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Anastasia Riehl & Thess Savella
The editors

Medial Nasal + Stop Clusters in Indonesian and Javanese: A Preliminary Acoustic Account

Niken Adisasmito-Smith, Cornell University

In this study, I examine the acoustic realizations of root-medial nasal + stop (NC) clusters that are syllabified differently in an attempt to examine whether differences in phonological patterns are realized in the phonetics. I take Indonesian and Javanese as the test case. NC clusters in Indonesian are argued to be heterosyllabic: $_{\sigma}$CVN.$_{\sigma}$CVC, while in Javanese, they are tautosyllabic: $_{\sigma}$CV.$_{\sigma}$NCV. If these different syllable affiliations are expressed in the phonetics, we would expect to find different acoustic patterns. Two diagnostics are used to detect different syllabification of consonants, namely timing patterns and formant bandwidth measurements indicating degree of nasalization, discussed in § 3.

The structure of this paper is as follows. In § 1, I discuss the distribution of adjacent nasals and stops in Indonesian and Javanese. In § 2, I provide evidence for the syllabification of these consonants, based on the phonological patterns of sounds in the respective languages. In § 3, I discuss previous studies of NC clusters in various languages, based on the acoustic patterns of these clusters. I discuss the methodology of gathering the data for analysis in § 4. I present the results in § 5 and discuss them in § 6.

1. NC clusters in Indonesian and Javanese

NC clusters in Indonesian may occur in root-initial, -medial, and -final positions. In root-initial position, NC clusters result from the affixation of a verbal prefix ending with a homorganic nasal, such as *meN-*, to a root that begins with a stop. When the root-initial stop is voiced, the homorganic nasal of the prefix assimilates its place of articulation to that of the following stop, as illustrated in (1).

(1) a. məN + bača → məmbača
'read'

b. məN + dapat → məndapat
'obtain'

However, when the root begins with a voiceless stop, coalescence takes place. The homorganic nasal assimilates its place of articulation to that of the voiceless stop and the stop is deleted. This is illustrated in (2).

(2) a. məN + paku → məmaku
'nail'

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b. məN + tukar → mənukar
'exchange'

In root-medial position, a homorganic nasal in an NC cluster also undergoes place assimilation, as illustrated in (3-4). As in root-initial position, no coalescence takes place when the homorganic nasal is adjacent to a voiceless stop, as shown in (4).

(3) a. rambut
'hair'
b. tunda
'delay'

(4) a. sampul
'cover'
b. santap
'eat'

When a root-final nasal is followed by a suffix that begins with a stop, the nasal is already specified for place. No assimilation or coalescence takes place here, as illustrated in (5). There are no suffixes in Indonesian that begin with voiced stops.

(5) a. ǰalan + kan → ǰalankan
'operate'
b. saraŋ + pun → saraŋpun
'nest, emphatic'

The patterns of occurrence of NC clusters in Javanese are similar to the patterns found in Indonesian, in that they may occur in root-initial, -medial, and -final positions. Root-initial NC clusters results from the affixation of a prefix ending with a homorganic nasal to a root beginning with a stop. The set of examples in (6) illustrates the case where the verbal prefix consisting of a homorganic nasal is affixed to a root beginning with a breathy stop. The homorganic nasal undergoes place assimilation.

(6) a. N + $p^{ɦ}$akar → mb^{ɦ}akar
'burn'
b. N + $t^{ɦ}$ulaŋ → nd^{ɦ}ulaŋ
'feed'

Note that while Indonesian stops are contrastive with respect to voicing, Javanese stops are contrastive with respect to relative breathiness. With respect to voicing, Javanese breathy and clear stops are voiceless. In this study, to

distinguish breathy from clear stops, the superscripted symbol [^{ɦ}] is used to indicate breathy stops, as shown in (6). When a breathy stop is preceded by a homorganic nasal, it is realized as voiced breathy stop. That is, the vocal cords vibrate during the stop closure (e.g. Hayward 1993; Adisasmito-Smith 1999).

When the root begins with a clear stop, coalescence takes place. The homorganic nasal undergoes place assimilation, and the clear stop is deleted. This is illustrated in (7).

(7) a. N + parut → marut
'grate'
b. N + tuku → nuku
'buy'

Parallel to the case in Indonesian, in the root-medial position, the Javanese homorganic nasal undergoes place assimilation, as illustrated in (8-9). No coalescence occurs when the nasal precedes a voiceless clear stop, as shown in (9).

(8) a. timb^{ɦ}ɔ
'bucket'
b. lind^{ɦ}u
'earthquake'

(9) a. tɔmpɔ
'receive'
b. mantu
'son/daughter in-law'

In root-final position, a nasal can become adjacent to a stop when a root-final nasal is followed by a suffix beginning with a stop, as illustrated in (10). In these examples, the roots are followed by a benefactive suffix *-ke*. The non-homorganic root-final nasal does not undergo place assimilation, and the suffix-initial stop does not delete.

(10) a. N + kurp^{ɦ}an + ke → ŋʊrp^{ɦ}anke
'sacrifice for'
b. N + simpən + ke → ɲimpənke
'keep for'

In addition to NC clusters, there are other combinations of adjacent consonants. The main issue here is how a sequence of consonants, particularly an NC cluster, is syllabified. In this study, I focus only on root-medial clusters, which I discuss in the next section.

2. Syllabification of root-medial NC clusters

Phonologically, NC clusters in Indonesian have been argued to be heterosyllabic (e.g. Lapoliwa 1981; Adisasmito-Smith 1998). This claim is primarily based on the phonotactic patterns of consonants in the language. As illustrated in (11a), a homorganic nasal is in coda position and the following stop is in onset position.

(11) a. $_{\sigma}$ram.$_{\sigma}$but
'hair'
b. $_{\sigma}$pas.$_{\sigma}$ti
'sure'
c. $_{\sigma}$ta.$_{\sigma}$brak
'hit'

The syllabification in (11a) conforms to the sonority sequencing principle (e.g. Clements 1990; Zec 1995), in which segments are of increasing sonority towards the nucleus of a syllable. Adjacent fricative and stop are also heterosyllabic, with the fricative in coda position and the stop in onset position, as illustrated in (11b). When the adjacent consonants are of decreasing sonority, such as a stop and a liquid, both are syllabified in the onset position, as illustrated in (11c).

There is debate whether NC clusters in Javanese are heterosyllabic (e.g. Yallop 1982) like those in Indonesian, or tautosyllabic (Robson 1992). However, the phonological patterns of vowel alternations provide support for their being tautosyllabic. The set of examples in (12) illustrates this.

(12) a. pu̲tɪh
'white'
b. pu̲ntɪr
'twist'
c. pu̲spɔ
'flower'

A vowel is tense when it precedes a consonant in onset position, as shown in (12a). It is also realized as tense when a sequence of consonants of NC type follows, as shown in (12b). However, when this vowel is followed by a sequence of consonants other than NC type, it is realized as lax, as shown in (12c). In (12a-b), a vowel (i.e. the final vowel in these examples) is followed by a consonant in coda position and it is realized as lax. This evidence strongly suggests that the homorganic nasal of the root-medial NC cluster is not in coda position, but rather that it is incorporated into the same syllable of the following stop in onset position. Given the pattern of vowel alternation illustrated in (12), I argue that,

phonologically, the syllabification of root-medial consonants in Javanese is as shown in (13).

(13) $_{\sigma}$CV.$_{\sigma}$CV
$_{\sigma}$CV.$_{\sigma}$NCV
$_{\sigma}$CVC.$_{\sigma}$CV

With the focus on the different syllabification of root-medial NC clusters in Indonesian and Javanese, we investigate whether this phonological difference is expressed in the phonetics. To determine the syllable affiliation of NC clusters based on their acoustic patterns, I use the timing organization of these clusters and the degree of nasal effect of the homorganic nasal on the preceding vowel as diagnostic parameters. These parameters have been found to be indicative of consonant syllabification in previous acoustic studies of NC clusters, which I discuss in the next section.

3. Previous acoustic studies of NC clusters

3.1. Timing organization

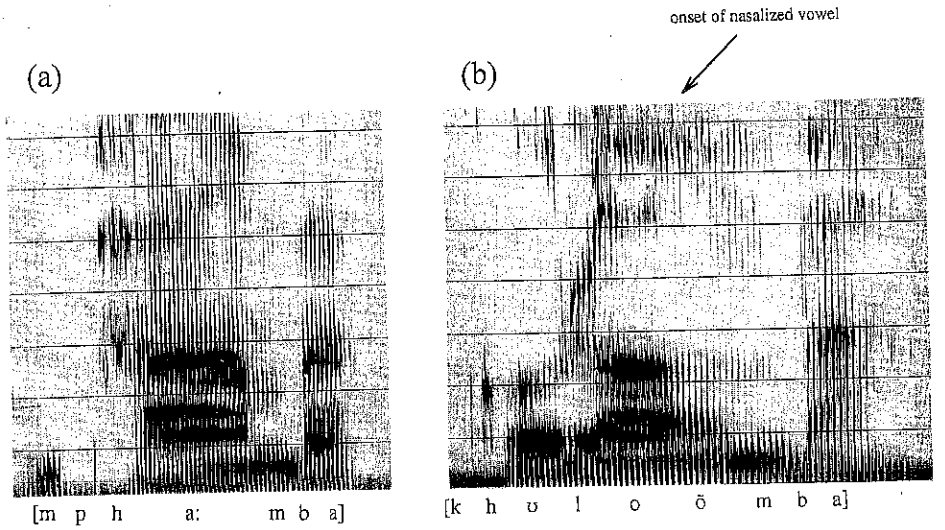
Many acoustic studies of NC clusters examine the timing, aerodynamic and/or articulatory patterns of these clusters. With respect to timing patterns, the durations of the clusters and of the preceding vowel are of interest. In languages where NC clusters are heterosyllabic, the acoustic durations of these clusters have been found to be greater than those of stops or nasals. This is the case for NC clusters in English (Vatikiotis-Bateson 1984) and in Italian (Farnetani and Kori 1986; Smith 1992). Some linguists (e.g. Herbert 1986; Sagey 1986) have argued that the durations of NC clusters that behave as single segments (i.e. tautosyllabic NC clusters assumed to form prenasalized stops) would be equivalent to the duration of single consonants. This argument finds support in Fijian, where the durations of tautosyllabic voiced NC clusters (i.e. -mb-, -nd-, etc.) are comparable to those of single voiceless stops and single lateral consonants (Maddieson 1989; Maddieson and Ladefoged 1993). However, Maddieson and Ladefoged (1993) also find that the durations of tautosyllabic voiced NC clusters in Luganda are greater than those of nasals. Burton and Blumstein (1992) find that tautosyllabic word-initial voiced NC clusters in Moru have similar acoustic durations as compared to the word-initial voiced stops, but they have greater durations as compared to the word-initial nasals. These findings suggest that tautosyllabic consonant clusters and single consonants do not necessarily have similar timing organizations.

Vowels may be influenced in their timing patterns by the following consonants. Based on findings across a wide range of languages, Maddieson (1985) argues that vowels tend to be shorter in closed syllables than in open ones. Thus, vowels that are followed by a consonant in coda position would be shorter

than those that are followed by a consonant in onset position. Note that most of the data presented by Maddieson concern vowels preceding either a geminate or a sequence of two different consonants that are not NC clusters. The phenomenon of closed syllable vowel shortening, in which vowels are shorter in duration preceding medial voiceless NC clusters than preceding nasals or voiceless stops, is found to be the case for Italian (Farnetani and Kori 1986; Smith 1992). Other consonant clusters that occur in Italian are geminate consonants and non-homorganic consonant clusters. Vowels in English, however, are found to be of equivalent durations when preceding a word-medial stop in onset position and preceding a heterosyllabic NC cluster (Vatikiotis-Bateson 1984). In Fijian (Maddieson 1989; Maddieson and Ladefoged 1993) and in KiNdendeule (Hubbard 1995), vowels have been found to be of comparable duration preceding tautosyllabic medial NC clusters and preceding medial single consonants. These findings seem to suggest that vowels do not necessarily shorten in closed syllables in cases involving NC clusters. More extensive cross-linguistic examination, taking into account the different types of consonant clusters and how these clusters are syllabified in the language, would certainly be needed to determine the timing patterns of consonant clusters, NC and others, and of the preceding vowel.

3.2. Degree of nasalization

In addition to effect on its timing, a vowel preceding a (homorganic) nasal in coda position may also bear greater degree of nasalization from the following nasal. Acoustically, a nasalized vowel has lower formant amplitude as compared to an oral vowel, resulting in broader formant bandwidths, especially the first formant (F1) (e.g. House and Stevens 1956; Stevens, Fant, and Hawkins 1987; Chen 1997). The contrast between a nasalized vowel and an oral one is illustrated in Figure 1.



LuGanda **Sukuma**

Figure 1. Spectrograms of a tautosyllabic NC cluster in LuGanda and a heterosyllabic one in Sukuma (reproduced from Maddieson and Ladefoged (1993), with permission)

For the tautosyllabic case, shown in (a), there is a clear break between the vowel and the homorganic nasal. The relatively steady dark bands of the vowel in (a) indicate that the vowel preceding the homorganic nasal in onset position bears little or no effect of nasalization. The dark bands on the vowel represent the bandwidths of the vowel formants. On the other hand, there is more of a gradual transition between the vowel and the following homorganic nasal in coda position, as shown in (b). The dark bands during the first half of the vowel taper off towards the end of the vowel, indicating the broadening of formant bandwidths. Maddieson and Ladefoged argue that this transition is due to the effect of nasalization on the vowel. No quantitative data with respect to formant bandwidths are available for the cases in these two languages. As mentioned earlier, nasal vowels have broader F1 bandwidth when compared with oral ones.

Based on the two methods discussed in this section: timing patterns and degree of nasalization, I acoustically analyze the syllable affiliation of NC clusters in Indonesian and Javanese. What we expect to find here is that the duration for Indonesian NC clusters would be greater than for the nasals or stops. For the Javanese NC clusters, we may find that the duration of these clusters is either greater than or similar to that of the single segments. The duration of the penultimate vowels is expected to be smaller preceding an NC cluster in Indonesian, as compared to the duration of vowels preceding consonants in onset position. For Javanese, the durations of the penultimate vowels are expected to be similar preceding an NC cluster, a nasal, or a stop in onset position. The F1 bandwidth of these vowels in Indonesian would be greater preceding the

homorganic nasal in coda position than preceding a plain nasal in onset position, but in Javanese, they would be similar preceding the homorganic and non-homorganic nasals in onset position. The expected results of the acoustic measurements are summarized in Table 1.

Table 1. Expected acoustic results

	Measurements	Indonesian heterosyllabic NC	Javanese tautosyllabic NC
a.	Duration of NC vs. C	NC > nasal or stop	NC ≈ nasal or stop, or NC > nasal or stop
b.	Duration of preceding V	V-preNC < V-prenasal V-preNC < V-prestop	V-preNC ≈ V-prenasal V-preNC ≈ V-prestop
c.	F1 bandwidth of preceding V	V-preNC > V-prenasal	V-preNC ≈ V-prenasal

4. Methodology

For this study, six speakers were recorded. Three of the speakers (two female, I1 and I2, and one male, I3) are native speakers of Indonesian, and the other three (one female, J1, and two male, J2 and J3) are native speakers of Central Javanese, who also speak Indonesian.

In this study, two near-minimal sets of Indonesian and Javanese bisyllabic words were recorded and analyzed. These sets are given in Table 2.

Table 2. Recorded and analyzed data

	Indonesian		*Javanese*	
Set 1:	[padas]	'rock'	[rɔk^{ɲ}ɔ]	'body'
	[patah]	'break'	[rɔkɔ]	'brother'
	[panas]	'hot'	[rɔŋɔ]	'nonsense word'
	[pandas]	'nonsense word'	[rɔng^{ɲ}ɔ]	'nobility title'
	[pantas]	'suitable'	[rɔŋkɔ]	'skeleton'
Set 2:	[sadar]	'conscious'	[sɔk^{ɲ}ɔ]	'k.o. tree'
	[satar]	'nonsense word'	[sɔkɔ]	'pillar'
	[sanar]	'nonsense word'	[sɔŋɔ]	'nine'
	[sandar]	'lean on'	[sɔŋg^{ɲ}ɔ]	'support'
	[santap]	'eat'	[sɔŋkɔ]	'suspest

The target sounds are the penultimate vowels and the word-medial consonants. Acoustic measurements obtained from the vowels are durations and F1 bandwidth, and from the consonants are their durations. The target vowel in Indonesian is the low vowel [a]; in Javanese, it is the back mid vowel [ɔ]. The word-medial consonants in Indonesian are voiced and voiceless stops, a nasal, voiced and voiceless NC clusters. Those in Javanese are breathy and clear stops, a nasal, voiced breathy and voiceless clear NC clusters.

Each speaker read the words in their respective language, embedded in a frame sentence, four times. The frame sentence for the Indonesian words is *Dibaca* _____ *sekali* 'Read _____ once', and for the Javanese words *Diwaca* _____ *sepisan* 'Read _____ once'. The total number of tokens analyzed for each language is 120 (3 speakers x 10 words x 4 repetitions). These tokens were digitized at 11,025 Hz and analyzed using Waves+/ESPS. All values were statistically analyzed using a one-way ANOVA.

To quantify the bandwidth of the first formant (F1) of the vowel, the amplitude of the first harmonic is compared to the amplitude of the first formant, H1-A1 (Hanson 1997). The difference in amplitude of the two peaks correlates with the F1 bandwidth; i.e. the greater the difference or the distance between H1 and A1, the greater the bandwidth and consequently the greater the effect of nasalization is. Thus, a nasalized vowel would tend to have greater difference in the H1-A1 value, when compared with an oral vowel. In this study, the H1-A1 values are taken at the 50% and 75% points of the vowel duration.

5. Analysis

The acoustic measurements of the timing patterns of target segments: the penultimate vowels and the word-medial consonants, and the first formant bandwidth of the penultimate vowels are discussed in this section. First, I present the acoustic results of the Indonesian cases in § 4.1 and the Javanese cases in § 4.2.

5.1. Indonesian

With respect to the timing pattern for heterosyllabic NC clusters, we predict that these clusters would be greater in duration when compared to a single nasal or a single stop and that the penultimate vowels would be shorter preceding an NC cluster than preceding a nasal or a stop. The H1-A1 values, being the acoustic correlate of F1 bandwidth, of the penultimate vowels is predicted to be greater preceding a nasal in coda position than preceding a nasal in onset position.

The acoustic measurements are shown in the following charts. Error bars accompanying the values in all the charts represent two standard deviations.

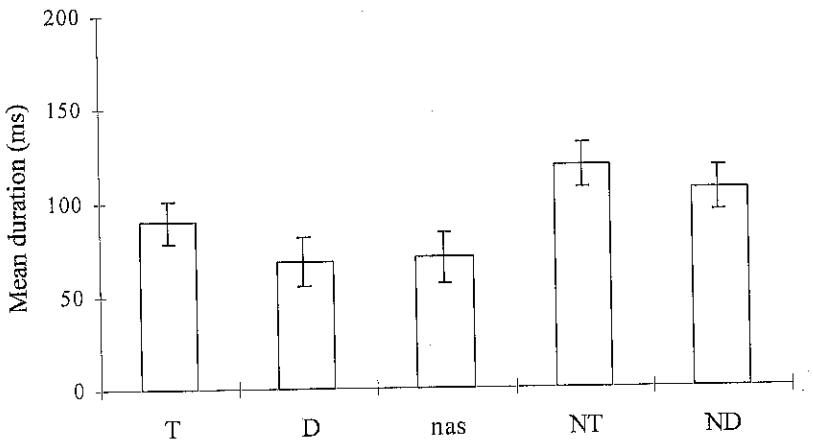


Figure 2. Mean durations of medial NC cluster vs. nasal or stop in Indonesian

As predicted, the duration of the voiceless NC cluster (NT) is greater than the duration of the voiceless stop (T) or the nasal. Similarly, the duration of the voiced NC cluster (ND) is greater than the duration of the voiced stop (D) or the nasal. In these cases, the duration differences are statistically significant ($p < .05$). The duration ratios of these consonants are provided in Table 3.

Table 3. Duration ratios of word-medial consonants in Indonesian

Consonants	Ratios
T:NT	1:1.3
D:ND	1:1.6
nasal:NT	1:1.7
nasal:ND	1:1.5

Consistent with what is predicted, for Indonesian, the durations of a cluster of two segments consisting of a homorganic nasal and a stop are greater than those of a single segment, a stop or a nasal in particular. This is parallel to the findings in English and Italian, discussed earlier.

The mean durations of the penultimate vowels preceding word-medial consonants are shown in Figure 3.

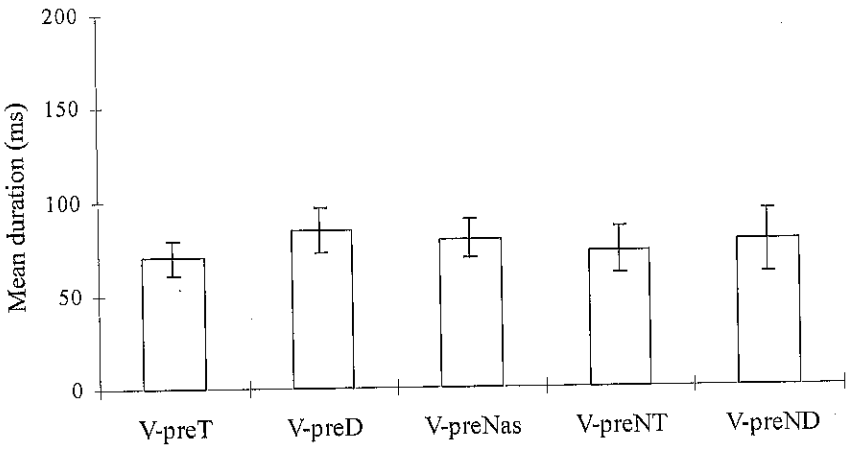


Figure 3. Mean durations of penultimate vowels in Indonesian

The mean durations of penultimate vowels preceding the voiceless stop (70 ms) and preceding the voiceless NC cluster (73 ms) are similar. The mean duration of these vowels preceding the voiced stop (84 ms) is slightly greater than preceding the voiced NC cluster (77 ms). The mean duration of vowels preceding the word-medial nasal is similar to that preceding the voiced and voiceless NC clusters. Statistical analysis indicates that the duration of penultimate vowels is not determined by whether the following consonant is a single consonant or an NC cluster ($p > .05$). Thus, closed syllable vowel shortening (Maddieson 1985) does not occur to Indonesian vowels preceding a word-medial homorganic nasal in coda position. Here, the pattern of Indonesian vowels is similar to that of English.

The measurements of the H1-A1 values of the penultimate vowels are shown in Figure 4.

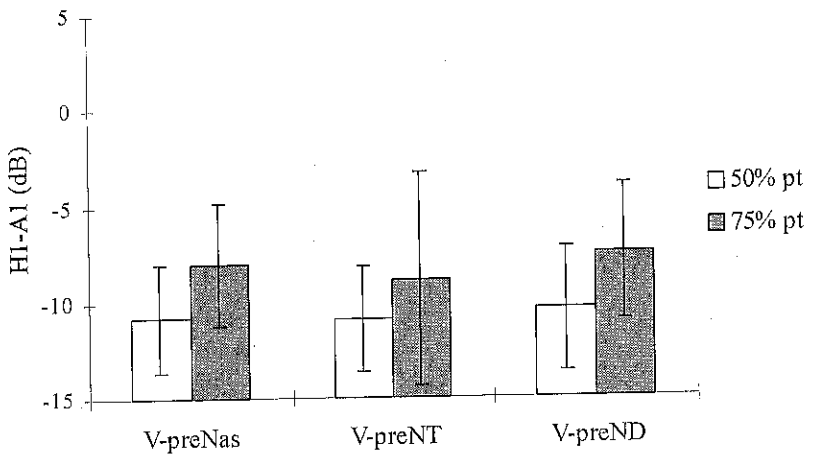


Figure 4. Mean H1-A1 values of penultimate vowels in Indonesian

To illustrate the relationship between H1-A1 values and degree of nasalization, I compare the H1-A1 values for *V-preNas* at the 50% and 75% points. The difference between the H1 and the A1 amplitude values at the 50% point is 11 dB. Since the amplitude of H1 is usually smaller than that of A1, the difference is negative. The amplitude difference of the two peaks at the 75% point is 8 dB. In this case, the H1-A1 value at the 75% point is greater when compared with the values at the 50% point. This indicates that the vowel is more nasalized at a point closer to the following nasal.

I compare now the H1-A1 values for vowels preceding the nasal in onset position (*V-preNas*) vs. that in coda position (*V-preNT/V-preND*). At the 50% point, the mean H1-A1 values are practically identical for vowels preceding a nasal in onset position and preceding a nasal in coda position. At the 75% point, the mean H1-A1 value for vowels preceding a nasal in onset position is 1 dB greater than for vowels preceding a voiceless NC cluster and it is 1 dB smaller than for vowels preceding a voiced NC cluster. These results suggest that at both the 50% and 75% points, vowels preceding a nasal in coda position are no more nasalized than vowels preceding a nasal in onset position.

To summarize the results presented in this section, the mean duration of heterosyllabic NC clusters in Indonesian is greater than that of the word-medial nasal or stops. The mean durations of the vowels preceding heterosyllabic clusters and preceding nasal or stops in onset position are comparable. In addition, vowels are no more nasalized preceding a nasal in coda position vs. that in onset position. Interestingly, as far as the timing pattern and the nasal effect of the penultimate vowels are concerned, these results seem to be consistent with the prediction for the homorganic nasal in onset position.

I turn now to the results of the acoustic measurements for the Javanese NC clusters and penultimate vowels.

5.2. Javanese

Recall that Javanese NC clusters are phonologically tautosyllabic, given the pattern of vowel alternation. What we expect to see here is for the durations of the tautosyllabic NC clusters to be comparable to those of single segments if these clusters form single segments as argued by Herbert (1986) and Sagey (1986). The durations of the penultimate vowels preceding NC clusters and single consonants would be of comparable, and their first formant bandwidth would also be comparable. The results of the measurements are shown in Figure 5.

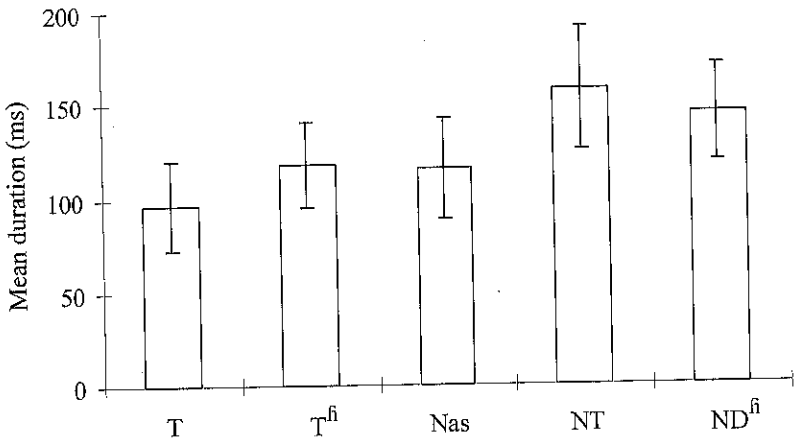


Figure 5. Mean durations of medial NC clusters vs. nasal or stops in Javanese

As illustrated earlier in (6) and (8), voiceless breathy stops are realized voiced in NC clusters, thus the abbreviation ND^{fi}, which indicates that the breathy stop in NC clusters is voiced and simultaneously breathy.

Similar to the case in Indonesian, the mean durations of the voiceless clear and voiced breathy NC clusters in Javanese are greater than those of the voiceless clear and voiceless breathy stops, respectively. The mean durations of these clusters are also greater than that of the nasal. The durational differences, as measured by an ANOVA, are statistically significant ($p < .05$) for these cases. The duration ratios of the word-medial consonants are provided in Table 4.

Table 4. Duration ratios of word-medial consonants in Javanese

Consonants	Ratios
T:NT	1:1.6
t^{fi}:ND^{fi}	1:1.2
nasal:NT	1:1.4
nasal:ND^{fi}	1:1.3

These results suggest that tautosyllabic NC clusters in Javanese do not pattern together with single consonants with respect to their timing organization, since they are greater in duration when compared to single nasal and stop consonants. Compared with other languages, the timing pattern of the Javanese NC clusters is similar to that found in Luganda and it is different from that found in Fijian. Given the timing pattern here, one could argue that tautosyllabic NC clusters do not necessarily form prenasalized stops, as argued by Herbert and Sagey. This, however, would also imply that the tautosyllabic NC clusters in Javanese violate the sonority sequencing principle, since the sequence of nasal and stop is of decreasing sonority towards the nucleus of the syllable.

The mean durations of penultimate vowels preceding NC clusters, nasal, and stops are provided in Figure 6.

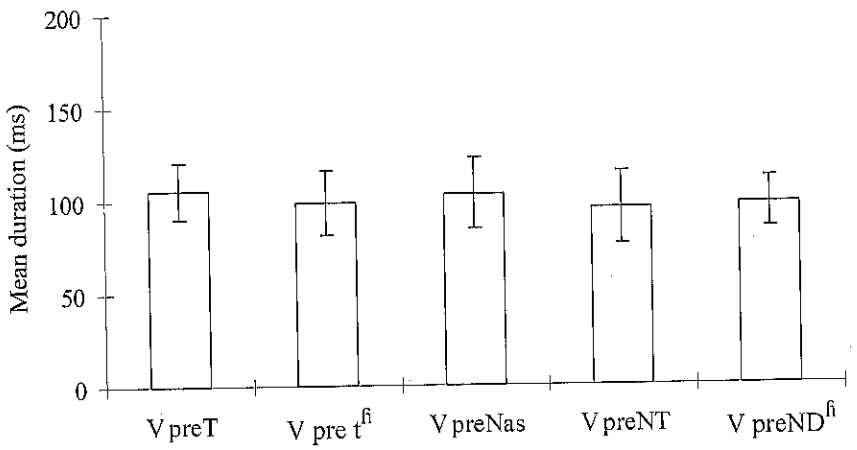


Figure 6. Mean durations of penultimate vowels in Javanese

The mean duration of the penultimate vowel preceding voiceless clear stops is slightly greater, by 9 ms, when compared with the mean duration of the penultimate vowel preceding voiceless NT clusters. The mean durations of the penultimate vowel preceding voiceless breathy stops and the same vowel preceding NC clusters, where the stop is voiced and breathy, are identical. The mean duration of the intervocalic nasal is also only slightly greater than the duration of any of the NC clusters. Needless to say, the duration differences here are not statistically significant, as measured by an ANOVA. The results here suggest that vowels in Javanese are of similar duration when the following segment, a single consonant or an NC cluster, is in onset position. This pattern is consistent with the prediction for vowels in open syllables.

The measurements of the H1-A1 values of vowels preceding an intervocalic nasal and a homorganic nasal in onset position are shown in Figure 7.

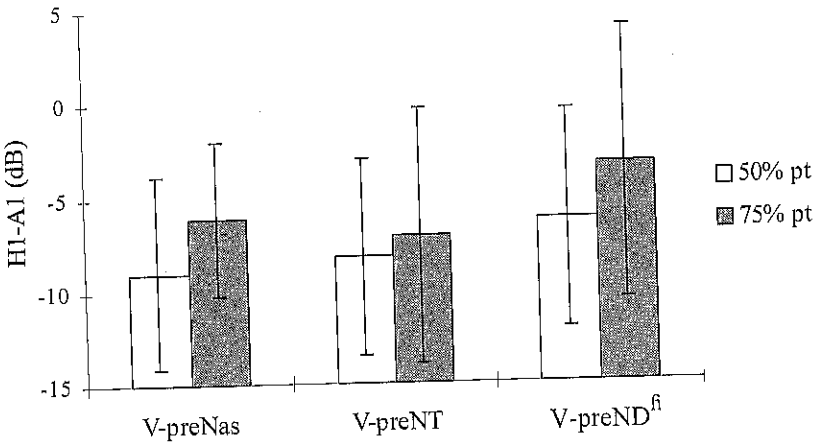


Figure 7. Mean H1-A1 values of penultimate vowels in Javanese

At the 50% point, the mean H1-A1 value for *V-preNas* is smaller by 1 dB as compared to that for *V-preNT*, and it is smaller by 3 dB relative to that for *V-preND*^{fi}. At the 75% point, the mean H1-A1 value for *V-preNas* is greater by 1 dB as compared to that for *V-preNT*, and it is smaller by 4 dB relative to that for *V-preND*^{fi}. These results suggest that Javanese vowels in penultimate syllable have similar H1-A1 values when followed by an intervocalic nasal and by a homorganic nasal (at least in the *V-preNT* cases), both of which are in onset position. However, vowels preceding a voiced breathy NC cluster in onset position tend to have smaller H1-A1 values when compared with vowels preceding an intervocalic nasal or a homorganic nasal in a voiceless clear NC cluster. This indicates that the F1 bandwidth of vowels preceding a voiced breathy NC cluster is wider relative to that F1 bandwidth of vowels preceding other target consonants. This, in turn, may suggest that there is a low level anticipatory effect triggered by the following breathy stop of the NC cluster. In !Xóõ (Ladefoged 1983) and in Jalapa Mazatec (Ladefoged et al. 1988), breathy vowels have been found to result in wider bandwidth when compared with non-breathy vowels. Thus, the mean H1-A1 values, as the acoustic correlate of F1 bandwidth, for Javanese penultimate vowels suggest that vowels have similar F1 bandwidths when preceding an intervocalic nasal and preceding a homorganic nasal in an NC cluster.

To briefly summarize the results, tautosyllabic NC clusters in Javanese tend to have greater duration when compared with single nasal and stop consonants, suggesting that the timing pattern of these clusters are different from that of a single segment. Vowels are of comparable duration preceding an intervocalic nasal and stop and preceding a tautosyllabic NC cluster. Furthermore, the H1-A1 values, thus consequently the F1 bandwidths, of vowels preceding homorganic vs. non-homorganic nasals are similar. The results of these measurements for the vowels preceding an NC cluster vs. vowels preceding a

nasal or a stop are consistent with the expected pattern for vowels in open syllables.

In the following section, I turn to the summary of the acoustic findings in this study and a brief discussion.

6. Discussion

To summarize the acoustic findings in this study, the mean duration of heterosyllabic NC clusters in Indonesian is greater than that of the word-medial nasal or stops. The mean durations of the vowels preceding heterosyllabic clusters and preceding nasal or stop consonants in onset position are comparable. In addition, vowels are not more nasalized preceding a nasal in coda position vs. that in onset position. Interestingly, as far as the timing patterns and the nasal effect of the penultimate vowels are concerned, these results seem to be consistent with the prediction for the homorganic nasal in onset position.

For Javanese, tautosyllabic NC clusters tend to be greater in duration when compared to single nasal and stop consonants. Vowels are of comparable duration preceding an intervocalic nasal and preceding a tautosyllabic NC cluster, consistent with the expected pattern for vowels in open syllables. Furthermore, the H1-A1 values, the acoustic correlate of F1 bandwidth, of vowels preceding a homorganic nasal and a non-homorganic nasal are similar. The findings in this study are summarized in Table 5.

Table 5. Acoustic findings of NC clusters in Indonesian and Javanese

		Indonesian heterosyllabic NC	Javanese tautosyllabic NC
a.	Duration of NC vs. C	NC > C	NC > C
b.	Duration of preceding V	V preNC ≈ V preC	V preNC ≈ V preC
c.	F1 bandwidth of preceding V	V preNC ≈ V preNas	- V preNT ≈ V preNas - V preND^{fi} > V preNas

These acoustic findings suggest that there is no difference in timing pattern and nasal effect between heterosyllabic and tautosyllabic NC clusters. This warrants more extensive cross-linguistic study that would allow us to determine whether this is a widespread tendency.

We have also seen that tautosyllabic NC clusters in Javanese are greater in duration when compared with single nasal and stop consonants, for which there are at least three explanations. First, the acoustic findings here suggest that the timing pattern of Javanese NC clusters is similar to that of heterosyllabic NC clusters in Indonesian, and in other languages like English and Italian. Based on this, one might argue that Javanese NC clusters in onset position do not form a

complex segment, namely a prenasalized stop. If these clusters are complex segments, we would expect their duration to be comparable to that of single nasal and stop consonants, as has been found in Fijian (Maddieson 1989), for example. However, Ladefoged and Maddieson (1986) suggest that "... the motivation for talking of prenasalized stops, rather than a nasal + stop sequence, is often phonological rather than phonetic ..." (50). For the Javanese case, this would imply that the tautosyllabic NC clusters may actually form prenasalized stops, phonologically; this being the case, these clusters are not in violation of the sonority sequencing principle. There are cases where a phonological feature does not find its expression in the phonetics. Here, the phonological segmenthood of the NC clusters in Javanese is not reflected in their acoustic duration.

The second point of view is not unrelated to the first one. A prenasalized stop is a complex segment. Maddieson and Ladefoged (1993) suggest that the total duration of prenasalized stops may be greater than that of plain nasals or plain stops. This position is consistent with the idea that complex segments are greater in duration than simpler ones. Thus, the fact that Javanese NC clusters are greater in duration when compared with simplex segments (i.e. nasal and stop consonants) may reflect the contrast between complex vs. simplex segments.

The third explanation is related to the possibility that in the Indonesian of the monolingual speakers recorded in this study, the NC clusters are tautosyllabic, given the fact that there is a lack of difference between the heterosyllabic NC cluster in Indonesian and the tautosyllabic one in Javanese. In the absence of evidence from within the language itself, it is difficult to support this supposition. In contrast to Indonesian, the pattern of vowel alternation in Javanese provides evidence for the syllable affiliation of the NC cluster. If the supposition is correct, despite the lack of language-internal evidence, the variety of Indonesian spoken by the monolingual Indonesian speakers in this study would not be the only dialect of Malay with tautosyllabic medial NC clusters. Several dialects of Malay have been claimed to have tautosyllabic medial NC clusters, e.g. Standard Malay (1988), Perak Malay (Ahmad 1991), and Riau Malay (Gill 2002). No quantitative data was available for the NC clusters in these languages. Thus, if the NC clusters in the variety of Indonesian in the present study are tautosyllabic, the findings presented here are consistent with the predictions for these clusters.

To conclude, in this study, I investigate the acoustic manifestation of heterosyllabic vs. tautosyllabic NC clusters, using Indonesian and Javanese as the test case. The acoustic results show that if the NC clusters in Indonesian are indeed heterosyllabic, their syllable affiliation is not acoustically expressed. However, it also seems possible that in the Indonesian of the monolingual speakers analyzed here, NC clusters are tautosyllabic. If this is the case, the results here for the Indonesian and Javanese NC clusters are consistent with the expected pattern for these clusters in onset position.

Endnotes

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Reassessing the Role of Syntax inside the Morphological Word: Verb-Adjacent Clitics in Tagalog and Bulgarian

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This working paper is a first attempt at explaining the seemingly exotic ordering of clausal clitics in Tagalog. Although the main proposals below are phonological, this paper builds on our previous work, primarily Billings & Konopasky (to appear-b), comparing the syntactic properties of Tagalog and Bulgarian. Our overall claim is that the hierarchical structure of the syntax usually entails a specific order of clitics in the morphology; this is true of Bulgarian. However, too many adjunctions to the same head result in an unorderable morphological output; Tagalog is such a language. In such cases, phonology dictates the clitic ordering. In addition, we offer a phrasal-affix analysis of the discourse particles in Tagalog.

1. Background

To avoid duplicating our existing work, in this section we repeat only the details directly relevant to this paper's main contributions; those appear in section 2. We begin by discussing why verb-adjacent clitics are the key to understanding the interaction between syntax and morphology. Next, we present our syntactic and morphological model, followed by a comparison of clitic systems in Bulgarian and Tagalog. We end by discussing *kita*-suppletion in Tagalog and its consequences.

