Paradigm Effects and the Affix-Shape/Position Generalization

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1. Background

Infixation phenomena in a variety of languages has provided important evidence in support of an Optimality Theoretic approach to morpho-phonology (Prince and Smolensky 1993; McCarthy and Prince 1993a; b). Within this approach, the category of infixes is not taken to be underlyingly specified as such, but rather their infixal status is seen to arise from the interaction of ALIGN with higher ranked markedness constraints. Hence, all affixes are taken to be primitively prefixes or suffixes with infixes being a derived category. Recently, evidence has been adduced against such a strong claim. Blevins (1999) and Yu (2002) have made arguments for specifying the precise attachment site of all affixes within the lexicon. Counter-evidence against the OT analysis of infixation can be classified into two types: (a) cases where infixation seems prosodically unmotivated and (b) cases where infixation is motivated but nonetheless does not occur (within a language already possessing infixes).

This paper compares two theoretical approaches in dealing with infixation phenomena, the rule-based approach and the OT approach, and suggests the inclusion of a paradigm-sensitive constraint (McCarthy 2002b) for dealing with type (b) above. This restricted augmentation to OT morphophonology can be shown to handle a large class of recalcitrant infixes while still disallowing unattested patterns. Equally important, it suggests that paradigmatic factors might be found to also affect the alignment of affixes in addition to the more well-attested effects on segmental properties.

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2. Affixation in OT

We may begin by asking what the motivations are for attempting to reduce infixation to prefixation and suffixation. Three come to mind immediately: one typological, one cognitive and one theoretical. First, infixes are typologically marked cross-linguistically in that they are much less commonly found across languages and are also marked "implicationally" in that they are generally only found in languages that also possess the more common prefixing and suffixing types of affixes (Ultan 1975). Second, it is a natural assumption that discontinuous constituents (in any component of the grammar) provide more difficulties in processing than continuous ones[1] suggesting that there might exist factors external to the morphology proper which induce infixation. Third, it has always been a natural goal of linguistic theory to reduce the number of primitives within any given domain and hence simplify the machinery required for the theoretical model. The goal of simplicity demands that predictable aspects of a surface form not be treated as part of its underlying representation.

Prince and Smolensky (1993) attempt to make precisely such a reduction of "misaligned" infixes to edge-oriented affixes. Here, all affixes are specified to align to an edge of a prosodic category.[2] Affixation to a non-category such as an onset is therefore necessarily interpreted as "misalignment", i.e., the violation of an alignment constraint for the satisfaction of a markedness constraint. The behavior of the Tagalog affix *um* became the classic case of this interaction. Tagalog *um* was analyzed by Prince and Smolensky (1993) as prefixing with vowel-intial stems (e.g., *ábot* + *um* → *um-ábot* 'to reach') and infixing with consonant-initial stems (e.g., *sakay* + *um* → *s-um-akay* 'to ride'). Under this view, the violation of ALIGN-L *um* occurs for the satisfaction of a NO-CODA or ONSET constraint. Thus, the analysis captures an important generalization made by Anderson (1972) and Cohn (1992) concerning the fact that infixes tend to be of VC shape (McCarthy and Prince 1993a: 34). With Prince and Smolensky's analysis, it is precisely the shape of the affix which conditions its

1. Although this is a well studied issue in connection to syntax, I have only come across one empirical study which gives evidence for processing difficulties associated with infixation. Gonzalez (1984) describes how infixes were consistently acquired later than prefixes and suffixes among the children acquiring Tagalog whom he studied.

2. Crucially, the prosodic hierarchy is not seen to include the segmental level. This is presented not so much as a theoretical necessity but rather an empirical observation: "We have not located any examples of Alignment constraints where PCat is a skeletal unit." (McCarthy and Prince 1993a)

placement. A VC-shaped affix creates a prosodically less marked word as an infix than it would as a prefix; thus, this kind of infixation is indicative of a grammar which ranks ONSET/NO-CODA above ALIGN. This pattern of prosody-morphology interaction was termed P»M (prosody dominates morphology).

