

# Morphological Optionality in Tagalog Aspectual Reduplication\*

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## 1. Introduction

Aspectual reduplicants in Tagalog are optionally located in any one of several positions among the verbal prefixes, always encoding the same meaning. In this paper, I will examine the positioning of the aspectual reduplicant in Tagalog and demonstrate that standard Optimality Theory (OT) (see, for instance, Prince and Smolensky 1993, McCarthy and Prince 1995) cannot account for this pattern. Using the theory of Distributed Morphology from Halle and Marantz 1993, I will argue that the positioning of the reduplicant occurs as the result of a morphological rule which moves it to one of the heads of the verbal complex -- a type of morphological “scrambling” -- within the vP range. The copying of segments then occurs in the standard manner in the PF component, with anchoring constraints determining the phonological shape of the reduplicant (RED) but not its linear position in the verb. The process is schematized in (1) (x, y, z symbolize verbal morphemes).

(1) input to Morphology → Morphology (RED is positioned) → PF (copying occurs)

/RED, x y z/	→	RED x y z	→	<b>x x y z</b>
		x RED y z		<b>x y y z</b>
		x y RED z		<b>x y z z</b>

The existence of this type of movement in the morphological component has implications for the issue of what kinds of operations may happen where in the grammar. In particular, it supports the Distributed

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Morphology view that morphology is syntactic, since, I will argue, the morphological scrambling which determines the position of the reduplicant is, in many ways, analogous to syntactic scrambling.

Section 2 describes the phenomenon of variable placement of reduplication. Sections 3 and 4 discuss a morphological account of the Tagalog optionality. Section 5 is a discussion of the problems that arise in attempting to account for optionality within OT, and in section 6 there is an exploration of other possible ways to treat optionality.

## 2.0. Overview of the Phenomenon

### 2.1. Morphology and topic markers

All Tagalog verbs have a topic marker (TM) affix corresponding to the topic of the sentence, which is preceded by *(a)ng*.<sup>1</sup> Any argument or adverbial may be the topic of a sentence, as shown in (2) through (4) (examples from Carrier 1979).<sup>2</sup> Although RED does not attach to the topic markers themselves, the location of the topic markers becomes important below in determining the pattern of RED positioning because it indicates the boundary of RED movement.

(2) nag-lagay ng tubig sa baso **ng** baba?e.  
AT-put det water Loc. vase **Topic** woman  
“The woman (T) put (some) water in the vase.”

(3) ?i-l-in-agay ng baba?e sa baso **ng** tubig.  
OT-put det woman Loc. vase **Topic** water  
“The woman put the water (T) in the vase.”

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<sup>1</sup> The issue of whether this phrase is actually a subject or a topic is one that has been much discussed in the literature on Tagalog and other Austronesian languages (Shachter 1975, Kroeger 1991, among others). I will not discuss the debate in this paper, since I am concerned mainly with the order of elements within the verb form itself, not with how it relates to other constituents in the sentence. I will continue to use the terms ‘topic’ and ‘topic marker’ for the prominent phrase and the corresponding verbal affix, respectively, although I do not intend this to be construed as support for one theory or another.

<sup>2</sup> AT= Actor Topic, LT = Locative Topic, BT= Benefactive Topic, TT = Theme Topic

- (4) l-in-agy-an ng baba?e ng tubig **ng** baso.  
 LT-put det woman det water **Topic** vase  
 “The woman put the water in the vase (T).”

For many verbs, the topic markers are added directly onto the verb root:

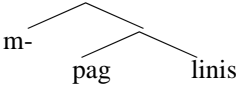
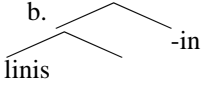
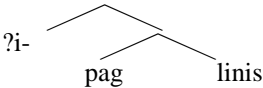
- (5) root: bigay ‘to give’  
 mag-bigay                      ?i-bigay                      bigay-an  
 AT-give                              OT-give                              give-LT

For one class of verbs, however, the non-TT topic markers are affixed outside of another morpheme, *pag*, which occurs directly before the root.

- (6) mag-linis (m+pag-linis)      linis-in                      ?i-pag-linis  
 AT-pag-clean                      clean-TT                      BT-pag-clean

I will argue below that *pag* is a transitivity marker located in vP (the verbalizing head of the functional projection vP (Chomsky 1998, Marantz 1997, 1998, Pytkkanen 1998, Arad 1998), and, following Maclachlan 1989, De Guzman 1978, Carrier 1979, and Ramos 1971, will treat the AT prefix *mag* as being actually AT *m-* coalesced with the same *pag* morpheme. This means that, for the class of verbs which takes *pag*, all the (non-passive) voice forms, including AT, are built over *pag*+root. *Pag* is entirely absent from the TT forms because, to put it intuitively, the theme has been made into the subject and so the verb is in some sense passive.

The structure of Tagalog verbs that I am assuming is in (7), where topic markers are either prefixes or suffixes that occupy a high position in the verbal morphology. In later sections, I will give more specific labels to the nodes and more fully articulate the structures.

- (7) a.   
 AT-trans-clean
- b.   
 clean-TT
- c.   
 BT-trans-clean

## 2.2 Optionality in reduplication

Aspectual reduplication in Tagalog occurs in the ‘contemplated’ (unrealized) and imperfective aspects, in which case it occurs with another aspectual affix (Schachter and Otones 1972). For the main class of verbs in which the TM is added directly onto the root, RED is anchored and aligned to the first CV of the root (RED takes a lengthened version of the root vowel), to the right of the prefix or topic marker, as is shown in (8). The imperfective aspect is marked in this case by either the infix *-in-* or by retention of *-um-* (the AT marker which is deleted in the contemplated aspect).

(8)

<i>bili</i> ‘buy’	b-um-ili AT-buy	bilh-in buy-TT	bilh-an buy-LT	?i-bili BT-buy
contemplated ‘will buy’	<b>biibili</b>	<b>biibilh-in</b>	<b>biibilh-an</b>	?i- <b>biibili</b>
imperfective ‘is/are buying’	<b>b-um-iibili</b>	<b>b-in-iibili</b>	<b>b-in-iibilhan</b>	?i- <b>b-in-iibili</b>

In the verb class whose TMs are added to *pag* + root, however, there is optionality in the location of RED in the verbal morphology. It may align directly to the root, as in the standard case, or it may be adjacent onto the *pag* morpheme which precedes the root.

(9)

<i>lagay</i> ‘place’	pag-lagy-an trans-place-LT
contemplated ‘will place’	pag <b>la</b> alagyan <b>pa</b> alaglayan
imperfective ‘is/are placing’	pinag <b>la</b> alagyan <b>pi</b> naalaglayan

The picture becomes more complicated as we examine forms with more prefixes and also more optional outputs, as in (10), where each prefix seems to add another possible location for RED. In all cases, though, RED is prohibited from attaching to the first morpheme in the string.<sup>3</sup>

<sup>3</sup> The variable position of RED does not correlate with any meaning differences among the positions. While it might be conceivable that RED should anchor to the root to signal one meaning and to the transitive prefix for another, this is clearly not the case. Native speakers of Tagalog produce all the different variants in their own speech, and these do not perform differently on any aspectual tests that would discriminate between the different readings.