1.1. Verb-adjacent clitics: a window into the morphological component

Much recent work in linguistics (e.g., Ura 2000 or Nunes 2001) has been concerned with determining the extent to which syntax manipulates morphological features. Clitics have been a central part of this work because they tend to progress from seemingly independent words into clitics and later affixes. The most closely examined language subgroup in this regard is Ibero-Romance (Wanner 1996 and many others). South Slavic (Bošković 2001) and Ngumpin (McConvell 1996), part of the Pama-Nyungan family of Australia, have also been investigated.

(1) a. El sabe [que ***lo*** yo <u>deseo</u>]. **Old Spanish**
he knows that it I desire
'He knows that I desire it.' [Nishida 1996: 335]

b. (... que) yo también ***lo*** <u>quiero</u>. **Modern Spanish**
that I also it want
'(... that) I also want it.' [cf. **(...que) yo **lo** también <u>quiero</u>.*]

(In the numbered examples clitics are italicized while most verbs are underlined.)

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A main insight of our work is that clitic clusters show non-syntactic idiosyncrasies such as the Person-Case Constraint (which states that third-person indirect objects cannot coexist with first- or second-person direct objects in the cluster) and consecutive homophony (Bonet 1995; Franks & King 2000). In (2a-b) the clitics appear in isolation, but when they co-occur, the expected surface form **le lo* in (2c) is not attested. Instead we find the form shown in (2d), with *se lo*.

(2) **Spanish**

a. El premio, ***lo*** dieron a Pedro ayer.
the price [sic.] 3.Acc gave.3Pl to Pedro yesterday

b. A Pedro, ***le*** dieron el premio ayer.

c. *A Pedro, el premio, ***le lo*** dieron ayer.

d. A Pedro, el premio, ***se lo*** dieron ayer.

'They gave the price [sic.] to Pedro yesterday.' [Bonet 1995: 608]

(In these examples the clitics double the preceding indirect- or direct-object nominals.) Linguists (e.g., Terzi 1999) have tried to explain these and similar idiosyncrasies using strictly syntactic mechanisms. However, the mechanisms used become bulky; at some point in the diachronic shift from clitic- to affix-hood the syntax must relinquish control over the cluster's internal order. Because they are undergoing the aforementioned diachronic progression, languages with verb-adjacent clitics offer a look inside this process. We therefore investigate Bulgarian (South Slavic, Indo-European) and Tagalog (Central Philippine, Austronesian) in particular because, while the Bulgarian cluster shows strictly syntactic ordering of its clitics, the cluster in Tagalog shows primarily prosodic sequencing.

The data in (3) and (4) illustrate this contrast in the ordering of clitics:

(3) **Bulgarian**

a. Az ***ti gi*** dadox.
1Sg.Nom 2Sg.IO 3Pl.DO gave.1Sg
'It's me that gave them to you.'

b. Dadox ***ti gi.***
'I gave them to you.'

(4) **Tagalog**

a. Kahapon ***ka ba nila*** nakita?
yesterday 2Sg.Sbj Q 3Pl.DO be.seen
'Was it yesterday that they saw you?'

b. Nakita ***ka ba nila*** (kahapon)?
'Did they see you (yesterday)?'

In the (a) examples the verb follows the cluster if another word precedes it, whereas in the (b) examples the clitic cluster follows the initial verb. In both languages, the cluster and verb must be adjacent. However, the Bulgarian cluster shows syntactic ordering (indirect before direct object), while the Tagalog cluster shows primarily prosodic ordering (monosyllabic clitics before disyllabic ones).

1.2. Theoretical model of the syntax-morphology interface

This subsection lays out the division of labor between the syntactic and morphological components of the grammar. We rely on a derivational approach with syntax before morphology (Konopasky 2001) as well as late lexical insertion.

To begin, we presuppose a conventional T-model of generative grammar, with the phonetic-form (PF) leg consisting of Spell-Out followed by the morphological and phonological/prosodic components. Furthermore, we adopt a strictly local approach to syntactic Economy (building on Collins 1997): a syntactic element may skip over another like element as long as it possesses the closest matching feature. These assumptions allow us to maintain a distinction between syntax and the PF-leg of the T-model. Syntactic operations such as Merge and Move are triggered by the need to check semantic (i.e., syntactically relevant) features, without regard for morphological or prosodic properties. In accordance with this version of strict syntax-PF autonomy, we argue (building on Billings 2002) that the verb-adjacent pronominal (and auxiliary) clitics discussed in this paper are words (i.e., heads) in the syntax but are affixes in the morphology.

How affixes behave morphologically, however, is far from agreed upon. The three relevant issues in this controversy center around linearization of hierarchical structure, late lexical insertion, and how much the morphological component (MC) may affect syntactic recoverability. We discuss each in turn.

Regarding the first of these three issues, we follow Kayne (1994): syntactic input to Spell-Out is an unordered hierarchy of elements that is assigned precedence order in accordance with the Linear Correspondence Axiom (LCA) as the derivation progresses along the PF leg. The LCA requires that if any element A asymmetrically c-commands some element B, then A must precede B in the utterance. Crucially for our proposal, adjunction to the same head more than once leads to a structure that cannot be read off by the MC because those heads do not asymmetrically c-command each other (Kayne 1994: 19). Thus, only some syntactic structures are linearized by the MC reading off of the syntax.

In order to account for *se lo* in (2d), we also assume late lexical insertion of morphological and phonological features as argued, for example, by Halle & Marantz (1993). Specifically, during the syntactic stages of the derivation, there is no phonological material in the structure, only semantic features. Following Spell-Out, the grammar consults the lexicon to determine the best match of vocabulary items to morphemes (stems and affixes). This assumption also accounts for another suppletive phenomenon (*kita*) in Tagalog discussed (in §1.4) below.

We do not, however, adopt all the claims in Halle & Marantz (1993) with regard to the mechanisms of the MC. Contrary to their framework, we maintain that the MC can neither *re*-position syntactic items nor delete or add features. The morphology merely guarantees adjacency of the clitics to the verb as well as selecting the best match between syntactic features and vocabulary items.

The upshot of these clearly defined responsibilities of the syntax and morphology is a grammar that allows a constituent to have autonomous word status during the syntactic derivation but become bound to some other word at PF. The empirical details of this model are presented in the following subsection.

1.3. How does the syntax relinquish control over verb-adjacent clitics?

Syntactic heads can be lexically encoded as affixes. We now trace how the verb and the clitic heads that surface next to it are arranged in Bulgarian and Tagalog as the derivation progresses from syntax through Spell-Out to the MC.

Since the merger of T is the point at which it is determined whether or not the verb will raise, we begin our discussion of Bulgarian clitics there. Before T merges, the clause is as in (5a). The first-person auxiliary has raised from Aux to AgrS to check its subject-agreement features, the pronominal clitics are base-generated in object-agreement phrases (Rudin 1997), and the verb remains *in situ*. At this point, the LCA were to spell out the derivation, the nonexistent order in (5b) would be the result, not the attested order, shown in (5c).

(5) a. [{ Aux/AgrS} [AgrIO [AgrDO [t_{Aux} [V]]]]] **Bulgarian**
1Sg.Sbj 2Sg.IO Fem3Sg.DO given.MscSg

b. ***sâm*** ***ti*** ***ja*** dal [≠(5c)]

c. Surface order: Dal ***sâm ti ja***. 'I (Msc.) gave it to you.'

A few notational conventions used here need be explained. To begin, the syntactic material itself is shown in (5a), with the various heads and phrases on the first line and the featural content on the second line. The actual phonetic material, shown for ease of reference in (5b), is not—strictly speaking—present in the syntax (as explained in §1.2 above). In addition, we use a slash between two items within curly braces to indicate 'in either linear order'. For example, "{Aux/AgrS}" could allow either precedence order of Aux and AgrS. That said, if Spell-Out were to occur, the order of elements in (5a) would not match the attested order in (5c).

Various approaches—Marantz (1988), Halpern (1995), and Bošković (2001)—have used non-syntactic mechanisms to adjust the overt order of constituents. Common to all of these is that it is a clitic's PF properties which trigger the ordering of constituents. Our own counterproposal is illustrated in (6):

(6) a. Syntax (unordered) **Bulgarian**
[{Aux/AgrS} [AgrIO [AgrDO [t_{Aux} [V]]]]] [= (5a)]

b. V-movement to T to satisfy the D-feature (still unordered)
[{ V/T [{ Aux/AgrS} [AgrIO [AgrDO [t_{Aux} [t_{V}]]]]]]
given.MscSg 1Sg.Sbj 2Sg.IO Fem3Sg.DO

c. Result of the LCA and lexical insertion (ordered)
dal + ***sâm*** + ***ti*** + ***ja*** [NB: "+" here means 'in this order'.]
[+ V] [+ af$_V$] [+ af$_V$] [+ af$_V$]

Since the syntax should not be sensitive to phonological features, the verb must be raising to T to check some syntactically relevant feature: the D-feature in T. (One of our claims which space limitations do not allow us to defend in this paper is

how the D-feature in T is checked differently in the two languages. In Bulgarian the verb checks the this feature in T only if no subject or topic DP occupies SpecTP, whereas in Tagalog only V-to-T movement can satisfy the D-feature.)

Our model is thus built on two independently justified syntactic notions: Kayne's LCA and the D-feature (also known as the EPP-feature). After T has merged, in (6a), V-to-T movement checks the D-feature, in (6b). In addition, asymmetric c-command is maintained among the various terminal elements in this derivation, so linearization of (6b) results in the ordered string of elements in (6c). Since the clitics are subcategorized morphologically as affixes, the MC ensures that the verb and clitics are adjacent to successively nested morphological words:

(7) Morphological component (ordered) **Bulgarian**
[[[[dal] ***sâm***] ***ti***] ***ja***] [= (6c)]
[+ V] [+ V] [+ V] [+ V]

Thus, clitics are heads in the syntax but in the morphology are bound to the verb.

When some overt topic-like element is present, such as *az* in (3a) above, it moves to SpecTP. There is no V-to-T movement, so the verb follows the clitics.

Our discussion of Bulgarian has shown how a syntactically well behaved language works. We now turn to Tagalog, in which the verb always raises. This and other distinctions result in a structure in Tagalog unorderable by the LCA.

Before T is merged, Tagalog's structure is similar to that of Bulgarian except that its pronominal clitics are arguments of the verb, generated within VP:

(8) Ipinakilala ***ka*** ***nila*** sa akin. **Tagalog**
be.introduced 2Sg.Sbj 3Pl.DO 1Sg.IO
'They introduced you to me.'

Our proposed syntactic structure, prior to inserting TP, is illustrated in (9a):

(9) a. Syntax prior to TP insertion (unordered) **Tagalog**
[{2Sg/AgrS} [{3Pl/AgrDO} [V [P 1Sg]]]]

b. V-to-T movement in order to satisfy the D-feature
[{{{V/{3Pl/AgrDO}}/{2Sg/AgrS}}/T} [*t* [*t* [*t* [P 1Sg]]]]]

c. Result of the LCA and lexical insertion (unorderable within {...})
{ ipinakilala / ***nila*** / ***ka*** } + sa + akin
[+ V] [+ af$_V$] [+ af$_V$] [+ af$_N$] [+ N]

(Because of space limitations, we do not show the moved pronouns' traces.)

Before discussing how (9) differs from the corresponding Bulgarian structures, it worth pointing out one thing common to both languages. Even in (9) some elements are ordered by the LCA; these are separated by "+" in (9c). We assume that *sa* is a preposition which asymmetrically c-commands *akin* 'me' and that the complex verbal head in (9b) itself asymmetrically c-commands this PP. This allows the MC to order at least some of the elements, as in (10):

(10) Morphological component (still unorderable within {…}) **Tagalog**

[{ipinakilala / ***nila*** / ***ka***}]	+	[sa	[akin]]
[+ V]		[+ N]	[+ N]

Even with just one clitic pronoun (not shown), an unordered output would result.

The same grammatical model can therefore predict the differences between the two languages. Dissecting each of these differences clarifies our proposals:

First, a significant distinction is that in Tagalog but not in Bulgarian the verb is attracted through the agreement heads, picking up the clitics on its way to T. (In Tagalog, the clitics are no longer merely *morphological* affixes as in Bulgarian; they are also *syntactic* affixes, thus attracting V en route to T.)

In addition, the clitics in Tagalog are true pronouns, moving from their argument positions inside *v*P. We offer two reasons to propose movement of the pronominal clitics from argument positions inside *v*P in Tagalog. First, indirect-object pronouns surface in a PP, outside the clitic cluster; in (8) a non-clitic word—e.g., *kahapon* 'yesterday'—can be added before *sa akin* 'to me'. This suggests that the direct-object and subject pronouns are likewise base-generated in *v*P. The preposition somehow blocks raising. In addition, Tagalog clitics do not double overt nominals, as above in (2). Because of prior adjunction to the AgrIO and AgrDO, the LCA cannot function because V later adjoins to the same heads.

Lastly, the only way for the morphology not to order elements (only in Tagalog) is *within* a morphological word. The LCA can always order two matrix morphological words. The matrix [+ V] and [+ N] words in (10) illustrate this.

To summarize briefly, we have shown that the same mechanisms account for clitic-ordering differences in Bulgarian and Tagalog, despite the languages' differences. If the syntax results in structures with asymmetric c-command, then the MC can order the elements. However, if there is no clear hierarchical relationship in the syntax, as in Tagalog, then the syntax fails to predict the order.

1.4. Additional advantages: Portmanteau suppletion of kita *in Tagalog*

In this subsection we present more empirical support for our syntax-before-morphology approach. One salient empirical consequence arises from our model, in this case in Tagalog. This phenomenon also compels a morphological account.

First, monosyllabic clitic pronouns obligatorily precede disyllabic ones:

(11) Nakita ***ko*** ***siya.*** **Tagalog**
be.seen 1Sg.DO 3Sg.Sbj
'I saw him/her.' [Schachter & Otanes 1972: 185]

No orders other than (11) is acceptable; see also (4a–b) and (8) above. However, if two disyllabic pronouns co-occur, there are no categorical judgments:

(12) a. Nakita ***namin*** ***siya.*** b. Nakita ***siya namin.*** **Tagalog**
be.seen 1PlExcl.DO 3Sg.Sbj
'We saw him/her.' [Schachter & Otanes 1972: 185]

That is, although other factors—possibly discourse properties (Kroeger 1993: 111, 119)—affect the acceptability of the order of two disyllabic pronominal clitics, both options are syntactically acceptable. This further supports our claim that in Tagalog the order of clitics is not syntactically driven as it is in Bulgarian.

The contrast between (11) and (12) begs the question of what happens when two monosyllabic clitics co-occur. Although there are three monosyllabic pronominal clitics (namely: *ko* 1Sg.DO, *mo* 2Sg.DO, and *ka* 1Sg.Sbj), no two of them can co-occur in the same clause for various reasons. First, *ko* 1Sg.DO and *mo* 2Sg.DO are both direct objects and thus in complementary distribution. Similarly, *mo* 2Sg.DO, and *ka* 1Sg.Sbj are both 2Sg, requiring a reflexive in place of one of them. The only other combination among them is *ko* 1Sg.DO and *ka* 1Sg.Sbj. Significantly, no combination of these two clitics is possible. Instead, a suppletive so-called portmanteau clitic *kita* is attested instead, as shown in (13a–c):

(13) a. *Nakita ***ko*** ***ka***. **Tagalog**
be.seen 1Sg.DO 2Sg.Sbj

b. *Nakita ***ka*** ***ko***.

c. Nakita ***kita***.
be.seen {1Sg.DO/2Sg.Sbj}
'I saw you (Sg.).' [Schachter & Otanes 1972: 185]

Tagalog clitics are ordered using almost entirely prosodic criteria even when the suppletion in (13c) is attested. This portmanteau form appears in the same order as any other disyllabic clitic in the cluster; non-pronominal discourse particle clitics precede two-syllable pronominal clitics, as in (4a–b) above. Namely, *kita* invariably follows such particle clitics: *Nakita* ***ba kita*** *kahapon?* 'Did I see you (Sg.) yesterday? Schachter (1973: 221–223) uses such data to argue against transformational-syntactic approaches to the ordering of clitics; his argument remains valid with regard to more recent syntactic approaches.

The special positioning of *kita* is therefore formidable evidence against a syntactically driven ordering of clitics. By contrast, Bulgarian exhibits no such suppletion in its clitic clusters. This suggests to us that syntax orders the clitic cluster in Bulgarian, whereas other factors (discussed in more detail below in section 2) dictate the linearization of the clitics and verb in Tagalog.

This concludes the background section. Further argumentation for our syntactic approach is contained in Billings & Konopasky (to appear-b). However, space limitations prohibited repeating all of the discussion and evidence here.

2. Formalizing Tagalog's ordering of clitics

We turn now to this paper's main task: accounting for the relative ordering of the clitics in Tagalog. Our main idea is that if the syntax and morphology fail to order elements, the prosody will do so. We begin by explaining why monosyllabic pronouns must precede disyllabic ones, both of which follow the verb. We then

account for why the clitic(s) must be pre-verbal if there is a preceding adjunct. Finally, we propose that the discourse particles are positioned quite differently form pronominal clitics. They are best analyzed as phrasal affixes.

The main constituent order that needs to be explained is in (14) with the monosyllabic pronoun *ka* followed by the discourse particle *ba*, and then the two-syllable pronoun *nila*. Only this sequence of these three elements is allowed. Whereas only one monosyllabic pronoun can appear (as mentioned above), there can be multiple discourse particles or disyllabic pronouns (Schachter 1973). The main point is that particles go between one- and two-syllable pronominal clitics.

(14) Nakita ***ka*** ***ba*** ***nila***? **Tagalog**
be.seen 2Sg.Sbj Q 3Pl.Obj
'Did they see you?'

We divide the discussion into two subsections. First we explain the ordering of the pronominal clitics according to their syllabic weight. We then turn to the issue of placing the discourse particles in between one- and two-syllable clitics.

2.1. Syllabic weight and the order of pronominal clitics

Before we go on to discuss the role of phonology, let's look at the derivation through Spell-Out to morphology. The various stages in our derivational model for all of the elements in (14a) except *ba* (addressed in §2.3 below) are shown in (15):

(15) a. Syntax prior to TP insertion (unordered) **Tagalog**
[{2Sg/AgrS} [{3Pl/AgrDO} [V]]]

b. V-to-T movement in order to satisfy the D-feature
[{{{V/{3Pl/AgrDO}}/{2Sg/AgrS}}/T} [t_{AgrS} [t_{AgrDO} [t_{V}]]]]

c. Result of the LCA and lexical insertion (unorderable within {...})
{ nakita / ***nila*** / ***ka*** }
[+ V] [+ af$_{V}$] [+ af$_{V}$]

d. Morphological component (still unorderable within {...})
[{nakita / ***nila*** / ***ka***}]
[+ V]

The first phrase structure, in (15a), shows the result of pronominal movement into the agreement heads from within VP. (The pronominal clitics' traces in base-generated position are not shown.) V-to-T movement through the agreement heads then results in (15b). Multiple adjunction results in the unorderable string of elements in (15c). This entails that the result, in (15d), is an unorderable set.

We further assume, in an Optimality-theoretic approach, that in such situations multiple outputs are generated. The three elements in (15d) can result in six possible orders, listed in (16a–f). This approach pits these six orders against each other. That is, if the morphosyntax cannot order them, unmarked prosodic constraints emerge. Two universal constraints that are relevant to Tagalog clitics

are NON-INITIAL and EDGEMOST, both proposed by Anderson (1996). The first constraint, NON-INITIAL (which will be modified below in §2.2), merely restricts clitics from initial position. In addition, a number of works, summarized in Billings (to appear), have proposed that clitics are optimally pronounced as early in the clause as possible; Anderson (1996) calls this constraint EDGEMOST. These two constraints, ranked with NON-INITIAL higher, result in an optimal output with the clitics as close to the leading edge of the clause without being initial, as in (16a–f):

(16) Possible orderings of (15d):	NON-INITIAL	EDGEMOST
a. nakita ***nila ka***		* * *
☞ b. nakita ***ka nila***		* * *
c. ***nila*** nakita ***ka***	*!	* *
d. ***nila ka*** nakita	*!	*
e. ***ka*** nakita ***nila***	*!	* *
f. ***ka nila*** nakita	*!	*

This tableau, although unable to isolate the attested order, in (16b), shows that NON-INITIAL is ranked higher than EDGEMOST. This can be illustrated by comparing candidates (16b–c) to each other: (16c) violates NON-INITIAL more times than (16b) does, whereas (16b) violates EDGEMOST more than (16c) does. The fact that (16b) is the attested form entails that EDGEMOST is ranked lower.

Yet another constraint is required to eliminate the unattested permutation in (16a). Although a number of perspectives could be used, we suggest the constraint PROSODIC AUTONOMY, which requires any disyllabic clitic to be parsed as a separate prosodic word (PrWd). Assuming also that monosyllabic clitics must be prosodically parsed within a word, candidate (17a) shows how the remaining unattested order must violate PROSODIC AUTONOMY:

(17) Optimal ordering/prosodization of (15d):	PROSODIC AUTONOMY	EDGEMOST
a. { nakita }$_{PrWd}$ { ***nila ka*** }$_{PrWd}$ …	*!	* * *
☞ b. { nakita ***ka*** }$_{PrWd}$ { ***nila*** }$_{PrWd}$ …		* * *

Either order of the two contraints in (17) will correctly isolate the attested form.

One reason to pursue PROSODIC AUTONOMY comes the following data:

(18) a. Hindi ***ko*** ***siya*** nakita kahapon. **Tagalog**
not 1Sg.Obj 3Sg.Sbj be.seen yesterday

b. Hindi ***ko*** nakita ***siya*** kahapon.

'I didn't see him yesterday' [Kroeger 1993: 122, citing Sityar 1989: 16]

Although (18a) is perfect, (18b) is also somewhat acceptable. Without having consulted Sityar's study, we cannot comment on her proposals. However, note that both clitics and the verb are still adjacent in the variant form in (18b). It may turn out that EDGEMOST is assessed only with regard to the first of two clitics. In any event, a disyllabic clitic is far more autonomous in its positioning.

To summarize this subsection, we have sketched a model which arranges morphologically unorderable elements using the Optimality-theoretic constraint ranking of PROSODIC-AUTONOMY » {NON-INITIAL » EDGEMOST}. Additional consequences and one refinement of this model are explored in the next subsection.

2.2. Fronted adjuncts

In this subsection we turn to clauses with what Kroeger (1993: 123–128) calls Adjunct Fronting. In such clauses an adjunct with focus features is fronted, perhaps to SpecTP. The adjunct does not form a separate intonation phrase from the rest of the clause. In such clauses, the order of the clitics relative to each other is the same as in the preceding data, but the clitic cluster itself precedes the verb. We show here that the constraints presented above account for these data as well.

Recall that our syntactic model of Tagalog involves V-to-T movement even if SpecTP is occupied. That is, SpecTP is a focus position and the D-feature must still be checked by the verb (which moves through the agreement heads). An adjunct-initial counterpart of (14a) is shown in (19a). The morphological output, is shown in (19b), with an unorderable sequence of verb and clitics within braces.

(19) a. Kahapon ***ka*** ***ba*** ***nila*** nakita? **Tagalog**
yesterday 2Sg.Sbj Q 3Pl.Obj be.seen
'Was it yesterday that they saw you?'

b. Morphological component (still unorderable within {...})
[kahapon] [{nakita / ***nila*** / ***ka***}]
[+ Adv] [+ V]

Note however, that *kahapon* precedes the unordered string as a result of the LCA. Thus, (19b) is the input to tableau (20), with the initial position of *kahapon* fixed:

(20) Possible Ordering of (15d):	PROSODIC AUTONOMY	NON-INITIAL	EDGEMOST
a. {kahapon} {nakita} {***nila ka***}	*!		* * * *! *
b. {kahapon} {nakita ***ka***} {***nila***}			* * * *! *
c. {kahapon} {***nila***} {nakita ***ka***}			* * * *!
d. {kahapon} {***nila ka***} {nakita}	*!		* * *
e. {kahapon ***ka***} {nakita} {***nila***}			* * * *!
☞ f. {kahapon ***ka***} {***nila***} {nakita}			* * *

As a result, NON-INITIAL is not violated by any of the candidates. Recall as well that the other two constraints are not ranked relative to each other. PROSODIC AUTONOMY and EDGEMOST then correctly eliminate all but (20f).

However, a small problem is posed by a candidate quite similar to (20d): *{kahapon}{***nila**}{***ka** nakita}. Such a form would—problematically—satisfy PROSODIC AUTONOMY. To solve this problem, Anderson's more general NON-INITIAL constraint needs to be replaced by SUFFIX argued for in Billings (to appear). Monosyllabic clitics are lexically required to be hosted prosodically by the *preceding* word; SUFFIX merely requires that this subcategorization be carried out. With this refinement in constraints, the form in (20f) is generated correctly.

2.3. Inserting discourse particles

We turn finally to the discourse particle *ba*. We maintain that it and other particles in Tagalog, like *li* in Bulgarian, depend of the rest of the clause's prosodic organization for their positioning. Their unusual positioning can be explained using simple mechanisms that appear to be independently necessary in Bulgarian

Turning again to Bulgarian as a point of comparison, it is noteworthy that *li* (the yes/no particle in that language as well), like *ba*, enjoys a distribution of positioning distinct from the other clausal clitics. Whereas syntactic mechanisms account for the positioning of auxiliary and pronominal clitics in Bulgarian, *li* is positioned often at odds with its syntactic properties. Izvorski, King, & Rudin (1997), for example, argue that if the entire clause is being questioned, *li* is a complementizer which must undergo prosodic inversion: a re-ordering of elements in the prosody in order to satisfy requirements similar to the constraints discussed above. In addition, Rudin, Kramer, Billings, & Baerman (1999) give extensive evidence to show that the positioning of *li* across the Bulgaro-Macedonian dialect continuum depends on where the PrWd boundaries are located. Bošković (2001) and Billings & Konopasky (to appear-c) discuss the issue in greater detail, relying on alternative mechanisms to ensure that prosodic considerations influence the order of *li* relative to the rest of the clause. The upshot of all these studies is that although *li* is a syntactic entity, prosody still affects the surface ordering.

Similarly, *li* in Russian (same meaning) has also been shown to rely on prosodic properties in determining its position—to a far greater extent: *li* follows the first PrWd of its clause in Russian without exception (i.e., even if a sub-constituent of the clause is being questioned). Because the position of *li* in Russian appears to have nothing to do with the semantic interpretation of the clause, the Optimality-theoretic analysis in Billings (to appear) treats *li* in Russian as a semantic feature belonging to the entire clause; the phonetic content of this feature is inserted after the prosodic organization of the clause has been determined. Such a clitic is often referred to as a phrasal affix. To be clear, such semantic features are present in the syntax but do not undergo lexical insertion when normal words do.

Tagalog's particles might benefit from an analysis along the lines of *li* in the aforementioned Slavic languages because it has nearly identical positioning and meaning. These two issues take up the rest of this subsection.

Beginning with positioning, in both Bulgarian and Tagalog, whereas the pronominal (and, in Bulgarian, auxiliary) clitics must remain adjacent to the verb, the yes/no clitics *li* and *ba* can be separated from the verb, as shown in (21a–b):

(21) a. Novata ***li*** kola prodade? **Bulgarian**
new.DefSg Q car sold.2/3Sg
'Was it the new car that he/she/you sold?' [Bošković 2001: 227]

b. Bukas ***ba*** ng gabi 'y sasayaw ***sila*** ...? **Tagalog**
tomorrow Q night Inversion will.dance 3Pl.Sbj
'Will they dance ... tomorrow night.' [Schachter & Otanes 1972: 429]

Both languages also allow these clitics to follow the entire fronted phrase:

(22) a. [Novata kola] ***li*** prodade? **Bulgarian**

b. [Bukas ng gabi] ***ba***'y sasayaw ***sila*** ...? **Tagalog**

In addition, although *li* is the only clausal clitic in Bulgarian that can be separated from the verb as in (21a), in Tagalog a larger list of particles share this property—e.g., *daw* 'reportedly', *kasi* 'because', *kaya* 'perhaps', *na* 'already', and *sana* 'optimally' (Schachter 1973); all the particles in Tagalog—often several of them in a single example—must appear after any monosyllabic pronoun and before any disyllabic pronoun(s). The ordering of particles relative to each other is not dealt with in our paper, however. Such details aside, *li* and the particles in Tagalog clearly show distributions distinct from those of pronominal (and auxiliary) clitics.

In addition to the similarities in positioning between Slavic *li* and Tagalog's particles, there is also a similarity in meaning: in particular, focus-marking properties. For example, in all of (21a–b) and (22a–b) *li* and *ba* are used to mark focus on a fronted element. Tagalog's other particles also appear to have such a focus-marking capacity. It is not entirely clear, however, what the difference in meaning is when the clitic follows the full phrase, in (22), as opposed to just the first word, as in (21). Bulgarian appears to be in diachronic flux, preferring (22a) to (21a), while in Tagalog there is no apparent preference. Clearly, more research on this issue is warranted. That problem notwithstanding, it is not clear whether a focus interpretation results from the particles or the pre-verbal positioning of the phrase. As Rudnitskaya (2000: 348–349) has shown, *li* in Russian does not mark the edge of the focal domain; the clitic can follow, precede, or appear in the middle of the focal domain. See also Bošković (2001: 226–247) for a discussion of the corresponding facts in Bulgarian. What is clear, however, is that the position of *li* in Slavic and of the particles in Tagalog relies at least in part on determination of the PrWd boundaries of the rest of the clause. We suggest that the particles in Tagalog are phrasal affixes: syntactic entities with PF material that is inserted after the rest of the clause has been prosodized. They appear after either the first PrWd, as in (21b), or following the first syntactic phrase, as in (22b). This dual positioning has also been observed for Serbo-Croatian (e.g., Anderson 1996). It remains to be seen, however, whether these particles interact syntactically with

other items in the clause (as suggested by Norvin Richards during his AFLA-9 talk). If so, then a model such as Rudnitskaya's or Bošković's would be required.

In Tagalog clauses in which no fronted constituent bears focus, *ba* and the other particles invariably follow the first PrWd of the clause. For this reason, our phrasal-affix analysis works for this type of clause as well.

To summarize section 2, then, we have shown that in Tagalog a monosyllabic pronoun is ordered as early in the morphological word as possible so long as some non-clitic word precedes it. This requirement further entails that particles immediately follow such a one-syllable clitic (if there is one), because the first PrWd ends right after that clitic. Disyllabic clitics then follow any particles. We have also shown that Tagalog shares many similarities with Bulgarian. This leads to a more universal understanding of clitics.

3. Directions for further research

This working paper has attempted to account for how clitics are ordered in Tagalog. This concluding section lays out some of the remaining questions.

To begin, we still know very little about how the order of clitics emerged in Tagalog. As one of the few relatively well documented languages in the largely unexplored Austronesian family, Tagalog and its order of clitics stands alone as an oddity. Historical reconstruction, using the comparative method and philology, might clarify what other possibilities exist and the source of the Tagalog system. We discuss these issues in more detail in Billings & Konopasky (to appear-a).

In addition, far more needs to be investigated empirically about Tagalog. For example, Schachter & Otanes (1972: 187–193) and Kroeger (1993: 120–123) have corrected the erroneous statement by Bloomfield (1917: 143) that pronominal clitics "follow the first orthotonic [...] word of the expression to which they belong"; as those later studies show, these clitics often follow phrasal elements consisting of more than one PrWd. However, no one has challenged the idea that pronominal clitics are peninitial. An overview of the data in Schachter & Otanes (1972) and Kroeger (1993) reveals that the clitics are also invariably verb-adjacent (assuming that negation is part of the cluster of clitics, as in Bulgarian). In future research it will be necessary to find the crucial data and ask the right questions in order to decide whether these clitics are peninitial or verb-adjacent.

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Fronting and the Distribution of Auxiliaries in Javanese

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Our purpose in this paper is to discuss the analysis of auxiliary-like forms in the Javanese spoken natively by ethnically Chinese Javanese speakers in Semarang, the major urban center in Central Java.[1]

We shall argue that these forms should be analyzed as functional heads similar to auxiliaries in familiar languages. While auxiliaries in Semarang Peranakan Javanese (hereafter SPJ) share many properties with these in European languages, we shall show that they manifest a variety of characteristics unique to SPJ. Consider, the examples in (1) and (2), in which the order of elements is the same as that in English.

(1) Aku **isa** ngomong Inggris.
1sg can speak English
'I can speak English.'

(2) Aku **tau** mangan sego.
1sg ever eat rice
'I have eaten rice before.'

The apparent auxiliaries *isa* 'can' and *tau* 'have' occur in a position to the left of the verb. It is ungrammatical to have these elements in postverbal position as shown in (3) or in sentence final position as shown in (4).

(3) *Aku ngomong **isa** Inggris.
1sg speak can English
'I can speak English.'

(4) ??Aku ngomong Inggris **isa.** [2]

Since the pattern in ((1)-(2)) is similar to that of auxiliaries in European languages, we shall examine whether SPJ is similar to European languages in having grammatical category of auxiliary, which is separate from that of verb. This prapasal that SPJ has a category of auxiliary is controversial because it might be suggested that auxiliaries are simply a subclass of verbs. Indeed in recent work on Indonesian, Gil (1994) inter alia has argued that even major lexical distinctions like noun and verb do not occur in some varieties of Indonesian. We shall argue, however, that SPJ does in fact distinguish between verbs and inflectional elements like auxiliaries. First, we will show that auxiliaries and verbs differ morphologically, verbs can take verbal morphology but seeming auxiliaries cannot. Second, and more significantly, we will show that head fronting patterns differ for these two categories. In multiple auxiliary constructions, head fronting patterns suggest that these elements are functional heads and that there are two types of auxiliaries, movable and non-movable.

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1. Verbal Morphology

Many active verbs in SPJ are preceded by a nasal prefix, as seen in (5).

(5) Mben peserta **ng**omong Inggris.
every contestant N-speak English
'Every contestant speaks English.'

(6) Budi **ng**ambung Siti.
Budi N-kiss Siti
'Budi kissed Siti.'

However, as shown in (7-9), seeming auxiliary elements do not take the nasal prefix. The following sentences are grammatical with the bare auxiliary form. The forms *ngisa*, *nggelem* and *nau* do not exist.[3]

(7) Aku ***ngisa*** / isa ngomong Inggris.
1sg N-can /can speak English
'I can speak English.'

(8) Aku ***nggelem*** / gelem kopi.
1sg N-want / want coffee
'I want coffee.'

(9) Aku ***nau*** / tau mangan sego.
1sg N-ever/ever eat rice
'I have eaten rice before.'

The passive form of the transitive verb is derived by attaching the morpheme '*di-*' to the verb stem. Hence, in these active and passive constructions, there is an alternation between the nasal prefix and the *di-* prefix. *Diomong* is the passive counterpart of *ngomong*, and *diambung* is the passive counterpart for *ngambung*.

(10) Inggris **di**omong (mbek) mben peserta.
English PASS-speak by every contestant
'English is spoken by every contestant.'

(11) Siti **di**ambung (mbek) Budi.
Siti PASS-kiss by Budi
'Siti was kissed by Budi.'

With seeming auxiliaries like *isa, gelem* and *tau*, the forms with the passive *di-* are ungrammatical. Even in constructions where seeming auxiliaries like *isa, gelem* anzzd *tau* appear to have an NP object, as in (12), (14) and (15), passivization is not possible, as in the ungrammatical examples of (13), (15) and (17).[4]

(12) Mben peserta ***isa*** Inggris.
Every contestant can English
'Every contestant can handle English.'

(13) *Inggris **diisa** mben peserta.
English PASS-can every contesntant
'English is handled by every contestant.'
(14) Dheen ***gelem*** kopi.
3sg want coffee
'S/He wants coffee.'
(15) *Kopi **digelem** dheen.[5]
Coffee PASS-want 3sg
'Coffee is wanted by him.'
(16) aku ***tau*** sugeh.
1sg ever rich
'I have been rich.'
(17) *Sugeh **ditau** aku.
rich PASS-ever 1sg

Furthermore, when a seeming auxiliary co-occurs with a verb as in (18), the passive morpheme *di-* is attached only to the verb and not to the seeming auxiliary. If *isa ngomong* were a complex verb, we would expect the passive morpheme *di-* to be attached to *isa*. However, *isa* can never take the passive morpheme as is shown below. We, therefore conclude that *isa* and similar forms appear to be morphologically distinct from true verbs.

(18) Mben peserta isa ngomong Inggris.
Every contestant can speak English
'Every contestant can speak English.'
(19) Inggris_i [isa diomong] t_i mben peserta.
English can PASS-speak every contestant
'English is spoken by every contestant.'
(20) *Inggris_i [diisa ngomong] t_i mben peserta.
English PASS-can speak every contestant
(21) *Inggris_i [diisa diomong] t_i mben peserta.
English PASS-can PASS-speak every contestant

In SPJ, the causative/applicative morphemes *ke-* and *i-*, add an extra argument to the argument structure of the verb.[6]

(22) Wong lanang kuwi mati gek wingi.
person boy this die yesterday
'The man died yesterday.'
(23) Dheen mate**ni** wong lanang kuwi gek wingi.
3sg die-Appl person boy this yesterday
'He killed the man yesterday.'
(24) Dheen entuk kerjaan.
3sg get job
'She got a job.'

(25) Dheen ngentu**ke** Mary kerjaan.
3sg N-get-Appl Mary job
'She got a job for Mary.'
(26) Dheen ngentu**ke** kerjaan nggo Mary.
3sg N-get-Appl job for Mary.
'She got a job for Mary.'

The causative/applicative suffixes cannot be attached to seeming auxiliaries. This constitutes another piece of evidence that seeming auxiliaries are distinct from verbs.

(27) Dheen gelem mate**ni** wong lanang kuwi.
3sg want die-Appl person boy this
'He wants to kill the man.'
(28) *Dheen **ng**gelemi/gelemi mate wong lanang kuwi.
3sg N-gelem-Appl/gelem-Appl die person boy this
(29) *Dheen **ng**gelemi/gelem**i** mate**ni** wong lanang kuwi.
3sg N-gelem-Appl/gelem-Appl die-Appl person boy this
(30) Dheen isa ngentu**ke** kerjaan (nggo) ibue.
3sg can get job for mother-his
'He can get a job for his mother.'
(31) *Dheen **ng**isa**ke**/isa**ke** entuk kerjaan (nggo) ibue.
3sg N-can-Appl/can-Appl get job for mother-his
(32) *Dheen **ng**isa**ke**/isa**ke** **ng**entu**ke** kerjaan (nggo) ibue.
3sg N-can-Appl/can-Appl get job for mother-his

In sum, we have shown that seeming auxiliaries lack verbal morphology and fail to undergo passivization, which suggests verbs and auxiliaries are morphologically separate categories. While this argument is only suggestive, our next argument, which is based solely on the syntactic distribution of verbs and seeming auxiliaries, will corroborate our claim that these two categories are distinct in SPJ.

2. Head fronting is unique to auxiliaries in SPJ

Our second class of arguments for the existence of a separate category of auxiliaries is based on instances of apparent 'subject-aux inversion'. We will show that the fronting of these seeming auxiliary elements is possible, but the fronting of verbal heads is not, a pattern suggesting that they are members of different categories. [7]

The following sentences show that the fronting of seeming auxiliaries to a position above the subject is possible. [8]

(33) [Isa]$_i$ dheen t_i ngomong Inggris?
can 3sg speak English

'Can he speak English?

(33) [Gelem]$_i$ dheen t_i mangan sego?
want 3sg eat rice
'Does he want to eat rice?'

(34) [Tau]$_i$ Tono t_i sugeh?
ever Tono rich
'Has Tono ever been rich?'

However, it is ungrammatical to front verbal heads, as shown in the following examples.

(35) *[$_V$ Ngepruk]$_i$ Budi t_i bale alon-alon?
hit Budi ball slowly
'Did Budi hit the ball slowly?'