3. Problem cases for the P»M analysis

In a critique of the approach outlined above, Yu (2002) makes the predictions of the OT analysis explicit. First, languages allowing "misalignment" of affixes should do so uniformly. Although not an insurmountable problem, it also does not provide strong support for the OT analysis if infixation is seen to only occur with one out of several VC-shaped affixes in a given language. The second and more crucial prediction is that all cases of misalignment (i.e., infixation) should result in less marked prosody. Otherwise, infixation would have to be admitted as a regular process of affixation.

Yu (2002) brings forth two cases from the Philippine languages, Ilokano and Pangasinan, which seem to falsify the first prediction. Table 1 shows how the Ilokano VC-shaped affix *um* behaves just like Tagalog *um*, a "typical" infix resulting from a P»M ranking. However, we see that *ag*, also a VC-shaped affix, does not behave in the same manner but rather prefixes uniformly to both vowel initial and consonant initial stems. An identical problem is found with the two homophonous *in* affixes found in Ilokano and Pangasinan. One *in* affix regularly prefixes while the other patterns like the *um* infix below.

Table 1 Ilokano *um* + *ag* affixation (Vanoverbergh 1955; Zoll 1998; Yu 2002)

um -	*isem* + *um* → ***um****isem* [ʔu.mi.sem] smile VOICE 'to smile'
	kagat + *um* → *k****um****agat* [ku.ma.gat] bite VOICE 'to bite'
ag -	*isem* + *ag* → ***ag****-isem* [ʔag.ʔi.sem] ~ [ʔa.gi.sem] smile VOICE 'actually smiles'
	kagat + *ag* → ***ag****kagat* (**k****ag****agat*) [ʔag.ka.gat] bite VOICE 'actually bites'

3.1. Zoll 1998: The parochial constraint solution

There have been two solutions proposed to handle this class of exceptions to the original OT analysis. Staying within the OT framework, Zoll (1998) posits parochial (i.e., morpheme specific) alignment constraints in order to capture the difference between Ilokano *ag* and *um*. Once these

two affixes are aligned through separate constraints, the facts are captured simply by the following ranking: ALIGN-*ag* » NO-CODA » ALIGN-*um*. Here, ALIGN-*ag* is ranked above the markedness constraint which forces ALIGN-*um* to infix. This appears as the most natural solution since even in the original analysis, alignment constraints were formulated to govern single morphemes (ALIGN-L *um*, etc.). However, two problems may be noted. First, a highly "parochialized" collection of constraints weakens generalizations about the relation of prosody to morphology. The idea of P»M becomes decreasingly meaningful because "prosodic" (markedness) constraints would only be seen to dominate a few arbitrary "morphological" (alignment) constraints. Second, by using parochial constraints to determine affix placement and affix ordering, we lose useful generalizations regarding the relative order of morphemes (cf. Greenberg 1957; Baker 1985; Bybee 1985). Unless there exists a principled way of governing the relative order of morphological alignment constraints, morpheme order will be disconnected from other components of the grammar and entirely stipulatory in nature.

3.2 Yu 2002: The "Phonological Subcategorization" solution

Abandoning the OT analysis, Yu (2002) offers a different solution to this problem employing what he terms "Generalized Phonological Subcategorization" (PS):

Generalized Phonological Subcategorization (Yu 2002)
Align (Cat_1, $Edge_1$, Cat_2, $Edge_2$) = $_{def}$
$\forall$ Cat_1 $\exists$ Cat_2 such that $Edge_1$ of Cat_1 and $Edge_2$ of Cat_2 coincide.
Where$Cat_1 \in$ GramCat {morpheme, morph}
$Cat_2 \in$ PhonCat {ProsCat, C, V}
$Edge_1$, $Edge_2 \in$ {right, left}

