
icho’ hal’o lhacha
 [3SBJ]break tree branch
 ‘The branch of the tree has broken’
- testoj n’-katin-lhi=pe’*
 CONJ.causal 1SBJ-jump-CONT=APPL.over
 ‘because we were jumping on it.’
- (31) Conditional predicates—protasis and apodosis
Iyahinch’uya tay’otna sinalufw:
iyahin=ch’uya tay’otna sinalufw
 [3SBJ]look.at=MAN [3SBJ]ask flea
 ‘She [the iguana] looked out and asked the flea:’

“*E' yhohinep ukwey*”

e' yiho=hi=ne-p ukwey
 INTERR [3SBJ]go=LOC=PST.REC=NVIS 2POSS:parents
 “‘Where did your parents go?’”

“*[N'tfwihena'am] che [kachelhan'uhu]*

n'-tefw=hen-a-'am che ka-nichelh-a-n'u-hu
 1SBJ-eat=PL-FUT-2OBJ CONJ 2SBJ.NEG.IRR-answer-NEG.IRR-1OBJ-APPL
 “‘I will eat you if you don't answer me.’”

[n'tfwihena'am] che [kachelhan'uhu]

n'-tefw=hen-a-'am che ka-nichelh-a-n'u-hu
 1SBJ-eat=PL-FUT-2OBJ CONJ 2SBJ.NEG.IRR-answer-NEG.IRR-1OBJ-APPL
 “‘I will eat you if you don't answer me.’”

[n'tfwihena'am] che [kachelhan'uhu]”,

n'-tefw=hen-a-'am che ka-nichelh-a-n'u-hu
 1SBJ-eat-PL-FUT-2OBJ CONJ 2SBJ.NEG.IRR-answer-NEG.IRR-1OBJ-APPL
 “‘I will eat you if you don't answer me.’”

hanichelhihup'ante . . .

ha-nichelh-hi-hu=p'ante
 NEG-answer-NEG-APPL=PST.REM
 ‘But they wouldn't answer her. . .’

The syntactic relationship established within a word is not only a formal aspect of a language, but also a functional one, and as such, it has discursive effects. Omitting nominal phrases, for example, is related to reference tracking and to the way new and old information is presented in the discourse (Nercesian 2006). And this is possible, among other things, because the arguments are marked on the verb, which therefore can function as a single predicate on its own.

3.3 Morphology and semantics

The interplay between morphology and semantics is similar to that between morphology and phonology in the sense that it includes both kinds of interaction. There is an overlapping of units, a word expresses a semantic concept, and in turn there are semantic conditionings in word formation processes. This is a highly common and expected phenomenon, since the morphological elements involved in words are bilateral, being an association of a phonological and a semantic structure.

3.3.1 *Alienable/inalienable class conditioning in nominal possession*

An example of semantic conditioning within the word appears in the formation of possessive constructions. Wichi distinguishes alienable from inalienable nouns on a semantic basis. Alienable nouns refer to objects, natural phenomena, vegetation and animals; inalienable nouns, on the other hand, refer to parts of the body, kinship

and (generally personal) body-related objects. As has been explained, inalienable nouns are dependent bases, which require the pronominal possessor prefix in order to be used and recognized as a word by the speakers. Hence, semantic information of nominal bases is available to the morphological process of prefixation to distinguish inalienable (32), from alienable nouns (33)–(34). Furthermore, the meaning of the alienable noun determines the possessive classifier that must be used in possessive constructions: *ka-* ‘inanimate’ (33) and *lo=* ‘animate’ (34).