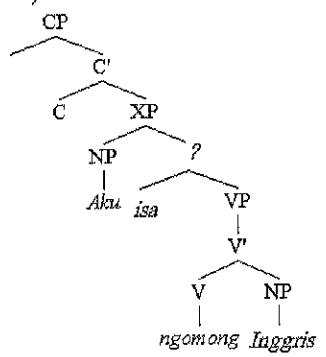
(36) *[$_V$ Ngomong]$_i$ dheen t_i Inggris?
speak 3sg English
'Does he speak English?'

(37) *[$_V$Turu]$_i$ dheen t_i enak mau mbengi?
sleep 3sg well last night
'Did he sleep well last night?'

These contrasting patterns suggest that verbs and auxiliaries in SPJ belong to separate categories. We hypothesize that elements like *isa, gelem* and *tau* are functional elements located between the CP and VP projections. The tree in (39) illustrates the derivation for sentence (38).

(38) aku isa ngomong Inggris.
1sg can N-speak English
'I can speak English.'

(39)



We shall next examine whether elements like *isa* are functional heads, which project their own maximal projection, or whether they are adverbs adjoined to VP. In the following section, we will argue that these elements are indeed heads of a functional projection.

3. Fronting with multiple auxiliary constructions (an argument for auxiliaries as functional heads)

Thus far, we have established that seeming auxiliaries have a different distribution from that of verbs. We have, however not yet established whether these elements are adjoined to VP as adverbs or are generated as heads of functional projections. In this section, we will compare two hypotheses. According to Hypothesis X, "auxiliaries" are claimed to be adverbs adjoined to VP. Since adverbs do not block movement (as we will show later), this hypothesis predicts that movement of a "lower auxiliary" over a "higher auxiliary" should be possible. In contrast, Hypothesis Y, according to which these elements are functional heads, predicts that movement of a lower auxiliary over a higher one should be ruled out by the Head Movement Constraint. We will evaluate these two hypotheses and show that Hypothesis Y makes the correct predictions.

We shall assume that in SPJ, negation is an adverb. Under the assumption that auxiliaries are also adverbs, (40)-(41) show that movement of adverbs across negation, and hence, across adverbs, is possible.

(40) Dheen ora isa ngomong Inggris.
3sg NEG can speak English
'He cannot speak English.'

(41) [Isa]$_i$ dheen ora t_i ngomong Inggris?
'Can't he speak English?'

The grammaticality of (42) shows that it is also possible to front these elements over adverbs of time. Since we know the auxiliary *gelem* cannot precede the adverb in (43), it must have moved over the adverb, *sesok* in (42).

(42) [Gelem]$_i$ dheen sesok t_i lungo blonjo?
want 3sg tomorrow go shopping
'Does he want to go shopping tomorrow?'

(43) *Dheen gelem sesok lungo blonjo.
'He wants to go shopping tomorrow.'

(44) Dheen sesok gelem lungo blonjo.
'He wants to go shopping tomorrow.'

These observations suggest that under Hypothesis X, movement of an adverbial phrase over another adverbial phrase is possible. Given this, Hypothesis X, which claims that "auxiliaries" are adverbs, predicts that it should be grammatical for a lower auxiliary to move over a higher auxiliary.

SPJ double-auxiliary constructions are illustrated below.[9] In such constructions, the order in which the auxiliaries may occur is fixed. It is ungrammatical to have multiple-auxiliaries with the reversed order, as shown in (45) and (46).

(45) Dheen gelem isa ngomong Inggris.
3sg want can speak English
'He wants to be able to speak English.'
(46) *Dheen isa gelem ngomong Inggris.

In fronting one auxiliary in a double-auxiliary construction, it is possible to front the first auxiliary as shown in (47), but not the lower auxiliary, stranding the higher auxiliary, as shown in (49).[10]

(47) [Gelem]$_i$ dheen t_i isa ngomong Inggris.
'Does he want to be able to speak English?'
(48) *[Isa]$_i$ dheen gelem t_i ngomong Inggris.
'Does he want to be able to speak English?'

This shows that Hypothesis X is making the wrong predictions; the movement of one auxiliary over another is ungrammatical. In contrast, under Hypothesis Y, auxiliaries are claimed to be functional heads. Thus Hypothesis Y predicts (48) to be ungrammatical since the fronting of a head over another head is ruled out by the Head Movement Constraint (Travis, 1984).

(49) Head Movement Constraint
A zero-level category can only move to a position that governs its maximal projection.

Hypothesis Y makes the correct predictions since sentence (48) is indeed ungrammatical. Therefore, we conclude that auxiliaries must be heads of functional projections (FP) and not adverbs adjoined to VP.

Thus, the fronting of an auxiliary over an adverb or negation is not movement of an XP over another XP as claimed by Hypothesis X, but is, rather, a case of the movement of a head over an XP.

4. Other Possible Auxiliaries

In the previous section, we have argued that *isa, gelem and tau* are functional heads. In this section, we will investigate another group of auxiliary-like elements. These elements have characteristics similar to the auxiliaries discussed earlier in all aspects except with regard their ability to undergo fronting. We will argue that these elements are also functional heads, but that they are non-movable auxiliaries.

These auxiliary-like elements have the same distributional patterns as do *isa*-class auxiliaries. They occur in preverbal positions and are ungrammatical in postverbal and sentence final positions as shown below.

(50) Siti **meh/gek/wis/harus** ngomong Inggris.
Siti will/PROG/already/must speak English

'Siti will/already/must speak English or Siti is speaking English.'

(51) *Siti ngomong **meh/gek/wis/harus** Inggris.

(52) *Siti ngomong Inggris **meh/gek/wis/harus.**

These auxiliary-like elements also lack verbal morphology like the nasal prefix ((53)), the passive prefix *di-* ((54)) and the causative/applicative *ke/i* suffix ((56)). In addition, we also observe that the passive morpheme is attached to the verb and not to the seeming auxiliary ((54)-(55)), suggesting that verbs and these seeming auxiliaries are distinct from one another.

(53) Mben peserta **wis** / *nwis ngomong Inggris.
Every contestant already/N-already speak English
'Every contestant has spoken English.'

(54) Inggris meh diomong/*dimeh ngomong mben peserta.
English will PASS-speak/Pass-will speak every contestant
'English will be spoken by every contestant.'

(55) *Inggris dimeh diomong mben peserta.
English PASS-will PASS-speak every contestant
'English will be spoken by every contestant.'

(56) *wiske/i, *mehke/i, *haruske/i, *mestike/i

However, unlike movable (*isa*-type) auxiliaries, these auxiliary-like elements do not undergo head fronting.

(57) *[Meh]$_i$ dheen t_i ngomong Inggris?
will 3sg speak English
'Will he speak English?'

(58) *[Harus]$_i$ dheen t_i ngomong Inggris?
must 3sg speak English
'Must he speak English?'

(59) *[Wis] dheen t_i mbayar tagihane ?
already 3sg pay bill
'Has he paid the bill already?'

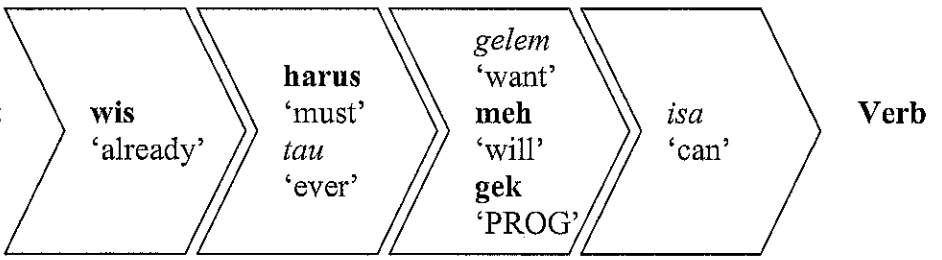
(60) *[Gek]$_i$ dheen t_i mangan sego?
Prog 3sg eat rice
'Is he eating rice?'

The pattern just observed suggests a few possibilities regarding the status of these elements. One, they may be heads of another functional category which forms its own projection, one that is different from that formed by moveable auxiliaries. Second, they could be adverbs with fixed positions or third, they could belong to the same category as movable auxiliaries but they lack the ability to move (perhaps because of a difference in feature content).

We shall first consider the position of the non-movable elements. If non-movable elements belong to a different category from that of auxiliaries like *isa, gelem* and *tau*, we should be able to specify the position of non-movable elements

with respect to auxiliaries in multiple-auxiliary constructions. However, our data show that auxiliaries generally show the left-to-right order below.[11]

(61)



That is, the non-moveable auxiliary-like elements are scattered randomly among the movable auxiliaries without forming a separate grouping. It is possible for these non-moveable auxiliary elements to be generated higher than moveable auxiliaries in some cases and lower in other cases. For instance in (62)-(63), *meh* can be generated in a position between the subject and the verb. It cannot, however, be lower than *isa*. However, in (64)-(65), either order of *meh* and *gelem* is grammatical.

(62) Dheen **meh** *isa* nyetir montor.
3sg will can drive car
'He can drive a car.'

(63) *Dheen *isa* **meh** nyetir montor.
'He can drive a car.'

(64) Dheen **meh** *gelem* ngomong Inggris.
3sg will want speak English
'He will want to speak English.'

(65) Dheen *gelem* **meh** ngomong Inggris.
'He wants to speak English in the future.'

Furthermore, in combinations involving three or more "auxiliaries", it is possible to have a non-moveable element intervening between two moveable auxiliaries. Therefore, there is no fixed location for these non-movable elements.

(66) Aku gelem meh isa ngomong Inggris.
1sg want will can speak English
'I want to be able to speak English in the future.'

Thus, the word order possibilities suggest that these non-movable elements are not heads of a separable functional category, which forms its own projection, one that is different from moveable-auxiliaries.

Next, we consider the possibility that these elements are adverbs adjoined to VP. To evaluate this hypothesis, we look at the fronting pattern of constructions with a combination of movable auxiliaries and non-moveable elements.

Earlier in (62)-(63), we established that certain combinations have a fixed order, e.g. *meh* has to be generated higher than *isa*. Since we know that *isa* is a movable head, it should be possible to move it over *meh* if *meh* is an adverb, i.e. not a functional head. As shown below, however, non-moveable auxiliary-like elements block movement of moveable auxiliaries. This shows that these elements are not adverbs since we have shown earlier that adverbs do not block movement of auxiliaries.

(67) *[Isa]$_i$ dheen meh t_i nyetir montor.
can 3sg will drive car

(68) *[Meh isa]$_i$ dheen t_i nyetir montor.
will can 3sg drive car

Under the third hypothesis, these elements belong to the same category as movable auxiliaries, namely they are functional heads. In accord with the third hypothesis, the above facts are to be expected because the Head Movement Constraint rules out movement of a head over another head. Therefore, these non-movable elements must also be heads of functional projections, like the movable auxiliaries. The only difference between these elements and movable auxiliaries is in the inability to move of the non-movable auxiliaries. This could be due to a difference in feature content between the two classes of auxiliaries.

5. Conclusion

So far, we have shown that verbs and auxiliaries in SPJ belong to different categories. First, seeming auxiliaries cannot take verbal morphology. Second, we have provided additional evidence from the pattern of fronting, namely that auxiliaries can undergo fronting but verbs cannot. We have also shown that auxiliaries are heads of functional projections, which exhibit distributional patterns that obey the Head Movement Constraint, much like those observed in functional projections in European languages. Finally, unlike European languages, there exist non-movable auxiliaries, which are distributed randomly with respect to movable auxiliaries and which block the fronting of movable auxiliaries, showing that also are functional heads.

6. Where does *isa* move to?

The next question that we would like to address is the location of the landing site of the moved auxiliary. For example, in (69), where does *isa* move to when it is fronted?

(69) Isa$_i$ [$_{FP}$ dheen t_i [$_{VP}$ ngomong Inggris]].
'Can he speak English?'

We have established earlier that movement of the auxiliary is associated with yes-no question interpretation in SPJ. In English, subject-auxiliary inversion for yes-no question formation is regarded as head-movement from T to C. However, yes-no questions in SPJ can also be formed with the insertion of a interrogative particle *apa,* as shown in (70).

(70) Apa dheen isa ngomong Inggris?
Q 3sg can speak English
'Can he speak English?'

And when optional fronting occurs, *apa* can be still inserted, as shown in (71).

(71) Apa isa_1 dheen t_1 ngomong Inggris?
'Can he speak English?'

Therefore, before we can address the landing site of the moved auxiliary, we must first establish the position of *apa.*

Crosslinguistically, question particles frequently occupy C. To support the claim that *apa* is generated in C, we offer an argument based on Stowell (1981). In English, the preposition *about* selects a CP with a null head as shown in (72).

(72) I was wondering about [$_{CP}$ who [$_{C}$ e] John saw].
[$_{CP}$ whether [$_{C}$ e] John left].

When C is filled as in (73)-(74), the construction is ungrammatical.

(73) *I was wondering about [$_{CP}$ [$_{C}$ that] John saw Bill].
(74) *I was wondering about [$_{CP}$ [$_{C}$ if] John saw Bill].

In SPJ, we find the same restrictions. In (75), when the preposition *tentang* selects a CP headed by a null C, the sentence is grammatical.[12]

(75) Aku pingin ngerti tentang [$_{CP}$ $sapa_i$ [$_{IP}$[$_{DP}$[e_i][$_{CP}$$OP_i$ [$_{C}$ sing] [$_{IP}$ t_i didelok John]]] t_j]].
1sg want know about who that PASS-see John
'I want to know about who was the one who was seen by John.'

In (76), however, when the C is occupied by *nek,* which is a complementizer that selects for an embedded declarative clause, the sentence is ungrammatical.

(76) *Aku pingin ngerti tentang [$_{CP}$ [$_{C}$ nek][$_{IP}$ John sing didelok Bill]].
1sg want know about that John that PASS-see Bill
'*I want to know about that it was John that was seen by Bill.'

Similarly, when the preposition *tentang* is followed by the question word *apa*, it is ungrammatical as in (77) and without the preposition, the sentence is grammatical as in (78).

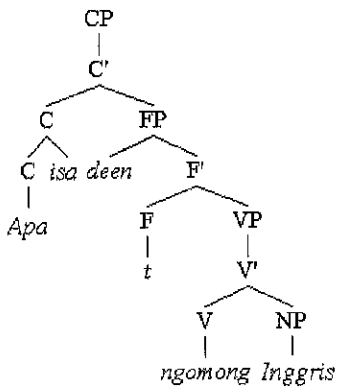
(77) *Aku pingin ngerti tentang apa John sing didelok Bill.
1sg want know about Q John that PASS-see Bill
'*I want to know about if it was John that was seen by Bill.'

(78) Aku pingin ngerti apa John sing didelok Bill.
1sg want know Q John that PASS-see Bill
'*I want to know if it was John that was seen by Bill.'

To correctly rule out (76)-(77), it must be the case that *apa* (like *nek*) occupies C.

On the assumption that *apa* is in C, we now consider the derivation of questions with both *apa* and the fronted auxiliary. One possible derivation is that shown in the following tree, in which *isa* is adjoined to *apa* in C.

(79)



However, since it is also possible to have an adverb intervening between *apa* and the fronted head, as shown below, the above derivation is inadequate.

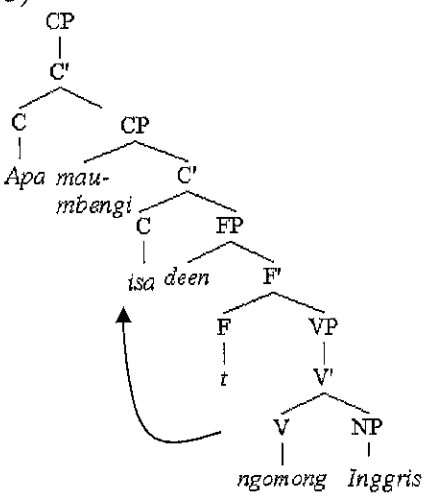
(80) Apa mau-mbengi isa dheen turu enak.
Q last-night can 3sg sleep well
'Could he sleep well last night?'

(81) Apa alon-alon gelem Budi ngepruk bale.
Q slowly want Budi hit ball
'Does he want to hit the ball slowly?'

(82) Apa mbiyen tau Siti sugeh.
Q before ever Siti rich
'Was Siti ever rich before?'

Since we know that *apa* is generated in C, and we also know that the adjunction of *isa* to C is not possible, we prapase a recursive CP structure, as shown in (83).

(83)



In other words, we claim that a CP headed by *apa* selects for another CP whose head is the landing site of head-fronted material.[13]

To sum up, we have shown that in SPJ auxiliaries exist as a category distinct from verbs. We have also shown that there are two classes of auxiliaries, moveable and non-moveable auxiliaries and that both classes are heads of functional projections. Finally, we have argued that the landing site of auxiliary-fronting is C in the CP recursion structure.

Endnotes

* We would like to thank Gabriella Hermon, Benjamin Bruening, Satoshi Tomioka, and participants of the syntax reading group at UD for helpful comments. This work was supported in part by funding from the Max Planck Institute for Evolutionary Anthropology.

[1] Javanese is the everyday language of both pribumi (ethnically Javanese) and ethnically Chinese (Peranakan) residents of Semarang. Our informants were educated in Indonesia, but are native speakers of Semarang Peranakan Javanese and use the language within the family and in many everyday activities. While our informants are ethnically Chinese, they are not able to speak any variety of Chinese. The examples here are an accurate reflection of the judgments of our informants, but they may not reflect those of pribumi speakers or of speakers of standard (Central) Javanese.

We would like to thank John Wolff and Niken Adisasmito-Smith for pointing out important differences between the Peranakan Javanese reported on here and the standard language. See Wolff (1997) for a discussion of differences between the Peranakan Javanese of ethnically Chinese speakers and the language of pribumi speakers in Semarang.

[2] This word order is possible in colloquial Javanese but it is possible only with special intonation. Even in this context, our informant finds the construction awkward.

(i) Aku ngomong inggeris? **Isa.**
1sg speak English can
'Me speak English? I suppose I can.'

[3] There exists a few transitive verbs that do not take the nasal prefix, for example *tuku* 'buy', which is like intransitive verbs in SPJ (e.g. *turu* 'sleep'). However, these verbs can take a nasal prefix when the applicative suffix, *-ke* is present (e.g. *nukoke* 'N-buy-Appl' and *nuroke* 'N-sleep-Appl'). This suffix cannot be attached to *isa, gelem,* and *tau.*

[4] At this point, we will not discuss whether the noun phrase after *isa gelem* and *tau* are true direct objects. Our point is that the seeming auxiliaries cannot take the passive prefix even though sentences like **(12)-(15)** appear to have the same word order as sentences with active transitive verbs.

[5] It is possible to passivize *gelem* with the form *digelemi.* This form, however, does not occur in the speech of our informants. The ungrammaticality of *gelem* in the bare passive construction, as well, is further support for our claim that *gelem* may not be passivized and thus does not behave like a transitive verb in this dialect of Javanese.

(i) Aku ngomong Inggris.
1sg N-speak English
'I speaks English.'

(ii) Inggris mbok omong.
English 1sg-PASS speak
'English is spoken by me.'

(iii) Aku gelem kopi.
1sg want coffee
'I wants coffee.'

(iv) *Kopi mbok gelem.
coffee 1sg-PASS want
'Coffee is wanted by me.'

[6] See Son and Cole (2002) and Cole and Son (2002) for an analysis of applicative morphemes in SPJ and Indonesian.

[7] SPJ also allow phrasal fronting as shown below.

(i) [Isa ngomong Inggris]$_i$ dheen t$_i$.
can speak English 3sg
'He can speak English.'

We will not deal with this construction in this paper.

[8] Our informant tells us that the fronting of an auxiliary results in an obligatory yes/no question reading, and that it requires a rising intonation. Otherwise, either the sentence is ungrammatical, or it requires a "special intonation".

[9] Besides double-auxiliary construction, triple auxiliary constructions are also possible. The order of the auxiliaries is also fixed and (ii) is ungrammatical.

(i) Dheen tau gelem isa ngomong Inggris.
3sg ever want can speak English
'He has wanted to be able to speak English before.'

(ii) *Dheen gelem isa tau ngomong Inggris.
3sg want can ever speak English

In these constructions, it is possible to front the first and all three auxiliaries, but not two of the three auxiliaries. The pattern of fronting with such constructions is quite complex and for reasons of space cannot be discussed here.

(iii) Tau dheen gelem isa ngomong Inggris.
ever 3sg want can speak English
' Has he ever wanted to be able to speak English before?'

(iv) [Tau gelem isa]$_i$ dheen t_i ngomong Inggris.
ever want can 3sg speak English
'Has he ever wanted to be able to speak English?'

(v) *Tau gelem dheen isa ngomong Inggris.
ever want 3sg can speak English
' Has he ever wanted to be able to speak English before?'

[10] It is also possible to front both of the auxiliaries as shown below. The surface order of the fronted auxiliary is identical to that in its declarative form.

(i) [Gelem isa]$_i$ dheen t_i ngomong Inggris?
want can 3sg speak English
'Does he want to be able to speak English?'

(ii) *[Isa gelem]$_i$ dheen t_i ngomong Inggris?
can want 3sg speak English
'Does he want to be able to speak English?'

[11] This diagram illustrates the general order of these elements. Some combinations are not possible. For example: *harus gek, *harus meh do not occur.

[12] The preposition *tentang* is a borrowing from Indonesian.

[13] An alternative is that the AUX moves to a functional projection below CP.

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On the Difference between Raising and Control

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1. Introduction

Much attention within the generative tradition has focused on the contrast between raising and control. While both involve a relationship between an overt and a null NP, crucial differences have been noted, requiring two separate analyses. In particular, within the Principles and Parameters approach, control is a non-derivational relation between an overt NP and a special type of null pronoun (PRO). Raising, on the other hand, involves movement with the null NP a trace. Recently, Hornstein (1999) has challenged the P&P view, claiming that both raising and control are derived via movement, eliminating the need for PRO. In this paper, we examine facts from Malagasy, a Western Austronesian language, that require that the traditional distinction between raising and control be maintained. We consider subject-to-subject and subject-to-object raising and contrast these types of structures with control.

2. Subject-to-subject raising versus subject control

We begin with a discussion of subject-to-subject raising (SSR) versus subject control constructions in Malagasy. Both standard and Malagasy-specific tests can separate verbs which take clausal complements into two classes: *start* and *intend*.[1] The *start* verbs are SSR verbs, while the *intend* verbs are control verbs.

2.1. Initial similarities and differences

Certain verbs in Malagasy take as their objects clausal complements without complementizers; these clauses appear between the verb and the subject of the verb. These verbs appear to act the same way with respect to yes-no question formation and *wh*-extraction.

Ve, the yes-no question particle, may appear either immediately before the clause-final NP (the canonical position for it (Keenan (1976))) or sentence-finally.

(1) a. Manomboka manasa ny lamba **ve** i Bakoly?
AT.start AT.wash DET clothes Q DET Bakoly
'Does Bakoly start washing the clothes?'
b. Manomboka manasa ny lamba i Bakoly **ve**?[2]
AT.start AT.wash DET clothes DET Bakoly Q
'Does Bakoly start washing the clothes?'

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c. Mikiry manasa ny lamba **ve** i Bakoly?
AT.intend AT.wash DET clothes Q DET Bakoly
'Does Bakoly intend to wash the clothes?'
d. Mikiry manasa ny lamba i Bakoly **ve**?
AT.intend AT.wash DET clothes DET Bakoly Q
'Does Bakoly intend to wash the clothes?'

Clause-final NPs may be *wh*-extracted and do not license *wh*-in-situ.

(2) a. Iza no manomboka manasa ny lamba?
who FOC AT.start AT.wash DET clothes
'Who starts washing the clothes?'
b.*Manomboka manasa ny lamba iza?
AT.start AT.wash DET clothes who
c. Iza no mikiry manasa ny lamba?
who FOC AT.intend AT.wash DET clothes
'Who intends to wash the clothes?'
d.*Mikiry manasa ny lamba iza?
AT.intend AT.start DET clothes who

These clause-final NPs act the same way as they do in monoclausal sentences.

(3) a. Manasa ny lamba **ve** i Bakoly?
AT.wash DET clothes Q DET Bakoly
'Is Bakoly washing the clothes?'
b. Manasa ny lamba i Bakoly **ve**?
AT.wash DET clothes DET Bakoly Q
'Is Bakoly washing the clothes?'
c. Iza no manasa ny lamba?
who FOC AT.wash DET clothes
'Who is washing the clothes?'
d.*Manasa ny lamba iza?
AT.wash DET clothes who

These initial data are misleading; further tests show that there are important differences between these classes.

2.1.1. Multiple overt subjects

In *intend* sentences it is possible to add an overt subject to the complement clause; in *start* sentences this is not possible.

(4) a. *Manomboka sasan'i Bakoly ny lamba aho.
AT.start TT.wash.GEN'DET Bakoly DET clothes 1SG

b. Mikiry sasan'i Bakoly ny lamba aho.[3]
AT.intend TT.wash.GEN'DET Bakoly DET clothes 1SG
I intend that the clothes be washed by Bakoly.

This suggests that there is a θ-role available in (4b) which is not available in (4a).

2.1.2. Embedded idioms

When the embedded clause is a subject idiom, only the *start* class verbs keep the idiomatic reading.

(5) a. Manomboka tsy vakin'amboa ny akanga maro.
AT.start NEG TT.catch.GEN'DOG DET guinea-hen many
(lit.) 'Many guinea-hens started not to be caught by a dog'
(fig.) 'Strength in numbers started.'
b. Mikiry tsy vakin'amboa ny akanga maro.
AT.intend NEG TT.catch.GEN'dog DET guinea-hen many
(lit.) 'Many guinea-hens intended not to be caught by a dog'
*(fig.) 'Strength in numbers intended'

This too suggests that *intend* verbs have an external θ-role, but that *start* verbs do not.

2.1.3. Impersonal sentences

When the clause-final NP is inanimate, *start* verbs have the expected meaning. *Intend* verbs have an unexpected impersonal reading.

(6) a. Manomboka sasan'i Bakoly ny lamba.
AT.start TT.wash.GEN'DET Bakoly DET clothes
'The clothes started to be washed by Bakoly.'
cannot mean: 'It was started that the clothes be washed by Bakoly.'
b. Mikiry sasan'i Bakoly ny lamba.
AT.intend TT.wash.GEN'DET Bakoly DET clothes
cannot mean: 'The clothes intended to be washed by Bakoly.'
'It was intended that the clothes be washed by Bakoly.'

There is a selectional restriction on the subject of *intend* verbs[4]: the agent must be animate. This raises the question of what the impersonal reading is in *intend* verbs.

The subject of the embedded verb is string-adjacent to the subject of the matrix verb (7,8a). If one of them is phonetically null, then it is not possible to know, a priori, which clause the overt element is in (8b,b'); further tests are necessary to determine its position.

(7) V [V O S] S

(8) a. Mikiry [sasan'i Bakoly ny lamba] aho.
AT.intend [TT.wash.GEN'DET Bakoly DET clothes] 1SG
'I intend that the clothes be washed by Bakoly.'
b. Mikiry [manasa ny lamba Δ] Bakoly.
AT.intend [AT.wash DET clothes Δ] Bakoly
'It is intended that Bakoly wash the clothes.'
b'. Mikiry [manasa ny lamba Bakoly] Δ.
AT.intend [AT.wash DET clothes Bakoly] Δ
'It is intended that Bakoly wash the clothes.'

A few predictions can be made if the clause-final NP were in the matrix clause (8b). It would act as the subjects of monoclausal verbs do (3), in particular, it would obey the restrictions in (9).

(9) a. It could be *wh*-extracted.
b. It would not license *wh*-in situ.
c. It could appear before or after *ve*.

All of these predictions are fulfilled when the clause-final NP is animate, as in (1,2), where it appears to be in the matrix clause.

Different predictions can be made if the clause-final NP is in the embedded clause, as in example (8b').

(10) a. It could not be *wh*-extracted.
b. It would license *wh*-in situ.
c. It could only appear before *ve*.

The behaviour of *start* and *intend* sentences with respect to these predictions will show that they have different structures: *start* verbs have a structure as in (8b) while *intend* verbs have a structure as in (8b').

2.1.4. Wh facts

When the clause-final NP is inanimate, only *start* verbs allow *wh*-extraction; it is ungrammatical in *intend* verbs.

(11) a. Inona no manomboka sasan'i Bakoly?
what FOC AT.start TT.wash.GEN'DET Bakoly
'What started being washed by Bakoly?'
b. *Inona no mikiry sasan'i Bakoly?
what FOC AT.intend TT.wash.GEN'DET Bakoly?

The reverse is true for *wh*-in situ: it is grammatical only in *intend* verbs.[5]

(12) a.*Manomboka sasan'i Bakoly inona?
AT.start TT.wash.GEN'DET Bakoly what
b. Mikiry sasan'i Bakoly inona?
AT.intend TT.wash.GEN'DET Bakoly what
'It was intended that Bakoly wash what?' (this is not an echo question)

For all *start* verbs and *intend* verbs with animate clause-final NPs, the sentences act as expected with respect to *wh*-questions. For *intend* verbs with inanimate clause-final NP, the sentences act in an atypical manner. We conclude that the clause-final NP of these sentences is not in the subject position of the matrix clause.

2.1.5. Two positions for ve

The final test distinguishing the two classes of verbs is the possible positions for *ve*. Only the *start* verbs allow *ve* to appear both before and after the clause-final NP; the *intend* verbs allow only the sentence-final position.

(13) a. Manomboka sasan'i Bakoly **ve** ny lamba?
AT.start TT.wash.GEN'DET Bakoly Q DET clothes
'Are the clothes starting to be washed by Bakoly?'
b. Manomboka sasan'i Bakoly ny lamba **ve**?
AT.start TT.wash.GEN'DET Bakoly DET clothes Q
'Are the clothes starting to be washed by Bakoly?'
c. *Mikiry sasan'i Bakoly **ve** ny lamba?
AT.intend TT.wash.GEN'DET Bakoly Q DET clothes
d. Mikiry sasan'i Bakoly ny lamba **ve**?
AT.intend TT.wash.GEN'DET Bakoly DET clothes Q
'Is it intended that the clothes be washed by Bakoly?'

Ve can appear on either side of the matrix subject; if the subject is phonologically null, there is no difference if it appears on one side versus the other.

(14) a. Mikiry [sasan'i Bakoly ny lamba] ve Δ?
b. Mikiry [sasan'i Bakoly ny lamba] Δ ve?

So in sentences like (6b), the clause-final NP is not in the matrix clause.[6]

2.2. Subject of intend verbs

What, then, is the subject of the matrix clause in sentences like (15) (=(6b))?

(15) Mikiry sasan'i Bakoly ny lamba Δ.
It was intended that the clothes be washed by Bakoly.

The sentence suggests that people in general are doing the intending: pro_{Arb}. There is an extremely limited set of verbs that pro_{Arb} may appear with, as Malagasy is not generally a *pro*-drop language. This limited distribution must be explained.

The related sentences in English have passive matrix verbs (in Malagasy the matrix verb is active). Only certain verbs in English allow this construction.

(16) a. It was intended that Alexandra would wash the clothes. (cf. (14))
b. *It was washed the clothes. (cf. (16a))
c. *It was started Matilda to wash the clothes. (cf. (16b))

The class of verbs that allow this construction in English is similar to that in Malagasy.

(17) a. *Manasa ny lamba *pro*.
AT.wash DET clothes
b. *Manomboka ny lamba Bakoly *pro*.
AT.start DET clothes Bakoly

We therefore suggest that pro_{Arb} is semantically licensed by a class of verbs; in particular, verbs which can refer to a state of mind of a group of people. Further confirmation of this is left to future research.

2.3. Some ambiguities.

Some *intend* clauses with animate clause-final NPs have ambiguities between a standard and an impersonal reading.

(18) a. Mikiry manasa ny lamba i Bakoly.
'Bakoly intends to wash the clothes.'
'It is intended that Bakoly wash the clothes.' (With pragmatic context)
b. Mikiry manasa ny lamba i Bakoly ve?
'Is it the case that Bakoly intends to wash the clothes?'
'Is it intended that Bakoly wash the clothes?' (With pragmatic context)
c. Mikiry manasa ny lamba ve i Bakoly?
'Does Bakoly intend to wash the clothes?'
cannot mean: 'Is it intended that Bakoly wash the clothes?'

These data are unsurprising. In (17a) and (17b), the sentences are ambiguous between having *pro* in the matrix clause and PRO in the embedded clause.

(19) a. Mikiry [manasa ny lamba PRO] i Bakoly.
'Bakoly intends to wash the clothes.'
a'. Mikiry [manasa ny lamba i Bakoly] *pro*.
'It is intended that Bakoly wash the clothes.'
b. [Mikiry [manasa ny lamba PRO] i Bakoly] ve?
'Is it the case that Bakoly intends to wash the clothes?'
b'. [Mikiry [manasa ny lamba i Bakoly] pro] ve?
'Is it intended that Bakoly wash the clothes?'

These alternative structures for each sentence give the interpretations available. The second interpretation is generally dispreferred, as it requires both the non-canonical position for *ve* and the limited *pro*.

The impossibility of the interpretation in (17c) is also as expected. For the impersonal reading, *pro* must appear in the final position of the sentence. *Ve* must appear in the second position, after either the predicate or the entire clause.

(20) a. Mikiry [manasa ny lamba i Bakoly] ve *pro*?
b. Mikiry [manasa ny lamba i Bakoly] *pro* ve?
c. *Mikiry [manasa ny lamba ve i Bakoly] *pro*?

2.4. Interim conclusion

We have shown that verbs of the *intend* class are control verbs: it is possible for all arguments of both verbs to appear overtly, there is loss of an idiomatic reading, and the semantics of sentence changes when the embedded clause is passivised.

When it is possible, there is control of PRO in the embedded clause, from the subject of the matrix clause. Both PRO and the overt subject receive θ-roles, one from the embedded clause, one from the matrix clause.

Selectional restrictions sometimes prevent the overt subject from being in the matrix clause. In these cases, as the θ-criterion still requires that the matrix clause have an external argument to receive the external theta-role, the subject of the matrix clause is forced to be pro_{Arb}. This contrasts with *start* verbs, which are raising and do not have an external θ-role which could have selectional restrictions.

The distinction between raising and control is both syntactically and semantically marked in Malagasy.

3. Part Two

We now turn to subject-to-object raising constructions (henceforth SOR). We propose that SOR is in fact a kind of Exceptional Case Marking, where the "raised" NP is not in the matrix clause, but remains on the edge of the embedded clause (Chomsky 1973; Massam 1985; Travis 1998). Importantly, there is movement to this position rather than base generation. Raising contrasts with

what we call "prolepsis", where the apparently raised NP is base-generated in the matrix clause and controls a null element in the embedded clause. It is the contrast between raising and prolepsis (a kind of control) that is the focus of this section, rather than a detailed analysis of the structure of either. We set aside these (admittedly important) details for further research.

3.1. *The SOR data*

We begin with an overview of the properties of SOR. First, although most clausal complements are extraposed to the right of the subject (21a), the complement clause in SOR appears in its base position, between the matrix verb and the subject (21b) (the brackets in (21b) are for expository purposes rather than showing actual constituency).

(21) a. Mihevitra Ramatoa [fa tsara tarehy Rasoa].
AT.think Ramatoa C good face Rasoa
'Ramatoa thinks that Rasoa is good looking.'
b. Mihevitra [an-dRasoa ho tsara tarehy] Ramatoa.
AT.think ACC-Rasoa HO good face Ramatoa
'Ramatoa thinks Rasoa is good looking.'

As shown in (21b), the embedded subject appears to the left of embedded predicate and special complementizer (*ho*), marked with accusative Case. Only subjects can undergo SOR, hence the ungrammaticality of (22).

(22) *Mihevitra an-dRasoa ho nidera (azy) i Bakoly Ramatoa.
AT.think ACC-Rasoa HO AT.praise (3ACC) DET Bakoly Ramatoa
'Ramatoa thinks of Rasoa that Bakoly praised her.'

No overt pronoun may surface in the base position of the embedded clause (compare (21b) with (23)).

(23) *Mihevitra an-dRasoa ho tsara tarehy izy Ramatoa.
AT.think ACC-Rasoa HO good face 3NOM Ramatoa
'Ramatoa thinks Rasoa is good looking.'

Although not much is known about the complementizer *ho*, it appears to be an irrealis comp (in contrast with *fa*) (Rajaona 1972: 285). Thus although the SOR construction in (24a) allows the continuation, the regular complement clause in (24b) does not. (24b) sounds like a contradiction.

(24) a. Nihevitra azy ho adala aho … fa tsy adala velively izy.
PST.AT.think 3ACC HO crazy 1SG.NOM but NEG crazy at-all 3NOM
'I thought he was crazy, but he isn't crazy at all.'

b. #Nihevitra aho fa adala izy ... fa tsy adala velively izy.
PST.AT.think 1SG.NOM C 3ACC crazy but NEG crazy at-all 3NOM
'I though he was crazy, but he isn't crazy at all.'

In sum, SOR appears to be triggered by the irrealis complementizer *ho*, which heads a CP that does not undergo extraposition and where the embedded subject is marked with accusative Case.

3.2. *The structure of SOR*

At this point, the obvious question to ask is where is the accusative NP? Unfortunately, the data give a mixed answer. We review the data here with the caveat that a definitive analysis is beyond the scope of this paper.

As an initial observation, the raised NP is not in a regular subject position or even in a special leftward subject position (contra Massam 1984). The following data show that the raised NP has very different properties, both syntactic and semantic from a subject. First, the raised NP is out of the scope of negation, unlike subjects (25a) and topics (25b). Thus in (25), negation scopes over the subject, allowing the disjunctive reading.

(25) a. Tsy lasa any an-dafy na an-dRabe na an-dRasoa.
NEG gone there ACC-side or ACC-Rabe or ACC-Rasoa
'Neither Rabe nor Rasoa went overseas.'
b. Na an-dRabe na an-dRasoa dia tsy lasa any an-dafy.
or ACC-Rabe or ACC-Rasoa TOP NEG gone there ACC-side
'Neither Rabe nor Rasoa went overseas.'

In (26a), however, the wide-scope disjunctive is not possible with negation on the embedded verb; negation must be on the matrix verb, as shown in (26b).

(26) a. *Mino na an-dRabe na an-dRasoa ho tsy lasa i Koto.
AT.believe or ACC-Rabe or ACC-Rasoa HO NEG gone DET Koto
b. Tsy mino na an-dRabe na an-dRasoa ho lasa i Koto.
NEG AT.believe or ACC-Rabe or ACC-Rasoa HO gone DET Koto
'Koto believes that neither Rabe nor Rasoa left.'

Simlarly, there is no one-to-one mapping between elements in the subject position and the accusative NP in SOR. Reflexives can be subjects, bound by the genitive agent, as shown in (27a), but a reflexive in an SOR context cannot be bound by the genitive agent, as illustrated in (27b).

(27) a. Hajain'i Bakoly ny tenany.
TT.respect'DET Bakoly DET self.3
'Bakoly respects herself.'

b. Mino ny tenany$_{*i/j}$ ho hajain'i Bakoly$_i$ i Soa$_j$.
AT.believe DET self.3 HO TT.respect'DET Bakoly DET Soa
'Soa believes herself to be respected by Bakoly.'

Wh-elements are excluded from the subject position, but allowed in SOR.

(28) a. *Efa lasa iza?
already left who
'Who already left?'
b. Mino an'iza ho efa lasa i Bakoly?
AT.believe ACC'who HO already left DET Bakoly
'Who does Bakoly believe to have already left?'

Subjects must be definite, but the raised NP need not be.

(29) a. *Hahazo isa tsara mpianatra roa.
FUT.AT.get number good student two
'Two students will get good grades.'
b. Nanantena mpianatra roa ho hahazo isa tsara Ramatoa.
PST.AT.hope student two HO FUT.AT.get number good Ramatoa
'Ramatoa hoped two students would get good grades.'

Thus whatever the position of the accusative NP, it is not in a subject position. The question now arises as to its position in the matrix or embedded clause. The data, unfortunately, do not point the way to a simple answer.