Although formulated in a manner which superficially resembles Generalized Alignment (McCarthy and Prince 1993a), GPS bears a stronger similarity to pre-OT theories of affixation such as Inkelas' (1989) "Prosodic Subcategorization." Simply stated, the idea is that affixes should be specified for their precise place of affixation as part of their lexical entries. Infixes are admitted as a primitive type of affix but the place of affixation is constrained by the stipulation that an affix may only attach to a stem internally by one "phonological unit." Crucially, these units must include the segment in order to allow for the kind of infixes seen in Table 1. Thus, what is treated as prefix-infix variation in the OT account (e.g., *um-isem* versus *k<um>agat*) is reinterpreted as consistent attachment to a particular type of segment in the GPS account (left edge of first vowel). This is of

course made possible by the fact that GPS, unlike OT, can differentiate between vowels and consonants for the purpose of morphological attachment.

Another important point is that GPS is formulated in such a way that it can only align morphological categories to phonological categories. By expanding the power of the morphological component to differentiate between types of segments, it is hoped that morphological categories may be safely ignored for the purposes of affix attachment.

Like parochial constraints, GPS seems to leave morpheme ordering entirely up to the phonology making it difficult to interface with other modules of the grammar. GPS must also admit the segment into the prosodic hierarchy, an unwarranted move in the larger phonological picture. Additionally, empirical evidence militates against two of the principles behind GPS: (a) the use of exclusively phonological units to determine infix placement, and (b) the reinterpretation of prefix-infix alternations as attachment to specified segments (e.g., first vowel). I will discuss the evidence against these two tenets of GPS in the aforementioned order.

Restricting infixation to only being able to refer to either edge of peripheral prosodic units has its roots in older ideas of invisibility (cf. Hayes 1981; Harris 1983). These ideas were based on observations such as the following, made by Inkelas (1989: 193): "…The constraint against medial invisibility appears to be an active one, as shown by the fact that invisibility, both lexical and rule-governed, systematically disappears as soon as the element bearing it becomes nonperipheral." Invisibility was understood to cover both extrametricality and morphological phenomena. However, contrary to this claim, certain cases of infixation do necessitate reference to units beyond the periphery. An example comes from Bikolano plural agreement shown in (1) and (2) (Mintz and Britanico 1985).

(1) a.	síne	b. mag-síne	c. mag-s<ir>íne
	movie	VOICE1-movie	VOICE1-<PL>movie
	'movie'	'to go to the movies'	'go (pl.) to the movies'

(2) a.	húgas	b. magka-hugás-an	c. magka-h<ur>ugás-an
	wash	RSLT-wash-VOICE2	RSLT-<PL>wash-VOICE2
	'wash'	'get washed'	'get washed (pl.)'

Crucially, there exist no forms such as *m<ar>ag-sine, *s<ir>íne for the root in (1) nor *h<ur>ugas, *mag-k<ar>a-hugas, *m<ar>ag-ka-hugas for the root in (2), showing that the plural infix /Vr/ must make reference to the verb root (a morphological category). Similar facts are found in Northern Kankanaey (3)-(4) with the aspectual affix /an/ (Allen 1977):

(3) a. na-gawis
PASS-well
'made well'

b. na-g<an>awis
PASS-well<SUDDEN>
'suddenly made well' (cf. *g<an>awis)

(4) a. ma-takdeg
PASS-stand
'made to stand'

b. ma-t<an>akdeg
PASS-stand<SUDDEN>
'suddenly made to stand' (cf. *t<an>akdeg)

In (1)-(4) we can see that the affixes *-Vr-* and *-an-* behave as typical VC infixes but must attach to a root, even within a morphologically complex word. This pattern would appear impossible to capture without making reference to the root, an impossibility within a system like GPS which restricts Cat_2 to phonological units.