(10)

ma-ʔi-pa-bili ability-TM-cause-buy “be able to have (s.o.) buy”	* <b>ma</b> amaʔipabili ʔʔ maʔ <b>ii</b> ʔipabili maʔ <b>ipa</b> apabili maʔ <b>ipabi</b> ibili
ʔi-ka-pa-niwala TM-complete-cause-believe “cause someone to believe”	* ʔ <b>ii</b> ʔikapaniwala ʔ <b>ika</b> akapaniwala ʔikap <b>apa</b> niwala ʔikap <b>ani</b> niwala
ma-ka-pag-pa-hintay ability-complete-trans-cause-wait “be able to cause someone to wait”	** <b>ma</b> amakapagpahintay ma <b>ka</b> akapagpahintay makap <b>apa</b> pagpahintay makapag <b>pa</b> apahintay makapagpa <b>hi</b> ihintay

The preliminary generalization that can be made about this pattern is that RED can locate optionally anywhere below the position of the topic markers. The following sections rely on this generalization in analyzing the possible positions for RED. In section 3, a more refined rule of positioning is presented.

### 3.0. A Split-Level Account

One way to account for the positional optionality of RED in Tagalog is to split off morphological linearization from phonological processes, allowing the position of RED to be determined before any constraint evaluation. This means that no morpheme to morpheme alignment is active in the phonology and that all positioning of morphemes is actually the result of structural morphological processes.<sup>4</sup>

The morphological account of optionality presented in this paper is formulated within the framework of Distributed Morphology, whose three important features are summarized below (from Halle and Marantz 1994 pp. 275-277):

*Syntactic Hierarchical Structure All the Way Down:* The terminal nodes into which Vocabulary Items<sup>5</sup> are inserted are organized into

<sup>4</sup> Other possible ways to formulate a non-structural solution would be more along the lines of a readjustment rule, as proposed by Carrier 1979 and Lieber 1980. Basically the solution that was proposed in those works assigned diacritics to levels in the morphology. There was a distinction between V and V' stem levels, because some previously attached affix assigned a diacritic feature to a node in the structure and it was through reference to these levels that RED's position was determined (this possibility is expanded in the final section of the paper).

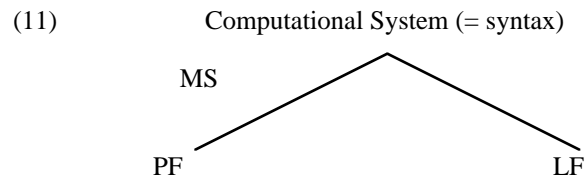
<sup>5</sup> Vocabulary items are defined as the basic unit of morphology, consisting of semantic, syntactic, morphological, and phonological features (Halle and Marantz 1994).

hierarchical structures determined by the principles and operations of the syntax....hierarchical structures from the syntax may be further modified in the PF component by morphological operations, but these operations are constrained by strict syntactic locality conditions that require that interacting constituents stand in a government relation with respect to each other or be structurally adjacent. These modifications include syntactic head-to-head movement (Baker 1985) and merger under adjacency, both of which build words in the syntax....

*Late Insertion:* The terminal nodes that are organized into the familiar hierarchical structures by the principles and operations of the syntax proper are complexes of semantic and syntactic features but systematically lack all phonological features. The phonological features are supplied by the insertion of Vocabulary Items into the terminal nodes....

*Underspecification:* In order for a Vocabulary Item to be inserted in a terminal node, the identifying features of the Vocabulary Item must be a subset of the features at the terminal node....

The system can be schematized as in (11), where Morphological Structure (MS) is a step along the path from syntax to PF.

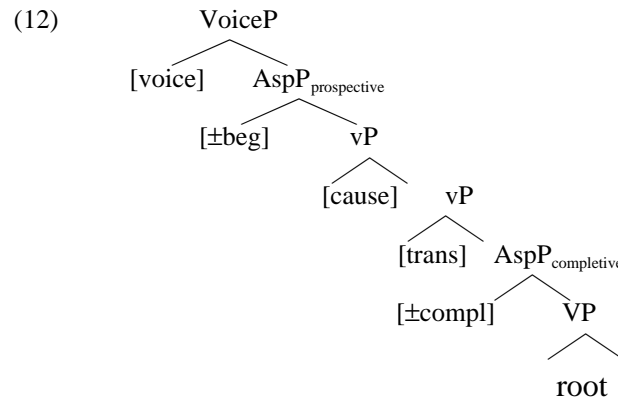


In the structural analysis proposed here for Tagalog, the morpheme is positioned according to the syntactic structure in MS and, after the morphemes are ordered in one of a few possible ways, each derivation goes on from there to be an input to the phonology.

#### 4.0. Morphological Optionality

##### 4.1. Structure of verbs

The structure of the verbal complex in Tagalog that I will be adopting is given in (12). Prefixing occurs through adjacency (as in Bobaljik 1994). vP is a verbalizing projection that will be discussed more fully below in section 4.1.3. RED is located in the head of the completive aspect phrase.



Two separate theories accord with this structure of Tagalog verbs. The first is Cinque's (1999) cross-linguistic study of functional projections and their relative orders, which yields the following hierarchy, consistent with the order of morphemes in Tagalog and with the structure in (12).

- (13) Cinque's functional hierarchy:  
 ...Voice / Asp<sub>prospective</sub>... > Asp<sub>completive</sub> ...

As in Cinque's hierarchy, the exponent of prospective aspect occurs at the outer edge of the verbal complex, in the same range as the voice markers, which all appear outside of RED, the exponent of completive aspect.

This structure is also supported by the syntactic analysis of Tagalog presented by Travis (1994, 1996, in press). On the basis of morpheme order, aspectual meanings of verbs, topicalization processes, and comparison with other Austronesian languages, Travis also argues for a structure like the one in (12) for Tagalog.

In the following sections I will discuss each of these positions and the morphemes that are inserted into them, beginning the exposition with the highest morpheme on the left.

#### 4.1.1. VoiceP

VoiceP, which is highest in this structure, is the locus of the (non-actor) topic marking affixes.<sup>6</sup> The general position of topic markers is at the furthest left edge of verbal morphology.

<sup>6</sup> I am calling this phrase VoiceP for two reasons -- first because of Cinque's use of the label in his hierarchy, and second because it seems the most neutral way to signify the importance of this projection for the voice system. Since the syntax of topichood and voice is not the topic of this paper, the issue of the exact label for the topic markers will not be decided here.

- (14) ?i-pa-ligo  
 BT-cause-bathe  
 ‘bathe with’

In (15) some of the most common topic markers are listed (but see Schachter and Otnes 1972 for a more complete list).

- (15)            [+theme]            ↔    /-in/<sup>7</sup>  
                   [+locative]        ↔    /-an/  
                   [+benefactive]    ↔    /?i/

Below, I will discuss the different status and location of Actor Topic morphemes, which are not located in VoiceP with the rest of the TMs, but are rather generated in vP.