First, binding data suggest that the raised NP is not in the matrix clause. These data include typical condition A and B effects as illustrated below. The raised NP is "too far" to be an anaphor coindexed with the matrix subject (30a), and "far enough" to be a pronoun (30b)

(30) a. *Milaza tena ho tsara tarehy Ramatoa.
AT.say self HO good face Ramatoa
'Ramatoa says she is good looking.'

b. Milaza azy$_i$ ho tsara tarehy Ramatoa$_i$.
AT.say 3ACC HO good face Ramatoa
'Ramatoa says she is good looking.'

Similarly, the raised NP can antecede an object anaphor in the embedded clause (31a), but not a pronoun (31b).

(31) a. Mihevitra an'i Soa$_i$ ho manaja tena$_{i/*j}$ i Be$_j$.
AT.think ACC'DET Soa HO AT.respect self DET Be
'Be thinks that Soa respects herself.'

b. Mihevitra an'i Soa$_i$ ho manaja azy$_{*i/j}$ i Be$_j$.
AT.think ACC'DET Soa HO AT.respect 3ACC DET Be
'Be thinks that Soa respects him.'

Other data, however, suggest that the raised NP is indeed in the matrix clause. As seen above, the raised NP is marked with accusative case, like direct objects. Moreover, it can undergo further A-movement, such as the voice alternation illustrated in (32)

(32) Heverin-dRamatoa ho tsara tarehy Rasoa.
TT.think.GEN.RamatoaHO good face Rasoa
'Ramatoa thinks Rasoa is good looking.'

Certain positional data indicate the accusative NP has raised out of the embedded clause. Matrix adverbs may precede or follow the accusative NP. The word order in (33b) is surprising if the raised NP is in the embedded clause.

(33) a. Mino [amin'ny fony manontolo] an'i Soa ho hahazo
AT.believe with.DET heart AT.whole ACC'DET Soa HO FUT.AT.get
valisoa i Be.
reward DET Be
'Be believes with all his heart that Soa will get a reward.'
b. Mino an'i Soa [amin'ny fony manontolo] ho hahazo
AT.believe ACC'DET Soa with.DET heart AT.whole HO FUT.AT.get
valisoa i Be.
reward DET Be
'Be believes with all his heart that Soa will get a reward.'

Similarly, the accusative NP may launch floating quantifiers on the matrix verb (34b) (this contrasts with embedded *wh*-elements (34c)).

(34) a. Mihevitra ny mpianatra ho efa lasa daholo i Bakoly.
AT.think DET student HO already left all DET Bakoly
'Bakoly thinks that all the students have already left.'
b. Mihevitra daholo ny mpianatra ho efa lasa i Bakoly.
AT.think all DET student HO already left DET Bakoly
'Bakoly thinks that all the students have already left.'
c. Mahatadidy daholo an'izay efa lasa aho.
AT.remember all ACC'REL already left 1SG.NOM
'I completely remember who left.'
≠ 'I remember who all left.'

To resume, the raised NP is not simply a subject, but it has properties of being both in the embedded and matrix clauses. We suggest that it is in fact on the edge of the embedded clause, giving rise to these mixed properties. Importantly, the raised NP has moved to this position, rather than being base-generated, as shown

by typical movement diagnostics (restriction to subjects, lack of resumptive pronouns).

3.3. *Prolepsis*

The basic properties of SOR can be shown to contrast with prolepsis. In prolepsis, there is base generation of an argument in the main clause which binds a pro/PRO in the embedded clause. In other words, prolepsis is a kind of control structure.

As a first distinction, prolepsis always involves extraposition of the embedded CP.

(35) Mino an-dRabe Rasoa [ho nandrafitra ny trano (??izy)].
AT.believe ACC-Rabe Rasoa HO PST.AT.build DET house (3NOM)
'Rasoa believes Rabe to have built the house.'

Second, extraposition changes binding relations in the clause. In particular, negative polarity items in the embedded clause are no longer licensed by negation on the matrix verb. The grammaticality of the SOR example in (a) contrasts with the ungrammatical prolepsis in (b).

(36) a. Tsy mihevitra azy ho antitira velively aho.
NEG AT.think 3ACC HO old at-all 1SG.NOM
'I don't believe him to be old at all.'
b. *Tsy mihevitra azy aho [ho antitra velively].
NEG AT.think 3ACC 1SG.NOM HO old at-all

Moreover, coreference between names and pronouns is altered by prolepsis.

(37) a. Mino azy_i ho tsara tarehy i $Bakoly_i$.
AT.believe 3ACC HO good face DET Bakoly.
'Bakoly believes herself to be good looking.'
b. Mino azy_{*i} i $Bakoly_i$ [ho tsara tarehy].
AT.believe 3ACC DET Bakoly HO good face
'Bakoly believes her to be good looking.'

Third, the accusative NP is not restricted to subjects and allows for a resumptive pronoun.[7] (In (38) the embedded subject is underlined and the resumptive pronoun is in bold.) Recall that regular SOR targets only subjects and resumptive pronouns are ungrammatical.

(38) a. Nanantena an-dRabe Rasoa [ho nanasana**ny** lovia ny savony].
PST.AT.hope ACC-Rabe Rasoa HO PST.CT.wash.3GEN dish DET soap
'Rasoa hoped about Rabe that he used the soap to wash the dishes.'

b. Nanampo an-dRabe Rasoa [ho naka ady **azy** Ramatoa].
PST.AT.expect ACC-Rabe Rasoa HO PST.AT.take spouse 3ACC Ramatoa
'Rasoa expects about Rabe that Ramatoa will marry him.'

Fourth, idioms lose their figurative meaning in prolepsis, but maintain it in SOR.

(39) a. Mihevitra ny akanga maro ho tsy vakin'amboa aho.
AT.think DET guinea-hen many HO NEG taken.GEN'dog 1SG.NOM
(lit.)'I think that many guinea hens will not be captured by a dog.'
(fig.)'I think there is strength in numbers.'
b. Mihevitra ny akanga maro aho [ho tsy vakin'amboa].
AT.think DET guinea-hen many 1SG.NOM HO NEG taken.GEN'dog
(lit.)'I think that many guinea hens will not be captured by a dog.'
*(fig.)'I think there is strength in numbers.'

Summing up, there are systematic differences between SOR and prolepsis. We suggest that these differences are due to structural properties: SOR involves true movement, while prolepsis involves base generation. Since the accusative NP in prolepsis is generated as an argument in the main clause, we expect differences in binding and the loss of idiomatic readings. Similarly, since there is no actual movement with prolepsis, the constraints on movement are lifted (i.e., restriction to subjects and resumptive pronouns). Thus we conclude that Davies' (2000) analysis of Madurese raising as control cannot be maintained for Malagasy.

4. Conclusion

In this paper, we have argued that the traditional distinction between raising and control must be maintained. We have shown that there are both raising and control verbs in Malagasy and that, despite surface similarities, these two classes have distinct syntactic and semantic properties.

Endnotes

[1] *Mitsahatra* 'stop' patterns with *manomboka* 'start'; *manaiky* 'accept', *mifidy* 'choose', among others, pattern with *mikiry* 'intend'.
[2] There is a predictable meaning difference between (2a,c) and (2b.d): the former involve categorical judgments and the latter thetic (as in Sasse (1987)). This difference is not relevant here.
[3] We have found that Malagasy does not allow agent-agent sequences.
i. *Mikiry manasa ny lamba Rabe aho.
AT.intend AT.wash DET clothes Rabe 1SG
ii. *Mikiry manasa ny lamba an-dRabe aho.
AT.intend AT.wash DET clothes gen-Rabe 1SG

[4] This difference is not due to the passive in the embedded clause; if the subject is animate, the sentence has the expected meaning.

i. Manomboka/mikiry orahan'i Tovo i Noro.
AT.start/AT.intend TT.kiss.GEN'DET Tovo DET Noro.
'Noro starts/intends to be kissed by Tovo.'

[5] This is somewhat unexpected, as in general subjects in Malagasy do not license *wh*-in situ. This suggests that the subject may not be in the subject position of the embedded clause (see Polinsky and Potdam (2002) for binding facts); crucially, it is not in the subject position of the matrix clause.

[6] This is not the same structure as in Polinsky and Potsdam (2002a); in particular, we will posit *pro* as the empty category and not PRO.

[7] Resumptive subject pronouns are awkward in Malagasy, accounting for the degraded status of (xx) with an overt pronoun.

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Intonation Does Not Differentiate Thematic Roles in Riau Indonesian

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1. Introduction

Suppose an Indonesian linguist were to come along and claim that in English, in the deictic expression *there*, two distance categories, corresponding to Indonesian *situ* 'near addressee' and *sana* 'far from speaker and addressee', were distinguished by intonation.

No doubt we would hasten to dismiss such a claim, on the following grounds. First and foremost, it lacks prima facie plausibility for English. (A polite way of saying that it's sheer nonsense.) Moreover, as stated, it fails to specify which intonation contours supposedly express which distance categories: it thus lacks the measure of explicitness necessary for it to be taken seriously as a testable hypothesis. Even worse, it lacks cross-linguistic plausibility, positing a rule of a kind not known to exist in any other human language. In fact, the claim would appear to constitute an unwarranted imposition of an Indonesian grammatical category on the grammar of English, an instance of linguistic imperialism. Four good reasons to send our Indonesian linguist packing.

Of course, the Indonesian linguist is a figment of the imagination. Unfortunately, however, his western counterparts are not the least bit imaginary: they are alive and kicking, and busy making claims of an analogous nature about Indonesian. Specifically, it is asserted that in some varieties of Indonesian, intonation functions as a surrogate case-marking system, distinguishing between thematic roles in those cases where the constructions in question would otherwise be ambiguous.

By any reasonable criteria, such claims about intonation and thematic roles in Indonesian have no more going for them than those of our fictitious Indonesian concerning intonation and deixis in English. However, the persistence of such claims suggests that the field, in its present state, will not allow for them to be dismissed with the single perfunctory paragraph that they deserve. Instead, a more elaborate response is necessary, including, among other things, a detailed examination of the facts. This, then, is the reason for this paper: to show, as explicitly as possible, why it is that indeed, intonation does not help to distinguish thematic roles in Indonesian.

2. Riau Indonesian

Indonesian and its alter ego Malay are not a single language, nor two, but rather a family of languages, with a degree of internal diversity comparable perhaps to that of the Romance or Slavonic language families. In addition to a large amount of regional variation, there is also a big difference between the

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colloquial varieties and the two standard languages. Failure to acknowledge this diversity is what underlies a considerable amount of factual inconsistencies in the literature, with different authors unwittingly citing data from different dialects, or different variants of the standard languages.

This paper is concerned primarily with Riau Indonesian, the colloquial variety of Indonesian spoken, in informal contexts, throughout Riau province in east-central Sumatra. Although one of the main functions of Riau Indonesian is that of a contact language in a multi-ethnic region, it is the native language, or one of the native languages, of most children growing up in Riau province, as it probably has been for many generations. In addition to Riau Indonesian, some of the data cited in this paper show evidence for interference from Siak Malay, the dialect of Malay spoken in the lower part of the Siak river basin, in Riau province. Riau Indonesian and Siak Malay share a considerable degree of mutual intelligibility; in fact, in some cases it is difficult to determine whether a given utterance is in one dialect or the other. Although this paper focuses on Riau Indonesian, all of its main points are equally germane also for Siak Malay. Various aspects of the grammar of Riau Indonesian have been described in a series of articles in Gil (1994, 2000, 2001, 2002a,b) and elsewhere.

3. Doing without Thematic Roles

One of the most salient characteristics of Riau Indonesian is the absence of obligatory morphosyntactic coding for a wide range of categories which play a central role in the grammars of many other languages. Unsurprisingly, as in many other Southeast Asian languages, there is no obligatory marking of number or definiteness, and no obligatory coding of tense or aspect. More remarkably, perhaps, there is no morphosyntactic device for distinguishing thematic roles: word order is flexible, and there is no case-marking or morphological agreement. Thus, in a simple clause, a given expression denoting a participant in an activity could bear any thematic role whatsoever with respect to that activity: it could be the actor or the patient, or it could stand in any other semantic relationship that makes sense in the given context. Indeed, it is only context that enables the hearer of such utterances to interpret them in appropriate ways. See Gil (1994, 2002b) for further discussion of these facts.

So how do speakers of Riau Indonesian manage without the coding of thematic roles? This is the question that is often posed in the presence of facts such as these. But the obvious answer is: Just fine. To begin with, a majority of activities are, in most everyday contexts, semantically irreversible. And as for those that are reversible, the context almost always makes it clear which participant is associated with which thematic role. So speakers of Riau Indonesian really have no problem with the indeterminacy of thematic roles.

If there is a problem, though, it is not with Riau Indonesian, but rather with the question how speakers of Riau Indonesian manage. Asking this question betrays a Eurocentric presupposition, to the effect that grammatical categories that are important in familiar European languages must also be central to the structure of other non-European languages. One might just as

well ask how speakers of English manage without a three-way distance distinction in their deictic system; the answer would of course be the same, Just fine. So how do English speakers disambiguate between *there* meaning near the addressee, and *there* in the sense of far from speaker and addressee? The correct response is of course that they *don't* disambiguate: the form *there* is not ambiguous between these two meanings but rather underspecified, or vague. And the same is true also for thematic roles in Riau Indonesian: thematic roles simply do not take part in most aspects of the grammatical organization of sentences in Riau Indonesian.

4. But What about Intonation?

It is at this point that the question is often raised: What about intonation? In fact, practically every time I have presented such facts in lectures, somebody in the audience has asked whether it isn't perhaps the case that different interpretations involving different assignments of thematic roles might be distinguishable by means of different intonation contours. The question itself is an eminently reasonable one, but it is also one that has a very simple and straightforward answer: No. Intonation does not and cannot differentiate between different assignments of thematic roles in Riau Indonesian.

Here the matter should rest, but unfortunately it does not always do so. Rather, there seems to be a pervasive belief that it somehow *just has to be the case* that intonation distinguishes thematic roles in Riau Indonesian, and in other varieties of Malay / Indonesian. Most often, this belief is expressed orally; however, it has occasionally appeared in writing, as in the following passage:

> "After many years living among the various peoples of Indonesia, I feel that voice inflexion carries a great deal of information that can be captured with a tape recorder but which often slips by written transcriptions. Especially, for example, what words and clusters of words belong to what constituents of a sentence. In other words, voice inflexion can serve as case marking." [Chaumont Devin, Austronesian Languages and Linguistics email list, 16 April 1997]

The first sentence in the above passage is indisputably correct, and the second is also true, as observed in the beginning of Section 5.1. However, the third and final sentence simply flies in the face of all the available evidence. Yet the claim persists.

Note that the author of the above passage does not bother to inform us *how* "voice inflexion can serve as case marking". Unfortunately, this is the way things usually are. In almost all the cases that I have encountered, claims that intonation may distinguish thematic roles in this or that variety of Malay / Indonesian have been of a vague and general nature, without even a hint as to which intonation contours are associated with which assignments of thematic roles. In the absence of explicit proposals, it is very hard to take such claims seriously as testable empirical hypotheses.

The closest to an explicit proposal that I have come across is perhaps the following. (The claim is stated in my own words, and constitutes my interpretation of one or two suggestions made by colleagues in informal discussions.) In general, in Riau Indonesian, there is a significant tendency for patients to follow activities. Accordingly, when patients precede activities, this unusual word order is signalled by a pause occurring right after the patient. Within a generative framework involving movement, this generalization might be restated as follows: when a patient is fronted to a higher position in the clause, a pause occurs between it and the clause from which it was extracted. This "pause proposal" at least constitutes an explicit hypothesis which can be examined in face of the facts. But as shown in Section 6 below, it is clearly false.[1]

The claim that intonation differentiates thematic roles in Riau Indonesian lacks prima facie plausibility not only language-specifically but also cross-linguistically. To the best of my knowledge, there exists no documented example of a language in which intonation provides the sole means for distinguishing thematic roles. In fact, I am not familiar with any reported instances of a language for which intonation is the only means for differentiating thematic roles even in a limited class of constructions. For example, Javanese and Madurese, languages closely related to Malay / Indonesian, appear to exhibit broadly similar syntax including flexible word order; however, studies of intonation and clause structure in these languages such as Uhlenbeck (1975), Poedjosoedarmo (1977) and Davies (1999) have not shown intonation to have any function in the differentiation of thematic roles.

In an attempt to gather more information on this subject, I posted an email query (LINGTYP Discussion List, 22 March 2001), seeking putative counterexamples, in the form of languages where intonation does play some kind of role in the differentiation of thematic roles. Indeed, several correspondents suggested possible counterexamples, from languages such as Hebrew, Persian, Russian and Italian. However, not a single example turns out to be convincing: in no case do the facts appear to have been subjected to systematic study, and in no case are there published descriptions to rely upon.

In Hebrew, for example, if a number of morphosyntactic variables are set right, it is possible to construct sentences exhibiting actor-patient ambiguities, such as the following:

(1) Kelev radaf yeled
dog:M chase:PST:3:SG:M child:M
(i) 'A dog chased a boy'
(ii) 'A boy chased a dog'

Speakers of Hebrew occasionally claim that the two meanings can be distinguished by intonation. But when asked how, they do not provide systematic answers. In general, the most readily available interpretation is that in which the actor precedes the patient, as in (1/i) above. In order to obtain the less readily available interpretation, that in (1/ii), speakers of Hebrew sometimes offer a distinctive intonation contour, involving greater pitch variation and greater duration for certain syllables. However, when

questioned, they will generally concede that even with the distinctive intonation contour, the sentence can also be understood as in (1/i); and then they will often admit that even with an ordinary intonation contour, the sentence can also be understood as in (1/ii). Similar facts are reported also for Persian and other Middle-Eastern languages by Stilo (1984, personal communication).

At first blush, there would be better reason to expect intonation to differentiate thematic roles in Hebrew than in Riau Indonesian. In Hebrew, ambiguities such as in (1) are of rather limited distribution. Specifically, both participants must be indefinite, otherwise the appropriate participant will be marked with the definite direct object preposition *et*; in addition, both participants must belong to the same number and gender categories, otherwise the identity of the subject will be inferable from the agreement marking on the verb. Thus, examples such as (1) actually represent two distinct sentences, with distinct syntactic structures and different interpretations, which just happen to be realized with the same surface string of words. It would therefore not be too surprising if it turned out to be the case that the two distinct syntactic structures underlying the two interpretations of (1) were associated with different intonation contours. In contrast, in Riau Indonesian, the analogous word strings represent unique sentences with unique syntactic structures, and, as suggested in the preceding section, the range of interpretations available for each of these sentences reflects semantic underdifferentiation, or vagueness, rather than ambiguity. Thus, from the outset, Riau Indonesian is less likely to use intonation to differentiate thematic roles than is Hebrew. Accordingly, the absence of any clear evidence that intonation distinguishes thematic roles in Hebrew and other similar languages makes it even less plausible that intonation may have this function in Riau Indonesian.

Thus, the claim that intonation differentiates thematic roles in Riau Indonesian is prima facie unlikely, largely lacking in explicitness, and cross-linguistically implausible to boot. It is perhaps more perspicuously understood as an instance of linguistic imperialism, in which researchers take a familiar grammatical category from a familiar language and seek, willy-nilly, to graft it onto a language with a very different system of grammatical organization.

So what needs to done in order to finally put such a claim to rest? Three methods suggest themselves. First, one might use *elicitation*, and ask native speakers for their judgements of sentences exhibiting various possible pairings of intonation contours and thematic roles. Secondly, one might construct *experiments*, which would present native speakers with various tasks requiring them to make use of intonational cues in order to distinguish thematic roles. Thirdly, one might study *naturalistic corpora*, and search for possible correlations between intonation contours and thematic roles. While each of these three methods is in principle equally valid, this study chooses to make use of the third method, involving naturalistic corpora. The reasons for this choice are entirely practical. On the one hand, elicitation and experiments are particularly problematical in the study of Riau Indonesian. As a regional colloquial language variety, Riau Indonesian stands in a basilect-to-acrolect relationship with Standard Indonesian. Put a speaker of Riau Indonesian in what is perceived to be a learnèd setting such as an elicitation session or a

controlled experiment, and he or she is likely to switch to Standard Indonesian, no matter how clearly and repeatedly the investigator has asked the speaker to use "ordinary language", that is to say, Riau Indonesian. On the other hand, in Riau Indonesian an extensive naturalistic corpus is available, containing recordings of speech from many different speakers in a variety of settings, including narrative and conversational. Accordingly, the present study makes use of the third method, examining a naturalistic corpus for possible correlations between intonation contours and thematic roles.

Two specific hypotheses are examined:

(2) (a) *Hypothesis A (existential):*
For each sentence, there exists at least one intonation contour which renders the sentence undifferentiated with respect to thematic roles.

(b) *Hypothesis B (universal):*
For each sentence, every available intonation contour renders the sentence undifferentiated with respect to thematic roles.

Both of the above hypotheses negate the claim that intonation distinguishes between thematic roles in Riau Indonesian. However, the second hypothesis is stronger than the first: one can envisage a state of affairs in which the first hypothesis holds but the second one fails, but not vice versa. As we shall see in Section 6 below, the naturalistic corpus provides overwhelming support for the weaker Hypothesis A, and substantial support for the stronger Hypothesis B. Accordingly, the results of this study lead to the conclusion that intonation does not differentiate thematic roles in Riau Indonesian.

5. Basic Suprasegmental patterns

To be in a position to examine the Riau Indonesian naturalistic corpus for possible correlations between intonation contours and thematic roles, it is first necessary to describe the basic suprasegmental patterns and establish an inventory of the major intonation contours available in the language.

5.1. Intonation Groups and Final Prominence

As in most other languages, intonation contours form *intonation groups* with a hierarchical tree structure, in which smaller units group together to form larger ones, which in turn group together to form even larger ones, and so forth. Such intonational groupings often coincide to a certain degree with syntactic groupings. Because of this, intonation can sometimes help to disambiguate between different readings associated with different syntactic constituencies underlying the same sequence of words.

Perhaps the most noticeable characteristic of intonation groups is *final prominence*. Within each intonation group, the final syllable is accented, thereby providing a salient marker of intonation phrase boundaries. As in many other languages, accent is realized by a combination of phonetic features including greater pitch variation, greater intensity and greater duration.

However, compared to some other languages, the contribution of greater duration would appear to be relatively larger.[2]

5.2. Focus Intonation

Final-prominent intonation groups provide the backdrop for an additional layer of intonational organization, that of *focus intonation*.

Within each intonation group, a single word, which may occur in any position within the group (initial, medial or final), may optionally be assigned focus intonation. Focus intonation provides an expression for the semantic focus operator, though many of the details remain to be worked out. (The term "focus" is thus used here in the sense that is current in general semantic theory, not in the rather peculiar sense that has gained acceptance among Austronesianists, where it refers to what is known elsewhere as verbal voice.)

Focus intonation is realized through a bundle of phonetic properties associated with a privileged bisyllabic prosodic unit, which may be referred to as the *core foot*. Most commonly, the core foot consists of the last two syllables of the word, a small class of exceptions being provided by enclitics such as the applicative marker *-kan*, which occur after the core foot. Evidence for the existence of the core foot derives from a variety of independent sources, including patterns of reduction in fast connected speech, the form and distribution of the personal marker *si*, processes of spreading and epenthesis, expansion of monosyllabic loanwords, and the forms associated with a certain ludling; see Gil (2002a, to appear) for details.

Nevertheless, the phonetic realizations of focus intonation are distributed unevenly over the two syllables of the core foot. The most salient feature of focus intonation involves the lengthening of the rhyme of the first syllable of the core foot, and sometimes also the onset of the second syllable. (In some varieties of Riau Indonesian, the onset of the second syllable may be lengthened if and only if it is other than an oral stop, while for other varieties, more influenced by a Minangkabau substrate, the onset of the second syllable may be lengthened no matter what its contents are.) At the same time, focus intonation is also reflected by pitch prominence and secondary lengthening on the rhyme of the second syllable of the core foot.[3]

6. Intonation and Thematic Roles

The description of the basic intonational patterns of Riau Indonesian presented in the preceding section makes it possible for us now to address the main concern of this paper, namely, the purported correlation between intonation and thematic roles.

In order to do this, we shall examine the distribution, in the naturalistic corpus, of four basic intonation contours:

(3) *Four Basic Intonation Contours:*
   (a) Intonation Contour A:
   Two intonation groups separated by pause, no focus
   (b) Intonation Contour B:
   Single intonation group with no pause, no focus
   (c) Intonation Contour C:
   Single intonation group with no pause, initial focus
   (d) Intonation Contour D:
   Single intonation group with no pause, final focus

The above four intonation contours span much of the variety that is in evidence in the intonational patterns of Riau Indonesian. Of course, they do not exhaust the available variety; some of the other intonation contours that are not considered here might include those associated with polar and information questions, direct quotation, and a number of sentence-final particles. Nevertheless, they suffice to give the proponents of a correlation between intonation and thematic roles a good run for their money: if such a correlation did exist, it is most likely that it would involve at least one of the above four basic intonation contours.

The above four contours are examined with respect to a set of basic sentence patterns defined in terms of an activity in construction with a single associated participant. The participant in question may either precede or follow the activity, and it may associated with the thematic roles of either actor or patient. Resulting from these two binary choices are the following four basic sentence patterns:

(4) *Four Basic Sentence Patterns:*
   (a) Actor precedes activity
   (b) Patient precedes activity
   (c) Actor follows activity
   (d) Patient follows activity

Again, the above four basic sentence patterns do not exhaust the inventory of sentence patterns in Riau Indonesian. However, it is reasonable to suppose that if intonation did distinguish thematic roles, its effect would be observable with respect to at least some of the above basic sentence patterns.

The four basic intonation contours in (3) and the four basic sentence patterns in (4) may be combined to yield sixteen potentially possible pairings of intonation contours and sentence patterns. These sixteen pairings are represented in the sixteen cells of Table 1. (In Table 1, letters *a*, *p* and *v* stand for actor, patient and activity respectively, upper case letters denote focus intonation, while *ø* represents a pause between intonation groups.)

	Participant precedes activity		*Participant follows activity*	
	Actor	*Patient*	*Actor*	*Patient*
Intonation Contour A: Pause, no focus	aØv (5a) ↔	pØv (5b)	vØa (6a) ↔	vØp (6b)
Intonation Contour B: No pause, no focus	av (7a) ↔	pv (7b)	va (8a) ↔	vp (8b)
Intonation Contour C: No pause, initial focus	Av (9a) ↔	Pv (9b)	Va (10a) ↔	Vp (10b)
Intonation Contour D: No pause, final focus	aV (11a) ↔	pV (11b)	vA (12a) ↔	vP (12b)

Table 1: Intonation Contours and Sentence Patterns

Table 1 provides a classificatory scheme for utterances in the naturalistic corpus. If intonation does distinguish thematic roles, then one would expect to find an unequal distribution of utterances across the table, with, crucially, some empty cells, reflecting impossible pairings of intonation contours and sentence patterns. Conversely, if intonation does not differentiate thematic roles, then one would expect to find utterances exemplifying all of the potential pairings of intonation contours and thematic roles, with no empty cells in the table.

Application of the above classificatory scheme to the corpus of naturalistic texts yields clear cut results. Even a cursory examination of a small subset of the corpus turns up examples of all sixteen potential pairings of intonation contours and sentence patterns: there are no empty cells in the table. Thus, there is no correlation between the intonation contours defined in (3) and the sentence patterns represented in (4): intonation does not differentiate thematic roles in Riau Indonesian.

In examples (5) - (12) below, each of the sixteen pairings of intonation contours and sentence patterns is illustrated with an utterance from the naturalistic corpus; for easy cross-referencing, the number of each example is shown in the appropriate cell in the table. (In some of the examples, the relevant pairing of intonation contour and sentence pattern extends over just part of a larger utterance; in such cases, the remaining parts of the utterance are enclosed in parentheses. Breaks between intonation groups, either within the relevant part of the utterance or outside of it, are represented with commas.)

(5) (a) Kepala desa itu, pindah rumah papan itu *Contour A*
head village DEM:DIST move house board DEM:DIST
[From narrative about peeping tom]
'The village head moved into that wooden house'

(b) (Vid,) hilangkan ini, lupa dah Vid
FAM-David disappear-EP DEM:PROX forget PFCT FAM-David
[Playing billiards on laptop computer; speaker asking me to help him get rid of the lines on the screen which show where the balls will go]
'David, I've forgotten how to get rid of these, David'

(6) (a) (Sangkut situ 'kan, selamat dia,) tidur, dia,
be.caught.on there Q safe 3 sleep 3
(anak si Yung tadi ini)
child PERS Yung PST:PROX DEM:PROX
[From narrative about village boy and sparrowhawk; boy has fallen off a bridge into a mangrove tree]
'He was caught there, he was safe, he fell asleep, the boy Yung'

(b) Jumpa, satu asap, (nampak asap dari jauh 'kan)
meet one smoke see smoke from far Q
[From narrative about village boy and sparrowhawk; boy is wandering through forest]
'He noticed a plume of smoke, he saw smoke from afar, right'

(7) (a) Bola putih masuk *Contour B*
ball white enter
[Playing billiards on laptop computer]
'The white ball's gone in'

(b) Rokoknya buang
cigarette-ASSOC throw
[Cleaning a room with friends]
'Throw the cigarette stubs away'

(8) (a) Kawin dia, (David)
marry 3 David
[From narrative about boy who grows up, gets married, and learns the facts of life]
'Then he got married, David'

(b) Tutup pintu oy
close door EXCL
[Speaker wants to prevent other people from coming in to the room]
'Hey, close the door'

(9) (a) Bola PUTIH masuk *Contour C*
ball white enter
[Playing billiards on laptop computer]
'The white ball's gone in'

(b) GOLOK kenal tak?
Golok know NEG
[On phone to friend, discussing common acquaintances]
'Do you know Golok?'

(10) (a) MASUK bola putih
enter ball white
[Playing billiards on laptop computer]
'The white ball's gone in'

(b) TUKUL dio ha, (macam mano, sakit die)
hammer 3 DEIC kind what hurt 3
[From narrative about peeping tom]
'She hammered him, it hurt'

(11) (a) (E,) bola putih MASUK *Contour D*
EXCL ball white enter
[Playing billiards on laptop computer]
'The white ball's gone in'

(b) Catur tak PANDAI itu, (Vid)
chess NEG know.how DEM:DIST FAM-David
[Discussing what game to play next on laptop computer; someone suggests chess; speaker reacts]
'I don't know how to play chess, David'

(12) (a) Rekam DIE
record 3
[Speaker discovers I've been recording]
'He's recording'

(b) "Aku nak TANGAN dikau", (katanya, dia bilang)
1:SG want hand 2 say-ASSOC 3 say
[From horror story about ungrateful son who tries to rob his mother's tomb; at the end of the story, the mother's ghost tries to snatch her son's hand]
'"I want your hand" she said'

Each of the above eight numbered examples presents a near minimal pair, as close a contrast as one is likely to find in a naturalistic corpus. Within each pair, the intonation contours are the same, the relative orders of activity and participant are the same, but the thematic role of the participant is different: whereas in the first, or (a) example, the participant is an actor, in the second, or (b) example, it is a patient. These eight contrasting minimal pairs are indicated in Table 1 above with arrows connecting their respective cells. Thus, each of these minimal pairs shows that for a particular intonation contour and a particular sentence pattern, the intonation contour in question fails to differentiate between thematic roles, allowing a certain participant to be understood either as an actor, in the first member of the pair, or as a patient, in the second.

For example, (5) shows that Intonation Contour A does not differentiate between actors and patients when these occur in a position preceding an activity. Similarly, (7) shows that Intonation Contour B does not distinguish between actors and patients when these come before an activity. Thus, examples (5) and (7) refute the "pause proposal", discussed in Section 4 above, which suggests that when a patient precedes an activity, it must be followed by a pause. Such, indeed, is the case in (5b); however, in (7b), a patient also precedes an activity and here, contrary to the pause proposal, there is no pause (and there are many more examples like this in the corpus). Moreover, in (5a)

there is a pause, even though here it is an actor rather than a patient that precedes the activity. Thus, examples such as these show that when the participant in question occurs before the activity, the presence or absence of a pause plays no role whatsoever in distinguishing actors from patients.

In conjunction, then, examples (5) - (12), and many others like them in the corpus, show quite clearly that intonation plays no role in the differentiation of thematic roles in Riau Indonesian. To the extent that the four basic sentence patterns in (4) are representative of the variety of sentence patterns in the language, the above examples provide overwhelming support for Hypothesis A, as formulated in (2a), suggesting that for each sentence there is at least one intonation contour which renders that sentence undifferentiated with respect to thematic roles. Moreover, to the extent that the four basic intonation contours in (3) encompass the major patterns of intonation that are available in the language, the above examples provide substantial support for the stronger Hypothesis B, as formulated in (2b), asserting that for each sentence, every intonation contour renders that sentence undifferentiated with respect to thematic roles. In view of examples such as these, it is hard to see how anybody can continue to maintain the uncritical position that intonation can function to distinguish thematic roles in Riau Indonesian.

In conclusion, playing devil's advocate for a moment, it could, admittedly, still turn out to be the case, contrary to everything suggested in this paper, that intonation somehow *does* differentiate thematic roles in Riau Indonesian. For example, there could exist some additional intonation contours, not considered in this paper, which do differentiate thematic roles: such intonation contours would provide a counterexample to Hypothesis B, though not contradict the weaker Hypothesis A. More far-reachingly, it could conceivably be the case that each of the four would-be basic intonation contours defined in this paper actually lumps together two or more distinct intonation contours which do differentiate thematic roles: if this were true, then counterevidence would be provided even for the weaker Hypothesis A. Thus, the claims made in this paper constitute explicit hypotheses for which it is easy to imagine hypothetical counterevidence. Nevertheless, the results of this paper suggest that such counterevidence is indeed no more than strictly hypothetical. Accordingly, if anybody still wishes to claim that intonation can differentiate thematic roles in Riau Indonesian, then the burden of the proof now rests solidly on their shoulders: they must produce the data, and specify exactly which intonation contours distinguish which thematic roles. (To assist in such a challenge, I would be happy to share the naturalistic corpus, including the sound files, with anybody wishing to examine them for scientific purposes.) In the meantime, in the absence of such counterarguments, the only position that can reasonably be maintained is that intonation does not and cannot differentiate thematic roles in Riau Indonesian.

Endnotes

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still insist that it does, for providing me with the impetus to write this paper. In particular, I am indebted to Peter Cole, Gabriella Hermon and Uri Tadmor for numerous discussions on the issues dealt with in this paper. I am especially grateful to the many speakers of Riau Indonesian who provided the naturalistic data on which this paper is based: Arief, Benny, Danzha Selpas, Ellyanto, Fuad, Junaidi, Muchlis, Pai, Rudy Chandra, Septianbudiwibowo, Syafi'i, Wira, Zainudin. Versions of this paper were presented at the Fifth International Symposium on Malay/Indonesian Linguistics, Leipzig, Germany, 17 June 2001; at Topic and Focus: A Workshop on Intonation and Meaning, University of California, Santa Barbara, CA, USA, 21 July 2001; and at the Ninth Annual Meeting of the Austronesian Formal Linguistics Association, Cornell University, Ithaca, NY, USA, 26 April 2002; I would like to thank participants at all three events for their helpful comments and suggestions.

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[1] Another proposal occasionally mentioned in discussions of intonation and clause structure in Malay / Indonesian is that of Chung (1978), pertaining to a language variety that she refers to as "informal Indonesian", but which is actually closer to Standard Indonesian than to any of the regional colloquial varieties (including those of Jakarta and Bandung, from where her speakers hailed). Chung is concerned with a particular sentence pattern of the form AVP (Actor - Activity - Patient), where the V is devoid of any morphological voice marking. For a subset of such sentences, those in which the A is a pronoun or a proper noun, she maintains that two distinct intonation contours are available, which she calls "normal declarative" and "subject shifting". She then claims that these two intonation contours correspond to two different syntactic analyses of the sentence in question, as "active" and "passive" respectively. In the latter case, her suggestion involves the following derivation. First, an active sentence with AVP order undergoes passivization (of the variety known in Indonesian studies as the *pasif semu*, or "second passive"), resulting in a structure of the form PAV, where the P assumes some subjecthood properties, and the A is cliticized to the V. Next, the P undergoes subject shifting, a process which moves subjects to the end of the sentence, in this case restoring the original AVP order. Although it may seem as though we're back where we started, Chung asserts that such sentences are passive, and cites as evidence the purported "subject shifting" intonation contour associated with such constructions. Whether or not the facts are as described, and whether or not the analysis provided is the most appropriate one to account for such facts, Chung's proposal does not involve any suggestion to the effect that intonation may differentiate thematic roles, since both intonation contours are associated with the same assignment of thematic roles.

[2] For the unwary investigator, one of the consequences of final prominence in intonation groups is that it gives rise to the illusion of final word stress. For example, in a situation involving elicitation, where the researcher asks what the word for such-and-such is, the speaker typically responds with a one-word utterance bearing the final-prominent intonation contour. This sounds like final word stress; however, it is important to keep in mind that the suprasegmental pattern is not a property of the word, but rather of the entire utterance, which just happens to consist of a single word. Mistaken analyses of final-prominent intonation contours as word stress are apparently

responsible for the probably erroneous characterization of many related Malayic language varieties of Sumatra as possessing final lexical stress, for example Nurzuir et al (1985:32-33) for Jambi, Umar et al (1986:28) for Muko-Muko, and Suwarni et al (1989:80) for Lintang.

[3] Just as final prominence in intonation groups sometimes creates the illusion of final word stress, so focus intonation and concomitant penultimate lengthening may occasionally give rise to an unwarranted impression of penultimate word stress, at least in those cases where penultimate lengthening is more salient to the investigator's ear than final pitch accent. For example, such a mis-analysis is what underlies some descriptions of Minangkabau, for example Zarbaliev (1987:23) and Adelaar (1992:12), as having penultimate word stress, even though in reality the suprasegmental patterns of Minangkabau are largely identical to those of Riau Indonesian. In some other dialects, such as Jakarta Indonesian, focus intonation and penultimate lengthening are often used in place of the final-prominent intonation contour in the context discussed earlier, where, in response to being asked what the word for such-and-such is, the speaker responds with a one-word utterance. This use of focus intonation thus contributes further to a characterization of Malay / Indonesian as having penultimate word stress. However, in actual fact, focus intonation and the way in which duration and pitch prominence split across the two syllables of the core foot provide additional support for the claim that in Riau Indonesian, as in many other related varieties, word stress is present not at the domain of the syllable but rather at the level of the entire foot, with respect to which it occurs in fixed position, falling invariably on the core foot.

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Possessive Constructions in Languages of West Indonesia: NP Incorporation vs. DP Separation

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1. Introduction

This paper is about non-pronominal possessive constructions in languages of West Indonesia[1]. The constructions under discussion in these languages are sometimes thought to be relatively simple. For example, Arakin (1965) and Asmah Hj. Omar (1974) described them almost exclusively in terms of right-branchness. Still, different types of possessive constructions can be found[2].

Juxtaposition type is the simplest. Here the possessor phrase is juxtaposed to the possessum, as in (1)[3].

(1) Iban (Asmah Hj. Omar 1981: 201)
məɲadi? ʔinday ʔaku
sibling mother 1Sg
'sibling of my mother'

Prepositional type. The possessor is introduced by some possessive preposition (example (2)) which is generally a reflex of the Proto-Austronesian genitive marker **ni* (Blust 1974)[4]. Due to the reasons discussed below such prepositions are sometimes presumed to be articles (see, for example, Donohue 1999).

(2) Toba-Batak (Nababan 1966: 85)
làppak ni bùkku ni si píttOr
cover POS book POS ART Pittor
'the cover of Pittor's book'

Clitic type. The possessor phrase is mirrored with a pronominal clitic (perhaps, agreement marker) adjoined to the possessum nominal (phrase?) (example (3)). These clitics, which exist in all of the languages discussed here with the exception of Iban, are typical for pronominal possessive constructions, where the use of a free pronominal possessor is always non-obligatory (anyway, pronominal possessives do not constitute the focus of this paper).