The second problem mentioned above concerns the possibility of reinterpreting conditioned prefix-infix alternations as attachment to specified segments. Although the Philippine cases in Table 1 are indeed ambiguous in the sense that the "alternation" may be viewed as attachment to the first vowel, a number of unambiguous cases of prosody-driven affix placement are also documented in the literature (cf. Noyer 1993 for Huave; Fulmer 1997 for Afar). Another example is found in the Austroasiatic language Kentakbong as described by Omar (1975). Here we observe that the imperfective aspect affix *ən* prefixes to monosyllabic stems (5)-(6) but infixes to larger stems (7)-(8).

(5) /ən/ + /co/ → [ʔənco]
IMPRF speak 'speaks'

(6) /ən/ + /cãs/ → [ʔəncãs]
IMPRF excrete 'excretes'

(7) /ən/ + /citɔh/ → [cənitɔh]
IMPRF cooks 'cooks'

(8) /ən/ + /sapoh/ → [sənapoh]
IMPRF sweep 'sweeps'

There is no clear way to capture this alternation under GPS where the precise attachment site of an affix is located entirely in the lexical entry of the affix itself.[3]

4. Diachrony and synchrony of "aberrant" prefixes

An interesting observation which leads us to the present proposal is that many of the VC prefixes found in Philippine and Indonesian languages share a similar history. Specifically, many of these affixes can be traced

3. For similar cases where infixing interacts with stem length, see Durie (1985:145) for Acehnese; McCarthy (2002a) for Nakanai.

to earlier forms of CVC shape. Ilokano *ag-* and Karo Batak *ar-*, for instance, may both be traced to Proto-Philippine **mayˀ-*. Similar instantiations of historical onset loss have occurred in Makasserese (Central Sulawesi, Indonesia) and Malagasy (Madagascar), among others.

A second path by which VC prefixes developed in Austronesian is through fusion of a VC infix and a "predictable" C-initial prefix (cf. Reid 1992). This case is exemplified by the Pangasinan "intentional" versus "neutral" passives (Benton 1971; Yu 2002), as well as the Ilokano patient versus instrumental voices. Here, an older reflex of the Proto-Austronesian instrumental prefix **ʃi-* fused with the perfective infix *-*in-* to yield *in-*, the contemporary begun aspect of the intentional passive in Pangasinan and the instrumental voice in Ilokano.

The obvious question then is what clues are there, if any, to suggest to language learners that the two /in/ infixes are to be treated differently? The answer lies in the aspectual paradigms of these "unpredictable" prefixes which still contain related morphemes of the original CVC shape. We can see this below in the paradigms in Tables 2 and 3.

Table 2 Ilokano prefixing paradigms[4]

	Actor voice$_1$	Instrumental voice
Unbegun	*ag-*	*i-*
Begun	*nag-*	*in-*

Table 3. Ilokano infixing paradigms

	Actor voice$_2$	Patient voice
Unbegun	*-um-*	*-on*
Begun	*-im(m)-*	*-in-*

The generalization to be captured here is that the VC-shaped affixes which prefix instead of infix (as OT might expect from a grammar that contained P»M derived infixes) are "anchored" to the left edge by left-aligned, non VC-shaped paradigm mates. Thus, Ilokano /ag/, a potentially good infix based on its VC-shape, is somehow prevented from infixing because it belongs to an aspectual paradigm containing a consonant-initial form, /nag/. In the next section, we will see how this intuition can be formalized using a set of paradigm based output-output constraints.

4. Further aspectual distinctions are made in Ilokano through partial reduplication of the stem, but this is not relevant for present purposes.

5. An Optimal Paradigms solution (McCarthy 2002b)

McCarthy (2002b) proposes a new class of output-output constraints which compare members within a paradigm and penalize deviant candidates. McCarthy outlines his proposal as the following (McCarthy 2002b: p.5):

1) Candidates consist of entire inflectional paradigms.
2) Markedness and input-output constraints evaluate all members of the candidate paradigm cumulatively. The violation-marks incurred by each paradigm member are added to those incurred by all the others.
3) The stem (shared lexeme) in each paradigm member is in a correspondence relation $\Re_{OP}$ with the stem in every other paradigm member. (That is, for every candidate paradigm P, there is a relation $\Re_{OP}$ on P×P.) There is no distinctive base – rather, every member of a paradigm is a base of sorts with respect to every other member.
4) There is a set of output-output faithfulness constraints on the $\Re_{OP}$ correspondence relation.