#### 4.1.2. [±begun] Aspect:

N (which stands for the variants of this morpheme) is an aspectual marker that signals the imperfective aspect in conjunction with RED, as well as marking the perfective on its own. Its 4 allomorphs (descriptively) are: *-in-*, *ni-*, *#m→n*, and retention of *um*, depending on the context. Examples of each of the forms of this morpheme are given in (16).<sup>8</sup>

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<sup>7</sup> While most topic markers are prefixes and precede all other material in the verb, there are two that are specified as suffixes -- *-in* and *-an*.. Marantz (1988) discusses cases like this, stating:

Morphemes determine their relative ordering within a word by morphological subcategorization features: affixes stipulate that they appear to the left or to the right of a stem of a certain type. Thus relations between morphemes are mapped onto left/right adjacency relations at phonological structure, and the order of morphemes within a word is generally fixed. (p. 258)

So, while other topic markers do not specify any special ordering and surface in the default order either through a redundancy rule or a learning mechanism. This default order is probably a language-specific tendency that requires affixes unmarked for ordering to be assigned either prefixal or suffixal status (Alec Marantz, p.c.), In Tagalog, the default would be prefixing, so those affixes unmarked as to order surface as prefixes.

In the structure in (12), therefore, the TM suffixes must specify that they appear after the vP stem, rather than before it.

<sup>8</sup> See Halle (to appear) for discussion of how to predict the different forms of this morpheme and their optionality and for arguments that the underlying form of this morpheme is *ni-* rather than *-in-*.



(16)

	<b>AT form</b> <i>bili</i> ‘buy’	<b>AT form</b> <i>bigay</i> ‘give’	<b>OT Form</b> <i>bukas</i> ‘open’	<b>CT Form</b> <sup>9</sup> <i>lagay</i> ‘place’
no aspect	bumili	magbigay	buksan	lagyan
contemplative (RED)	biibili	magbiibigay	buubuksan	laalagyan
imperfective (N + RED)	bumiibili	nagbiibigay	binuubuksan	linaalagyan nilaalagyan
perfective (N)	bumili	nagbigay	binuksan	linagyan nilagyan

The possible and actual feature combinations of [+begun] (N) with [-complete] (RED) are given in (17), from Kroeger 1993. Three of the combinations yield the actual aspectual pattern of Tagalog, and the fourth is a semantically impossible combination, which, unsurprisingly, is not realized in the language. Note that null morphemes are necessary in addition to the overt ones in order to satisfy the plus/minus feature combination requirements. The vocabulary entries for prospective AspP are given below the table, in (18).

(17)

	<b>R E A L I S</b> ( N ) [+BEGUN]	<b>I R R E A L I S</b> ( Ø ) [-BEGUN]
<b>NONCOMPLETIVE (RED)</b> [-COMPLETE]	Imperfective	Contemplated
<b>C O M P L E T I V E</b> ( Ø ) [+COMPLETE]	Perfective	*(Infinitive)

(18) [+begun] ↔ N  
[-begun] ↔ Ø

#### 4.1.3. *vP* and *pag*

At the level below VoiceP are (sometimes stacked) *vPs*. *vP* is the verbalizing phrase which creates transitive structures and introduces the external argument of the verb (as much discussed in recent literature, e.g. Chomsky 1994, 1998, Marantz 1997, 1998, Pyllkanen 1998, Arad 1998). It is the location of *pag*, the morpheme that “marks transitivity” (Maclachlan 1989), and the location of the syntactic causative morpheme *pa*, which also signifies addition of an external argument (the causer).

<sup>9</sup> Note that the optionality of *in/ni* variation before sonorants is a case of true phonological optionality of the sort that might be handled by Anttila’s (1997) theory of crucial non-ranking (to be discussed below).

*Pag* occurs with a certain class of verb roots only in the non-theme-topical voices, as illustrated in (19) (from Maclachlan 1989).

(19) Paradigm for *linis* ‘to clean’

	Agent	Theme	Benefactive
Aspectless	m+ <b>pag</b> linis	linisin	? <b>ipag</b> linis
Perfective	n+ <b>pag</b> linis	nilinis	? <b>ipinag</b> linis
Imperfective	n+ <b>pag</b> lilinis	nililinis	? <b>ipinag</b> lilinis
Contemplated	m+ <b>pag</b> liilinis	liilinis	? <b>ipag</b> liilinis

Abstracting away from the details of Maclachlan’s specific account slightly, the function of *pag* is to mark transitivity, since it does not occur in the intuitively ‘passive’ (i.e. non-transitive) voice of theme topic, but does generally occur in the transitive voices. As such, it is best analyzed as the phonological exponent of the head of vP.<sup>10</sup>

Aside from their similar semantics of signifying external arguments, some additional support for the analysis of both *pag* and *pa* as heads of vP and for the ability to stack vPs comes from the fact that *pag* and *pa* may co-occur in both possible orders.

- (20) *magpahintay*                      *papaghintayin*  
cause to wait-AT (m-pag-pa-hintay)      cause to wait-TT (pa-pag-hintay-in)

Stacked causatives, in which a causativized verb is further causativized by the addition of another *pa* morpheme, are also possible.

- (21) pakulo?              papakulo?              papapakulo?  
boil                      cause s.o. to boil s.th.              cause s.o. to have s.o. boil s.th.  
(Maclachlan 1989)

That verbal complex morphemes all head their own projections of vP rather than being inserted together in one head is clear from their ability to be separated from each other by the aspectual morpheme RED (Carrier 1979 argued similarly for boundaries between verbal morphemes in Tagalog). If all

<sup>10</sup> Maclachlan does note exceptions to this generalization which, if *pag* is involved in case-marking, is surprising, since there should be no exceptions to the case filter or checking mechanisms. Within the framework of DM, however, the exceptions can be analyzed the result of idiosyncratic specification of these roots as belonging to a certain class, call it Class A. An exception like *kuha* ‘obtain’, which does not take *pag* with a transitive *v*, would simply be specified as belonging to this class which takes  $\emptyset$  as the (idiosyncratic) exponent of intransitive *v*. This blocks insertion in this case of the more general *pag*.

of these morphemes were inserted with the verb root or the vP into one head, they should not be separable by other inflectional morphemes in the morphology, but as is already evident, RED can intervene between them.

In addition to *pag* and *pa*, one other vocabulary item, *pang*, occurs in the same position, appearing idiosyncratically in the context of certain roots (22a) and in the instrumental voice (22b). The two types of *pang* have different phonological interactions with the root -- the one in (a) exhibits nasal replacement, meaning that the first consonant of the base is replaced by a nasal of the same place specification, whereas in (b) the final consonant of *pang* undergoes nasal assimilation to the place of the first consonant in the root. This indicates that the two *pang*'s are probably different vocabulary items<sup>11</sup>, so I will treat them as different vocabulary items. The first type of *pang* goes with roots of what I will call Class I, while the other appears in the context of a [+instrumental] feature.

- (22) a. m-**paN**-bili → **mamili**  
 AT-trans-shop  
 'shops'
- b. ?i-**paN**-bayad → ?ipambayad  
 IT-trans-pay  
 'will cut with'

The necessary vocabulary entries for vP are given in (23).