(3) Muna (van den Berg 1989: 86)
daoa -no Raha
market -3Sg[5] Raha
'the market of Raha'

Actually, it is rather common to observe two types of possessives in one language (example (4)), although, to the best of my knowledge, non-pronominal

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constructions of clitic type do not coexist with those of prepositional type in any of the languages under discussion[6].

(4) Lampung (Walker 1976: 10, 20)

a. *Tanggay -ni lemaong -hina* tajom-tajom.
claw -3 tiger -DEM sharp:RDP
'The claws of the tiger are very sharp.'

b. Lemaong -sa nganiq *daging binatang lain.*
tiger -DET ACT:eat flesh animal other
'Tigers eat the flesh of other animals.'

The question addressed in this paper is what governs the distribution of different possessive types, or in other words, which factors determine the choice of a certain possessive construction in each concrete case. As a starting point, I take the distinction between type-restricting and token-restricting attributes (Lander, in preparation) introduced in Section 2. It is hypothesized that this distinction is directly reflected in the syntax of possessives in the languages discussed here, although presumably it is not the only factor determining the variation between different possessive types. In Section 3 I propose two syntactic mechanisms that allow us to differentiate between type-restricting and token-restricting possessives. A few possible counterarguments to the proposal about the distinction between possessive types and its syntactic reflection are discussed in Section 4. Section 5 discusses some implications of the theory proposed for pronominal clitics in the languages under discussion. The last section contains concluding remarks.

2. Type-restricting vs. token-restricting possessives

In a paper in preparation I suggest a typology of attributes, dividing them into type-restricting, token-restricting and non-restricting[7], and further, argue that this distinction is directly reflected in the surface structure of NPs in several Indonesian languages. Leaving aside non-restrictive attributes[8], the other two types are different in what they restrict semantically. In particular, while type-restricting attributes form complex predicates with head nouns, token-restricting attributes restrict extensions of these predicates. This is why they are not likely to be used in such generic statements as (5a), where the relative clause must be token-restricting. As one can see from (5b), different possessives display the same effect.

(5) Indonesian

a. Orang (*yang) pandai adalah jenis orang juga.
person REL clever COP kind person too
'Clever people/*People who are clever are also a subkind of people.'

b. Rumah batu /*Umar adalah jenis rumah juga.
house stone Umar COP kind house too
'Stone/*Umar's houses are also a subkind of houses.'

I further argue that type-restricting (such as *batu* 'stone' in (5a)) and token-restricting (e.g., *Umar* (5b)) possessives are different in their syntactic types: type-restricting possessives are (non-referential property-denoting) NPs while token-restricting possessives are in fact (referential individual-denoting) DPs (cf. Munn 1995)[9], and although they do not necessarily differ in their surface internal syntax in Indonesian, they do differ as to their syntactic distribution. Specifically, I suggest that the two rules (6) work in Indonesian:

(6) Among attributes within Indonesian NP:
a. the hierarchy *Type-restricting* > *Token-restricting* > *Non-restricting* is relevant in that the higher an attribute is on this hierarchy, the closer it is to the head;
b. if two attributes, one of which is a nominal, belong to the same position on the hierarchy (6a), then a dependent nominal comes closer to the head.

As concerns possessives, the rules in (6) predict that type-restricting possessives must be adjacent to the head of a NP. This fact will become important below.

Now, turning to the other languages under discussion — where two types of possessives (one of which is juxtaposition) coexist — we find that what is expressed by adjacent possessors in Indonesian is expressed here in the same way. For example, as Ogloblin (1986) describes the situation in Madurese, dependent nouns in such phrases as (7) cannot be separated from their heads; and similar notes may be found in respect to other languages discussed here.

(7) Madurese (Ogloblin 1986: 127)
a. mano' tasè'
bird sea
'sea bird'
b. buku ghàmbhàr
book picture
'book with pictures'

One can make then the following hypothesis:

(8) The distribution of the unmarked (juxtaposition) and marked (prepositional or clitic) possessive constructions depends on the type of a possessor: if the latter is type-restricting, juxtaposition is chosen; otherwise, the marked possessive construction is used.

This hypothesis will be elaborated and improved in the subsequent sections.

3. NP incorporation vs. DP separation

(Obligatory) adjacency is often regarded as a reflection of incorporation or at least as a phenomenon which is closely related to incorporation. Indeed, there are several pieces of evidence supporting the view that type-restricting possessors are in fact incorporated into their heads.

The first argument for such a representation is that type-restricting possessives are often lexicalized and form compounds (or complex words, following the terminology of Alieva 1998), while lexicalization is often taken to be a consequence or even a cause of incorporation (Mithun 1984). Examples are numerous (9), and many of them can be contrasted with token-restricting possessives (10):

(9) a. Iban (Asmah Hj. Omar 1981: 194)
dagiən capi
meat cattle
'beef'

b. Madurese (Ogloblin 1986: 127)
tokang kaju
maker wood
'carpenter'

c. Buginese (Sirk 1975: 49)
tappam matua
product father.in.law
'one who will be father-in-law'

d. Wolio (Anceaux 1952: 41)
qinci mantoa
tooth dog
'eye-tooth'

(10) a. Buginese (Sirk 1975: 49)
tappán -na matuá -e
product -3 father.in.law -DET
'the father-in-law's product'

b. Wolio (Anceaux 1952: 41)
qinci -na mantoa
tooth -3 dog
'a dog's tooth'

Some authors (e.g., Alieva 1998) take it for granted that one direct reflection of lexicalization of such sequences as Indonesian *ruangan konsert* 'concert hall' (lit. 'hall concert') is that the pronominal possessive clitic is added in these cases to the second part of a presumable compound: for instance, *ruangan*

konsert-nya 'his/her/its/their concert hall'. I have doubts, however, that this can be empirical evidence for lexicalization, given the apparent productivity and compositionality of such examples. Still, the fact that pronominal clitics, which may be considered as agreement markers, are often placed after type-restricting possessors is striking and presents another piece of evidence for the incorporation hypothesis[10].

Finally, the very notion of type-restriction is consistent with the theory of semantic incorporation elaborated by Chung & Ladusaw (2001 ms.), who argue that incorporated nominals only restrict predicates rather than saturate their arguments.

It should be noted that none of these arguments is sufficient for the claim that type-restricting attributes are incorporated, and in fact, all of them are theory-dependent[11]. Still, in the absence of counterarguments I assume that something like incorporation does occur here.

Now, turning to token-restricting marked possessors, they differ from type-restricting ones in all of these respects. They are normally not lexicalized[12] and follow pronominal clitics (where there are clitic type possessive constructions) (11-13).

(11) Wolio (Anceaux 1952: 40)
bulu -na pani -na
feather -3 wing -3
'the feathers of his wings'

(12) Madurese (Ogloblin 1986: 95)
bengko -na Hosèn
house -3 Hosen
'Hosen's house'

(13) Lampung (Walker 1976: 18)
bapaq -ni Ahmat
father -3 Ahmat
'Ahmat's father'

Finally, they are by definition not type-restricting. In fact, it can be proposed that unlike type-restricting possessors, token-restricting possessors saturate arguments of possessum nouns (cf. Barker 1995; Partee & Borschev 2000). And I would like to argue that that is why they do tend to be marked.

The idea is that the marking of possessors is intended (at least partly) to resolve the ambiguity arising in such cases as (14):

(14) Indonesian
a. rumah orang ini
house person DEM
'this person's house' or 'this house for persons'[13]
b. kawan Salim
comrade Salim
'Salim's comrade' or 'comrade Salim'

As is shown in (14), in a language where the juxtaposition strategy prevails, in the absence of other attributes, case markers and preposing obligatory used determiners, it is impossible to distinguish between token-restricting DP possessors on the one hand, and caseless type-restricting NPs on the other hand. At the same time, possessive markers can resolve this ambiguity[14]. This is in fact true even in Indonesian where the marking strategy is not favoured and perhaps, is used under the influence of Javanese (Alieva et al. 1972: 235):

(15) Indonesian (Alieva et al. 1972: 235)
kawan -nya Salim
comrade -3 Salim
'Salim's comrade'

Thus, generally possessive markers are required in order to show that a possessor phrase is token-restricting. Theoretically, this aim can be achieved either by making explicit the DP status of a possessor or by demonstrating that it is not caseless, both possibilities being seemingly equal[15]. But how can this be put into practice? Here we can recall the types of possessives observed in the beginning.

The first way, which is realized, for example, in Tondano (16) and Tukang Besi (17), is to mark both the DP status and the case by a special preposition. Since this possessive marker already shows that a phrase is a DP, it is not surprising to see that other means for marking the DP status cannot coexist with it, hence the label "article" which is used sometimes in respect to these prepositions.

(16) Tondano (Sneddon 1975: 118)[16]
m- bale ne tuama
DET house POS:Pl man
'the men's house(s)'

(17) Tukang Besi (Donohue 1999: 344)
te ana nu raja iso
CORE child POS king DEM
'the King's son'

The second way, namely the use of pronominal clitics or agreement markers, is somewhat more complicated. First, recall that in almost all the languages discussed here the use of these clitics does not require the use of overt possessors. This means in particular that even where these clitics can be used as agreement markers, they need not be coreferenced with dependent nominals — due to the pro-drop nature of these languages. Hence, dependent nominals can be interpreted as type-restricting, and this is an unfortunate result. The solution presented in the languages with clitic type possessives is to fix the position of clitics with respect to token-restricting possessors, placing them immediately before these phrases, as in (18):

(18) Lampung (Walker 1976: 18)
Hadat pekon asal -ni bapaq -ni kajong -ku pagun kuat.
custom village origin -3 father -3 spouse -1Sg still strong
'The traditions of the native village of my wife's father are still strong.'

As a result, the possessive clitics assign case to token-restricting possessives and at the same time can at least sometimes mark them as DPs providing an explicit reference to their left boundaries (hence the term "DP separation"). Not surprisingly, after that possessor phrases need not be marked as DPs. Indeed, in languages which have preposing articles, these are usually absent where phrases are used as token-restricting possessors. This is the case, for example, in Wolio and in Muna. Interestingly, however, both these languages do not prohibit articles in token-restricting possessor phrases (19-20) but rather only tend not to use them, so the incompatibility of possessive clitics and articles is not a structural phenomenon.

(19) Wolio (Anceaux 1952: 40)
o kapepuua -na o kariaa
ART beginning -3 ART feast
'the beginning of the FEAST'

(20) Muna (van den Berg 1989: 106)
ina -ndo o anahi -hi
mother -3Pl ART child -Pl
'the mother of the children'

At the same time, these clitics function as agreement exponents, hence the material located between them and their heads turns out to be incorporated. Thus, NP incorporation and DP separation seem to be mirror images of each other, that is, one complements another.

However, in languages with possessives of prepositional type, incorporation (in our sense, that is, framing of the postnominal material with an agreement marker) is not obligatory. And this is what we find in Tondano:

(21) Tondano (Sneddon 1975: 120)
m- pasar -ea səra?
DET- market -3Pl fish
'their fish market'

Similar to incorporated nominals, *səra?* 'fish' must be adjacent to the head in (21), still the pronominal clitic may be inserted between them. Since the status of this clitic is unclear, in particular, it is not apparent whether it constitutes a separate lexical item, scholars may choose whether to consider the dependent nominal in (21) as incorporated or not. What is important here, however, is that this "internal" position of a clitic is possible at least partly due to the fact that Tondano does have a possessive preposition.

4. Supporting counterarguments

There are further two pieces of evidence against our hypothesis (8). First of all, the distribution of the marking types sometimes does not follow this rule, so that token-restricting possessors may be unmarked. What we see is that this distribution generally follows predictions made by Nichols (1988: 581), who suggests that the higher a possessor is in definiteness, animacy and related "topicality" hierarchies, the more likely it is overtly marked as possessor. For example, in Tondano we find that a possessive preposition (the form of which is, in turn, determined by the number of a possessor) is used only with animate possessors (which do not accept the determiner) and not with other possible token-restricting possessors. Interestingly, this has only slight influence on the theory proposed above — in fact, DP possessors in Tondano are separated, although only by means of inserting a determiner[17]. Thus, DP separation does turn out to be required here — and it is only the very possessive marking that follows other rules than those suggested in (8). The example (22a) demonstrates two stacked possessives, of which the first is inanimate and the second is animate. Interestingly, now, apart from these determiners, occasionally inanimate possessors are also accompanied by possessive clitics (as in (22b)) — presumably reflecting the assignment of a case.

(22) Tondano (Sneddon 1975: 118, 119)

a. muri m- bale ni mantic
back DET- house POS:Sg Mantik
'the back of Mantik's house'

b. na?e -na n- tamporok
foot -3Sg DET- Tamporok
'the foot of (Mount) Tamporok'

Nevertheless, there do exist languages where DP separation does not occur (at least overtly) always. Thus, there are languages where possessive markers can be omitted in some instances. For example, in Muna possessors that are interpreted as animate can be introduced without a clitic (23)[18], and the same holds seemingly for all possessor phrases in Toba-Batak (24):

(23) Muna (van den Berg 1989: 88)
bhai -hi karambau Kainsedodo
friend -Pl buffalo Kainsedodo
'buffalo Kainsedodo's friends'

(24) Toba-Batak (Nababan 1966: 46)
tàrup (ni) jábu
roof POS house
'roof of a house'

These examples presumably cannot be captured semantically — at least until we have information on their actual occurrences in texts. Nevertheless, I

believe that the problem can be solved pragmatically through the well-known economy principle. Thus, I suggest that DP marking really may be optional where the category of a possessor phrase is recoverable (as is the case when a possessor is very likely to be definite/specific — as in Muna) or where it does not matter at all whether a possessor is type- or token-restricting[19]. It is important, however, that when a possessor phrase can be ambiguous, the absence of marking cannot be obligatory, but remains optional — if it is allowed at all. And judging from grammars, this is the fact.

To conclude this section, none of the presented counterexamples contradicts the idea of DP separation, although both of them require reformulation of our hypothesis (8) as (25):

(25) The distribution of the unmarked (juxtaposition) and marked possessive constructions depends on the type of a possessor: if the ambiguity between type-restricting and token-restricting possessive functions arises, juxtaposition is chosen for type-restricting possessor, while the marked construction is chosen for token-restricting possessor.

5. Some puzzles of possessive clitics

This section, completing the core of the paper, is intended to relate the operation of DP separation as described above to two puzzles posed by 3rd person possessive clitics, namely to some perturbations of these markers and their particular place in the development of languages of West Indonesia[20]. In addition, I will move to the East of the Brandes line and show how a certain feature of Oceanic languages may be inferred from what was suggested above.

The first puzzle posed by 3rd person clitics concerns languages where these clitics are the only clitics remaining from the rich Proto-Austronesian system described, for example, by Dyen (1974). Such a situation, which is found, for instance, in Madurese (example (26)), is actually quite surprising if we take into consideration another generalization from Nichols (1988), according to which 1st and 2nd person possessors are more likely to be head-marked than 3rd person possessors[21].

(26) Madurese (Ogloblin 1986: 108, 130)

a. parao bulà
boat 1Sg
'my boat'

b. lengngen -na sang kalambhi
sleeve -3 my[22] jacket
'sleeve of my jacket'

The theory outlined above, however, makes it possible to explain this violation of Nichols's observation. If 3rd person clitics are actually needed in order to underlie the DP category of a possessor, then they must be required even where

locutor possessors (which referential status cannot be doubted) are to be expressed with free forms.

The second puzzle is related to the neutralization of the number opposition within 3rd person clitics. Specifically, 3rd person singular clitics have superseded 3rd person plural clitics in all clitic type languages under discussion except for Muna, where, however, the number neutralization has already come into play (27). Thus, according to van den Berg (1989), in Muna the suffix *-ndo*, which originally functioned as a plural agreement morpheme (27a), denotes the plurality of either the possessor or the possessum (partly depending on the presence of other plural markers) in constructions with non-pronominal possessors (27b-c), while the suffix *-no*, which is a descendant of the 3rd person singular agreement morpheme, is now neutral with respect to number (27d):

(27) Muna (van den Berg 1989: 86, 87)

a. galu -ndo andoa
field -3Pl 3Pl
'THEIR field'

b. boku -hi -ndo muri (-hi)
book -Pl -3Pl pupil (-Pl)
'the books of the pupils'

c. motoro -ndo bhai -ku
motorbike -3Pl friend -1Sg
'the motorbikes of my friend(s)'

d. boku -no muri -hi
book -3Sg pupil -Pl
'the book(s) of the pupils'

Now, if we accept the view (presented in the previous sections) that 3rd person clitics do turn into purely syntactic markers of the DP possessor and of its boundaries, we can expect some semantic bleaching of the possessive morphemes accompanying their turning into construct morphemes or even pure possessive markers. I suggest that we consider the number neutralization as exactly such bleaching. This is supported by the fact that in the languages of prepositional type discussed here the neutralization in 3rd person clitics did not occur.

Finally, let me turn to East Indonesia and Oceania where we commonly find a specificity marker *na* (see Crowley 1985 for details). Its analogues are, perhaps, found in Formosan languages (Ülo Sirk, p.c.), and one can also relate *na* to the Tondano common noun determiner which is represented by a series of nasals, thus giving a possible variant *n-* (see examples above). Given the extremely prominent role of nasals in Austronesian grammars, it is difficult to make a precise hypothesis about the origin of the Proto-Oceanic specific marker. Still, I would like to mention another possible variant, namely that this specificity marker *na* may be related to the 3rd person singular clitic *-na* (as it is found exactly near the Brandes line), since the latter in fact — as I tried to argue above — could be considered as a marker of the boundary of a specific DP.

6. Conclusion

Summing up, in this paper I proposed that the distribution of dependent nominals in languages of West Indonesia may be described in terms of two processes, namely incorporation of type-restricting NPs and separation of token-restricting DPs. I suggested, further, that the separation function of possessive pronominal clitics may shed light on certain puzzles posed by these clitics. Nevertheless, such a representation of possessives in the languages considered here gives rise to some more general questions.

First, if NP incorporation is simply a mirror of DP separation, do we need to postulate both phenomena? If not, then which of them must we choose and how will we derive the properties of one from the properties of another? These questions appear immediately when we accept the structural view on these phenomena.

Second, can we regard NP incorporation and DP separation as synchronic processes, or must we view them as some diachronic ordering resulted in base-generated structures? Note that once we choose the diachronic perspective, we have to accept that the resulted structures are only optional and hence need not be recognized by Universal Grammar. However, if we think about these processes as synchronic, we should look at similar phenomena in other languages or at features of the discussed languages which make these processes possible.

The answers to these questions will certainly require a number of assumptions, however, and it is not my aim here to evaluate different assumptions.

Endnotes

* I am grateful to the organizers of AFLA 9 for their hospitality, to the audience of the conference for interesting discussion (not only during the sessions), and to Wayles Browne for useful comments and correcting my English. This material is based upon work supported in part by the National Science Foundation under grant No. BCS-9905748 to Barbara H. Partee and Vladimir Borschev. All errors are, of course, my own.

[1] Languages and sources used here are: Buginese (Sirk 1975); Iban (Asmah Hj. Omar 1981); Indonesian (Alieva et al. 1972; Alieva 1998; the author's data); Lampung (Walker 1976); Madurese (Ogloblin 1986); Muna (van den Berg 1989); Toba-Batak (Nababan 1966); Tondano (Sneddon 1975); Tukang Besi (Donohue 1999); Wolio (Anceaux 1952). In spite of the fact that these languages do not form a close genetic unit, they do show some structural similarity — at least in some features which can be attributed to the common Indonesian type (Alieva 1998). These features (whose concrete realizations can vary, however) concern mainly word order and verb morphology, although the facts observed below testify that some generalizations may also be found in the domain of the noun phrase.

[2] I regard possessive constructions (here) as a semantically unmarked combination of two nominals forming one nominal constituent, including therefore cases of, say, "material phrases" — such as Madurese *ettong bessè* 'metal cask' (lit. 'cask metal'; Ogloblin 1986: 126). Although the latter are often not considered possessive constructions, one cannot ignore the fact that they are marked (or unmarked) in the same way as possessives in a number of languages including English (cp. *a ring of gold*). On the other hand, I would certainly not like to count as possessives such cases as Madurese *orang paraowan* 'boatman', where the dependent is a derived verbal (here formed with the suffix *-an*; Ogloblin 1986: 95).

[3] Abbreviations in glosses: ACT — active voice, ART — article, COP — copula, CORE — core case, DEM — demonstrative, DET — determiner, NOM — nominative, OBJ — object (agreement), Pl — plural, POS — possessive marker, RDP — reduplication, REL — relative clause marker, Sg — singular; numbers denote persons.

[4] There are also a few innovative adnominal possessive constructions which I do not discuss here. These include, for example, constructions with *punya* 'have', *bagi* 'for', *dari* 'from' in Indonesian.

[5] The glossing of *-no* as 3Sg possessive clitic is a simplification, since it can be used sometimes with plural possessors (see van den Berg 1989: 86 where *-no* is glossed as POS); see section 5 for the discussion of the number neutralization in 3rd person pronominal possessives.

[6] One possible counterexample, namely Tondano, is discussed in Section 4.

[7] This distinction is, in fact, reminiscent of the well-known restrictive vs. non-restrictive distinction on the one hand and a whole family of such oppositions as reference-modifying vs. referent-modifying adjectives (Bolinger 1967), anchoring vs. non-anchoring possessives (Koptjevskaja-Tamm 2002), and even stage-level vs. individual-level predicates (Carlson 1980 et passim) on the other.

[8] This is not to say that non-restricting possessives are impossible (an example is *my John*); their use is highly marginal, however, and in many cases is limited to conventional formulae.

[9] When distinguishing between NP and DP here, I mean that only phrases which are considered DP can contain various determiners, such as demonstratives, prenominal numerative complexes etc.

[10] Actually, some patterns with these clitics are definitely similar to the classical instances of incorporation. Thus, according to Donohue (1999: 343-344), in Tukang Besi "possessive suffixes" are added to the head in nominative phrases (i) but follow any adjectival modifiers in other cases (ii):

(i)	Ku-	'ita	-'e	na	honda	-'u	to'oge.
	1Sg-	see	-3OBJ	NOM	motorbike	-2Sg	big
	'I see your big motorbike.'						
(ii)	Ku-	'ita	te	honda	to'oge	-'u	
	1Sg-	see	CORE	motorbike	big	-2Sg	
	'I can see your big motorbike.'						

This phenomenon has a parallel in Chukchi, a typical incorporating language, where noun modifiers are obligatorily incorporated in some oblique cases.

[11] For example, the argument concerning the distribution of clitics depends on whether we consider them to be agreement markers. At the same time, whether we consider them as such hardly depends on whether we think of type-restricting attributes as incorporated.

[12] Surely, they can be lexicalized when accidental properties they assign to tokens are rethought to be non-accidental. Still, their percentage in the lists of compounds presented in grammars is insignificant.

[13] David Gil (p.c.) pointed out that the phrase (14a) can also mean 'that one's person's house' with the demonstrative *ini* interpreted as an independent DP.

[14] The insertion of possessive markers in order to resolve possible ambiguities in juxtapositional structures seems to be a common feature of South-East Asian languages. It is widespread, for example, in Vietnamese.

[15] Here I assume that a noinal phrase is a DP iff it is not caseless (cf. Longobardi 1994).

[16] What I gloss as determiner in Tondano examples is interpreted as a "class marker" by Sneddon, although it is clearly used as a specifier in many cases; see also fn. 15. This fact will be relevant later.

[17] Note that Sneddon treats various allomorphs of this determiner ("class marker" in his terms; see fn. 14) as allomorphs of some possessive marker which are only homonymic to those of the determiner.

[18] Another example cited by van den Berg (1989: 88) is (i). Here, however, the possessor includes a personal article and furthermore is reduplicated, which suggests that the whole phrase is likely to be understood as a proper name (van den Berg 1989: 80), and hence a DP.

(i)	kalei	(-no)	ando-	a-	ndoke
	banana	(-3Sg)	RDP-	ART-	monkey
	'the monkey's banana tree'				

[19] Note, however, that the same claim may be applied to the Lampung example (18).

[20] As was pointed out to me by John Wolff, a number of phenomena concerning these possessive clitics may be attributed to their grammaticalization into markers of definiteness (see, for example, Ogloblin 1986: 95-97). It should be noted, however, that the latter function of possessive clitics does not coincide with that of European definite articles (cf. Ewing 1995), so the situation can be understood as the extensive use of possessive markers rather than as the use of these exponents as markers of definiteness (see Fraurud 2001 for discussion of similar cases).

[21] In fact, Nichols (1988: 580) cites one exception, namely Tlingit.

[22] Note that Madurese has one possessive pronoun *sang* 'my', which is used on a par with 1st person pronouns (which are mainly pronominal substitutes, however).

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Questions and the Left Periphery in Niuean

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0. Introduction

In this paper I will examine the structure of questions in Niuean, an Oceanic language of the Tongic subgroup (Pawley 1966, 1967) with predicate initial word order. Oda (2002) notes that there is a typological correlation between predicate initial word order and the use of cleft strategies for wh-question formation, and he argues that this is due to the requirement that the initial position in the language is a predicate position. Following Oda's insight, I attempt to correlate the properties of Niuean questions with other typological characteristics of the language, in particular with the nature of the left periphery in Niuean. It seems that left peripheral material in Niuean is entirely predicative, and I conclude that for some reason D elements are banned from this domain. This rules out movement of wh-words (as well as topicalized or focused DPs) forcing other strategies to be used instead, which involve wh-predicates and null operators.

1. Question Particles in Niuean

There are three question particles in Niuean (glossed as Q1,Q2, Q3 in the next few examples), as exemplified in (1).[1]

1. a. Kua kai **nakai** e Moka e apala
   Perf eat Q1 ErgP Moka AbsC apple
   "Did Moka eat the apple?"

   b. Kua kai **kia** e Moka e apala
   Perf eat Q2 ErgP Moka AbsC apple
   "Did Moka eat the apple?"
   ["mostly older speakers use *kia*"]

   c. Lalaga **ka** e ia e kato
   Weave Q3 ErgP she AbsC basket
   "Did she weave the basket?"

Ka and *kia* are more versatile than *nakai*. They can appear at the end of a sentence as a tag (2a,b), and they can appear with Negation (*na:kai* or *ai*) in which case they can appear on the negation particle (3a,b) or more markedly, on the verb (4a,b), or marginally, on both (5). In addition, *kia* can appear on a wh-

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word (6), although *ka* cannot (6b). *Nakai* cannot appear as a tag, or with negation, or with a wh-word (3c, 4c, 6c).

2. a. Kai e Mele e apala **kia**
Eat ErgP Mele AbsC apple Q2
"Did Mele eat the apple?"

b. Kua fano tuai a ia **ka**
Perf go Perf AbsP he Q3
"He has gone, hasn't he?" (Sp.135)

3. a. Ai **kia** mohe a Moka he mohega tose
Not Q2 sleep AbsP Moke Loc bed small
"Didn't Moka sleep in the small bed?"

b. Ai **ka** mohe a Moka he mohega tose
Not Q3 sleep AbsP Moke Loc bed small
"Didn't Moka sleep in the small bed?"

c. *Ai **nakai** kitia e koe e la: kua tokoluga
Not Q1 see ErgP you AbsC sun Perf high
("Can't you see that the sun is high?")

4. a. Na:kai kai **kia** e Mele e apala
Not eat Q2 ErgP Mele AbsC apple
"Didn't Mary eat the apple?"

b. Ai kitia **ka** he tau fanau e menulele
Not see Q3 ErgC Pl children AbsC bird
"Didn't the children see the birds?"

c. *Na:kai kai **nakai** e Moka e apala
Not eat Q1 ErgP Moka AbsC apple
(Didn't Moka eat the apple?")

5. a. Na:kai **kia** kai **ka** e Mele e apala
Not Q2 eat Q3 ErgP Mele AbsC apple
"Didn't Moka eat the apple?"

b. ?Na:kai **ka** totou **kia** e Mele e pepa
Not Q3 read Q2 ErgP Mele AbsC book
"Mele didn't read the book"
["too many things in this sentence, but it's alright"]

6. a. Ko hai **kia** ne manako a Moka ki ai
Pred who Q2 Nfut like AbsP Moka Loc ResPron
"Who does Moka like?"

b. *Ko hai **ka** e tagata i ko:
Pred who Q3 AbsC person there
("Who is that person there?")

c. *Ko hai **nakai** e tagata i ko:
Pred who Q1 AbsC person there
("Who is that person there?")

Given these distributions, it appears that *ka* and *kia* act as constituent question markers, not as Q force particles, and that *nakai* is the Q force particle in Niuean. The remainder of this paper considers only *nakai*, though of course many questions remain about the functions and properties of all three particles.

2. Wh-questions in Niuean

According to the Clausal Typing Hypothesis (CTH) of Cheng (1991:30), every clause must be typed for interrogative or declarative status. To type a clause as a question, languages can use either a particle in Comp, or movement. Cheng argues that if a language has yes-no question particles, then it also has wh-question particles, although the latter can be null. It follows from the CTH that no language has yes-no particles (and thus wh-particles) and also syntactic wh-movement, and that no language has the option of using either a wh-particle or syntactic wh-movement of wh-words to type a sentence as a wh-question (Cheng 1991:37). On question particles, see also Baker 1970, Greenberg 1963, Hagstrom 1998, and Vinet 2001, among others.

Niuean clearly has at least one question particle. In addition, in accordance with the CTH of Cheng, it has wh-in-situ.

7. a. Lalaga **e hai** e kato e:
Weave ErgP who AbsC basket this
"Who wove this basket?"

b. Figita e Moka **a hai**
Kiss ErgP Moka AbsP who?
"Who did Moka kiss?"

c. Kai aki e koe **e heigoa**
Eat with ErgP you AbsC what
"What did you eat with?"

d. Nofo a ia **he nofoa fe:**
sit AbsP he Loc chair which
"Which chair was he sitting in?" (S:107)

As well as in-situ wh-questions, Niuean wh-words can also appear, mostly with the predicative particle *ko* (proper) or *ko* e (common), at the left of the phrase.

8. a. **Ko hai** ne lalaga e kato e:
Pred who Nfut weave AbsC basket this
"Who wove this basket?"

b. **Ko hai** ne figita e Moka
Pred who Nfut kiss Abs Moka
"Who did Moka kiss?"

c. **Ko e heigoa** ne kai aki e koe
Pred AbsC what Nfut eat with ErgP you
"What did you eat with?"

d. **Ma hai** e tau mena kai e
Ben who Abs Pl thing eat this
"Who is this food for?" (Sp: 106)

Finally, Niuean apparently has another type of wh-fronting, where certain oblique PPs can appear after the verb, but before ergative subjects, normally disallowed if these PPs are not [wh]. Objects cannot appear in this position, even if [wh] (9d). (This construction has not been previously treated in the Niuean literature, and clearly needs further examination, especially to see if it is related to focus, or to observations in Finer 1997.)

9. a. *Totou he peito e Mele e pepa
Read Loc kitchen ErgP Mele AbsC book
("Mary read the book in the kitchen.")

b. Totou **he mena fe:** e Mele e pepa
Read Loc thing which ErgP Mele AbsC paper
"Where did Mary read the book?"

a'. *Totou ma e faiaoga e Mele e pepa
Read for AbsC teacher ErgP Mele AbsC book
("Mary read the book for her teacher.")

b'. *Totou ma haana e Mele e pepa
Read for him ErgP Mele AbsC book
("Mary read the book for him.")

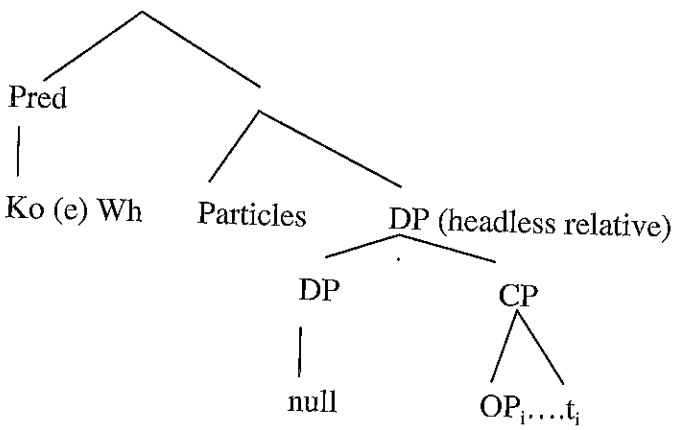
c'. Totou **ma hai** e Mele e pepa
Read for who ErgP Mele AbsC book
"Who did Mele read the book for?"

d. *Kai **e heigoa** e Moka
Eat AbsC what ErgP Moka
("What did Moka eat"?)

Niuean thus exhibits wh-questions in which the wh-words do not appear in their normal theta positions. If these questions involve wh-movement, the CTH is falsified. However, Niuean wh-fronting with *ko* (8) is clearly related to focus fronting (see arguments in Seiter 1980), and hence is not wh-movement (Boscovic 2000a,b, Kahnemuyipour 2002, Oda 2002). Instead, the relevant construction is a pseudo-cleft construction consisting of a focus predicate and a headless relative argument (as argued by Seiter 1980). See Paul 1999, 2001, Chung 1998, Davies 2000, Cole, Hermon, and Aman 2001, Bauer 1991, Georgopoulos 1991, Kroeger 1993, Pearson 1996, Richards 1998 and others on similar constructions in various Austronesian languages. The relation between wh-questions and clefts can be seen by comparing the wh-questions in (8) to the focus cleft in (10a). (10b) shows the structure for a focus cleft construction, modeled on Seiter (1980), Paul (2001) and Georgopoulos (1991).

10. a. Ko Moka ne kaiha: e apala
Pred Moka Nfut steal AbsC apple
"It's Moka who stole the apple."

b. <u>WH-fronting/Cleft-fronting</u>



Now consider Niuean 'short' wh-fronting (9), restricted to obliques. This movement is similar to "simple preposing" of adverbial elements whereby adverbs can be preposed although "neither topic nor focus, and possible in out of the blue contexts" (Rizzi 2002). The difference is that in Niuean, only wh-

adverbials can undergo this preposing. This latter fact makes this movement look very much like a form of wh-movement (in that it applies only to wh-words), yet it is unlike wh-movement in that it is optional, and does not appear to involve movement to CP. For now, we will assume that it is not wh-movement, but it is not clear why it is restricted to wh-words. This assumption allows us to conclude that Niuean does not have wh- movement as a form of Clausal Typing.

3. The Structural position of *ko*+wh and *ko*+focus

In the preceding section, we posited that wh-structures with *ko* are like predicate clefts and have the structure in (10b), where the focus/Wh [*Ko*+DP] is not in a Focus position (i.e. specifier of a Focus phrase) but is indeed in the normal initial predicate position. (See Paul 1999, 2000.) It can be argued that *ko*+focus elements are predicates, since they appear, like normal predicates, between the negative particle and the other adverbial and emphatic particles, as shown in (11). (Seiter 1980, Lazard & Peltzer 1991, Massam 2000).

11. Niuean Word Order (TAM = Tense, Aspect, Mood marker = Comp)

NOTE: PRED = Ko+wh, Ko+Focus, Predicate Nom'l, Verb(+Inc'd NP)

TAM	*Neg*	**PRED**	*Particles*	*Q*	S	O	IO	Obl

12. a. Ko Lemani *nakai* ne moto a koe
Pred Lemani Q1 Nfut punch Abs you
Was it Lemani who punched you?" (S.100)

b. Ko e tipolo *agaia ni:* ne inu ai a lautolu
Pred AbsC lime still Emph Nfut drink Respron AbsP they
"It's still only lime juice that they are drinking" (S.100)

c. *Ai kia* ko koe ne kaiha: e pasikala ha Salate
Not Q2 Pred you Nfut steal Abs bicycle of Salate
"Wasn't it you who stole Salate's bicycle?" (S.100)

(12a,b) show that *ko*+Focus comes before the post-predicate particles, and (12c) shows that it comes after the pre-predicate negative particle (which can have *kia* attached, as noted above in (3a)).

The data in (13) below might cast doubt on the analysis that *ko*+wh is a predicate like *ko*+focus, since *ko*+wh does not so clearly appear in the predicate environment. However, we have already noted that negation is incompatible with the Q-particle *nakai*, which according to Cheng's arguments also appears (as a null element) in wh-questions. The ungrammaticality of (13a) is thus independently explained, and does not argue against analyzing *ko*+wh as a

predicate. Since *ko*-DP does not generally co-occur with TAM particles (13b), it is hard to really show that the *ko*+wh is in the usual predicate position in terms of what precedes it. However, we can see from (13c) that *ko*+wh is in the same position as *ko*+focus, and as normal predicates, in terms of the following adverbial particles.

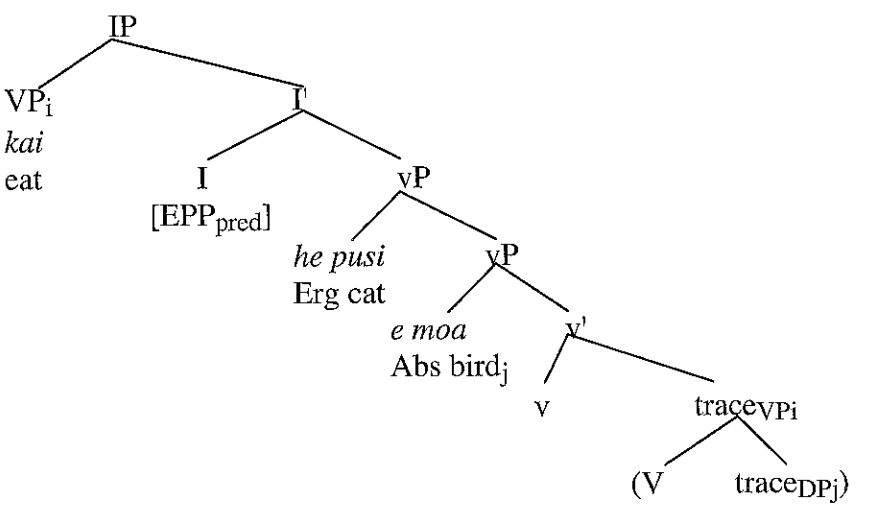
13. a. **Ai* **ko heigoa** ne kai e koe
Not Pred what Nfut eat ErgP you
(What don't you eat?")

b. *?Ne* **ko e heigoa** ne kai e au
Pst Pred AbsC what Nfut eat ErgP I
"What did I eat?"
["a bit odd, but you do hear it"]

c. **Ko hai** *agaia* ne fakaalofa a Moka ki ai
Pred who still Nfut love AbsP Moka Goal Respron
"Who does Moka still love?"

If the *ko*-DPS are in predicate position, we must identify where this predicate position is. In (14) I provide the analysis of Niuean clause structure that I am assuming, as argued for in Massam (2000, 2001a,b), where the predicate (here, VP) is in the specifier of IP.

14. Niuean Transitive Clause



Given this analysis, the proposal is that *ko*-wh, like *ko*-focus phrases, are in the specifier of IP. It is not clear whether this is their merge position or a position to which they are moved, but based on Oda (2002), I assume they are moved to specifier of IP as predicates.

4. The Left-periphery of VSO

If both focused DPs and wh-DPs are predicates, as discussed above, then what emerges is that the structure of the left periphery of Niuean must be quite different from that of Italian, the language most studied in this regard (Rizzi 1997, 2001, 2002, Belleti 2001, and others). Rizzi proposes the structure in (15) for the Italian left periphery. In (16) I show the Niuean left periphery.

15. The structure of the (Italian) Left Periphery (Rizzi 1997, 2001, 2002)

Force Top Int Top Foc Top Mod Top Fin T
[Q,Neg]

16. The structure of the the Niuean left periphery

Top Force Neg Mod Pred T [Q/Int]

When we compare the two structures, we can arrive at the following picture, where all that appears in Italian but not in Niuean has been crossed out. Where there are non-identical correspondences rather than absences, Niuean elements are shown on the lowest line.