- (32) *n'-ch'efwa* (inalienable)
1POSS-spouse
'my wife/husband'
- (33) *n'-ka-yote* (alienable inanimate)
1POSS-CL-clay.pot
'my clay pot'
- (34) *n'-lo='ele* (alienable animate)
1POSS-CL=parrot
'my parrot'

The semantic properties of the nominal base can also affect the morphological structure of words. As noted by Dressler (2005), the preference for a formal iconicity in words is a universal parameter. According to the author, there are certain morphological structures that show analogies between the *signans* and the *signatum*. Likewise, inalienable nouns, in which the conceptual distance between the possessed and its possessor is closer than in alienable nouns (Velázquez Castillo 1996), add the possessor prefix immediately before the base in Wichi. In contrast, alienable nouns add the possessive classifier between the possessor prefix and the possessed nominal base. From a cross-linguistic point of view, Aikhenvald (2013) also claims that there is an iconic relation between meaning and formal expression. According to this author, “the iconicity principle predicts that a construction with inalienable possession will never be more analytic, or require more formal marking than alienable possession.” (*Ibid.*: 9). That is, the morphological structure of the possessive constructions displays an iconic relation with its semantics.

3.3.2 Semantic class conditioning in verbal derivation

An example of semantic conditioning in verbal word formation in Wichi is nominalization. The language has two nominalizers, *-yaj* and *-ek*, to derive action and patient nouns, respectively. The suffix *-yaj* combines with both agentive verbs and verbs of state, as shown in (35) and (36), but the nominalizer *-ek* exclusively combines with agentive verbs, as in (37).

- (35) *a-t'ische-yaj*
2POSS-laugh-NMLZ
'your laugh'
- (36) *asnam-yaj*
[3POSS]blind-NMLZ
'his/her blindness'

- (37) *la-chefwen-ek*
 3POSS-teach-NMLZ
 'his/her student'

The derivation of non-agentive verbs (denoting states or non-causative change of state) by the suffix *-ek* is not allowed, and this is a semantic restriction. Hence, semantic information from verbal bases is available to the morphological process of derivation and helps distinguish agentive verbs from non-agentive verbs, thus, avoiding wrong formation of words. The meaning of the verbs determines the nominalizer that may be used to create a new word.

Another example of semantic conditioning in word formation is causativization. There are two causatives in Wichi, *-yen* and *-hat*. The former is very productive and combines with transitive and intransitive agentive verbs (38), as well as with non-agentive verbs that denote states and properties (39). The causative *-hat*, in contrast, only selects non-agentive verbs that express a change of state or a process before the causative derivation applies (40):

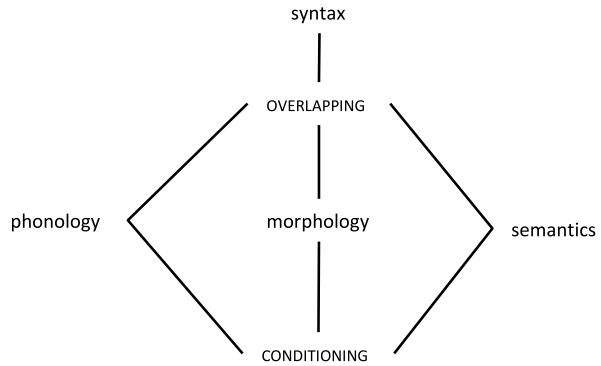
- (38) Agentive verb
ikatah-yen-n'u
 [3SBJ]cook-CAUS-1OBJ
 '(S)he makes me cook.'
- (39) Non-agentive state verb
fwa'a-y yotaj-yen-n'u
 carob.pod-PL [3SBJ]be.fat-CAUS-1OBJ
 'The carob pod (fruit) makes me gain weight.'
- (40) Non-agentive inchoative verb
n'-chay-hat=hi inot
 1SBJ-boil-CAUS=LOC water
 'I boiled the water.'

These examples of nominalization and causativization show that both morphological processes need access to the semantic information of the verbal base when attaching the derivational suffix. Consequently, the semantic verbal class conditions and restricts the derivational word formation process.