- (23) [transitive] ↔ [pang]/\_\_ class I  
 [transitive] ↔ [pang]/\_\_[+instrumental]  
 [transitive] ↔ [pag]/ <elsewhere>  
 [cause] ↔ [pa]

#### 4.1.3.1. Actor Topic

Actor Topic markers are not included among the VoiceP morphemes above because they have a different status than the other TMs. Schachter 1976

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<sup>11</sup> This state of affairs is not as surprising as it might seem, since Tagalog morphology makes much use of homophonous morphemes for different purposes. For instance, the *ka-* prefix and the *an* suffix are multiply ambiguous as well (Marantz 1982).

discusses arguments for and against possible accounts of the difference between AT and non-AT sentences, stating (p. 509):<sup>12</sup>

According to [one] analysis, simple actor-topic sentences in Philippine languages would thus have essentially the same status as active sentences in the standard generative account of English, while non actor-topic sentences would have essentially the same status as English passives.

In some intuitive sense, then, Actor Topic could be the default voice for a verb - it is what surfaces in an active sentence with no passivization, i.e. when the external agent of the verb is also the subject of the sentence. It is only when this external argument is not the subject of the sentence that other processes become active to make some other argument the subject, and this is when other topic markers must be used.

The interaction between AT markers and the heads of vP is different from the interaction between other TMs and vP. While those other markers remain outside of the vP level and are unaffected by which exponent of vP is present in the structure below them (24a), the two AT voice markers in Tagalog -- *-um-* and *m-* -- are differentiated on the basis of the vP contexts in which they occur. *m-* only appears when there is a following *pa/pag/pang* vP head for it to coalesce with (24b) (De Guzman (1978), Maclachlan (1989), Carrier (1979)).

- (24) a. ?i-p-in-aa-pag-bili (?i-in-pag-bili) b. mag-linis (m+pag-linis)  
 BT-N-RED-sell AT-trans-buy  
 'is/are selling' 'cleans'
- c. k-um-aa-kain  
 AT-RED-eat  
 'is/are eating'

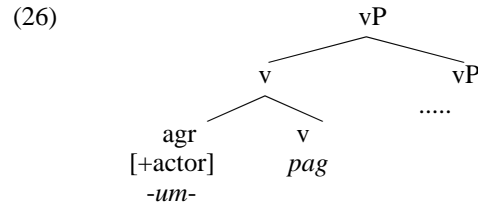
When AT *m-* is present in the structure, RED cannot anchor to the resulting AT *m+pa(g)* structure, as shown in (25).

- (25) \**maapagbili* (m+paapagbili) \**maamagbili* (with overapplication)  
 AT-RED-trans-buy AT-RED-trans-buy  
 'will buy'

Consistent with both the locational and semantic facts is the hypothesis that AT markers are actually agr heads projected in the morphology from the vP

<sup>12</sup> Schachter 1976 lists some of the special distinctions that can be made only in the AT voice and not in others as: the ability to appear in the recent-perfective aspect, ability to signify plural agreement, and the ability to appear in the 'social verb' formation.

head (as in Halle and Marantz 1993, Oltra 1999, and others). Since the [+actor] marker is agreeing with or signaling the presence of an external agent for the verb, it makes intuitive sense that there should be some connection between *v* in the syntax where the external agent is generated and the TM which agrees with that agent. In the morphology, the *agr* projection is added to the structure and then the AT marker is inserted into this position adjacent to the exponent of little *v*, which is normally *pag*.



The shape of the AT marker can thus be related to the presence or absence of an overt *v* head next to it. If [+actor] is always inserted as *-um-*, the phonology determines that this becomes *m-* in the context of an initial *p*, and remains *-um-* in other contexts (i.e. when it is adjoined to a null head).<sup>13</sup> The vocabulary entry for the AT *agr* marker is given in (27).

(27) [+actor] ↔ /um/

#### 4.1.4. Completive aspect or vP?

One other morpheme at this level is the ‘telic’ vP marker *ka*, discussed in Travis 1996, which appears both to signify addition of an argument and to mark an event as completed. For instance, the sentence in (28a) with the non-telic verb may be continued with ‘but it was too heavy’, while the sentence in (28b) may not be so continued because the *ka* morpheme signifies that the action was completed (Norvin Richards, p.c.).

- (28) a. tumulak ako ng bato  
AT-drag I det rock  
“I dragged the rock.”
- b. nakatulak ako ng bato  
AT-KA-drag I det rock  
“I dragged the rock.”

<sup>13</sup> Halle (to appear) has a similar proposal, analyzing AT marker as *mu-* and proposing a deletion rule for the vowel when it occurs in certain contexts.



- (32) [+complete] ↔ ∅  
 [-complete] ↔ σ<sub>μ</sub>

**4.1.6. Abilitative *ma-***

One prefix which occurs fairly frequently in verbal forms is the abilitative prefix *ma*. This prefix creates a special structure in which, contrary to the general case, topic markers may sometimes be allowed as adjunction sites for reduplication, at least according to Schachter and Otnes (1972).

- (33)

ma-ʔi-pa-bili ability-TM-cause-buy “be able to have (s.o.) buy”	* maamaʔipabili ?? maʔiiʔipabili maʔipaapabili maʔipabiibili
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Many Tagalog speakers, however, do not accept forms with reduplicated topic markers, even if they are embedded under the abilitative prefix. Because of the contradictory data on this point, I can only speculate that, if indeed topic markers reduplicate in the abilitative forms, it is because the abilitative prefix embeds a verbal structure under an extra layer of vP, making the topic markers in some sense ‘part of’ the vP. This might be plausible, since the abilitative verb forms are also special in other ways -- these constructions also alter the control relations of the verb from what they normally are, according to Kroeger (1993), for instance. Since native Tagalog speakers dislike reduplicating topic markers even in this construction, however, there may be no issue of reduplicating topic markers. This would mean that the generalization about reduplicating only morphemes below the level of topic markers stands unchanged. Since there is not enough data yet available to decide this question, I leave the issue here as a departure point for future research.

**4.2. RED Positioning**

With the structure now in place, we can turn to accounting for RED’s positional optionality. As may be evident from the examples presented so far, the range of RED lies somewhere within the vP level, but what is it about vP projections which differentiates them from other types of categories, making them the only possible locations for RED? There must be something about vP projections that unifies them, making them what they are (as opposed to, say, the aspect phrases), that can be used in accounting for the restricted range of RED among these phrases. One characteristic that vPs share is the projection of external arguments and a relation to transitivity. These and no other projections have this property, meaning that they can be differentiated on the basis of it.