17. Comparisons between Niuean and Italian Left Periphery:

Force Top Int ~~Top~~ ~~Foc~~ ~~Top~~ Mod ~~Top~~ ~~Fin~~ T
[~~Q~~ ~~Neg~~]
Neg Pred I Q/Int

We can make several observations about the relation between the Italian left periphery and that of Niuean. The first two indicate that Niuean does not allow DPs in the left periphery. (1) Topics are only possible at the Niuean far left, in a position that is clearly base-generated and not moved (Seiter 1980). We consider this position to be outside what is normally meant by the term 'left periphery'. There are no Topicalized DPs in the Niuean left periphery between Force and IP, unlike Italian, which can have several. (2) There are no Focused DPS in the left periphery of Niuean, unlike Italian.

The next two points have to do with the nature of the negation/interrogative system in the languages. (3) The Italian interrogative position (Int) contains an interrogative element *se* "if", whereas in Niuean this position instead contains Neg. In Italian, Neg is on T and forces T to C movement. (4) Int is low in Niuean, acting more like the Q of Italian. An important point to note here is that the Niuean Q particle in Int is related to Neg in two ways. There is a clear phonological similarity between the two forms: *nakai* (Q) and *na:kai* (Neg), and they are in complementary distribution. Since Neg and

Int are related categories, it is not surprising that the morphemes can alternate their location from one of these functional heads to the other across languages.

A final difference between the two systems is that there does not seem to be a counterpart to Fin (infinitive complementizer *di* "of" in Italian) in Niuean, maybe because there are no true infinitives in Niuean (but this requires further study).

One conclusion we can draw from the above comparison is that the Niuean left (of INFL) periphery is a predicate domain, allowing no D-features, hence no D elements. If this can be derived from something, it would explain why there are no Topic or Focus nodes in the left periphery. It also would explain why there can be no wh-movement in Niuean. Wh-words can appear in-situ, or as focused predicates. How generalizable this situation is to other VSO languages remains to be seen (Pearce, 1999, Roberts, 2002). Remaining to account for are the short wh-movement sentences in (9). For these, we assume that wh-adjuncts can undergo scrambling from Spec/vP (where other non-wh-adverbs can appear) to Spec/IntP. If this is the landing site of the movement, then this movement option would not be available to non-wh-adjuncts assuming there is a requirement for head/specifier feature matching. There is a slight difficulty here, though, in that this movement is optional, hence a form of scrambling, yet feature matching is required. We leave these issues aside, pending further study of these structures.

5. Covert question movement in Niuean

Given that there is no overt movement to CP of wh-words in Niuean, we might ask if there is covert movement of wh-words in in-situ sentences. If so, where to? (Huang 1981, Cole and Hermon 1995, Richards 1997, many others.) Relatedly, we can ask if there is operator movement in *ko*-wh questions, and if so, where to?

In answering these questions, note that questions obey the complex NP constraint, weakly in situ, but strongly if *ko*-questioned

18. a. Fiafia a Mele ke he pepa ne totou e Sione
happy AbsP Mele Goal book Nfut read ErgP Sione
"Mary is happy with the book that Sione read"

b. ??Fiafia a Mele ke he pepa ne totou **e hai**
happy AbsP Mele Goal book Nfut read ErgP who
Who was Mele happy with the book that (they) read?"
["not wonderful"]

b.'. ??Totou e Mele e pepa ne tohi **e hai**
Read ErgP Mele AbsC book Nfut write ErgP who
Who did Mele read that book that (they) wrote?"

c. ***Ko hai** ne fiafia a Mele ke he pepa ne totou
Pred who Nfut happy AbsP Mele Goal book Nfut read
("Who was Mele happy with the book that (they) read?")
["really bad! Worse than preceding"]

c'. ***Ko hai** ne totou e Mele e pepa ne tohi
Pred who Nfut read ErgP Mele AbsC book Nfut write
("Who did Mele read the book that (they) wrote?)

In addition, questions violate Weak Crossover, weakly in situ but strongly if *ko*-questioned.

19. a. Fakahakehake he faioaga haana$_i$ ni: a ia$_i$
Praise ErgC teacher his own Abs he
"His$_i$ own teacher praised him$_i$"

b. ?Fakahakehake he faioaga haana$_i$ ni: **a hai$_i$**
Praise ErgC teacher his$_i$ own AbsP who$_i$
"Who$_i$ did his$_i$ own teacher praise?"
["Ok but not great"]

c. ***Ko hai$_i$** ne fakahakehake he faiogoa haana$_i$ ni:
Pred who$_i$ Nfut praise Erg teacher his$_i$ own
("Who$_i$ did his$_i$ own teacher praise?")
["not good at all"]

Note that Weak Crossover is not violated at all if there is a resumptive pronoun, that is, if a non-subject/non-object is questioned. Weak cross-over effects also disappear if the reflexive-emphatic element *ni:* is not used.

20. a. Fiafia e matua fifine haana$_i$ ni: **ki a hai$_i$**
happy AbsC parent woman his own Goal AbsP who
"Who is his own mother happy with?"

b. **Ko hai$_i$** ne fiafia e matua fifine haana$_i$ ni: ki ai$_i$?
Pred who$_i$ Nfut happy AbsC parent woman his$_i$ own Goal ResPron$_i$
"Who is his own mother happy with?"

c. Fegeta he matua fifine haana$_i$ **a hai$_i$**?
Kiss ErgC parent woman his$_i$ Abs who$_i$
"Who did his mother kiss?"

Ko-Questions obey the wh-island constraint. (Data is not available for in-situ questions.)

22. *Ko e heigoa ne iloa e koe [ko hai ne kaiha]
Pred Abs what Nfut know ErgP you Pred who Nfut stole
("What do you know who stole?")

Another relevant fact in this regard is that complementizer (TAM) selection is changed in context of relative clauses, *ko*-clefts, and *ko*-questions (Seiter 1980).

23. Sentence-Initial Complementizers (TAMs) in Matrix Clauses

PAST	FUTURE	PROGRESSIVE	PERFECT	SUBJNCTV
ne/na	to	ha: ne	kua	kia

Sentence-Initial Complementizers (TAMs) in Operator-Extraction Clauses

PAST/PRESENT(Nfut)	FUTURE	PROGRESSIVE	PERFECT
ne	ka	ne fa: e	(ne) kua

From the above, it seems clear that operator movement is involved in the case of *ko*-questions, and that the operator moves to Force, i.e. Complementizer position. This does not contradict the Predicate nature of the Niuean left periphery because operators are not D-elements. It is less clear whether movement is involved in the in-situ cases, so I will leave this as an open question for now.

6. Conclusion

In this paper we have claimed that the lack of wh-movement in Niuean is tied in with the lack of topicalized and focused DPs in the same domain. The overall idea is that the left (of IP) periphery in Niuean is a D-free domain (although it is not clear why), and that this has implications for the grammar of the language. Our findings are consistent with Oda's (2002) claim that VSO languages utilize cleft strategies for questions, though it is not clear if other VSO languages share the same left-peripheral properties with Niuean. In section 5 we showed that while there is no movement of wh-words in Niuean, at least questions with *ko* appear to involve operator movement to the CP domain.

Endnotes

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1. Data in this paper are from Sperlich 1997 (=Sp), or Seiter 1980 (=S), as specified, otherwise they are from my own field notes. I use a colon in place of the orthographical macron to indicate vowel length. Abbreviations used are fairly standard, but note that P (as in ErgP, AbsP) stands for Proper or Pronoun, whereas C (as in ErgC, AbsC) stands for Common. Other abbreviations which might cause confusion are Nfut = Nonfuture, Pred = Predicate particle.

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Post-Syntactic Passivization and the Abstract Clitic Position in Indonesian

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1. Introduction

The study of passive has a long history with many aspects. One of the central issues in theoretical linguistics is whether passivization occurs in the lexicon (Chomsky 1981 and most LFG works) or in the syntax (Chomsky 1957 and Baker, Johnson, and Roberts 1989). In this paper I propose that passivization in Indonesian occurs neither in the lexicon nor in the syntax, but in the post-syntactic component of morphology in the sense of Distributed Morphology (Halle and Marantz 1993, Nishiyama 1998, 1999). In particular, I argue that the essence of Indonesian passivization is that the object trace activates an abstract clitic position. Since the object trace is available only after the syntax, the analysis provides evidence for the post-syntactic nature of morphology. Section 2 discusses theoretical questions that Keenan and Comrie's (1977) Accessibility Hierarchy account raises for Indonesian passive and motivates the post-syntactic nature of Indonesian passive. Section 3 gives an elaborated analysis utilizing the abstract clitic position activated by the object trace. Section 4 argues that the demoted Agent could be in the object position. Section 5 motivates the analysis of section 4 by giving speculations on the possibility of ergativity in Indonesian. Section 6 discusses post-verbal Theme as more evidence for the demoted Agent in the object position. Section 7 concludes the paper.

2. Non-Case-Driven Passivization

The part of Keenan and Comrie's influential Accessibility Hierarchy relevant for Indonesian passive is summarized as follows:

(1) *Accessibility Hierarchy* (Keenan and Comrie 1977, 1979, Comrie 1981)
In many Western Austronesian languages (Indonesian included), only subjects can be relativized.

(2) a. Orang itu mem-beli buku itu
man that Trans-buy book that
'The man bought the book.'

b. Ini orang yang mem-beli buku itu
this man Comp Trans-buy book that
'This is the man that bought the book.'

c. *Ini buku yang orang itu mem-beli
this book Comp man that Trans-buy
'This is the book that the man bought.'

d. Ini buku yang di-beli oleh orang itu
this book Comp Pass-buy by man that
'This is the book that the man bought.'
Lit: 'This is the book that is bought by the man.'

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(2a) is a basic transitive sentence and in (2b), the subject is relativized. Note that there is a transitive marker in (2b), and one cannot relativize the object in the transitive sentence in a similar way, as shown in (2c). Rather, the sentence must be passivized, as in (2d). According to the Accessibility Hierarchy Hypothesis, (2c) is bad because it involves object extraction. In (2d), on the other hand, *passivization* applies prior to relativization, so the extraction is actually out of the *subject* position.

However, this account is exactly the *opposite* of the subject-object asymmetry familiar in the ECP literature, which says that the object is easier to extract than the subject. Although the theoretical status of the ECP is not clear in the current Minimalism, its empirical substance remains important, and it is unlikely that the ECP is effective in an opposite way in Indonesian (and Western Austronesian languages for that matter). In this sense, I am in full agreement with Cole and Hermon's (1998b) position that "the Accessibility Hierarchy is epiphenomenonal, and [...] Indonesian does not provide support for the Accessibility Hierarchy as an independent principle of grammar."[1]

In light of this, the fundamental standpoint of this paper is that there is nothing wrong in extracting the object in (2c) in syntactic terms (cf. Cole and Hermon 1998b), and that (2c) is ruled out for a *morphological* reason in the sense to be elaborated below.

The passive counterpart of (2a) is (3):

(3) Buku itu di-beli oleh orang itu
book that Pass-buy by man the
'The book was bought by the man.'

As noted by Chung (1976), the active/passive alternation in Indonesian is discourse-oriented. But with A'-movement as well, one must have passive. We have seen that relativization of the object involves passive. Below are other cases of A'-movement which involve passive:

(4) a. Apa yang di-beli oleh orang itu?
what Comp Pass-buy by man that
'What did the man buy?'
Lit: 'What is it that is bought by the man?'

b. *Apa yang orang itu mem-beli?
what Comp man that trans-buy
'What did the man buy?'

(5) Yang pilang sering di-pakai oleh orang itu, kereta api.
Comp most often Pass-use by people that train
'What people most often use is the train.'

In wh-questions (4) and pseudo-clefts (5), when object movement is involved, passive is obligatory. Although the wh-question in (4a) might be a case of clefts and what is moved is actually a null operator in (4-5) (cf. Cole, Hermon, and Aman (n.d.)), at least the above sentences show that A'-movement induces passive. Since A'-movement is not Case-driven, I conclude that Indonesian passivization is not Case-driven, either. In previous works of Indonesian passive (e.g., Chung (1976: 93) and Sie (1989: 448)), wh-movement was considered to be peripheral to the passive and it was not explained why passive must be used in that construction. But I would take A'-movement as crucial evidence that passive in Indonesian is not Case-driven. In this sense, Indonesian passive is quite different from the standard English-type passive, which is Case-driven.

Below are the basic intuition and a first theoretical implementation of it for analyzing Indonesian passive:[2]

(6) *Basic intuition*
Passivization in Indonesian is a *morphological* reflex of a syntactic structure in which an NP has moved.

(7) *First theoretical implementation*
Passivization in Indonesian is induced by the object trace.

In the standard analysis of passive, A movement is an automatic *result* of passivization. But in Indonesian, object movement is the *cause* of passivization. Whether the movement is due to a discourse-oriented reason (3) or an A' feature reason (2, 4-5), when an object moves, passivization occurs.

Since object traces are available only after syntax, the analysis provides evidence for the post-syntactic level of morphology in the sense of Distributed Morphology (Halle and Marantz 1993, Nishiyama 1998, 1999). Although not articulated in this way, this kind of movement/trace feeding morphology is not novel in the Austronesian literature. Chung (1994, 1998) argues that Chamorro wh-agreement is triggered by a wh-trace. Cole and Hermon (1998a (n.19), 1998b) argue that the Indonesian/Malay transitive marker *meN-* is deleted when an NP moves across a verb. The latter analysis is mentioned in the appendix.

3. The Abstract Clitic Position Activated

As a further implementation of (6-7), I postulate working hypotheses as follows:

(8) (i) The object trace activates the abstract clitic position.

(ii) The activated clitic position is licensed by the passive prefix *di-* or by cliticization.

There are three ways to license the activated clitic position. One is by the passive marker *di-*, as we saw in (2d, 3-5). The other two are by cliticization, either overt or covert. Overt cliticization is illustrated in (9b) and (10b):

(9) a. Buku ini akan aku beli
book this will I buy
'This book will be bought by me.'

b. Buku ini akan ku-beli
book this will I-buy
'This book will be bought by me.'

(10) a. Buku ini akan engkau beli
book this will you buy
'This book will be bought by you.'

b. Buku ini akan kau-beli
book this will you-buy
'This book will be bought by you.'

aku in (9a) and *engkau* in (10a) are independent pronouns (i.e., free forms), but their reduced alternants in (9b) and (10b) are dependent pronouns (i.e., bound forms) and cliticizes onto the verb (i.e., overt cliticization). But what about the pronouns in (9a) and (10a)? I suggest that they undergo *abstract* cliticization:

abstract cliticization

(11) [$_{IP}$ Buku ini$_i$ akan [$_{VP}$ engkau Ø-beli t$_i$]]
book this will you buy

In (11), the Agent, which originates in Spec VP, abstractly cliticizes onto the verb. Ø indicates the abstract clitic position.[3] The cliticization here is a case of Merger, which requires adjacency (Halle and Marantz 1993).[4] This explains why the Agent and the verb in (9a) and (10a) should be adjacent to each other:

(12) *Buku ini engkau akan beli
book this you will buy
'This book, you will buy.'

Compare (10a) to (12). In ordinary transitive sentences, the auxiliary comes between the subject and the verb. Thus, if what is involved were simply object preposing, the order would be (12), which is ungrammatical.[5] Although Chung (1976) refers to sentences like (9a/10a/11) as "object preposing," she convincingly shows that the fronted object occupies the canonical subject position (Spec IP in current terms), making it plausible to refer to the construction under consideration as "passive." But as we have seen, Indonesian passive is not Case-driven. This is reflected in Chung's referring to the construction as "object preposing," which is not Case-driven.

The intuition that cliticization is involved in (9a/10a/11) is actually common in the literature. For example, Chung (1976: 60) states that the subject in such a construction "optionally cliticizes to the main verb." In Conners (2001), pronouns are full pronouns in active sentences but are "special clitics" in passives. My differentiation between overt and abstract cliticization is to make a distinction between independent (i.e., full) pronouns and dependent (i.e., reduced) pronouns. If the latter distinction turns out to be insubstantial, then there might be no need to differentiate between overt cliticization and covert cliticization.[6]

The following sentences illustrate how the proposed system works:

(13) a. *Buku ini$_i$ Ø-beli t$_i$ oleh orang itu
book this buy by man that
'This book was bought by the man.' (cf. 3)

b. *Buku ini$_i$ akan Ø-beli t$_i$
book this will buy
'This book will be bought.' (cf. 9/10)

(14) a. Orang itu akan __beli buku itu
man that will buy book that
'The man will buy the book.'

b. *Ini buku yang orang itu mem-beli
this book Comp man that Trans-buy
'This is the book that the man bought.' (=2c)

(13a-b) are bad because the activated clitic position (Ø) is not licensed by *di-* or a cliticized pronoun. (14a) has no prefix but is acceptable in colloquial speech. This is because there is no object trace and thus there is no activated clitic position to be licensed. Returning to (2c), repeated as (14b), it is ungrammatical because the transitive marker *meN-* cannot license the activated clitic position. The cliticization here has two effects. One is that, by cliticizing, the Agent would be Case-licensed without being in a place where a structural Case is assigned (cf. Baker 1988, 1996). The other is that the cliticization of the Agent licenses the activated clitic position.

Since only heads can undergo cliticization, a phrasal Agent cannot appear preverbally. Consider:

(15) Buku ini akan saya/kamu/dia/mereka/*orang itu beli
book this will I / you / he / they / man that buy
'This book will be bought be me/you/him/the man.'

(15) indicates that only a pronoun can precede the verb in passive. If pronouns in Indonesian are heads, i.e., of the X^0-level category, the above paradigm implies that only a head can undergo cliticization and license the clitic position.[7] The assumption that Indonesian pronouns are heads is confirmed by the following:

(16) a. Buku itu akan di-beli oleh mereka itu
book the will Pass-buy by they those
'The book will be bought by those people.'

b. *Buku itu akan mereka itu beli
book the will they those buy
'The book will be bought by those people.'

mereka in isolation means 'they'. As (16a) shows, this pronoun can be modified by a determiner *itu* 'those,' meaning as a whole 'those people'. When modified by this determiner, the pronoun can only follow the verb (16a), and cannot precede it (16b). Recall from (15) that *mereka* in isolation precedes the verb: note the contrast between (15) and (16b). Following Hestvic (1992), I assume that modifiability of a pronoun is a sign of its X^0-level status,[8] and that when a head is modified, it projects to a maximal projection. Thus, while *mereka* in isolation is a head, *mereka itu* is a maximal projection. Since only a head can license the abstract clitic position and *mereka itu* is not a head, the position is not licensed in (16b). The only way left for the position to be licensed is to be filled by *di-*, and the Agent is moved rightward to follow the verb, as in (16a).

It is often assumed in the literature that there are two types of passives in Indonesian: one with *di-* and the other without *di-* as (15). The latter *di*-less passives are referred to as Type II (Dardjowidjojo 1976, Sneddon 1996) or Subjective Passive (Sie 1989, Guilfoyle et al. 1992). To the extent that I formulate the licensing condition disjunctively as "The activated clitic position is licensed *either* by *di- or* by cliticization," I follow this dichotomic approach to Indonesian passive. However, I make a one step toward a unified analysis of the construction when I say that in both types of passives, an activated clitic position is involved.

As noted by Chung (1976), there are semantic differences between the two types of passives: while *di*-less passives like (15) are eventive, *di*-passives like (16a) are stative. From a unified point of view, such a semantic difference would be attributed to conditions on the Agent demotion: the Agent can stay in Spec VP when the sentence is eventive. But note that such an option is available only for pronouns, which are heads. Full NPs, which are maximal projections, cannot stay in Spec VP and must be demoted. Thus, while pronominal Agent can appear either preverbally

or post-verbally, enjoying semantic differences, a full NP Agent like *orang itu* 'the man' can only appear post-verbally in passive. Examples with post-verbal pronominal Agent and the process of Agent demotion will be discussed in the next section.

Some reader might have noticed that if *di-* is a clitic, then a unified analysis would be possible, because then attachment of *di-* is a case of cliticization. As a matter of fact, it is often assumed, both traditionally and in theoretical works (e.g., Guilfoyle et al. 1992: 400), that *di-* is a reduced form of the third person pronoun *dia*. However, as argued convincingly by Conners (2001) and Musgrave (2001), there are several pieces of evidence that *di-* and *dia* are unrelated. Thus, I keep on treating cliticization and *di-* attachment as distinct processes.[9]

Some comments on Guilfoylle et al (1992) are in order. My analysis of *di*-less passive in (11) is similar to Guilfoylle et al's (1992: 402) analysis of *di*-passive in that they both have the Agent in Spec VP. However, while Guilfoylle et al assume that *di-* is related to *dia* (see the discussion in the previous paragraph), I assume that *di-* and *dia* are unrelated. For *di*-less passive, they (p. 401) argue that (17) is analyzed as (18):

(17) anjing itu ku-pukul
dog that I-hit
'The dog was hit by me.'

(18) $[_{IP}$ anjing itu_k $[_I$ ku_n-$pukul_i$ $]$ $[_{VP}$ t_n $[_V$ t_i $]$ $t_k]]$

Here, both the subject and the verb head-move to I and amalgamate there. But it is not clear where the auxiliary in (10a) will be located in their analysis, if I is so occupied:

(10) a. Buku ini akan engkau beli
book this will you buy
'This book will be bought by you.'

(They do not cite examples with an auxiliary.) See Adisasmito-Smith (1998) for other problems with verb raising in Indonesian.

One might think of an alternative to (11) as in (19), analogous to the V2 effect in Germanic languages:

(11) $[_{IP}$ Buku ini_i akan $[_{VP}$ engkau Ø-beli $t_i]]$
book this will you buy
'This book will be bought by you.'

(19) $[_{CP}$ Buku ini_i $akan_j$ $[_{IP}$ engkau t_j $[_{VP}$ beli $t_i]]]$

However, as shown by Chung (1976), the fronted object in the construction in question is in the subject position, which is Spec IP in current terms. Besides, the preverbal Agent and the verb are strictly adjacent and no element can intervene between the pronoun and *beli* in (9a/10a). Such facts are best accounted for in the structure in (11). Note that if an adverb adjoins to VP in (19), an ungrammatical sentence as in (20) would be derived:

(20) *$[_{CP}$ Buku ini_i $akan_j$ $[_{IP}$ engkau t_j $[_{VP}$ juga $[_{VP}$ beli $t_i]]]]$
book this will you also buy
'This book will also be bought by you."

4. Demoted Agent

In this section we discuss the demoted Agent. In (21a), the Agent is unspecified, just like the English translation:

(21) a. Buku ini di-beli
book this Pass-buy
'This book was bought.'

b. Buku ini di-beli-nya
book this Pass-buy-he
'This book was bought by him.'

To mean 'This book was bought by him,' there must be an enclitic *-nya* (21b). For 'This book was bought by the man," *oleh orang itu* 'by the man' is used, and *oleh* 'by' is usually optional:

(22) Buku ini di-beli (oleh) orang itu
book this Pass-buy by man that
'This book was bought by the man.'

Crucially for our discussion, when an adverb intervenes between the verb and the Agent, *oleh* is obligatory:

(23) Buku ini di-beli juga *(oleh) orang itu
book this Pass-buy also by man that
'This book was also bought by the man.'

In other words, without *oleh*, the Agent must be adjacent to the verb. I analyze this situation as follows:

(24) *The Position of the Demoted Agent*
The Agent with *oleh* is a (VP-)adjunct, but the bare Agent without *oleh* is in the *object* position.

(24) explains why the bare Agent without *oleh* is adjacent to the verb. In ordinary (i.e., non-A' related) passive, the Theme is the topic and the Agent is relatively less salient. Due to this "detopicalization" effect, the Agent is demoted to the post-verbal position.[10] There are two ways for its licensing. One is that *oleh* licenses the demoted Agent as an adjunct (cf. Guilfoyle et al. 1992). The other is that *a covert enclitic* licenses the demoted Agent in the object position as a case of *clitic doubling*. Specifically, let us assume that there is a covert counterpart of *–nya* 'by him' encliticized onto the verb. This accounts for the following speaker variation (cf. Chung 1976: 61 and Sie 1989: 40):

(25) Buku ini akan di-beli-$\emptyset_{nya}$ dia/mereka/orang itu/?saya/?kamu
book this will Pass-buy he / they / man the / I / you
'This book will be bought by him/them/the man/me/you.'

In the post-verbal position, the 1st and 2nd persons are less felicitous than the 3rd person. Suppose that the covert enclitic is specified as the third person. Then, when *saya* or *kamu* follows the verb, there is a feature mismatch between the licenser (-$\emptyset_{nya}$) and the licensee (*saya* or *kamu*). Those speakers who allow this mismatch accept the sentence, but those who do not, do not.

The analysis so far is summarized in the following sample derivation:

(26) a. [$_{VP}$ orang itu beli buku ini] (original structure)
man that buy book this

↓ object moves (topicalization)

b. buku ini$_i$ [$_{VP}$ orang itu beli t$_i$]

↓ object trace activates the abstract clitic position

c. buku ini$_i$ [$_{VP}$ orang itu Ø-beli t$_i$]

↓ clitic position licensed by *di-*

d. buku ini$_i$ [$_{VP}$ orang itu di-beli t$_i$]

↓ Agent moves into object position to be licensed

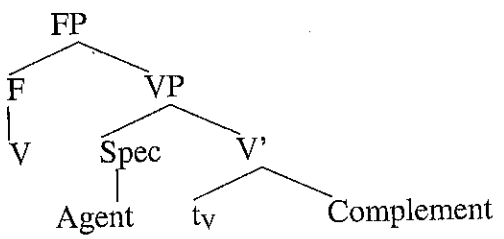
e. buku ini [$_{VP}$ t$_j$ di-beli-Ø$_{nya}$ orang itu$_j$]

Moving to object is theoretically possible by assuming either (i) there is no Projection Principle, or (ii) even though the object trace is replaced by the demoted Agent, the (pro)clitic position serves as a "shadow" of the object trace, because the latter activates the former, and this position takes overt the functions of the object trace.

The analysis is consistent with Myhill's (1988) intuition that the *oleh*-less Agent is incorporated to the verb. See also Chung (1990, 1998) for a similar analysis for Chamorro. Both authors note that the verb and the post-verbal Agent are tightly knit. But what is involved cannot be Incorporation in a theoretical sense, because Incorporation is head movement. Thus, when the Agent is phrasal, it cannot undergo Incorporation. The proposed analysis captures their intuition by means of a phrasal mechanism of head-complement relation.

While the present analysis captures the adjacency effect as a head-complement relation, there is at least one alternative with the same effect:

(27)



In this alternative, the subject stays in situ at Spec VP and the verb raises to a higher functional head (labeled F). Guilfoylle et al's (1992: 402) analysis is along this line, with IP for FP. But as we have seen in (17) and (18), there does not seem to be V-to-I movement in Indonesian. Can FP be some other projection, then? Actually, outside the Austronesian literature, capturing adjacency by means of V-raising is proposed by Koizumi (1995) and recently adopted extensively by Bowers (2002). Collins (2002) also utilizes VP-raising to account for why the Agent is post-verbal in English passive. The exact labels of F range from AgrOP, vP, TrP to byP. Although I do not claim that this kind of alternative cannot be extended to Indonesian passive, one must explain in this account why the verb raises only in passive. Recall that the

Agent precedes the verb in transitive sentences, and besides, pronominal Agents can precede the verb in passive.

One might wonder how the demoted Agent is Case-licensed. I suggest that although the *oleh*-less Agent is in the object position, it is an adjunct and exempt from a Case-concern like bare NP adverbs. This is consistent with Baker's (1996) analysis of polysynthesis languages, where overt NPs are coindexed with covert pronouns and licensed as adjuncts in a way similar to clitic doubling. There is evidence in Indonesian that the demoted Agent is an adjunct. Consider the following contrast:

(28) a. *Dirinya tidak di-perhatikan Haris
self not Pass-look.after
'Haris didn't take care of himself.'

b. Dirinya tidak di-perhatikan-nya
self not Pass-look.after-he
'He didn't take care of himself.'

(28) is adapted from Arka and Manning (1998) and Musgrave (2001: 166). Based on the above (in)ability to become the antecedent of an anaphor, they conclude that while the post-verbal Agent is a non-term (i.e., adjunct), the clitic Agent *–nya* is a term (i.e., argument). If the above contrast is genuine and their conclusion is correct, the implication for the present analysis is that even though the post-verbal Agent is in the object position, it is an adjunct. Since the object position is a canonical position for an argument, the argument/adjunct distinction is not determined solely on the basis of syntactic structures. I leave theoretical consequences of this implication (e.g., whether Argument Structure is necessary as an independent component in grammar) open.

5. Deep Ergativity in Indonesian?

In the previous section I have proposed that the demoted Agent moves into the object position in Indonesian passive. But the fundamental question is why. Since this movement makes the Agent adjacent to the verb, one possibility is that it involves Merger, which requires adjacency. However, although Merger yields phonologically one word, there seems to be no evidence that the post-verbal Agent is phonologically dependent on the verb. Therefore, I seek another way of explaining why the Agent moves into the object position, and I suggest that it is a kind of deep ergativity:

(29) *Deep Ergativity*
The Agent and the verb seem to form a constituent (probably VP) which excludes the Theme.

This property is famous from Dyirbal (Dixon 1994) and Inuit (Bittner 1994), and Keenan (2000) also argues for deep ergativity in Malagasy. Deep ergativity is a direct challenge for Baker's (1988) UTAH, which dictates that the thematic relation is universally the same at the initial stage of the syntax. In this context, Baker (1997) seeks a way of treating deep ergativity while observing the UTAH:

(30) Theme_i $[_{VP}$ Agent V $t_i]$
Absolutive Ergative (see also Guilfoyle et al. (1992))

In this analysis, the Theme moves from the object position out of VP to receive/check Absolutive case, while the Agent stays in situ in Spec VP.

In the proposed analysis, Indonesian goes one step further: the Agent not only stays in situ in Spec VP, but it also goes further down deep, landing into the object position. So far there have been discovered two kinds of split ergativity in the literature: person (e.g., Dyirbal) and aspect (e.g., Hindi). If the present analysis is correct, Indonesian is a third type of split ergativity: discourse split. That is, when the Agent is salient in the discourse, the sentence is accusative, but when the Theme is more salient, the Theme moves, and passive, now reinterpreted as ergativity, emerges. See Cartier (1979), Verhaar (1983, 1988), Arka and Manning (1998) and references therein for ergativity in Indonesian from other perspectives, some of which are based on a conception of ergativity quite different from the one used here.

6. Postverbal Theme and More Evidence for the Agent in the Object Position

This section discusses passive sentences where the Theme follows the verb:

(31) a. Di-makan kue ini.
Pass-eat cake this
'This cake was eaten.'

b. Di-makan orang itu kue ini
Pass-eat man that cake this
'This cake was eaten by the man.'

c. *Di-makan kue ini orang itu

Like in other passive sentences, the Agent can be omitted in this construction (31a), but when the *oleh*-less Agent appears, it must be right-adjacent to the verb (31b), and the order between the Agent and the Theme cannot be reversed (31c). This indicates that the verb and the Agent is so tightly knit that it "usurps" the object position from the Theme, as proposed in section 4. The next question is, where is the Theme, then? Consider the following:

(32) a. Di-makan oleh orang itu kue ini
Pass-eat by man that cake this
'This cake was eaten by the man.'

b. Di-makan kue ini oleh orang itu

(32) shows that the order of the post-verbal Theme and the *oleh*-phrase is free. Note the contrast between (31c) and (32b). Given that the *oleh*-phrase is an adjunct, such a free order is explained if the post-verbal Theme is also an adjunct. It is probably an afterthought, as suggested by Verhaar (1988: 369), who notes that there is a pause between the verb and the post-verbal Theme. There are two ways to analyze the construction in current terms:

(33) a. pro_i [$_{VP}$ [$_{VP}$ Ø-makan t_i] (kue itu)]

b. [$_{VP}$ [$_{VP}$ Ø-makan t_i] kue itu_i]

(33a) indicates that a null object pronoun undergoes movement and leaves a trace, and *kue itu* is really an afterthought. (Indonesian is like Japanese or Chinese in that it

allows null objects.) (33b) indicates that the object undergoes rightward movement and adjoins to VP. Whichever we adopt, we have an object trace in (33a-b), which activates the abstract clitic position (Ø-), and we can maintain our central claim that the essence if passivization in Indonesian is the activation of the abstract clitic position by the object trace.

7. Conclusion

In this paper I have proposed that Indonesian passive is triggered by the object trace. The essence of this process is the activation of the abstract clitic position. Although the intuition that cliticization is involved in Indonesian passive and that a syntactic operation (or a trace) affects morphology has been proposed in the literature, one contribution of this paper would be that it explicitly states that since the object trace is available only after syntax, Indonesian passivization happens in the post-syntactic level of morphology in the sense of Distributed Morphology. Another novel part of this paper is it is a step toward a unified analysis of the so-called two types of passives in Indonesian by claiming that in both types of passives, the same operation of the activation of the abstract clitic position is involved. I have also proposed that the demoted Agent moves into the object position and suggested that this is a case of deep ergativity.

Appendix: Speech Variation

The arguments so far have been based on the assumption that (12) below is ungrammatical:

(12) *Buku ini engkau akan beli
book this you will buy
'This book, you will buy.'

In the proposed analysis, the sentence is ungrammatical because the activated clitic position is not licensed by the pronoun, for adjacency between the pronoun and the verb is disrupted. The judgement in (12) is based on a prescriptive grammar of Wolf et al. (1992), and is also adopted in such theoretical works as Conners (2001). However, (12) is often heard, particularly in colloquial speech. Thus, Musgrave (2001, (33a)) cites a sentence parallel to (12) as grammatical. This situation of shaky judgements is common in Indonesian, because many speakers of the language speak it as a second language (lingua franca). A statement of Verhaar (1988: 354) is symbolic: "such a construction [analogous to (12)] is often frowned upon normatively, but I have often heard it, so I recorded it here." It is true that I cited a colloquial *meN*-less transitive sentence like (14a) as a piece of evidence for my analysis:

(14) a. Orang itu akan __beli buku itu
man that will buy book that
'The man will buy the book.'

But (14a) is indeed introduced in Wolf et al. (1992), whose grammar is not so much formal as prescriptive/practical grammar for learners. Thus, the above judgements are justified at least in this sense.

Another controversy in judgements has to do with the following:

(34) a. *buku yang Wati me-nulis
book Comp trans-write
'the book that Wati wrote' (cf. 2c)

b. (*)buku yang Wati tulis
book Comp write
'the book that Wati wrote'

c. buku yang di-tulis Wati
book Comp Pass-write
'the book that is written by Wati

That (34a) is ungrammatical and (34c) is grammatical is uncontroversial. The question is what to do with (34b), which is ruled out in prescriptive grammar but is often heard colloquially. In the present analysis, (34b) is predicted to be bad because the clitic position activated by the object trace is not licensed either by *Wati*, which is not a head, or by *di-*, which is absent. On the other hand, Cole and Hermon (1998b) crucially cite (34b) as grammatical. They claim, building on Saddy's (1991: 190) intuition that the transitive marker *meN-* is a barrier for movement, that *meN-* is omitted whenever an NP is moved across a verb. I justify my position again by saying that (34b) is not part of the grammar described in the book that I consulted. In Nishiyama (in preparation), I develop an analysis which says that *di-* agrees with an NP which has moved through Spec VP. Such an analysis would account for (12) and (34b) by saying that *di-* does not appear because the object does not move through Spec VP.

Endnotes

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[1] Nakamura (1994) also discusses similar issues in Tagalog, couching in terms of Economy. See also Chung (1998: 319ff).

[2] It should be noted that (7) is not the only way to implement (6). For example, if movement does not leave a trace, there would be another way to implement (6). Thus, although the following discussion is based on (7), even if it turns out to be incorrect, its failure does not imply that (6) itself is flawed. In Nishiyama (in preparation), I will develop a revised analysis couched in terms of copy theory of movement (cf. Chomsky 1995 and Bobaljik 2002).

In a sense, (7) says that Indonesian passive is a kind of object agreement, and is close in spirit to Chung's (1994, 1998) analysis of wh-agreement in Chamorro, where wh-agreement is triggered by a wh-trace. It will be argued in Nishiyama (in preparation) that the passive marker *di-* agrees with an NP that has moved through Spec VP. One empirical advantage of this revised analysis is that it accounts for long-distance movement, which is beyond the scope of the current analysis based on the object trace.

[3] Verhaar (1983, 1988) utilizes a similar notation for this position. The abstract clitic position here is obviously related to, but not exactly identical to, the one proposed by Keyser and Roeper (1992). For them, the abstract clitic position is the complement of

the verb and the same position can be occupied by *re-* or *dative*. In the case of *re-*, it moves and cliticizes onto the verb. In the present analysis, however, the clitic position is exclusively for prefixes and its occupant is either a phonological filler (in the case of *di-*) or a cliticized pronoun.

[4] Bobaljik (2002) notes that Merger yields what looks like "lowereing" (or affix hopping) and provides an explanation for this. That the abstract cliticization in (11) also looks like lowering confirms the present analysis to regard this cliticizatin as a case of Merger.

[5] (12) is acceptable in colloquial speech. We will return to this speech variation in the appendix.

[6] Sie (1989: 39) employs notations like *(a)kubeli* or *(eng)kaubeli*, suggesting that both dependent and independent pronouns overtly cliticize.

By "abstract cliticization," I do not mean that cliticization occurs at LF, as argued by Baker (1988) and Safir (1995). The reason is that while LF cliticization has semantic effects, the cliticization in question does not seem to have a semantic effect relevant at LF.

[7] Since proper names can substitute pronouns in (15) when referring to 1st or 2nd person, I assume that they are heads in such cases, even if they can be composed of more than one word:

(i) Buku itu sudah Prof Jones baca, bukan?
book that Perf Prof Jones read Tag
'Have you read that book?' (addressed to Prof. Jones)
(Musgrave 2001: 158)

[8] Hestvic argues that while pronouns in Norwegian are heads, those in English are maximal projections, and this allows Hestvic to account for several differences in binding between the two languages.

[9] In Adisasmito-Smith (1998) and Postman (2001, 2002), *di-* is assumed to head Predicate Phrase (cf. Bowers 1993, 2002). In particular, Postman (2002: 282) adopts Willett's (1993) view that *di-* occurs when the argument in subject position is initially not the most prominent in the sentence. Building on this intuition, in Nishiyama (in preparation) I revise the current analysis and argue that *di-* agrees with an NP that has moved through Spec VP.

[10] For A'-movement, in particular wh-movement as in (4a), the Theme is not topicalized but rather focused. Thus, what is relevant might be just that the Agent becomes less salient, due to either topicalization or focusing of the Theme.

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VOS in Tongan: Passive or Scrambling?

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Polynesian languages are divided into two groups in terms of Case marking: accusative and ergative. The former consists of Eastern Polynesian languages, while Tongic and many of Samoic-Outlier languages belong to the latter.[1] It is also known that accusative languages have a passive construction, typically involving the passive morpheme *–Cia* and the agent marker *e*, whereas ergative languages apparently lack such a construction (Clark 1976, Chung 1978). Tongan is an ergative language, in which Absolutive (ABS) is marked with *'a* and Ergative with *'e*, and therefore lacks passive constructions involving *–Cia*. However, Churchward (1953) proposes that VOS construction in Tongan is equivalent to passive in English. While the unmarked order is VSO in Tongan, VOS is also freely allowed. Churchward observes that VOS is used when the object rather than the subject is emphasized, and argues that the contrast between VOS and VSO in Tongan is parallel to that between active and passive voice in English.

This paper studies VOS constructions in Tongan and reconsiders the claim that passive does not exist in Tongan. Specifically, I argue that VOS constructions do not involve passivization, but should be understood as an instance of scrambling. The argument against the passive analysis of VOS is based on the fact that the ABS-marked argument in such a construction demonstrates the properties of the direct object rather than those associated with the subject of an intransitive verb. Otsuka (2000) shows that there are three syntactic phenomena that are associated solely with subjects: a) clitic pronouns, b) *mo*-coordination, and c) Control. The *'a*-marked NP in a VOS construction cannot undergo any of these operations, suggesting that the ABS-marked argument in a VOS construction is indeed the object rather than the subject.