3.3.3 Overlapping between the word and the semantic unit

The interaction of morphology and semantics can also be one of overlapping. A word, as a morphological unit, expresses a semantic unit. In fact, the speakers are able to recognize the meaning of the word rather than the meaning of the morphemes that form that word (Mithun 1998).

Additionally, the meaning of words is a criterion to identify them. It is used, for example, to distinguish compounds from phrases. The dependent noun in compounds refers to a generic class instead of a particular entity, and the meaning of the whole compound is not necessarily compositionally formed by the meaning of its members (Spencer 1991). See examples (41) through (43).

Fig. 1 Types of linguistic interplay

- (41) *chos+tilhoj*
tail+carry
'scorpion'
- (42) *alhe+ch'alu*
iguana+jaw
'eagle'
- (43) *tottefwis*
to-t-tey+fwis
INDF.POSS-IN-face+larva
'eyelash'

Finally, the words of any language can even be grouped into a number of universal lexical classes called SEMANTIC TYPES, which have a common meaning component and some shared grammatical properties: DIMENSION, COLOUR, AGE, VALUE, CONCRETE reference, MOTION, AFFECT, ATTENTION and SPEAKING (cf. Dixon 1995:175–176, see also Wierzbicka 2000).

4 Conclusions

From the analysis of the linguistic interplay within the word in a synthetic language such as Wichi, and the significance of this interplay in terms of wordhood for that language, two types of linguistic level interactions have been proposed: overlapping of units on the one hand, and conditioning and alteration on the other (Fig. 1).

Conditioning occurs in morphology-phonology and morphology-semantics interplay *in* and *for* the proper formation of words, following the wordhood requirements of the language. Phonological and semantic conditionings and alterations exist due to the concatenation of form and meaning of the morphemes combined in a word.

Conversely, the interplay of morphology with all linguistic levels is one of unit overlapping: the phonological word and the grammatical word in the morphophonological interplay, the word and the simple clause or nominal phrase in the morphosyntactic interplay, and the word and the semantic unit or concept in the morphosemantic

interplay. In fact, this explains why the word is defined by phonological, morphological, syntactic and semantic criteria.

With respect to overlapping of morphological and syntactic units, the degree of overlapping depends on the degree of synthesis of the language. If a language tends to code syntactic categories through bound forms, morphosyntactic processes will be more frequent than in languages where the same syntactic categories are expressed by free forms. Conditionings and alterations are generally wordhood requirements in a specific language (depending on its degree of agglutination), so they contribute in the formation of words.

Linguistic level interactions within the word are not a peculiarity of Wichi. Rather, it is a common phenomenon in the languages of the Americas with a tendency towards polysynthesis and agglutination. If we consider that multilevel interactions are a characteristic of words, the study of these interactions could provide some keys to the understanding of wordhood.

From this perspective we could ask further wordhood-related questions: (i) what degree of morphological-syntactic units overlapping is possible in a word, which in turn is related to the degree of polysynthesis of the language. An interesting case is Central Yup'ik, which words that may have elaborate structures. A Yup'ik word may consist of seven meaningful parts, the verbal root and six verbal categories, constituting a clause (Mithun 1998, 2012). (ii) What phonological processes occur within the word and between morphemes, which would signal word boundaries; and (iii) what type of semantic units may be coded by a word, since a clause may be packaged in a single word. Lastly, differentiating conditioning from overlapping of units is useful to analyze the domains where phonological and semantic processes apply within words but not between them, as well as the phonological and semantic requirements of wordhood in a particular language.

Notes on transcription For most examples, only orthographic transcription is used—based on the *Alfabeto Unificado Wichí* [Wichi Unified Alphabet], recognized by the majority of Wichi speakers in Argentina. When necessary, the phonetic transcription is added (IPA symbols in brackets []).

Since there is no overt mark for the third person subject, the notation '[3SBJ]' before the verbal root is used to make explicit that the third person subject meaning is obtained not by segmental/affixal means but by virtue of paradigmatic opposition.

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