The paradigm which is most harmonic according to the optimal paradigm constraints and the regular faithfulness and markedness constraints wins out. Thus, it is not necessary to stipulate a base form/attractor to which all forms in a paradigm are compared. Attractors are epiphenomenal in that the member which can influence other members to satisfy a given OP-constraint in the most harmonic way possible will naturally do so. Utilizing McCarthy's proposal, it is now possible to predict the behavior of the VC-prefixes which could previously only be handled through parochial constraints (as in Zoll 1998). The less familiar constraints employed in the analysis are defined as follows:

ALIGN BY-σ (Morph, stem, L) No syllable stands between the left-edge of an affix and the left-edge of a stem (cf. McCarthy 2002a).

ANCHORING (Stem, L, PrWd, L) OP – violated when the left edge of the stem coincides with the left edge of the prosodic word in one paradigm member but not in another.

STEM-CONTIG – violated when the stem is intruded upon by material that has no morphological affiliation (cf. Lamontagne 1996)

ALIGN-BY-SEG (Morph, stem, L) – violated when the left edge of an affix is aligned with or past the first segment of the stem (cf. McCarthy 2002a).

The analysis of the Ilokano voice system is shown in Tableaux 1-4, where the first member within each bracketed voice paradigm is the *irrealis* inflection and the second member is the *realis*.

Tableau 1 Ilokano instrumental voice

stem: *kagat* 'to bite' morph: *i* (L); *in* (L)	ONSET	*COMP	ALIGN BY-σ L	ANCHOR OP	STEM-CONTIG	DEP-C IO	ALIGN-BY-SEG L
a. <ʔikagat, kinagat>				*!		*	*
b. <ʔikagat, inkagat>	*!					*	
c. ☞<ʔikagat, ʔinkagat>						**	
d. < kiʔagat, kinagat>					*!	*	**
e. < kagati, kagatin>			**!				

Tableau 2 Ilokano actor voice$_1$

stem: *kagat* 'to bite' morph: *um* (L); *im* (L)	ONSET	*COMP	ALIGN BY-σ L	ANCHOR-OP	STEM-CONTIG	DEP-C IO	ALIGN-BY-SEG L
a. ☞<kumagat, kimagat>							**
b. <umkagat, imkagat>	**!						
c. <ʔumkagat, ʔimkagat>						**!	

Tableau 3 Ilokano actor voice$_2$

stem: *kagat* 'to bite' morph: *ag* (L); *nag* (L)	ONSET	*COMP	ALIGN BY-σ L	ANCHOR-OP	STEM-CONTIG	DEP-C IO	ALIGN-BY- SEG L
a. <kagagat,knagagat>		*!					**
b. <kagagat,kanaggat>			*!				*
c. ☞<ʔagkagat,nagkagat>						*	
d. <kagagat,nagkagat>				*!			*

Tableau 4 Ilokano patient voice

stem: *kagat* 'to bite' morph: *en* (R); *in* (L)	ONSET	*COMP	ALIGN BY-σ L	ANCHOR -OP	STEM-CONTIG	DEP-C IO	ALIGN-BY-SEG L
a. ☞<kagaten. kinagat>							*
b. <kagaten, ʔinkagat>				*!	*	*	

The ANCHORING OP constraint does the work of ruling out mixed prefix-infix aspectual paradigms. In the case of a paradigm with an "uninfixable" affix (i.e. V or CV(C) shaped affixes for Ilokano), we find that attaching all paradigm members to the edge and epenthesizing a glottal stop onset for the V-initial members is the optimal solution. Because the ANCHORING constraint only applies to the left edge of the word, we allow for mixed infix-suffix paradigms (Tableau 4).[5]