I propose that VOS is an instance of scrambling and that this operation is triggered by the feature [+info(rmation) foc(us)]. There is evidence that native speakers actually never interpret VOS sentences as passive. Rather, the difference between VSO and VOS should be understood in terms of information focus, which is indicated in English by stress. That scrambling is triggered by focus has been proposed in the literature with regard to other languages (Mahajan 1990, Miyagawa 1997). The current proposal that VOS in Tongan is an instance of scrambling triggered by information focus has some important implications for the recent trend of reducing scrambling to an instance of obligatory movement.

1. Two passive-like constructions in Tongan

In the following discussion, passivization is considered to be a productive syntactic operation, which is essentially a valency-changing operation. It typically involves a) the demotion of the underlying subject to an oblique NP and b) the promotion of the underlying object.[2] Given this definition, the sole argument in a passive construction behaves like the subject of an intransitive

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verb in terms of Case marking and other syntactic properties.[3] It has been claimed in the literature that there are two passive-like constructions in Tongan: agentless transitive (VO) and VOS constructions.

1.1 *Agentless transitive*

In Tongan the unmarked word order is VSO. Case marking shows an ergative pattern, in which Absolutive (ABS) is marked with *'a* and Ergative (ERG) with *'e*. Oblique is marked either by *'i* 'in' or *ki* 'to'. See (1) below.[4]

(1) a. Na'e ha'u 'a e tangata.
PST come ABS DEF man
'The man came.'
b. Na'e inu 'e he tangata 'a e vai.
PST drink ERG DEF[5] man ABS DEF water
'The man drank the water.'
c. 'E tokoni 'a e tangata ki he tamasi'i.
FUT help ABS DEF man to DEF boy
'The man will help the boy.'

In natural Tongan discourse, however, we frequently encounter sentences with a transitive verb, but with only one argument, which is marked as ABS. Churchward (1953) claims that such sentences are interpreted as passive. Consider (2) below. The verb, *'ave* 'take' is a transitive verb and usually takes two arguments, as illustrated by (2a). However, (2b) contains only one argument, which is preceded by the ABS Case marker.

(2) a. Na'e fili 'e Sione 'a Pila.
PST choose ERG Sione ABS Pila
'Sione chose Pila.'
b. Na'e fili 'a Pila.
PST choose ABS Pila
'Pila was chosen.'

By definition, ABS-marked NPs are either intransitive subjects or direct objects. Thus, it is possible to analyze (2b) as an intransitive construction with the ABS-marked NP being the subject.[6] In this view, the verb *fili* in (2b) is considered to be intransitive as a result of passivization, presumably by the affixation of a zero-passive morpheme. This is the analysis proposed by Lynch (1972).[7] In contrast, Churchward (1953) and Tchekhoff (1973) consider the agentless transitive to be an instance of argument-drop, an operation freely permitted in Tongan. Along the same lines of argument, Otsuka (2002) proposes that agentless transitives in Tongan contain a null argument, either pro_{arb} or topic variable.

1.2 *VOS constructions*

While the unmarked order is VSO, Tongan freely allows VOS sentences. Churchward (1953) observes that VOS is used when the emphasis is on the

object rather than the subject. He argues that VOS sentences are translated as passive because in English it is the way to encode the emphasis on the object.

(3) a. Na'e fili 'e Sione 'a Pila.
PST choose ERG Sione ABS Pila
'Sione chose Pila.'
b. Na'e fili 'a Pila 'e Sione.
PST choose ABS Pila ERG Sione
'Pila was chosen by Sione.'

Churchward argues that the contrast between VSO and VOS in Tongan is parallel to that between active and passive voice in English. It should be noted that Churchward's claim is that the function of VOS is the same as that of passive (i.e., emphasis on the object), but not that VOS in Tongan and passive in English involve the same syntactic operation. On the other hand, Lynch (1972) proposes that VOS construction is syntactically passive and involves the affixation of a phonetically null passive morpheme. He argues that the NP marked by *'a* is the (derived) subject and the NP marked by *'e* is the agent appearing in oblique, *'e* being the agent marker.[8]

As mentioned earlier, we assume that the sole argument in a passive construction has the properties of the subject of an intransitive verb. Thus whether VOS is active or passive depends on the nature of the ABS-marked NP in such a construction. Does it have properties of subject or those of direct object? In the following section, we will see that the *'a*-marked NP in a VOS construction behaves like direct objects rather than subjects and that therefore, VOS should not be regarded as passive.

2. Subjecthood and the ABS-NP in a VOS construction

In the following discussion, the term 'subject' is used to refer to a syntactic category that consists of the sole argument of an intransitive verb and the agent argument of a transitive verb (i.e., S and A, respectively, in Dixon's (1979) terms). Subjects, whether ABS or ERG, are distinguished from direct objects in Tongan in a number of syntactic phenomena: e.g., the use of possessive pronouns, the use of clitic pronouns, control, and *mo*-coordination. In this section, we will examine whether the ABS-marked NPs in VOS constructions behave like subjects in terms of these syntactic phenomena.

2.1 *Possessive pronouns*

Tongan has two sets of possessive pronouns, alienable (*'e*-class) and inalienable (*ho*-class). When an alienable possessive pronoun precedes a verb, it refers to the subject of the verb. In contrast, an inalienable possessive pronoun preceding a verb refers to the object. Thus, inalienable possessive pronouns cannot occur with an intransitive verb.[9] See (4) below. As illustrated in (4a, b), the subject of an intransitive verb must be represented by an alienable possessive pronoun. (4c) shows that when used with a transitive verb, an alienable possessive pronoun refers to the subject. In contrast, (4d)

shows that an inalienable possessive pronoun must refer to the object when used with a transitive verb.

(4) a. ‘ene foki
ALIEN.POSS.3.s return
‘his returning’
b. *hono foki
INALIEN.POSS.3.s return
c. ‘ene taki
ALIEN.POSS.3.s lead
‘his leading (someone)’
d. hono taki
INALIEN.POSS.3.s lead
‘his being led (by somebody)’

ABS-marked NPs in VOS constructions behave like objects rather than subjects: they cannot be encoded as alienable possessive pronouns. Consider (5) below.

(5) a. *‘ene fili ‘e Sione
ALIEN.POSS.3.s choose ERG Sione
Intended meaning: ‘his being chosen by Sione’
b. hono fili ‘e Sione
INALIEN.POSS.3.s choose ERG Sione
‘his being chosen by Sione.’

In (5a) the alienable possessive pronoun is intended to refer to the ABS-marked argument, the subject of a passive construction. However, the phrase is ungrammatical because this phrase would contain two subjects: *‘ene* and *Sione*. This suggests that *‘e*-marked argument is indeed ERG rather than OBL. Nominalization of the verbal construction in (3b) is (5b), in which the ABS-marked argument is replaced by an inalienable possessive pronoun. This suggests that the argument in question is considered to be the direct object rather than the subject.

2.2 *Clitic pronouns*

Tongan has a set of clitic pronouns, which appear in the position between the tense marker and the verb. The use of clitic pronouns is restricted to subjects. A pronominal object must be realized as an independent pronoun. See (6) below.

(6) a. Na‘a ne ‘alu ki ai.
PST 3.s go to there
‘He went there.’
b. Na‘a ne fili ‘a Pila.
PST 3.s choose ABS Pila
‘He chose Pila.’

c. *Na'a ne fili 'e Sione.
PST 3.s choose ERG Sione
Intended meaning: 'Sione chose him.'
d. Na'e fili ia 'e Sione.[10]
PST choose3.s ERG Sione
'Sione chose him.'

As shown in (6a), a pronominal subject in an intransitive construction occurs as a clitic. Thus, if the ABS-marked argument in VOS is in fact the subject, we would expect a construction similar to (6a) when the relevant argument is pronominal. The following example argues against this hypothesis.

(7) *Na'a ne fili 'e Sione.
PST 3.s choose ERG Sione
Intended meaning: 'He was taken by Sione.'

Notice that (7) is ungrammatical. This indicates two things. First, the ABS argument of a VOS construction does not count as a subject as far as the clitic pronouns are concerned. Second, the *'e*-marked NP of a VOS construction is considered to be the subject. The sentence is ungrammatical, for it contains two subjects, the clitic *ne* and the ERG-marked NP, *Sione*.[11]

2.3 *Control*

The third test involves control. I assume that the embedded clause in control constructions such as (8) below contains a phonetically null argument PRO that is coreferential with an argument of the matrix verb.

(8) a. John wants [PRO to go].
b. John persuaded Mary [PRO to go].

It is universally attested that PRO can occur in the subject position of the embedded clause, but never in the object position (Chomsky 1981). For example, consider the following English sentences.

(9) a. John wants [PRO to be praised].
b. *John wants [someone to praise PRO].

(9a) is grammatical because PRO is the subject of the embedded clause, whereas (9b) with PRO as the object is ruled out, as it violates the above-mentioned universal restriction on Control.

Our question is whether VOS can occur in a Control construction with PRO in place of the ABS argument. If such a construction is permissible, then the ABS-marked argument in a VOS construction should be considered to be the subject. As illustrated in (10) below, PRO cannot occur in place of the ABS-marked argument in VOS constructions.

(10) *'Oku loto 'a Pila [ke fili PRO 'e Sione].
PRS want ABS Pila to choose ERG Sione
Intended meaning: 'Pila wants to be chosen by Sione.'

The ungrammaticality of (10) is straightforwardly explained if we assume that PRO occurs as the object and that the intended meaning is 'Pila wants Sione to choose PRO.'[12, 13] To conclude, the Control data also show that the ABS-marked argument in VOS is not the subject.

2.4 *Mo-coordination*

Finally, let us consider yet another phenomenon that exclusively applies to subjects. When two clauses are conjoined by the conjunction *mo*, the second clause may, and generally does, contain a gap. The gap is taken to be a result of the argument deletion under identity with an argument of the first clause. However, the deletion does not apply freely, but is restricted to subjects.[14] That is, an argument may be deleted only if it is the subject of the second clause and is coreferential with the subject of the first clause. In other words, the two clauses conjoined by *mo* must have a common subject. See (11) below, in which Ø stands for the gap.

(11) a. *Na'e poto 'a Pila$_i$ mo [fili 'e Sione Ø$_i$].
PST smart ABS Pila and choose ERG Sione
'Pila was smart and Sione chose (Pila).'
b. Na'e poto 'a Pila$_j$ mo [fili Ø$_i$ 'a Sione].
PST smart ABS Pila and choose ABS Sione
'Pila was smart and (Pila) chose Sione.'

(11a) is ungrammatical since the gap in the second clause is the object. Similarly, sentences in (12) below illustrate that the gap must be coreferential with the subject of the first clause; the subject of the second clause cannot be deleted if it is coreferential with the object of the first clause.

(12) a. Na'e fili 'e Sione$_i$ 'a Pila$_j$ mo [fiefia Ø$_{i/*j}$].
PST choose ERG Sione ABS Pila and happy
'Sione chose Pila and (Sione/*Pila) was happy.'
b. Na'e fili 'e Sione$_i$ 'a Pila$_j$ mo [li'aki Ø$_{i/*j}$ 'a Taniela].
PST choose ERG Sione ABS Pila and abandon ABS Taniela
'Sione chose Pila and (Sione/*Pila) abandoned Taniela.'

The subject-only constraint on *mo*-coordination can be used as a diagnostic for subjecthood. If the ABS-marked NP in a VOS construction is the subject, then, it should be able to be part of *mo*-coordination, either as the gap or as the antecedent. (13) shows that *mo*-coordination is not permissible with such an NP.

(13) Na'e fili 'a Pila 'e Sione mo [fiefia Ø].
PST choose ABS Pila ERG Sione and happy
'Pila was chosen by Sione and (*Pila/Sione) was happy.'

(13) is grammatical, but only with the gap obligatorily taken to be coreferential with the agent of the first verb, i.e., *Sione*. Similarly, the ABS-NP of a VOS construction cannot occur as a gap coreferential with the intransitive

subject of the first clause, as shown in (14) below. This suggests that the ABS-NP is not the subject of the relevant constructions.

(14) *Na'e fiefia 'a Pila mo [fili Ø 'e Sione].
PST happy ABS Pila and choose ERG Sione
Intended meaning: 'Pila was happy and was chosen by Sione.'

To summarize, none of the four syntactic phenomena in which subjects are distinguished from objects treat the ABS-marked NPs of VOS constructions as subjects. Therefore, we may conclude that these constructions are not passive as defined in §1 above.

3. VOS as a result of scrambling

The previous section has shown that the ABS-marked arguments in VOS constructions are not subjects. Based on this observation we conclude that VOS in Tongan does not involve passivization. In this section, we will consider an alternative analysis of VOS. I propose that VOS should be regarded as an instance of scrambling. Specifically, I argue that scrambling is triggered by the feature [+info(rmation) foc(us)].

3.1 *Scrambling in Tongan*

So far, we have restricted our attention to the transitive constructions and the alternation between VSO and VOS. However, such an alternation is not limited to transitive constructions. Although the default order is one in which the subject NP precedes the PP, the order in which NPs and PPs appear in intransitive constructions and middle constructions is also flexible, as illustrated in (15) and (16), respectively.

(15) a. Na'e 'alu 'a Sione ki Tonga.
PST go ABS Sione to Tonga
'Sione went to Tonga.'
b. Na'e 'alu ki Tonga 'a Sione.
PST go to Tonga ABS Sione
'Sione went to Tonga.'

(16) a. Na'e tokoni 'a Sione ki he faiako.
PST help ABS Sione to DEF teacher
'Sione helped the teacher.'
b. Na'e tokoni ki he faiako 'a Sione.
PST help to DEF teacher ABS Sione
'Sione helped the teacher.'

Note that in (15) and (16) there is no significant semantic difference between the (a)-sentences and (b)-sentences. Such freedom regarding the constituent order is found in some other languages such as Japanese and German. The phenomenon is called scrambling. Given the fact that the word order alternation is not restricted to the one between VOS and VSO in Tongan, we

may consider Tongan to be a language that permits scrambling. Hence, it can be argued that VOS is an instance of scrambling.

Mahajan (1990) observes that there are two kinds of scrambling, one that has the properties of A-movement and the other that shows the properties of A-bar movement. Some of the important properties are summarized in Table 1 below (cf. Thráinsson 2001).

Table 1. Comparison of A-scrambling and A-bar scrambling

	A-scrambling	A-bar scrambling
Long-distance	×	OK
Parasitic gap	×	OK
Binding	Changes binding relation	Does not change binding relation
Weak Crossover	Avoids WCO violation	Induces WCO effect
Case	Relevant	Irrelevant

Let us examine the properties of VOS constructions in Tongan in terms of these conditions in order to determine whether it involves A- or A-bar movement.

First, VOS constructions do not permit long-distance movement. The movement is clause-bound, showing a property of A-movement. See (17) below.

(17) a. Na'e fili 'a Pila$_i$ 'e Sione t_i.
PST choose ABS Pila ERG Sione
'Sione chose Pila.'
b. *'Oku tui 'a Pila$_i$ 'e Mele [na'e fili 'e Sione t_i]
PRS believe ABS Pila ERG Mele PST choose ERG Sione
Intended meaning: "Mele believes that Sione chose Pila.'

Second, VOS construction is not subject to weak crossover effects, again showing a property of A-movement rather than A-bar movement. See (18) below. Note that Tongan generally shows weak crossover effects, as illustrated in (19).

(18) Na'e fili 'a e taha kotoa$_i$ 'e he'ene$_i$ tamai t_i.
PST choose ABS DEF one every ERG his father
'His$_i$ father chose everyone$_i$.'

(19) *Ko hai$_i$ na'e fili 'e he'ene$_i$ tamai t_i?
PRED who PST choose ERG his father
'Who$_i$ did his$_i$ father choose?'

Thirdly, however, the landing site of scrambling in Tongan apparently is not associated with a particular Case. As we have seen above, PP can also be scrambled. Thus, with regard to Case-relatedness, scrambling in Tongan shows a property of A-bar movement. To summarize, scrambling in Tongan behaves like A-scrambling in terms of long-distance movement and weak crossover effects, but also shows a property of A-bar movement with regard to Case. Let us tentatively assume that scrambling in Tongan is an instance of A-

scrambling and proceed with our discussion. We will return to the issue of the apparent A-movement property of scrambling in Tongan later.

3.2 *Scrambling and focus*

In the framework of Minimalist Program (Chomsky 1995, 2000, 2001), it is assumed that movement must be motivated by feature checking. Movement is also subject to the economy conditions, one of which states that movement can take place only as a last resort. These assumptions raise a serious problem for the analysis of scrambling, an apparent instance of optional movement. Any analysis of scrambling must therefore deal with the following two points: a) the nature of the relevant feature and b) the apparent optionality of this operation. There have been some attempts to account for the apparent optionality of scrambling (Bošković and Takahashi 1998, Miyagawa 1997, 2001). Miyagawa (1997, 2001, To appear), for example, argues that scrambling is not optional, but in fact, obligatory. He proposes that A-scrambling and A-bar scrambling in Japanese are triggered by the EPP feature on T and focus, respectively. Below I present a proposal that scrambling in Tongan is also triggered by focus.

Two points should be noted here. First, while Miyagawa proposes that focus is the factor responsible for A-bar scrambling in Japanese, the current analysis argues that it triggers A-scrambling, at least in Tongan. That is, while Miyagawa assumes that the focus-driven scrambling moves the item to adjoin to TP, the current analysis proposes that scrambling motivated by focus involves substitution, i.e., raising to [Spec, T]. One might consider this to be a problematic conflict. I argue that it is not, given the second point. Namely, it is necessary to distinguish two kinds of focus: contrastive focus and information focus (Kiss 1998). The two kinds of focus have different functions and are realized in different manners. Contrastive focus requires exhaustive identification. Information focus, on the other hand, does not require exhaustive identification, but marks the non-presupposed information. In English, the former is realized by means of movement (i.e., cleft), while the latter is indicated by pitch accent. 'Focus' in Miyagawa's analysis refers to contrastive focus. In contrast, 'focus' in the current analysis means information focus. Hence, the current proposal that (information) focus triggers A-scrambling in Tongan does not deny or affect Miyagawa's claim that (contrastive) focus is responsible for A-bar scrambling in Japanese.

Let us now discuss how information focus is relevant to the derivation of VOS in Tongan. Recall Churchward's (1953) observation that VOS is used when the emphasis is on the object rather than the subject. He argues that in English passive has a similar function. What he overlooks is the fact that it is actually the pitch accent that has this function in English. In other words, the difference between VSO and VOS constructions is what carries the information focus is the subject in the former, while it is the object in the latter. Thus, the more accurate translation of the sentences in (3) would be as those provided in (20) below. The focused elements are in bold type.

(20) a. Na'e fili 'e Sione 'a Pila.
PST choose ERG Sione ABS Pila
'**Sione** chose Pila.'
b. Na'e fili 'a Pila 'e Sione.
PST choose ABS Pila ERG Sione
'Sione chose **Pila**.'

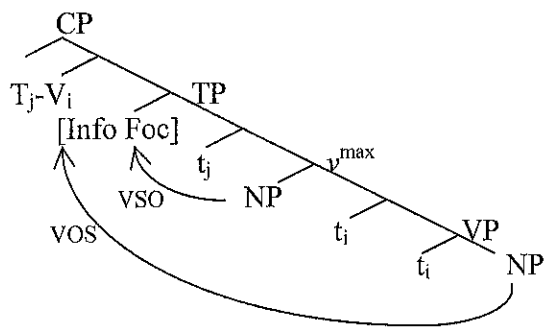
In fact, there is evidence to support this hypothesis. Native speakers consider that VOS and VSO are essentially the same semantically when the two sentences are presented in isolation without any context. However, a significant distinction arises when certain context is provided. When asked to select the appropriate answer(s) to a *wh*-question, Tongan speakers clearly distinguish VOS from VSO. Consider the sentences in (21) below.

(21) a. Ko hai na'e fili 'e Sione?
PRED who PST choose ERG Sione
'Who did Sione choose?'
b. Ko hai na'a ne fili 'a Pila?[15]
PRED who PST 3.s. choose ABS Pila
'Who chose Pila?'

When the *wh*-word is the object as in (21a), the answer must be VOS. Native speakers only accept (20b) as an appropriate answer. In contrast, when the *wh*-word is the subject, the answer must be VSO. Thus, only (20a) can be an appropriate answer and (20b) is rejected. Notice that this pattern is exactly what we expect in corresponding cases in English. This can be explained if we assume that the NP immediately following the verb carries the information focus.

How can this be captured in terms of feature checking? I propose a) that VOS is an instance of A-scrambling to [Spec, T]; b) that this movement is triggered by the information focus feature [+info foc]; and c) that T is associated with information focus. An element bearing [+info foc] moves to [Spec, T]. Thus, when the subject bears [+info foc], VSO is derived. VOS is derived when the object carries [+info foc]. See (22) below. Note also that it is assumed that the verb undergoes V-to-T-to-C raising for independent reasons (cf. Otsuka 2000). This V-to-T movement renders [Spec, *v*] and [V, NP] equidistant, allowing the object to move across the subject without violating the economy condition.

(22)



The current analysis, however, encounters two problems. First, assuming that ERG is associated with T and ABS with V (Bobaljik 1993, Otsuka 2000), and that feature checking is done in a Spec-head configuration, how can T's Case feature be checked when it is the object that raises to its Spec? Chomsky (2000) proposes that features are uniformly checked *in situ*. In this approach, feature checking is not the motivation for movement, but rather, what licenses movement. Thus, we may assume that T's Case feature is checked *in situ* by the matching feature [ERG] the subject (of a transitive verb) bears. Incidentally, this accounts for the apparent A-bar property of scrambling in Tongan. Recall that we have concluded that the landing site is not associated with a particular Case because PP can also be scrambled. Since Case features are checked covertly, the element that occupies [Spec, T] does not necessarily reflect T's Case.[16] The second question concerns T's EPP feature. T's EPP feature is generally assumed to be [+D].[17] How can this be checked off when the scrambled element is a PP? I have no satisfactory answer but to propose that (some) PP can somehow satisfy T's EPP requirement. Of course, this is merely a speculation. Curiously, however, this is not a language specific phenomenon. Miyagawa (2001, To appear) observes that apparently the EPP can be met by certain locatives also in Turkish and Japanese.[18] This is obviously an issue that deserves an extensive study. I will leave it for further research.

To make our claim even stronger, we may propose that the feature [+info foc], which we have assumed to be associated with T, is in fact associated with T's EPP feature. By suggesting this amendment, we may reinforce Miyagawa's proposal that A-scrambling is triggered by T's EPP feature. Note that Miyagawa's analysis still leaves scrambling with some optionality. Namely, whether to raise the subject or the object to [Spec, T] is still an arbitrary decision. While Miyagawa successfully explains why both the subject and the object can agree with T, and also why the subsequent movement is obligatory (triggered by T's EPP feature), there still remains a question of what determines the choice of element that actually undergoes movement. If T's EPP feature is associated with information focus, as suggested in the current discussion, then only one of them, i.e., the one with [+info foc], qualifies to move. The choice would then be obligatory, not optional. The optional nature of (A-)scrambling would then completely disappear.

4. Concluding remarks

This paper reexamines VOS constructions in Tongan, which have been claimed to have passive meaning. Empirical evidence supports the current proposal that they do not involve passivization as a syntactic operation, but are derived as a result of scrambling. First, it was shown that the ABS-marked NPs in these constructions are not treated as subjects in various syntactic phenomena such as the use of possessive pronouns and clitic pronouns, Control and *mo*-coordination. Second, it has been shown that it is misleading to say that VOS is associated with passive meaning. Rather, the contrast between VOS and VSO is that the object carries the information focus in the former. The situation can be captured more appropriately if we regard VOS as

a result of scrambling triggered by information focus. When the object has the feature [+info foc], it will raise to [Spec, T] and appear in the position preceding the subject.

The current study raises some important questions concerning the study of passives in Polynesian languages in general, particularly those belonging to the Tongic and Samoic-Outlier subgroups. As mentioned earlier, in contrast to the Eastern Polynesian languages these languages are said to lack passive constructions with *–Cia* suffixed verbs. It should be noted that the alternation between VSO and VOS is also freely permitted in other Polynesian languages such as Samoan, East Uvean, and East Futunan. These languages are similar to Tongan in that a) Case marking is ergative and b) *–Cia* does not function as a productive passive morpheme. Native speakers of these languages also do not seem to be aware of any particular semantic differences between VOS and VSO. In other words, VOS and VSO are used interchangeably. This observation leads us to the following questions: a) whether VOS constructions in these languages are also associated with information focus; and more generally, b) whether there is a correlation between the lack of passive and the availability of the VOS construction.

The current proposal also contributes to the recent trend of analyzing scrambling as obligatory movement. In particular, our hypothesis that information focus is associated with T's EPP feature reinforces Miyagawa's (1997, 2001, To appear) analysis that A-scrambling is triggered by T's EPP feature. Admittedly, there still remain a couple of questions. First, why can PPs apparently agree with T's EPP feature in Tongan as well as some other languages? Second, can more than two elements be scrambled in Tongan? Specifically, are orders such as PP-Object-Subject or Object-PP-Subject permissible? If they are, it will pose a problem to the current analysis: two elements cannot move to a single target position.[19] Due to the limited space, however, I will leave these issues for future research.

Endnotes

* I would like to thank Mark Campana, Hsiu-Chuan Liao, William O'Grady and Stan Starosta for helpful comments on the earlier version of this paper.

[1] Some do not agree on this generalization. For instance, Gibson and Starosta (1990) argue that Maori, an Eastern Polynesian language, is ergative.

[2] Thus, some Tongan stative verbs that are translated as passive in English such as *lavea* 'injured' and *ngalo* 'forgotten' are not considered to be passive in the following discussion, as they do not involve any syntactic operation. Note also that this definition is rather too restrictive in that it excludes passives of intransitive verbs that exist in languages like Japanese, as illustrated in (i) below, respectively.

(i) Taro-ga haha-ni sina-re-ta.
Taro-NOM mother-DAT die-PASS
'Taro was died by (his) mother.'

However, I will not include such cases in the following discussion.

[3] By 'subject' I refer to A and S in Dixon's (1979) terms. The definition of 'subject' in ergative languages is a matter that not everybody agrees upon. Some argue that ABS-marked arguments are the subjects in ergative languages

(Marantz 1984, Gibson and Starosta 1990). However, there are some instances in Tongan where A and S are clearly treated differently from O. Thus, I assume that there is a syntactic category 'subject' that consists of A and S.

[4] Key to abbreviations: ABS – absolutive, ALIEN – alienable, ERG – ergative, DEF – definite, FUT – future, INALIEN – inalienable, POSS – possessive, PRED – predicate, PRS – present, PST – past, s – singular, 3 – third person.

[5] The difference between the two definite articles *e* and *he* are morphophonological. The latter is used immediately following the ergative Case marker *'e* or prepositions *'i* 'in, at', *ki* 'to', and *mei* 'from'.

[6] Tchekhoff (1973) observes that Tongan verbal constructions with only an ABS-marked NP can be divided into three classes: a) those in which the ABS-NP can only be interpreted as the patient such as *tamate* 'to kill', b) those in which the ABS-NP can only be interpreted as the agent such as *'ave* 'to take', *fa'ele'i* 'to bear a baby', and c) those in which the ABS-NP can be interpreted either as the agent or the patient such as *taki* 'to lead'. However, Tchekhoff does not consider the case (b) as passive.

[7] To be precise, Lynch (1972) claims that Tongan is an accusative language, arguing that *'a*, *'i*, and *'e* are the NOM-marker, the ACC-marker, and the Agent marker, respectively, as in Eastern Polynesian.

[8] Lynch's analysis is questionable in some crucial respects. First, empirical evidence does not support his assumption that Tongan is an accusative language. Secondly, transitive verbs such as *'ave* 'take' never occur in what Lynch calls accusative construction, as illustrated in (i) below.

(i) Na'e 'ave 'a e faiako kia Sione.
PST take ABS DEF teacher ACC Sione
Intended meaning: *'The teacher took Sione.'
Actual meaning: '(someone) took the teacher to Sione.'

Lynch proposes that some verbs in Tongan may only occur in passive, but not in active transitive.

[9] Stanley Starosta (p.c.) points out that this is an instance of nominalization and therefore cannot be used to make hypotheses about clause structure. While his point is acknowledged, it should be noted that it only poses a problem if the derived noun has an argument structure distinct from that of the base verb. However, Tongan zero-derived nominalization keeps the argument structure of the base verbs. It is always the subject that appears with *'e*-possessive. In addition, they can also take the object, as illustrated in (i) below. In this respect, it is rather similar to gerunds in English.

(i) 'ene kai 'a e ika
ALIEN.POSS.3.s eat ABS DEF fish
'his eating the fish'

For this reason, I consider the use of alienable possessive pronouns to be a phenomenon associated with subjects in Tongan.

[10] Note that pronominal objects appear in the position immediately after the verb and without the ABS-marker, rather than in the regular position following the subject. Otsuka (2000) proposes that this is due to a rule that requires incorporation of pronominal object into the verb. In marked speech, independent pronouns can occur in the regular VSO order, both as a subject and an object. However, in that case, they must be preceded by an appropriate Case marker, as illustrated by (i) below.

(i) Na'e 'ave 'e *ia* 'a e tamasi'i ki he fale mahaki.
PST take ERG 3.s ABS DEF boy to DEF house sick
'*He* took the boy to the hospital.'

[11] Note that clitic doubling is not permissible in Tongan. Clitic pronouns cannot cooccur with a coreferential NP.

[12] It should be noted that (10) is grammatical if the intended meaning is 'Pila$_i$ wants Sione to choose him$_{*i/j}$'. In this case, it is assumed that the embedded clause contains a phonetically null object and that PRO is in the subject position.

[13] Ergative arguments can be PRO as illustrated in (i) below.
(i) 'Oku loto 'a Sione [ke fili PRO 'a Pila].
PRS want ABS Sione to choose ABS Pila
'Sione wants to choose Pila.'

[14] This may sound obvious to the reader. However, it should be noted that Tongan demonstrates an ergative pattern with another conjunction *pea*: an argument of the second clause may be deleted only if it is coreferential with the ABS-marked argument (either the intransitive subject or the direct object) of the first clause. Hence, the subject-only constraint on *mo*-coordination is a useful diagnostic for subjecthood in Tongan.

[15] The reason why the embedded clause contains a clitic pronoun *ne* 'he' that is coreferential with *hai* 'who' is due to a language specific constraint that the extraction from an ERG-marked position requires a resumptive pronoun.

[16] In fact, our analysis runs into a more serious problem here. Chomsky (2000) claims that unchecked Case feature enables the element active. In other words, once Case is checked the phrase is frozen in place and cannot undergo further movement. This leaves a question of how V's Case (ABS) is checked in a VOS construction. Miyagawa (2001) suggests that the V-*v*-T complex agrees with both the subject and the object. I assume that the same applies to Tongan as well.

[17] Massam (2000) proposes that T's EPP feature can either be [+D] or [+Pred] and that Niuean is an example of the latter. The idea that T's EPP feature can be [+Pred] is attractive in that it seems to allow us to claim that T's feature is checked by adjoining V. However, such a hypothesis is incompatible with Massam's analysis of Niuean, which essentially claims that the feature [+Pred] forces the VP-remnant movement to [Spec, T]. Furthermore, evidence concerning cliticization suggests that T's EPP feature in Tongan is indeed [+D] (Otsuka 2001). Therefore, we will not pursue this possibility further.

[18] Miyagawa (2001, To appear) suggests that these are instances of locative inversion.

[19] I am grateful to William O'Grady for bringing this issue to my attention. There are some possibilities. We may speculate, for example, a) that the first element is located higher than [Spec, T] and possibly has undergone A-bar movement; or b) they are both in [Spec, T] assuming that Tongan permits multiple Specs.

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Multiple Topics: Evidence from Malagasy

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1. Introduction

In this paper, I examine what appears to be a minor quirk of Malagasy grammar. I show, however, that this special construction sheds light on the projection of topic and focus cross-linguistically. Although languages such as Italian, as argued by Rizzi (1997), may have TopicP and FocusP, Malagasy lacks these projections altogether. In other words, I put forth data from Malagasy to argue against the commonly-assumed universality of topic and focus functional projections in the CP layer.

Keenan (1976) describes what he calls the "bodyguard" construction. Descriptively, when a non-subject is fronted in a cleft, the subject may optionally be carried along ("guarding" the non-subject). As shown in (1), the adjunct appears clause-initially, followed by the subject (the bodyguard) and the particle *no*. (Throughout this paper the bodyguard is marked with bold font.)

(1) Omaly **Rabe** no nanasa ny lovia maloto.
yesterday Rabe NO PST.AT.wash DET dish dirty
'It was yesterday that Rabe washed the dirty dishes.'

At first glance, the bodyguard appears to be a multiple cleft. The following examples illustrate simple clefts in Malagasy. The clefted element is apparently fronted and immediately precedes the particle *no* (to be discussed in section 4).

(2) a. Rabe no nanasa ny lovia maloto omaly.
Rabe NO PST.AT.wash DET dish dirty yesterday
'It was Rabe who washed the dirty dishes yesterday.'

b. Omaly no nanasa ny lovia maloto Rabe.
yesterday NO PST.AT.wash DET dish dirty Rabe
'It was yesterday that Rabe washed the dirty dishes.'

As noted by Keenan, only subjects (2a) and certain adjuncts (2b) can be clefted directly.[1] Internal arguments must be promoted to subject with different verbal voices, similar to passive (3a,b).

(3) a. *Ny lovia no nanasa i Soa.
DET dish NO PST.AT.wash Soa
'It was dishes that Soa washed.'

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b. Ny lovia no nosasan'i Soa.
DET dish NO PST.TT.wash.GEN.Soa
'It was dishes that were washed by Soa.'

(4) illustrates the bodyguard construction with a non-active verb.

(4) Tamin'ny taona lasa **ity radara ity** no nataon-dRasoa.
PST.P.GEN.DET year gone this radar this NO PST.TT.do.GEN.Rasoa
'It was last year that this radar was built by Rasoa.'

Although Keenan states that some speakers prefer agent subjects as bodyguards, my consultants readily accept examples such as (4), which have a derived subject as the bodyguard.

In what follows, I explain the structure and pragmatic interpretation of the bodyguard construction. I show that only once the simple cleft is properly understood, can the position of the bodyguard be analyzed. In particular, I argue that the bodyguard is not a multiple cleft, despite appearances to the contrary.

2. Malagasy

Malagasy is a western Austronesian language spoken in Madagascar. The word order is strictly VOS. Important for this paper is the restriction on A-bar movement. As mentioned above, only subjects and certain adjuncts may undergo A-bar movement. (5) and (6) provide examples of *wh*-movement, which is a kind of cleft.

(5) a. Iza no nanasa ny lovia maloto? [✓subject]
who NO PST.AT.wash DET dish dirty
'Who washed the dirty dishes?'

b. Oviana no nanasa ny lovia maloto i Soa? [✓adjunct]
when NO PST.AT.wash DET dish dirty Soa
'When did Soa wash the dirty dishes?'

(6) a. *Inona no nanasa i Soa? [✗object]
what NO PST.AT.wash Soa
'What did Soa wash?'

b. Inona no nosasan'i Soa. [✓subject]
what NO PST.TT.wash.GEN.Soa
'What did Soa wash?'

This restriction will play an important role in the bodyguard construction.

3. The bodyguard

In this section, I give an overview of the basic properties of the bodyguard construction. Despite appearances, the bodyguard is not a multiple cleft. The first observation is that the ordering seen in (1) is strict: the first element must be an adjunct, the second is the subject. Reversing the two leads to the ungrammatical example in (7).

(7) * Rabe omaly no nanasa ny lovia maloto.
Rabe yesterday NO PST.AT.wash DET dish dirty
'It was Rabe who yesterday washed the dirty dishes.'

Second, the first element is typically new information while the second is old information. For example, the first element may be indefinite, but the second may not (but see (17b) for a counterexample).

(8) a. Zazavavy no nilalao baolina tany an-tokotany.
girl NO PST.AT.play ball PST.there ACC-yard
'It was girls who were playing ball in the yard.'

b. Tany an-tokotany *(**ny**) **zazavavy** no nilalao baolina.
PST.there ACC-yard (DET) girl NO PST.AT.play ball
'It was in the yard that the girls were playing ball.'

Moreover, the first element may be the answer to a question, but the second may not. (9c) is an appropriate answer to (9a), while (9b) is not.

(9) a. Q: Iza no nanapaka bozaka oviana?
who NO PST.AT.cut grass when
'Who cut grass when?'

b. #A1: Omaly **Rasoa** no nanapaka bozaka.
yesterday Rasoa NO PST.AT.cut grass
'It was yesterday that Rasoa cut grass.'

c. A2: Rasoa no nanapaka bozaka omaly.
Rasoa NO PST.AT.cut grass yesterday
'It was Rasoa who cut grass yesterday.'

In fact, the second element is often a pronoun, coreferent with an NP introduced earlier in the discourse.

(10) a. Q: Taiza no nandeha fiara i Soa?
PST.where NO PST.AT.go car Soa
'Where did Soa go by car?'

b. A: Tany Antananarivo **izy** no nandeha fiara.
PST.there Antananarivo 3(NOM) NO PST.AT.go car
'It was to Tananananarive that she went by car.'

Summing up, in a bodyguard construction the first element patterns with focus (as in simple clefts), while the second has non-focus properties. To better understand the nature of focus in Malagasy, I turn to the syntax of clefts.

4. Clefts

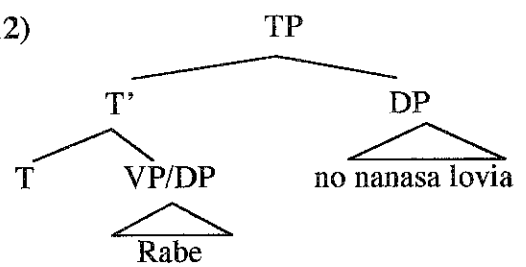
Clefts in Malagasy, as we have already seen, are formed by fronting an element, which is followed by the particle *no*.

(11) a. Rabe no nanasa lovia.
Rabe NO AT.wash dish
'It is Rabe who is washing dishes.'

b. (Ny) ariana no antonona azy.
(DET) TT.throw-away NO suitable 3(ACC)
'It is to be thrown away that it is suitable.' [Dahl 1986: (31)]

In Paul (2001), I draw on work by Dahl (1986) and argue that the clefted element is in fact the main predicate and the remainder of the clause (*no* + predicate) is a headless relative in subject position. A more accurate translation of (11a) would therefore be 'The one who is washing dishes is Rabe'. The tree below gives the basic structure for (11a).

(12)



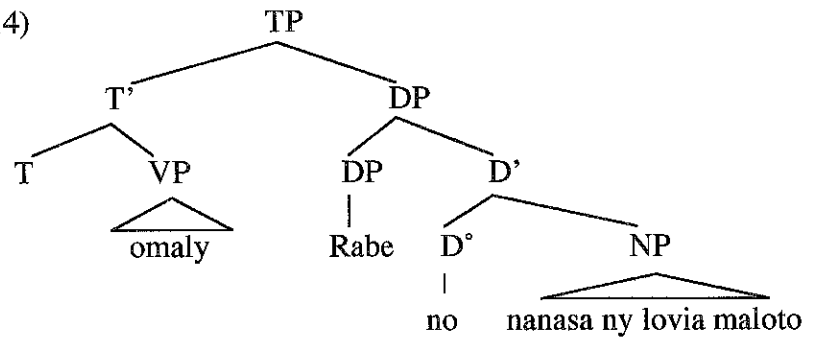
According to my analysis, *no* is in fact a determiner, not a focus marker. I refer the reader to that paper for discussion.

If the structure in (12) is correct, however, this raises a problem for the bodyguard. I repeat a typical example below.

(13) Omaly **Rabe** no nanasa ny lovia maloto.
yesterday Rabe NO PST.AT.wash DET dish dirty
'It was yesterday that Rabe washed the dirty dishes.'