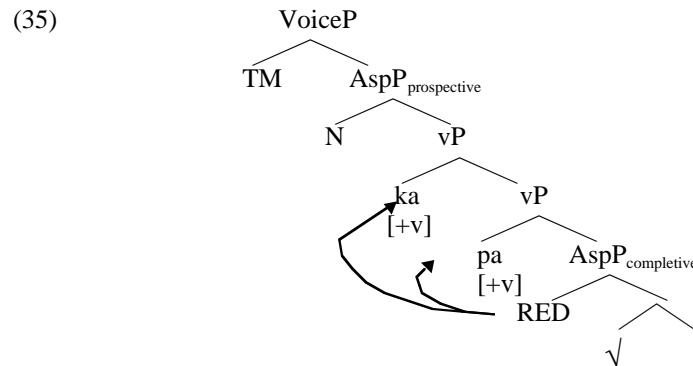
The range of RED positions among the vP projections also suggests some possible correlation between morphological positioning and the theory of Chomsky 1998 which deals with phases in the syntax. Chomsky 1998 argues

that the grammar spells-out the syntax in ‘phases’, which are defined as vPs and CPs. When the syntax reaches the top of a vP, all material including and below that vP is sent to the phonology. Since RED placement in Tagalog is restricted to the vP range, it could also be said to be restricted to occurring within a phase, before it is sent from the syntax to the phonology. While I do not have any explicit theory of how morphological scrambling interacts with phases in the mapping from syntax to morphology to phonology, the correlation is at least suggestive of an important relation.

So it seems that vPs can be classed together on the basis of these properties, in opposition to other projections which do not have them. For ease of discussion in this paper, I will refer to the properties shared by vP projections using the feature [v]. With this feature, it is simple to generalize the positioning of RED with the rule in (34).

- (34) *RED scrambling rule:*  
 Adjoin [-complete] to [v].

The rule operates as in (35), allowing RED to adjoin to and copy from any head that is within the vP range, since only heads at this level have [v]. Thus, RED will never raise up to or copy from the topic markers or N morpheme.



Once RED is adjoined to a head, that structure is linearized and sent off to the phonology where correspondence constraints (like Anchor, Faith) apply. In this way, the structure in (35) will yield two possible positions for RED, so there will be two possible inputs to the phonology, and also two separate constraint evaluations with only one output each ((37). Example constraints are briefly defined in (36), but will be discussed in more detail in the next section.

- (36) a. L-ANCHOR (RED, BASE) (McCarthy and Prince 1995):  
 “Any element at the designated periphery [Left] of S<sub>1</sub> [RED] has a correspondent at the designated periphery of S<sub>2</sub> [Base].”



- b. FAITHFULNESS TO MORPHOLOGICAL STRUCTURE<sup>14</sup>  
 “Morpheme order in the output is identical to morpheme order in the input”

(37) a.

/ʔi-ka-RED-pa-niwala /	Faith-MS	Anchor-L (RED, Base)
a. ʔikapaNIIniwala	*!	
b. → ʔikaPAApaniwala		
c. ʔiKAAkapaniwala	*!	

b.

/ʔi-RED-ka-pa-niwala /	Faith-MS	Anchor-L (RED, Base)
a. ʔikapaNIIniwala	*!	
b. ʔikaPAApaniwala	*!	
c. → ʔiKAAkapaniwala		

The adjunction analysis presented here accounts straightforwardly for those forms in which the reduplicant is adjoined to one of the prefixes in vP, but there is also an option of copying material from the root, as in the third possible outcome for the form in (37).

- (38) ʔikapaNIIniwala  
 ‘will cause someone to believe’

This is just the case in which RED has not scrambled, instead remaining in its base position when it is sent to the phonology. This results in the linearization [ʔi-ka-pa-RED-niwala], which means that RED will copy material from the verb root, since that is the base which is directly to its right.

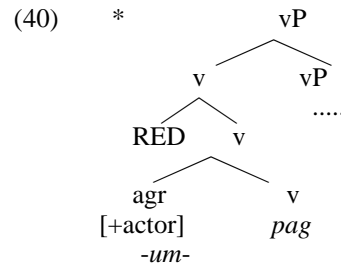
Recall that RED adjunction to *pag* (a v head) is blocked in the case of its coalescence of AT *m-*.

- (39) a. \*MAAmagbili  
 m-RED-pag-bili  
 AT-incomplete-trans-buy

<sup>14</sup> If all positioning of morphemes occurs prior to the phonology, in the morphological component, this constraint will never be violated, suggesting that it may actually be part of Gen, rather than the constraint ranking. McCarthy and Prince 1995 also speculate that their similar M-Scope constraint may be located in Gen, rather than in the constraint hierarchy.

One hypothesis as to why RED adjunction is disallowed in this case (as in (39)) might be that RED alignment to *pag* is prevented by the phonological coalescence of this morpheme with AT *m-*. However, the blocking cannot be purely a result of the coalescence, because, presumably, that does not happen until PF (as with all phonological processes), while RED adjunction, as I am arguing here, must crucially occur prior to PF. This means that the reason that RED is blocked from adjoining to *m+pag* must have to do with the structure that results from adjunction of the agr head.

I would like to propose a preliminary analysis of this phenomenon along the lines of work by Embick and Noyer (this volume). In this account, the complex head which results from agr projection is not a good candidate for RED adjunction (despite the fact that it bears the [v] feature) because of a restriction on RED adjunction which requires linear adjacency to the [v]-bearing head at the point of vocabulary insertion. As argued by Embick and Noyer, there is a distinction between processes in the morphology which refer to hierarchical structure and processes which refer only to linear precedence. RED adjunction would be an example of a process which cares about structural relations in its scrambling, but which also requires linear adjacency to a head with a [v] feature when the point of vocabulary insertion is reached. Since, in the structure in (40), adjunction of RED to the complex v head would result in a position that satisfied the structural requirement but violated the linearity requirement, such adjunction is blocked from occurring and RED must in this case adjoin to some other [v]-bearing head.



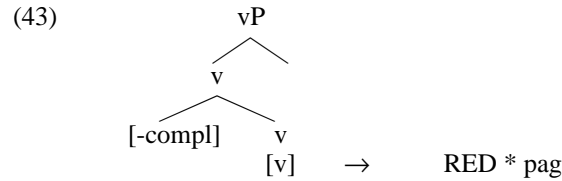
Schematically, RED adjunction to the complex v head would yield the feature ordering in (41), where linearization results in non-adjacency of the exponents of [-complete] (RED) and [v] (e.g. *pag*) (assuming that intermediate nodes are invisible in the process of linearization), which is disallowed by the requirements of RED adjunction (\* between morphemes indicates linear adjacency).

(41) \* [RED \*um \*pag]

The requirements on RED adjunction are informally stated in (42).

- (42) *RED attachment requirement:*  
 RED adjunction must be linearly left-adjacent to [v].

The attachment requirement is always satisfied when RED adjoins to a simple v head, as exemplified in (43).



If the agr head is projected prior to RED scrambling, RED can still scramble to the resulting complex head and meet its hierarchical requirements, but the derivation will be disallowed at the point of linearization because of failure to satisfy the RED attachment requirement on adjacency. If, on the other hand, the scrambling operation occurs before agr projection, the agr head will still intervene between RED and [v] in linear order, assuming that projection of heads in the morphology targets the lowest head of the complex. Therefore, RED will be disallowed in any case from being spelled-out from an adjoined position on the complex agr+v head, and must instead either scramble to another [v] head, or else remain unscrambled in its base position.