An important prediction of this ranking is that we expect VC inflectional affixes (even those with a CVC origin like *ag*) to infix uniformly once their aspectual paradigm is reduced to include only other VC affixes. Unfortunately, the Austronesian languages that I examined do not provide the necessary conditions to verify this prediction. The analysis does, however, account for affix alignment in a number of Austronesian languages such as Pangasinan, Karo Batak, and more trivially, languages like Tagalog and Sundanese, where the prefix/infix status of an affix is immediately predictable from its shape.[6] The analysis also extends to the Atayal case discussed by Yu where an actor voice affix *m* seemingly alternates between infixal and prefixal alignment. Here we find that the prefixal *m* shares a paradigm with two regular prefixes, /pə/ and /kə/ (confusingly, *p* and *k* in Egerod's [1965] orthography), while infixal /m/ (underlyingly /əm/ as shown by more careful descriptions of Atayal, cf. Rau 1992) has no prefixing paradigm mates.

It is worth considering briefly a third possible analysis for the case of aberrant prefixes (in addition to other arguably paradigmatic phenomena) which avoids some of the problems of GPS. If the underlying representation of the aberrant prefixes were taken to be glottal stop initial (i.e., /ʔag/ for *ag*), then their strict edge alignment could also be predicted. Again, though, we would be unable to make the typological prediction concerning the distribution of prefixes and infixes within a paradigm. Concretely, if all seemingly VC prefixes were, in fact, glottal stop initial, we would expect that, given the variation of the infixing languages in Austronesian, we could find an inflectional infix that had developed from a prefix by virtue of historical onset loss. This development, however, is unattested in

5. Bye and DeLacy (2000) make the strong claim that ANCHORING constraints are inherently asymmetrical in that they never make reference to right edges. See also Kramer (2002).

6. Yu (2002) also discusses the Tagalog plural infix which he analyzes as /ŋa/ and therefore takes to be a counter-example to the shape/position generalization. However, there is nothing in the language to suggest that the underlying shape is not in fact /aŋ/ since it is not productive and only occurs within prefixes such as *ma-* and *mag-* (yielding /maŋa-/ and /maŋag-/, respectively.)

Austronesian. The strength, therefore, of the paradigmatic analysis is its typological commitment and ability to predict the correct position of left aligned affixes, given either a glottal-stop onset initial or vowel-initial representation.

6. Residue

Despite the hope of more far-reaching reanalyses along the lines proposed here, some cases of infixation remain elusive for OT. Blevins (1999) presents data from Leti, an Austronesian language, showing how infixation appears to actually worsen the prosody by creating initial consonant clusters where simple prefixation of the same affix would lead to "optimal" CV syllables, e.g., *kasi* 'to dig,' *kniasi* 'act of digging.' If this type of infixation must be prosodically driven, it is difficult to imagine a ranking that would prefer a form such as [kni.a.si] over [ni.ka.si]. Based on Van Engelenhoven's (1995) grammar, there is indeed nothing to suggest that the phonology would prefer ther former over the latter. There is, however, another possibility which we might consider. McCarthy and Prince (1993a) account for Dakota infixation through the use of an ALIGN-ROOT constraint which is violated when the left edge of a root is not aligned to the prosodic word.[7] Without further evidence for the presence of such a constraint in Leti, this would clearly be no different from stipulating infixes as infixes. We do, however, find minor support for a constraint in Leti which anchors the left edge of noun stems to the prosodic word in the fact that nominal morphology is almost entirely infixal and suffixal. Leti verbs, on the other hand, take obligatory prefixal inflection. Thus, there might be some basis for positing different prosodic requirements for the two lexical categories. This would only be an improvement over a rule-based analysis if the constraint ALIGN-ROOT (noun, PrWd) finds more robust support. My only aim in mentioning such an approach is to show that it appears to be the only available option if one wanted to maintain an OT analysis for Leti with currently available tools.[8] Ultimately, the question of which analysis should be preferred must be answered not on the basis of the Leti data alone but rather on which approach allows us to maintain as many cross-linguistic generalizations as possible. At this point, I think it is still safe to say that infixation to prosodic non-constituents (i.e., edges of specific segments as

7. A full analysis of Dakota infixation has yet to be worked out. See Yu (2002) for some problems regarding McCarthy and Prince's (1993a) treatment.