#### 4.2.1. Morphological scrambling

The type of morphological movement exhibited by reduplication in Tagalog is similar to syntactic scrambling in some ways. For one thing, this morphological movement and adjunction is allowed to any position in a range of sites as long as they are of the correct type, whereas in the syntactic case, movement is similarly allowed to any of a range of A or A-bar positions (see, e.g. Deprez 1994, Mahajan 1990, 1994, Saito 1992, Webelhuth 1989, 1992, Miyagawa 1997, 1999). Also, the element that is scrambling has the option of remaining in its base position, as we saw above in the cases where RED copies from the verb root. Morphological scrambling is unlike the syntactic type, however, in that it is adjunction to a head, and the licensing condition for its movement is that the head be a vP-level category bearing a [v] feature. In syntactic scrambling, by contrast, movement is adjunction to a phrase-level. Another difference is that the morphologically scrambled element may move optionally, with no semantic difference among the various possible sites. There are, for instance, no shades of meaning differences between forms like *will-cause-give* and *cause-will-give* in the sentences in (44), whereas a growing body of literature has found that syntactic scrambling does have an impact on

semantic interpretation (Diesing and Jelinek 1993, Diesing 1996, Miyagawa 1997).<sup>15</sup>

- (44) a. ?i-paa-pa-bigay  
 TM-RED-cause-give  
 ‘will cause to give’
- b. ?i-pa-bii-bigay  
 TM-cause-RED-give  
 ‘will cause to give’  
 ≠ cause to will-give

So although this movement process does look like syntactic scrambling in its freedom of position, it is not quite the same phenomenon. Morphological scrambling is a type of movement that relies on syntactic structure, and operates on basically the same principles of movement that the syntax does, but with slightly different requirements, namely, optionality of adjunction location according to the presence of a feature on a head.

Morphological scrambling is not restricted to Tagalog. Turkish, as presented by Good and Yu (1998), also has certain morphemes which demonstrate variability of position after the verbal stem, resulting in forms such as those in (45) where any of the three positions for the plural suffix *lar* is acceptable.

- (45) a. gid-iyor-du-ysa-**lar**  
 go-prog-past-cond-pl  
 ‘If they were going’
- b. gid-iyor-du-**lar**-sa  
 go-prog-past-pl-cond
- c. gid-iyor-**lar**-du-ysa  
 go-prog-pl-past-cond

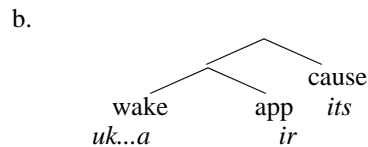
This optionality is reminiscent of morphological scrambling of the type found in Tagalog, although more data is necessary in order to fully examine the similarities. It is clear, though, that there are different positions for the plural morpheme, and since (at least according to Good and Yu) there are no meaning differences associated with this, it is plausible that movement of the morpheme occurs in the morphological component, after spell-out, as is the case in Tagalog.

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<sup>15</sup> It is tempting to argue that there are no semantic consequences for this movement because it happens in the PF branch of the grammar after the point of spell-out, where it should not be visible for interpretation at LF. Otherwise, if there were semantic ramifications to the movement, we might theorize that RED moves before the morphological branch of the grammar splits off from the semantic one, so that it could be interpreted in its scrambled position. However, as Alec Marantz points out (p.c.), anything that might affect meaning, even in the morphology, ought to be interpreted somehow, so this scrambling would be as well. Therefore the fact that there are no semantic differences does not help to differentiate RED variability from other cases of optionality (in syntax or morphology) where it is also unclear why free variation exists at all. It remains a puzzle why such processes should occur.

Another potential case of morphological scrambling comes from the Bantu language Chichewa, as discussed by Hyman and Mchombo (1992). In this language, certain morphemes can appear in different relative orders, sometimes with an associated difference in meaning, and sometimes without. For the cases where the meaning is changed by the relative order, it seems that the syntactic structure and scope relations play a part in the ordering, indicating that the different orders are not the result of morphological scrambling. For the other cases, however, in which “the order of suffixes conflicts with what would be expected from compositionality, or scope” (H&M p. 1), there is morphological scrambling of one element over another to yield a surface order of morphemes that differs from the base order of projections that came from the syntax. As is exemplified in (46), even in the case where the verb plus the applicative form an idiomatic construction (applicativized ‘wake up’ yields ‘rebel against’), the causative morpheme still intervenes between them in linear order, despite the fact that, according to its scope, its base position is outside of the applicative morpheme (46b).

- (46) a. uk-its-ir-a  
 wake.up-cause-app-FV  
 ‘cause to rebel against’



Although the semantics of this verb form indicates that the causative morpheme takes scope outside of the applicative morphemes, it surfaces closest to the root, inside of the other morphemes -- a situation which indicates that movement of the morpheme has taken place in the morphology. In other words, the causative morpheme began in a position which had scope over the other morphemes, and this position is where it is interpreted by the semantics, but in the morphological component it scrambled (in this case perhaps by lowering) to a different position, which is where it is spelled-out in the phonology.

The existence of a syntactic scrambling process within the morphological component supports the Distributed Morphology theory that words are composed according to syntactic processes, just as phrases are. While it remains to be seen just how similar the processes of morphological and syntactic scrambling eventually turn out to be, the data examined here suggest that this syntactic-like movement is possible in the morphology.

## 5.0. Standard OT Analyses

Determining the possible positions for RED might plausibly be thought to occur in the OT phonological component, using Align constraints (McCarthy and Prince 1995) to position the morpheme in different locations. In this section, however, I demonstrate that it is actually impossible to do this, since the theoretical machinery of (standard) OT is incapable of modeling optionality.

OT analyses of reduplication have usually concentrated on determining how the copying of phonological material works, since, in most cases, the reduplicant can have only one location in the string of morphemes and so the issue of different positions does not arise. Thus, the Anchor constraint from McCarthy and Prince 1995 determines where the reduplicant copies from the base by constraining what elements must be in correspondence with one another between the base and the reduplicant.

- (47) Anchor Constraint (McCarthy and Prince 1995):  
L-ANCHOR (RED, BASE)

“Any element at the designated periphery [Left] of  $S_1$  [Base] has a correspondent at the designated periphery of  $S_2$  [RED].”

This means that the edge of the reduplicant must match the edge of the base from which it is copied. Other constraints on reduplication in OT are concerned with determining the shape of the reduplicant, but since they are not within the scope of this paper, I will not discuss them here.

In the discussion below of how to position RED in an OT framework, I will use an alignment constraint to do the location work. The original alignment constraint from McCarthy and Prince 1993 is given below in (48) (PCat and GCat are, respectively, the sets of prosodic and grammatical categories).

- (48) Generalized Alignment:  
Align (Cat1, Edge1, Cat2, Edge2) = def  
 $\forall$  Cat1  $\exists$  Cat2 such that Edge1 of Cat1 and Edge2 of Cat2  
coincide.  
Where Cat1, Cat2  $\in$  PCat  $\cup$  Gcat  
Edge1, Edge2  $\in$  {Right, Left}

To counteract the alignment requirements of RED in Tagalog, I will also use a constraint which restricts the morpheme order in the phonological output to be faithful to the morphological input. I will call this constraint Faithfulness to Morphological Structure (Faith-MS), which is similar to McCarthy and Prince's (1995) M-scope constraint, and which I will treat, for expository purposes, as a violable constraint.<sup>16</sup>

<sup>16</sup> “Define the *M-scope* of an affixal category to be the morphological category that it c-commands (unambiguously well-defined, given binary branching)...Define the *P-scope* of an affix to be that which follows a prefix, or precedes a suffix -- its *base*...The

I will use these two constraints in the next section to demonstrate the shortcomings of OT in modeling optional processes.

**5.1. Two winners in Eval**

In Optimality Theory, the final phonological output is the single candidate that performs best on the total constraint ranking. When optionality is discussed in the context of OT, a common proposal for explaining it is to allow the variants to “tie” in the constraint evaluation, thereby producing two winners for the competition and causing two outputs to surface, as illustrated in (49) for Tagalog.<sup>17</sup>

(49)

/RED+pag+lagy+an /	ALIGN (RED, R, BASE, L)
a) → paapaglagyan	
b) → paglaalagyan	

The tied-winners method of deriving optionality, however, is clearly insufficient. Because OT is predicated on the idea that there is a universal set of constraints present in every language (even when their effects are not obvious in a certain language) there will always be lower-ranked (and higher-ranked) constraints acting on candidates in every evaluation. Although not always relevant, their effects will be evident in exactly the cases when two candidates perform equally well on other constraints. One of them eventually must be chosen over the other because it performs better on some (lower) unrelated constraint. This phenomenon is referred to as 'The Emergence of The Unmarked' or 'TETU' in the OT literature (McCarthy and Prince 1994). The situation involving two winning candidates in (49) is exactly such a case, where TETU should eventually force a choice between (a) and (b), depending on which is less marked with respect to other constraints. For example, the Universal Markedness Hierarchy of Prince and Smolensky (1993) predicts that a coronal should always be less marked than a labial or dorsal so, given a choice between the two of them, a coronal will always be preferred in the output.

(50) Universal Markedness Hierarchy (Prince & Smolensky 1993):  
 \*LABIAL/DORSAL >> \*CORONAL

---

fundamental observation is that P-scope must respect M-scope in a certain way...M/P Scope Concordance Condition: M-Scope (β) ⊂ M-Scope (α) ⇒ P-scope (αβ) ⊂ P-scope (αα)"(McCarthy and Prince 1995, pp. 74-75).

<sup>17</sup> Hammond (1994) proposes this method in order to explain optionality of stress placement in Walmatjari.

In a case like (51), then, where two candidates perform equally well on other constraints, the one with fewer labials will always win over the other candidate which is supposed to be tied with it. This markedness hierarchy thus will force a choice between the two 'tied' candidates in every case and no optionality is predicted.

(51)

/RED+pag+lagy+an/	ALIGN (RED, BASE)	*LABIAL/DORSAL	*CORONAL
a) paapaqlaɣyan		***!*	**
b) →paqlaalaɣyan		***	***

While it is not clear that constraint interaction in the phonological module should account for this pattern of optionality (since there are really no constraints that deal with morphological alignment) we have at least ruled out the possibility that the standard OT evaluation could in any way predict the pattern. There have been other methods proposed to deal with optionality in OT, however (e.g. Anttila 1995, Ito and Mester 1996), and in the next section I will discuss these and demonstrate why they also cannot account for the pattern of optionality in Tagalog.

## 6.0. Other Approaches to Optionality

### 6.1 Crucial Non-ranking

One other method for explaining optionality within OT is crucial non-ranking, which has been proposed separately by Anttila (1995) and Ito and Mester (1997). These accounts do not require tied winners to explain optionality, and, as Anttila demonstrates, they allow one to capture the frequency of the variants. Even crucial non-ranking, however, cannot explain the Tagalog optionality facts, as I will briefly demonstrate in this section.

Crucial non-ranking of constraints, as developed in Anttila (1995) and Ito and Mester (1997), is one method of handling optionality in OT. Instead of a total ranking of constraints (A >> B >> C), one ranking is removed to form a partial ordering.

(52) Constraints: A, B, C  
 Rankings: A >> B, A >> C

Constraint C is not ranked with respect to B, so the grammar pictured as a tableau yields the 2 possibilities in (53). As Anttila (1995) explains, “The



tableaux disagree about the winner...since the grammar permits both rankings, it also permits both outputs. In other words, it predicts variation.”

(53)a.

	A	B	C
a. cand 1	*	*!	
b. → cand 2	*		*

b.

	A	C	B
a. → cand 1	*		*
b. cand 2	*	*!	

Constraints that are only partially ranked fall into classes of constraints which are ranked with respect to other classes. Within those sets, each domination relation is possible. A grammar might thus have the form in (54) with constraints A, B, C, etc. and there will be as many possible tableaux as it takes to have all possible rankings within a set.

(54)

Set 1	Set 2	Set 3	Set 4	Set 5
A	B C	D E F	G H I J	K L M

ranking one: A >> B >> C >> D >> F >> E ...  
 ranking two: A >> C >> B >> F >> D >> E ...  
 etc.

In order to implement this system for Tagalog optionality, constraints that exert pressure to align in different directions would be necessary in order to produce different outcomes. I will use the constraints that were necessary in the standard OT analysis, except that instead of requiring RED to align to the base, the alignment constraint here requires that RED align to the root of the verb. The constraints are unranked, {FAITH-MS, ALIGN (RED, R, ROOT, L)}, which will yield two possible outcomes -- one for each of the possible ranking of FAITH-MS and ALIGN (RED, R, ROOT, L). The tableaux in (55) demonstrate the system.

(55) a. FAITH-MS >> ALIGN (RED, R, ROOT, L)

/ʔi+RED+pag+bili/ BT-comp-trans-buy 'will buy'	FAITH-MS	ALIGN (RED, R, ROOT, L)
a) → ʔipaapagbili		*
b) ʔipagbiibili	*!	

## b. ALIGN (RED, R, ROOT, L) &gt;&gt; FAITH-MS

/ʔi+RED+pag+bili/ BT-comp-trans-buy 'will buy'	ALIGN (RED, R, ROOT, L)	FAITH-MS
a) ʔipaapagbili	*!	
b) → ʔipagbiibili		*

As long as there are only 2 positions possible for RED, this system is capable of predicting the optionality. When more morphemes are involved, however, no ranking of the constraints above will give rise to a form such as *maʔipaapabili* 'will be able to buy', which is incorrectly predicted to be impossible, as demonstrated in (56), because no combination of rankings will produce this as the winner.<sup>18</sup>

## (56) a. ALIGN (RED, R, ROOT, L) &gt;&gt; FAITH-MS

/ma+RED+ʔi+pa+bili/ ability-comp-BT-cause-buy 'will be able to buy'	ALIGN (RED, R, ROOT, L)	FAITH-MS
a) → maʔipabiibili		*
b) maʔiiʔipabili	*!*	
c) maʔipaapabili	*!	*