8. Accounting for the infixation of *-ni-* is only a fragment of the larger analysis presented by Blevins (1999), which handles the entire range of allomorphy found with this nominalizing morpheme. It remains to be seen if the prefixing allmorph *nia-* would prove to be a fatal exception to an ALIGN-ROOT driven analysis.

opposed to syllables, feet, etc.) is much more widely attested with affixes that have a prosodic motivation for infixing (e.g., onsetless syllables or highly sonorant segments).[9] Thus, a theory which stipulated the Leti infix as an infix, and consequently all infixes as infixes, forces us to abandon the affix-shape position generalization in its entirety. On the other hand, a successful ALIGN-ROOT analysis of Leti, however inelegant, would allow us to maintain this generalization for the many languages for which it has been observed.

7. Conclusion

In pursuit of the goal of minimizing parochial constraints, we must ask how else morpheme ordering could be handled in OT. Hyman (2002) offers a promising strategy for dealing with morpheme order based on a cognitively grounded "mirror" constraint which demands transparent relations between morphology, syntax and meaning but which may be violated by a "templatic" constraint enforcing invariant order. Similarly, Horwood (2002) proposes a system of affix ordering based on universal morpheme linearity constraints which can be violated by phonological constraints. It is demonstrated in both of these works that affix ordering can be handled efficiently as a language particular resolution of the universal tensions between the often contradictory requirements of the various grammatical components. It is within such morphological frameworks that the present work fits in most naturally.

I have not addressed here one of the most important questions in this line of research: to what extent paradigmatic factors should be considered part of the synchronic grammar. This has been a point of contention perhaps because of the two sometimes contradictory criteria for including a linguistic phenomena in a synchronic grammar: (a) productivity within the given language and (b) cross-linguistic/universal relevance. While the first criterion is unanimously accepted, opinions vary on the validity of the

9. It is important to keep in mind that there still exists a class of cases represented by Ulwa (McCarthy and Prince 1993b) which can only be described as affixation to an internal prosodic category. All that has been attempted here is to maintain a basic principle implicit in Generalized Alignment: Affixation should only be able to "see" the edges of prosodic categories. These categories follow widely accepted prosodic hierarchies such as the one proposed by Nespor and Vogel (1986) but contrary to the one assumed by Anderson (1992:210), who states the following in his discussion of infixation: "The 'anchoring' element must be a prosodic subconstituent at some level: segment, mora, syllable nucleus, syllable, or possibly foot. Once this element is identified, the affixal material is inserted in the form either preceding or following it." We would expect that such an unconstrained morphology would proliferate Leti-like cases which are in fact exceedingly rare.

second one, especially within phonology. The arguments for including paradigmatic phenomena within a synchronic grammar rely on the notion that speakers take advantage of distributional generalizations that may have a historical source. On the other hand, the arguments against inclusion of these phenomena rely in part on the analytical simplicity of lexicalization in comparison to online evaluation.

For present purposes, the question may reduce to the following: should a relatively complex, paradigmatic evaluation be done online for a non-alternating prefix such as Ilokano *ag*-? It does appear to disregard general ideals of parsimony in computation.[10] On the other hand, is the positioning of *ag*- expected given universal principles of language (criterion (b) above)? I have claimed here that the answer is yes. If so, relegating the site attachment completely to the lexicon, the domain of exceptions, is redundant and therefore theoretically infelicitous. Rather, it is ultimately preferable to derive as much as possible from the distributional generalizations already present in the language.

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[10] Although note that this is not a problem if our goal is well-definition and not efficient computation (McCarthy 2002c: 9).

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