## b. FAITH-MS &gt;&gt; ANCHOR-ROOT

/ma+RED+ʔi+pa+bili/	FAITH-MS	ALIGN (RED, R, ROOT, L)
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<sup>18</sup> One remedy for this problem might be to turn to Output-Output constraints (as in, among others, Benua 1997) that treat [maʔipaapabili] as a possible form because of the existence of other forms that allow reduplication of the *pa* morpheme. Some output-output constraint might then favor locating RED in the same position in two related outputs. The major problem with all of these extra O-O constraints is that they seem like they allow an ad hoc solution, obscuring the real generalization of what is going on here: RED can attach to any level of the vP range. When there are 4 or 5 vP morphemes before the root, RED is able to align to each of these positions. Any O-O solution would just have to multiply the number of constraints and cross-references every time it encountered a new output with 1 more prefix and thus one more possible position for RED. This therefore seems not to be an optimal explanation for the optionality facts.

ability-comp-BT-cause-buy 'will be able to buy'		
a) maʔipabiibili	*!	
b) → maʔiiʔipabili		*
c) maʔipaapabili	*!	*

While the Tagalog pattern is clearly not predictable using these constraints, it might be argued that other constraints would work to account for the optionality. What would these constraints look like? One type that might work would be 'Align RED to root (plus one/ two/ three)', meaning that RED must be aligned to the root, or to the root plus one affix, or to the root plus two affixes, etc.. These constraints would then be unranked with respect to each other, and the highest one in every evaluation would win, causing RED to appear in different locations depending on the ranking. There are several problems with this possible analysis, however, even aside from conceptual problems with introducing constraints that count to two, three, and four. The first is conceptual, in that these language-specific constraints would have to be present in the universal constraint inventory and ranking of every language, even though they would be inactive in the phonology of every other language. While this type of account has been proposed before for Tagalog (the 'Align *-um-*' constraint of McCarthy and Prince 1993 is one example), it is not really in the spirit of a restricted set of universal constraints whose effects could be felt in many different languages.

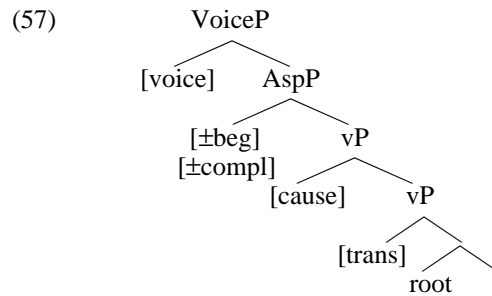
A more serious empirical problem is that these constraints would not even work to determine the pattern of Tagalog. In order to predict the possible winner *?i-kaa-ka-pa-niwala* 'will cause someone to believe' where the highest vP-level affix is reduplicated, the constraint 'Align RED to root plus two' would have to be highest ranked. If such a constraint exists, however, it also predicts that the ungrammatical candidate *\*?ii-?i-pag-bili* 'will buy' should sometimes win, because it also satisfies this constraint by aligning RED to the root plus two affixes. Since this never happens, however, the constraint would have to be modified to requiring alignment to the root plus two affixes, as long as they are vP-level affixes. This option thus begins to look much like the morphological scrambling analysis presented in section 4, except that that solution is restricted to Tagalog, whereas this one, as noted above, requires the conceptually undesirable introduction of universal constraints in order to explain one language-specific process. Also, this version of RED alignment by numbered constraint misses the generalization that any vP head which is present in the structure is a potential adjunction site. On this approach, the possibility of RED adjunction on any vP is an accident caused by the presence in the ranking of different constraints which *require* that RED align to one or another specific v head. In the scrambling analysis, by contrast, optionality is the result of a general rule which adjoins RED to any head of a certain class.

## 6.2 A Readjustment Rule

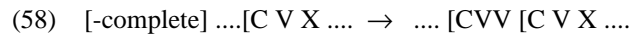
The upward scrambling account of Tagalog optionality presented in this paper is one way to account for the patterns of reduplication in the language.

There are other imaginable ways to deal with this issue, however, and one that was presented by Carrier (1979) and Lieber (1980) uses a readjustment rule to account for optionality. Because there is little evidence to decide in favor of one or another analysis at this point, I will merely discuss (an updated version of) the alternative here and hope that the future provides evidence -- theoretical or empirical -- to decide between the two options.

A readjustment rule is defined by Carrier 1979 as a process which “rewrites a word dominated by its lexical node plus any syntactic feature that has been appended to it in the course of the syntactic derivation” (p. 22). The readjustment rule account for Tagalog would thus be as follows: there is only one AspP in the structure, which bears both the features [ $\pm$  begun] and [ $\pm$ complete]. Whenever there is a [-complete] feature present in this projection, it triggers a readjustment rule non-locally within its c-command domain, which would be all the vP-level phrases and the verb root, as shown in ((57). This requires that RED is not a morpheme by itself, but is rather a process triggered by the presence of a separate feature in the structure.



The readjustment rule might be informally schematized as in (58) (slightly modified from Lieber 1980).



Optionality is thus accounted for by the general nature of the rule. It only cares that there be a left edge somewhere below the triggering feature at which to start copying, and any left edge is a viable candidate.

There are several questions that arise in examining the readjustment account of Tagalog optionality. First, why should RED not be a morpheme itself and why should a child not analyze it as one? Since the aspectual reduplicant consistently contributes the same meaning to the structure (incompleteness of action), it behaves similarly to other morphemes, so it is unclear why a child learning the language would not analyze it as a morpheme in its own right. It might be argued that the fact that the reduplicant borrows phonological material from some other morpheme means that it cannot be

contributing its own semantics, but there is no a priori reason that this should follow from its borrowing nature. In any case, on the basis of the Tagalog facts, at least, there seems to be no reason to assume that an analysis which denies morpheme-hood to RED is inherently better than an account which treats RED as a real morpheme.

Another question which arises in connection with the readjustment account is: what is the theory of locality that is necessary for a theory of readjustment? In this structure, anywhere within the c-command domain of the feature-bearing head is a possible site for reduplication, so the readjustment could potentially occur quite far away from the triggering feature. This may not matter, since at least there is a c-command requirement, but would this definition hold for other cases of readjustment? If such an account is to hold for any language, the issue of how local the readjustment effect must be needs to be explored.

Finally, this account has no clear way to rule out reduplication of the *mag* prefix which is a coalescence of the [+actor] agr morpheme and *pag*, as discussed above. Since the readjustment rule is generally only sensitive to a left edge in the c-command domain of the triggering feature, it is difficult to see how reduplication of *mag* might be prevented, since this head would qualify for operation of the rule. Certainly, reference to the linear adjacency requirement which can rule this out in the scrambling analysis is impossible, since there is no linearity of the feature to the reduplication site in any of the cases under this analysis.

## 7.0. Conclusion

Optionality in Tagalog reduplication is a case of morphological variation in which one morpheme has the ability to be spelled out in several different positions. These positions are not randomly chosen, and the range in which RED can appear is constrained by the presence of a [v] feature on a head, which means that RED can adjoin to any head at the vP level. Separating phonological processes from morphological alignment in this way provides support for a model of the grammar where positioning occurs in the morphology, which obeys syntactic principles.

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