If *omaly* 'yesterday' is the predicate and *no nanasa...* is the subject, where is *Rabe*? In what follows, I argue that *Rabe* is in the specifier of the subject. In other words, the bodyguard is a possessor of the headless relative. The structure of (13) is given in (14).[2]

(14)



5. Alternate analyses

In this section, I consider some possible alternate analyses of the bodyguard construction. An initial plausible hypothesis might state that the bodyguard is in fact a focused element, either amalgamated with the adjunct or in a different specifier of a multiple specifier head (e.g. FocusP). There are several reasons, however, to believe that the bodyguard forms a constituent not with the adjunct, but with the remainder of the clause. First, recall that the bodyguard does not have focus interpretation, unlike the adjunct. Second, it is possible to interrupt the adjacency between the adjunct and the bodyguard. (15a) illustrates a parenthetical inserted between the adjunct and the bodyguard, showing they do not form an amalgamated unit. (15b) shows that it is possible to coordinate the bodyguard with the remainder of the clause, to the exclusion of the adjunct. In (15b), the adjunct scopes over both conjuncts.

(15) a. Omaly hono **Rasoa** no nanapaka bozaka.
yesterday so-they-say Rasoa NO PST.AT.cut grass
'It was yesterday, so they say, that Rasoa cut grass.'

b. Omaly **Rasoa** no nivarotra hena ary **i Be** no nividy vary.
yesterday Rasoa NO PST.AT.sell meat and Be NO PST.AT.buy rice
'It was yesterday that Rasoa sold meat and Be bought rice.'

(15b) is an example of DP coordination under the present analysis.[3]

A second hypothesis is that the bodyguard is simply a pre-verbal subject (ignoring for the moment the status of *no*). Since the bodyguard always corresponds to the surface subject, perhaps it is the subject. It can be shown, however, that the bodyguard is more restricted than clause-final subjects. For example, although event nominals can be subjects (the XP marked with a dotted underline in (16a)), they can't be bodyguards (16b).

(16) a. Natombon-dRabe ny...nitondra.....fiara omaly.
PST.TT.start.GEN.Rabe DET PST.AT.drive car yesterday
'Rabe started to drive a car yesterday.'
(lit.) 'The driving of the car was begun by Rabe yesterday.'

b. *Omaly **ny nitondra** **fiara** no natombon-dRabe.
yesterday DET PST.AT.drive car NO PST.TT.start.gen.Rabe
(lit.)'It was yesterday that the driving of the car was begun by Rabe.'

Moreover, under certain (poorly understood) circumstances the bodyguard may be indefinite (17b). This contrasts with regular subjects (17a).

(17) a. *Nandeha tany an-tsena zanako.....roa.
PST.AT.go PST.there ACC-market child.1SG(GEN) two
'Two of my children went to the market.'

b. Omaly **zanako** **roa** no nandeha tany an-tsena.
yesterday child.1SG(GEN) two NO PST.AT.go PST.there ACC-market
'It was yesterday that two of my children went to market.'

The bodyguard is therefore not simply a pre-verbal subject.

6. Possessors

Taking into account the structure of the cleft, in particular the position of the bodyguard immediately preceding *no* (a determiner), I suggested above that the bodyguard is a possessor in [Spec, DP]. As a possessor, the bodyguard obeys restrictions other than those imposed on subjects. For example, possessors cannot be event nominals, as shown in (18).

(18) a. *ny fotoan'ny mamono ny filoha
DET time.GEN.DET AT.kill DET director
'the time of the killing of the director'

b. *ny toeran'ny mamono ny filoha
DET place.GEN.DET AT.kill DET director
'the place of the killing of the director'

The ungrammaticality of (18) parallels that of (16b).

Positing a possessor in [Spec, DP], however, runs into difficulty in face of the normal position of possessors in Malagasy. In general, possessors remain "low", perhaps in [Spec, NP], never preceding the determiner *ny*.

(18) a. ny bokin-d**Rabe**
DET book.GEN.Rabe
'Rabe's book'

b. ny kiraro fotsy kely **teloko**
DET shoe white small three.1SG(GEN)
'my three small white shoes'

In order to account for the special possessor position, I propose that the D° *no* exceptionally licenses a specifier, while *ny* (the regular determiner) does not. A second problem for the present analysis is morphological case: possessors in Malagasy are typically marked with genitive case, which surfaces as "n-bonding" (Keenan 2001) with the proper name in (18a) and as a special series of pronouns, as illustrated in (18b). It has been noted, however, that sometimes possessors appear with nominative rather than genitive (Paul 1996). When a third person pronoun is "augmented" in some way, it surfaces as nominative. With the head noun *trano* 'house', we find the following forms: (19a) illustrates the genitive pronoun *–ny*; in (19b) the plural marker *ireo* has been added, so the pronoun takes the nominative form *izy*; similarly, in (19c), the pronoun has been augmented with the noun 'spouse' *mivady* and is marked for nominative.

(19) a. tranony
house.3(GEN)
'his/her house'

b. tranon'izy ireo
house.GEN.3(NOM) PL
'their house'

c. tranon'izy mivady
house.GEN.3(NOM) spouse
'their (the spouses) house'

Morphological nominative marking also obtains with coordinate possessors.

Summing up, although the bodyguard is not formally marked as a possessor, syntactic and pragmatic data suggest that it occupies [Spec, DP] of the headless relative in the subject position of a cleft.

7. Other languages

At this point, the bodyguard may appear to be an obscure quirk of Malagasy. A similar construction occurs in some related languages, however. Seiter (1979) describes what he calls the RC possessive construction (RC for "relative clause") in Niuean, a Polynesian language (see also Hawkins 2000 for similar data from Hawaiian). In relative clauses formed on non-subjects, the subject of the highest

verb in the relative clause optionally becomes a possessive modifier of the head noun. (20a) illustrates a relative clause, with *mena* 'thing' as the head. In (20b), the embedded subject *koe* 'you' appears as a possessor *haau* 'your'.

(20) a. e mena ne tunu ai e koe e moa
ABS thing NFT cook in=it ERG you ABS chicken
'the thing you cooked the chicken in'

b. e mena **haau** ne tunu ai e moa
ABS thing your NFT cook in=it ABS chicken
'the thing you cooked the chicken in' [Seiter 1979: 97]

Seiter points out that the RC possessive surfaces in clefts (21) as well as *wh*-questions (22).[4]

(21) Ko e ika nī ha **mautolu** ne fā kai he aho Falaile.
PRED ABS fish only of us, PL.EX NFT HAB eat on day Friday
'Fish is what we used to eat on Friday.' [Seiter 1979: 105]

(22) a. Ko hai ne lagomatai e koe?
PRED who NFT help ERG you
'Who did you help?'

b. Ko hai **haau** ne lagomatai?
PRED who your NFT help
'Who did you help?' [Seiter 1979: 114]

As in Malagasy, *wh*-questions in Niuean involve a cleft construction. Moreover, the cleft, as argued by Seiter, has the same structure as the Malagasy cleft: a nominal predicate (marked by *ko*) and a headless relative subject. In other words, clefts share certain properties of relative clauses, including RC possessive. Note, finally, that the possessor in (21) and (22b) is modifying the empty head of the relative clause, not the clefted element. It is therefore expected to find RC possessive in clefts and exactly in this position: between the clefted element and the headless relative.

As noted above, the Niuean RC possessive construction is only possible in relative clauses formed on non-subjects. In Malagasy, however, it is impossible to relativize non-subjects. The only exception is in headless relatives (e.g. clefts). Therefore if one were looking for the RC possessive in Malagasy, one would only expect it to obtain in non-subject clefts, not in headed relatives. And this is precisely the environment where the bodyguard surfaces. The fact that the RC possessive is overtly marked as possessive in Niuean lends support to the analysis of the bodyguard in Malagasy as a special type of possessor.[5]

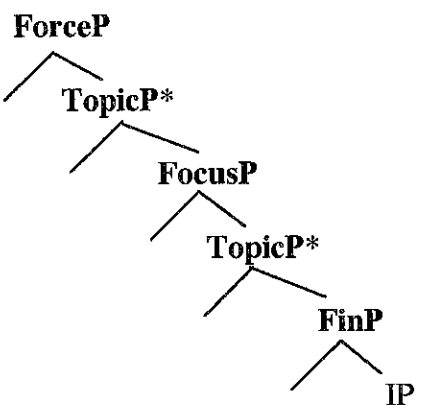
8. The CP layer

The reader may now ask whether a simpler analysis of the data considered in this paper could be proposed using functional projections. Rizzi (1997) argues for an expanded CP structure, with a focus position sandwiched between two topic positions. He considers data from Romance, such as the following example from Italian.

(23) A Gianni QUESTO domani gli dovrete dire.
'To Gianni, THIS, tomorrow, you should tell him.'

The structure that Rizzi proposes is illustrated in the tree in (24), where * indicates a reiterating XP.

(24)



Interestingly, Malagasy allows for precisely the same order of topic>focus>topic. This ordering can be seen in (25).

(25) [Ny lovia]$_{topic}$ dia [isan'andro]$_{focus}$ [Rabe]$_{topic}$ no manasa azy ireo.
DET dish TOP each'day Rabe NO AT.wash 3(ACC) PL
'As for the dishes, it's every day that Rabe washes them.'

Note, however, that Rizzi's structure leaves unexplained certain restrictions on the string in (25). First, the lower topic position is only available when there is a focused element. Second, the lower topic is always the subject. Thus although Rizzi's structure accounts for the basic word order, it does little more.

Once the focus construction is understood as a cleft with the focused XP as the predicate, the properties of (25) fall into place. *Rabe* has topic-like properties due to the fact that it has moved from the subject position. It has long been recognized that Malagasy subjects pattern with topics (see Keenan 1976 and more recently Pearson 2001). This "topic" position is only available when a focus is present simply because of the special properties of the cleft construction. Moreover, the special possessor position is only available in adjunct clefts, hence its restriction to subjects. In other words, once the syntactic properties of clefts are properly understood, the ordering in (25) follows quite simply.

There remains, however, the initial topic in (25), *ny lovia* 'the dishes'. At this point, I do not intend to provide an in-depth study of topicalization, but it suffices to note that it does indeed appear to be a peripheral topic position. Moreover, the topic is probably not generated via movement as almost any element may appear in the topic position and islands are not respected. (26) provides some illustrative examples: long-distance object topicalization (26a); topicalization out of a complex NP (26b); topicalization out of a *wh*-island (26c). The resumptive pronoun in base position is in boldface.[6]

(26) a. Ny radara dia Rabe no nilaza fa Rasoa no nanao **azy**.
DET radar TOP Rabe NO PST.AT.say C Rasoa FOC PST.AT.do 3(ACC)
'As for the radar, it was Rabe who said that Rasoa built it.'

b. Ny radara dia Rabe no namangy ny olona izay nanao **azy**.
det radar TOP Rabe NO PST.AT.meet DET person REL PST.AT.do 3(ACC)
'As for the radar, it was Rabe who met the person who built it.'

c. Ny radara dia Rabe no mahafantatra izay nanaovana **azy**.
DET radar TOP Rabe NO AT.know REL PST.CT.do 3(ACC)
As for the radar, it's Rabe who knows why it was built/its use.

This unboundedness clearly violates the Malagasy restrictions on extraction mentioned at the beginning of this paper. Moreover, resumptive pronouns are not found in other A-bar dependencies. Thus the outermost topic in Malagasy appears to be base generated in the clausal domain – perhaps simply adjoined to CP.

In sum, Malagasy syntax does not appear to instantiate the type of layered CP structure proposed by Rizzi (1997). It remains to be shown whether or not this structure is indeed universal (and hence the null hypothesis for the child) or a special feature of Italian (and perhaps other languages) which must be learned based on positive evidence. Interestingly, Massam (2002) presents data from Niuean which indicate that the CP field lacks TopicP and FocusP (among other projections). She speculates that this impoverished CP may be a property of verb-initial languages or predicate-fronting languages. Finally, Lopez (2002) argues strongly against an expanded CP, drawing mainly on data from Catalan and Finnish. This line of research suggests that functional projections associated with semantic/pragmatic features need to be carefully motivated on a language-by-language basis.

9. Conclusion

Beginning with an unusual construction in Malagasy, this paper has addressed the question of the position of topic and focus in the clause. It is often argued that some languages (e.g. Italian and Hungarian) resort to functional categories which host topicalized and focused elements. It is also clear that other languages (e.g. English) can map particular prosodic structures onto topic and focus. What I have

shown is that for the most part, topic and focus in Malagasy can be read directly off the basic syntactic structure. The structure of clefts gives rise to the focus reading (see Paul 2001 for detailed discussion); the bodyguard has topic-like properties due to its base position (grammatical subject). A little puzzle about Malagasy grammar lends new insight into cross-linguistic variation in the syntactic realization of topic and focus.

Endnotes

*I would like to thank Saholy Hanitriniaina for her help with the Malagasy data as well as Lisa Travis and the audience at AFLA 9 for their comments and suggestions. Any errors remain my own responsibility.

[1] Adjuncts may also be promoted to subject with Circumstantial Topic and then undergo clefting from this position.

(i) Omaly no nanasan-dRabe ny lovia maloto.
yesterday NO PST.CT.wash.GEN.Rabe DET dish dirty
'It was yesterday that Rabe washed the dirty dishes.'

[2] I leave for future research the precise structure of the headless relative.

[3] As pointed out to me by Eric Potsdam (p.c.), the coordination data are problematic for me as the clausal conjunction *ary* appears rather than *sy* (which would normally be used for DP coordination). Interestingly, if no bodyguard is present, *sy* and not *ary* surfaces. At this point, I have no explanation for this difference.

[4] In fact, Seiter claims that RC possessive in clefts is not possible, in spite of (21). Diane Massam (p.c.) informs me that her consultants freely accept RC possessive in clefts.

[5] Whether or not the RC possessive and the Malagasy bodyguard can be related to genitive subjects in relative clauses cross-linguistically (e.g. Japanese, Turkish) is the subject of future research. See Krause (2001) for a recent survey of this phenomenon.

[6] All the examples in (26) have a cleft as well as topicalization. It is possible to have a resumptive pronoun even in simple topicalization, although it is less acceptable.

(i) ?Ny reniny dia manaja azy i Koto.
DET mother.3(GEN) TOP AT.respect 3(ACC) Koto.
'As for his mother, Koto respects her.'

Resumptive pronouns are never associated with subjects, however.

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Grammatical Categories and Grammaticisation in the Oceanic Verb Complex

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1. Introduction

1.1 Aims

Many grammatical descriptions of Oceanic Austronesian languages written in the last 40 years recognise a construction called the 'verb phrase', which is the only obligatory constituent of independent verbal clauses. As the Oceanic 'verb phrase' differs in important ways from the 'verb phrase' familiar to generative grammarians I will refer to it here as the 'verb complex' (henceforth, usually, VC).[1] This construction type is potentially a gold mine for the study of grammaticisation and principles of grammatical organisation. This paper does a little prospecting.

The paper has four specific aims: (i) to outline the main characteristics of typical VCs; (ii) to look for cross-linguistic regularities in the distribution of grammatical categories in the postposed periphery of the VC; (iii) to discuss methodological problems encountered when trying to reconstruct the structure of the VC in Proto Oceanic (POc), the stage ancestral to almost all the members of the Austronesian family located in Melanesia, Polynesia or Micronesia; (iv) to use the Proto Oceanic reconstructions as a baseline for the study of grammatical change in the daughter languages. As Proto Oceanic broke up about 3500 to 3200 years ago, there has been a considerable time span for grammatical changes to take place in the daughter languages.[2]

1.2 Some characteristics of the verb complex

The Oceanic verb complex is a phonological phrase that resembles a word in certain respects. This observation was first made by Biggs (1960), in connection with Maori.[3] In Maori and many other Oceanic languages the VC has the following wordlike properties: (a) It has as its nucleus a verb base or compound verb around which a number of grammatical functors occur in rigid order, like affixes around a root. Biggs referred to these satellites as making up the preposed and postposed periphery. (b) It is normally spoken as single intonation contour, with only one contour stress allowed per phrase. Phrase-internal pause is rare; if speakers pause mid-phrase they typically begin the phrase again.

However, the VC is unwordlike in one respect: the peripheral functors are usually free forms, which native speakers are prepared to say and gloss in isolation. (I will follow Biggs in using 'particle' to refer to free form functors.) The following sentences from Lolovoli Ambae, spoken in northern Vanuatu, and Wayan, a dialect of Western Fijian, give an idea of the composition of typical

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verb complexes. Both languages have VO canonical word order. (In all examples each VC is enclosed by square brackets, and the interlinear glosses of the VC are bolded.)[4]

Lolovoli Ambae (NC Vanuatu)

(1) *Niko [gu tei=go sibo-mu]*
2SG **2Ssub chop-1Sobj self-2Spos**
'You cut yourself.' (Hyslop 2001: 266)

(2) *[Da-ni hi geni-re tea tau.]*
1iPsub=IRR NEG eat-3Pobj NEG still
'We won't eat them yet.' (Hyslop 2001:264)

Wayan Fijian (Central Pacific)

(3) *[Quu saa maci mai noo tuu],*
1Ssub PF again come stay CONT
'I'm supposed to come and stay as well,

[me qu dau lai tola-vi-a noo].
so.that 1Ssub HAB go.and see-TR-3Sobj CONT
so I can keep going to see him (in hospital).'

(4) *Na ava [ei lai noo vali kaa]?*
ART what **3Ssub go.and stay CASUAL CAUSE**
'Whatever has he gone to stay there for?' (Pawley & Sayaba n.d.)

In some Oceanic languages the peripheral functors are phonologically more or less tightly bound to the verb base, i.e. they have become affixes. This is the case in Manam and Saliba, both languages with OV word order, which are spoken on the north and south coast of New Guinea, respectively:

Manam (North New Guinea)

(5) *Tanepwa ma9 [mi-an-Ø-a-ŋ-ʔo].*
chief chicken **1Ssub.IR-give-3Sobj-BUF-BEN-2Sobj**
'I will give a chicken to the chief for you.' (Lichtenberk 1983:167)

(6) *Aine rua tabira maʔa [di-doʔ-i-mai-ru].*
woman two dish here **3Psub.RL-take-3Pobj-hither-DL**
'The two women brought the dishes here.' (Lichtenberk 1983:583)

Saliba (Papuan Tip)

(7) *[Ye-kita-lao-ma.]*
3Ssub-see-go-hither
'He looked over to me./He looked over this way.' (Margetts 1999:128)

(8) *Tamowai [ya-sagu-i-di] [ka-kabi kabole].*
people **1Ssub-help-APP-3Pobj** **1xsub-make sago**
'I help the people making sago.' (lit. ' People I help them we make sago.')
(Margetts 1999:139)

Obligatory and optional elements in the VC periphery. For intransitive verbs (Vi) and transitive verbs (Vtr), respectively, the minimal VCs in many Oceanic languages have the following structures:

(9) TAM/PROsub Vi
(10) TAM/PROsub Vtr PROobj

That is to say, the only obligatory functors before the verb are a pronoun marking the subject and a marker of tense/aspect/mood and the only obligatory functors after a transitive verb are a suffix or particle marking transitivity and a pronoun marking direct object. (There is generally a small subclass of transitive verbs that requires no transitive suffix.) The notation TAM/PROsub indicates that the TAM markers sometimes precede the subject pronoun, sometimes follow it, and sometimes are fused with it.

The subject and object pronouns in the VC are sometimes referred to as 'agreement' elements. Such a description is misleading. Except in languages where pronoun doubling occurs, the first person inclusive and exclusive pronouns and second person pronouns usually do not have any independent NP to agree with. The non-3rd person pronouns are clearly arguments of the verb. The situation with the 3rd person pronouns is more complex.

These generalisations about obligatory elements of the VC do not apply to every Oceanic language. For example, in Eastern Polynesian languages, such as Maori and Hawaiian, neither subject nor object pronouns are part of the VC. Thus, the VCs of Eastern Polynesian are synchronically far from being the same construction as the VCs of, say, the Fijian languages, except in the historical sense of being continuations of a common ancestral construction type.

It needs to be emphasised that the VC is not a completely coherent unit in respect of deep grammatical relations and constituent structure. It is a surface structure constituent, a phonological unit. In terms of their semantic scope the categories of particles that occur in the peripheries of the VC are a mishmash. In some cases scope is restricted to the verb; in others scope is over the entire core or peripheral layer of the clause.

The preposed satellites often include, in addition to TAM markers and subject pronouns, various other sorts of particles, such as negators, desideratives, and certain conjunctions that are phonologically and syntactically well integrated into the VC (such as complementisers and sequential action markers). In addition to object pronouns, the postposed satellites usually include directionals and aspect markers, and often include other sorts of modifiers denoting, e.g. deixis (position relative to speaker, addressee, etc.), intensity, exactness, frequency, addition, repetition, lack of purpose, togetherness. In the Polynesian and Fijian languages and in some Western Oceanic languages the postverbal satellites include a

resumptive pronoun referring to a previously mentioned oblique object denoting, e.g. a location, instrument or cause. In some languages a negator appears in the postposed periphery.

Complex nuclei. There are several types of complex nuclei. In one type the verb is modified by a stative or action verb which indicates the manner or circumstance of the action. In another, the verb is modified by an incorporated noun denoting a nonspecific 'object'. A third type consists of a series of two or more bare verb roots denoting separate sub-events, i.e. a nuclear serial verb construction (strictly speaking the *predicate* of such a construction).

Following Foley and Olson (1985), I distinguish two kinds of serial verb constructions (SVCs): *nuclear verb series*, in which the verb roots are contiguous, sharing the same surface subject and TAM marker, and *core verb series*, in which each verb has its own subject and TAM marker. Only a nuclear verb series counts as a single VC nucleus. I will refer to positions in verb series as V1, V2, etc. Some Oceanic languages have both nuclear and core SVCs. Some languages have only one type and some have neither. Because nuclear serial verb constructions are less ubiquitous in Oceanic than the first two kinds of complex nuclei the question arises whether or not they were present in POc.

1.3 Notes on grammaticisation, polysemy and heterosemy

Givón holds that the locus of explanatory universals in grammar is in the process of grammaticisation. The discovery of recurrent patterns of grammatical change leads to the formulation of general claims about which changes are possible or impossible, and which are common or rare, etc. Functional explanations of such patterns are to be sought in cognitive, social and discourse-pragmatic mechanisms.

What exactly is grammaticisation? Lehmann (1982:v), following Kurylowizc's original definition, writes that "From the diachronic point of view it is a process which turns lexemes into grammatical formatives and renders grammatical formatives still more grammatical". Implicit in this definition are the assumptions that (a) there are criteria distinguishing lexical words from grammatical functors and (b) there is a scale or continuum between less and more grammaticised elements. Lichtenberk (1991a) prefers to view grammaticisation (he uses 'grammaticalization') in terms of its consequences,

> *as a process that leads to certain changes in the grammar* of a language. This emphasis on the effects of grammaticalization processes rather than on the processes themselves better reflects what I consider to be an important characteristic of natural languages. [Grammars]...are ultimately historical phenomena, products of historical developments... (Lichtenberk 1991a, p.38, my italics: AP)

The typical consequences are any one or more of the following: (i) the emergence of a new grammatical category; (ii) loss of an existing grammatical category; (iii) change in the membership of a grammatical category (Lichtenberk 1991a:38). All

three kinds of change may be historically linked. Hopper (1991:22) observes that one common outcome of grammaticisation is 'layering'. The same function may be expressed by elements that belong to different grammatical 'layers'. When new layers emerge in a functional domain the old layers may remain.

The study of grammaticisation is an aspect of the study of polysemy – more precisely, of semantic extensions leading first to to polysemy and then to grammatical category shift. There have been some generalisations about polysemy based on synchronic studies that refer to "directly related" senses, those that differ by "minimal steps". However, Lichtenberk (1991b:506) points out that these "directly related senses" are implicitly diachronic. How do we identify "direct relationship" and "minimal steps"? These must be associated with historical stages, otherwise the claim is empty.

Polysemy itself is also part of morphosyntax insofar as meaning extensions are associated with extensions to a different or new grammatical category. Thus, it is useful to distinguish two types of polysemy: (a) multiple senses within the same grammatical category, (b) multicategorial or multifunctional polysemy, where the senses span more than one part of speech category. Lichtenberk uses the term *heterosemy* to refers to type (b), that is

> ... cases (within a single language) where two or more meanings or functions that are historically related,...are borne by reflexes of the common source element that belong in different morphosyntactic categories... Thus, for example, there is heterosemy if a verb, a directional particle, and an aspect marker all ultimately descend from the same historical source. This definition of heterosemy subsumes even those cases where the reflexes of the common source are not phonologically identical: for example, a grammatical reflex may be phonologically reduced, where a lexical reflex need not be. (Lichtenberk 1991b:476)

Those interested in universals of grammatical change need reliable historical reconstructions to establish a firm baseline for particular case studies. Some typologists are dismissive of historical reconstructions but without reliable reconstructions they are handicapped when trying to establish directions of change. This can be seen, for example, in the longstanding debate over the direction of syntactic change in canonical transitive sentences in Polynesian languages – ergative to accusative or accusative to ergative?

Two highly recurrent types of grammatical change are evident in the Oceanic verb complex. We might call these centrifugal and centripetal, according to whether the grammaticised elements move out of or towards the nucleus of the VC. In the centrifugal type the first or last verb root in a complex nucleus becomes grammaticised to some degree, as a prepositional verb, direction marker, aspect marker, or in some other function. At first it stays in its original position but the next step is for the element to move from the VC nucleus into the periphery, and, in some instances, out of the VC altogether. Several studies of this sort of grammaticisation in Oceanic languages have appeared, in addition to the

longstanding debate on the development of case-marking in Polynesian. Crowley (1987), Durie (1988), Lichtenberk (1985, 1991a) and Pawley (1973), among others, have discussed the development of prepositions and/or oblique case markers from verbs, Lichtenberk (1991b) has examined the development of the motion verbs COME, GO and RETURN into grammatical functors with various functions, Rivierre & Ozanne-Rivierre (2002) the development of classificatory prefixes from serial verbs, and Ross (2002) the development of directional particles and prepositions from serial verbs.

In the centripetal type certain kinds of lexical words or particles that were originally outside the VC are attracted to the head of the clause, i.e. into the VC. For example, words that are (or that end up as) conjunctions, adverbs of manner and deixis, quantifiers, prepositions and oblique case anaphors tend to be drawn into the VC as either preposed or postposed satellites of the verb. This second type of recurrent change has been little studied.

2. Variation in grammatical categories found in the postposed periphery

Two competing motivations shaping the order of inflectional affixes within words have been proposed. The 'fossilised syntax hypothesis' of Givon (1971) holds that the position of the affix remains the same as the position of the free form material from which it developed: syntactic distribution is preserved when grammaticisation occurs. Bybee (1985) acknowledges that original syntactic order is an important factor but she argues that the distribution of morphemes within words is also influenced by a functional consideration: semantic relatedness or 'relevance'. Meaning element A is relevant to B to the extent that its semantic content directly affects or modifies the semantic content of B. Elements that are highly relevant to one another are likely to occur together. Aspect is said to be highly relevant for verbs, because aspect expresses different ways of viewing the internal temporal conditions of an act or state. Tense, whose scope is over the whole event, is less relevant to the verb. Person agreement categories have still less relevance. In a sample of 50 languages Bybee found that languages tend to place verbal affixes in the following order, starting closest to the stem: valence-changing, voice, aspect, tense, mood, number agreement, person agreement, gender agreement.

It seems reasonable to suppose that the historical and functional pressures that shape the distribution of word-internal grammatical categories in languages with complex morphology will also apply to phrases in isolating languages. Thus, we may ask whether the structure of the VC yields generalisations similar to those which Bybee (1985) found for the inflectional categories of verbs. This section looks into this matter in a very limited way, examining variation in the content and organisation of the postposed periphery in a sample of Oceanic languages.[5]

The sample of Oceanic languages cited here is small but reasonably representative of the major subgroups. The following table gives an internal classification of Oceanic languages that has a fair measure of general acceptance.

1. Western Oceanic
    - 1.1 Meso-Melanesian (mainly North New Britain, New Ireland, New Hanover, Northwest Solomons as far east as Santa Isabel)
    - 1.2 North New Guinea (mainly coastal and offshore islands, from Morobe to the western border of Papua New Guinea
    - 1.3 Papuan Tip (mainly Milne Bay and Central Provinces, Papua New Guinea)
2. Admiralty Islands (Manus, Wuvulu and Aua)
3. Mussau (St Matthias)
4. Eastern Oceanic
    - 4.1 S.E. Solomonic
        - 4.1.1 Cristobal-Malaitan (mainly San Cristobal (Makira) and Malaita
        - 4.1.2 Guadalcan-Nggelic (Guadalcanal, Florida Is. and Bugotu)
    - 4.2 Nuclear Micronesian
    - 4.3 N. & C. Vanuatu (from Efate north)
    - 4.4 South Vanuatu (south of Efate)
    - 4.5 New Caledonia and the Loyalty Islands
    - 4.6. Central Pacific
        - 4.6.1 Polynesian
        - 4.6.2 Fijian
        - 4.6.2 Rotuman

The smallness of the sample partly reflects the difficulties of finding comprehensive descriptions of the VC for languages in most major subgroups other than Polynesian, Fijian and Southeast Solomonic.

A brief account follows of the structure of the postposed periphery in the languages in the sample. Sequential positions are numbered 1, 2, etc, position 1 being immediately after the verb. Notes on the presence and types of serial verb constructions are also included. The data are crude. For example we do not know all the co-occurrence constraints obtaining between classes of particles or affixes in a given language. And the usual problems of typological comparison of categories are encountered – the same label (e.g. 'aspect', 'directional') is applied to grammatical categories of different languages if the functions are considered similar, but the equations are never perfect.

Sud-Est, Milne Bay (Papuan Tip)

1	2	3	4	5	6	7	8	9
PROobj	DIR ASP	MAN	TRANS	OBJ	DEIC	NEG	REP	RSTRICT

Serialisation: No clear cases.

Nakanai, New Britain (Meso-Melanesian)

1	2	3	4	5	6
PROobj	MAN	INTENS	ASP	ASP	DEIC

Serialisation: Yes

Manam, Madang (North New Guinea)

1	2	3	4	5	6	7	8
ASP	INTENS	DIR	DIR	MAN	BEN	PROobj	RSTRICT

Serialisation: No

Jabêm, Morobe (North New Guinea)

1	2	3	4
PROobj	ASP	DIR	RESULT

The directional and result particles in Jabêm are not strictly part of the VC as they usually occur clause finally (Ross 2002:284).

Serialisation: pervasive. Core serialisation, with locomotive and movement verbs and deictic directionals. Also 'adverbial serialisation': action + verb of rest, perhaps better analysed as head-modifier compounding.

Teop, Bougainville (Meso-Melanesian)

1	2	3	4	5	6	7	8
PROagr	NEG	SIMUL	APPL	PREP	ANTERIOR	DIR	TAM
Nincorp							

The object pronouns (as opposed to agreement markers) occur after the VC

Serial verbs: Nuclear layer serialisation is restricted to two verbs.

Kokota, Santa Isabel (Meso-Melanesian)

1	2	3
MOOD	PROobj	ASP
	OBJgener	INTENS

Serialisation: pervasive. Up to three verbs, with closed classes in positions V1 (motion) and V3: motion + V + directional.

Longgu, Guadalacanal (Southeast Solomonic)

1	2	3	4
PROobj	MOD	ASP	DIR

Serialisation: Yes

Toqabaqita, Malaita (Southeast Solomonic)

1	2	3	4	5	6	7	8	9
PROobj	PRIORITY	ASP (compl, cont)	ADDIT	INTENS	ASSERT	ASP (perf)	LIMIT	DIR

Serialisation: Yes

Lolovoli, Ambae Is. (NC Vanuatu)

1	2	3	4	5
PROobj	NEG	TIME	INTENS	PROobj
NPobj			MAN	NPobj
				RFL
				again

The object argument can either directly follow the verb nucleus or cliticise to other postverbal particles. Time markers denote 'already', 'still, yet', 'forever'. Serialisation: Both nuclear and core.

Tamambo, Malo Is. Vanuatu (NCV)

1	2
MAN	PROobj
DIR	

The object pronoun cliticises to the manner or directional modifier if there is one. Serialisation: Pervasive, both core and nuclear.

Standard Fijian (Central Pacific)

1	2	3	4	5	6	7	8	9	10
PROobj	ASP	ABLE	ALL	INTENS	ASP	POL	RSTRCT	DIR	ANAPH
	(compl)				(durative)				(oblique)

Serialisation: The only candidates for SVCs are constructions in which *lai* 'go and (V)' and *mai* 'come and (V)' occur as preverbal auxiliaries.

Maori (Polynesian)

1	2	3	4	5	6
MAN	DIR	DEIC	EXACT	INTENS	REP
CONT		IMPF			
		HAB			
		ANAPH			

Serialisation: no clear cases.

Samoan (Polynesian)

1	2	3	4	5	6
ERG	DIR	ERG	MOD	DEIC	INTENS
			ASP		ANAPH

Serialisation: No clear cases.

There is considerable variation between languages in the kinds of categories that occur in the postposed periphery and in the order in which categories occur. The following are brief comments on tendencies observable in the sequencing of elements. To obtain more definitive results a larger sample of languages is needed together with tighter definitions of grammatical categories and fuller information about co-occurrence restrictions.

Object pronouns. Eleven of the 13 languages incorporate object pronouns (as distinct from agreement pronouns) in the VC. The pronouns typically occur in first position in the postposed periphery. In only two cases (Manam and Lolovoli Ambae) do they occur well to the right. The pronouns generally precede aspect markers (8 out of 9 cases), and direction markers (6 out of 8). Object pronouns represent arguments and do not relate directly to the meaning of the verb. The fact they occur in position 1 in most languages reflects their historical position in POc. Presumably there is a structural factor that keeps object pronouns closer to the transitive verb than most other categories in the postposed periphery but what is it? Note that English prefers the pronouns close to the verb (*ring him up* is preferred to *ring up him,* but *ring up John* is just as good as *ring John up*).

Aspect markers. The fact that in several instances different aspect markers occur in different positions in a single language suggests that our category 'aspect' is not a coherent one in these languages. A useful strategy may be to compare the positions of just those elements that mark the most similar kinds of aspect, e.g. only imperfective/progressive/durative markers, as opposed, say, to completive markers. Aspect markers tend to occur fairly close to the verb (10 out of 16 cases in positions 1-3). Imperfective markers tend to precede directionals (4 out of 6) and intensifiers (4 out of 6). They precede restrictives in 2 out of 4 cases.

Directionals. Directionals tend to occur close to the verb (8 out of 11 cases in positions 1-3) but in three languages (Standard Fijian, Manam and Toqabaqita) they occur much further to the right. Directionals tend to follow aspect markers (4 out of 6 cases) but they precede deictic markers ('here', 'there') in 3 out of 3 cases.

Deictic: These occur in only three languages, always after directionals.

Manner markers: Most languages have one or more sets of functors lumped together as 'manner' markers. But as this term covers a range of semantically disparate elements the comparative data are probably of small value.

Intensifiers. Intensifiers (6 clear cases) usually follow aspect and and direction markers (see above).

Restrictive markers. Restrictive markers (only 3 clear cases) tend to occur far from the verb.

Oblique case anaphoric pronouns. Oblique case anaphoric (or resumptive) pronouns occur only in three languages. They occur at the extreme right of the postposed periphery in two (Standard Fijian and Samoan), but in Maori the anaphoric pronoun *ai* occurs in the middle, after directionals but before certain manner particles. However, Maori *ai* also has an adverbial function, as a marker of consequence ('accordingly') and is mutually exclusive with the deictic and continuative markers.

3. Grammaticisation as a problem in reconstructing the POC verb complex

3.1 Some questions

Let us turn now to the task of reconstructing the POc verb complex.[6] Some elements can be reconstructed with a high level of confidence. Where a certain grammatical category is widespread in the family that category can be securely reconstructed so long as (a) the category is represented by one or more sets of cognate morphemes, each set being reflected in different primary subgroups, and (b) there is no competing reconstruction with strong claims. Without (a) the argument rests purely on the distribution across subgroups of grammatical categories not specific morphemes and it is open to debate whether the category at issue is one likely to arise independently.

Here I will focus on just a few questions about the Proto Oceanic VC, chiefly: (1) Were nuclear serial verb constructions present? If so, what sorts of verbs occurred in V1 and V2 (first and last) positions in a two verb series? (2) Did POc have a category of postverbal directional particles, as opposed to V2 (final position) serial verbs serving as direction markers? How do you distinguish between a V2 directional verb in a nuclear SVC and a postverbal directional particle? (3) If the distinction can be made for POc, had all or only some of the directional verbs become postverbal direction markers? (4) Was there a class of postverbal aspectual particles or did these arise later?

3.2 Did POc have SVCs? Lynch, Ross and Crowley's reconstructions

Lynch, Ross & Crowley (2002:83) have recently proposed the following reconstruction of "basic verb phrase structure" for POc (I have changed their labels to conform to my abbreviations):

VC →	(ASP/MOOD=)	PROsub=	V	–i	(=PROobj)		(=DIR)
					Nincorp		

where -i represents a transitivising suffix.

The reconstruction of the first five categories in this formula is uncontroversial. Lynch *et al.* posit a fifth category, 'directional enclitics' (i.e. postverbal directional particles), but are they are less sure of this. They do not reconstruct postverbal aspectual particles for reasons outlined below.

Lynch *et al.* touch only briefly on verb serialisation, saying simply that "We take it that verb serialisations of the kinds that are widespread in Oceanic languages ... also occurred in POc (2002:86)." The problem here is the term SVC has been used by Oceanicists for a variety of semantically and structurally disparate constructions, some of which are probably better analysed as compounds or auxiliary plus verb.

In a later paper Ross (2002) has much more to say about verb serialisation. He argues that POc had two semantically distinct kinds of directional verbs, which played different roles in SVCs: *Deictic* directionals indicate direction

relative to speaker, etc., e.g. *mai 'towards speaker', *ua[tu] 'towards addressee', *lako 'go (to)', *pano 'go away'. *Geographic* directionals indicate direction relative to absolute points in the environment, e.g. *sake 'go up', *sipo 'go down', *jua 'fall, go down vertically', *mule 'go back', *surup 'enter'. It seems that some verbs can be both directional and geographic. He also distinguishes *locomotion* verbs, which have no inherent directionality, e.g. those with meanings such as 'travel', 'fly', 'swim', 'paddle (canoe)'.

Ross reconstructs several types of SVCs according to which class of verb occurs in V1 or V2 position: *deictic directionals* (loco/geog + deictic, loco + Obj + deictic), *geographical directionals* (loco + geog (Vi), loco + Obj + geog (Vtr), *combined geographical and deictic directionals*, and also *sequential* SVCs, where the first verb expresses 'go (and do X)' or 'come (and do X)'

Ross looks at pathways of grammaticisation from verb to directional particle in Oceanic languages. There are, he suggests, two sources of postverbal directional particles: (i) geographic direction verbs in geographic directional SVCs, and (ii) deictic direction verbs in deictic directional SVCs. He proposes that in POc certain directional verbs had come to be used either as V2 verbs without subject markers (i.e. as nuclear serial verbs rather than as core serial verbs) or as directional enclitics in the postposed periphery of the VC. He was unable to choose between these two reconstructions.

I accept the case for attributing these types of SVCs to Proto Oceanic as reasonable. But it is worth reexamining the case for the postverbal directional and aspectual markers. If it does nothing else such a reexamination will illustrate the difficulty of choosing between competing reconstructions in situations where languages are prone to undergo parallel change.

3.3 Did POc have a class of postverbal directional markers?

First, let us consider whether a category of postverbal directional particles, as opposed to V2 serial verbs serving as direction markers, had already developed in POc. If it had, which particular directional verbs had become postverbal particles? I will be specifically concerned with only four POc directional verbs: *mai 'come, *[w]atu 'go towards 2nd or 3rd person', *sake 'go up' and *sipo 'go down'.

Given a sequence V1 + directional morpheme, how do you tell whether the directional morpheme is a peripheral particle rather than the final verb root in a verb series? The first test is to see whether the directional morpheme can occur as a main verb. In Toqabaqita, for example, *ta?e* 'go up' and *sifo* 'go down' both occur as main verbs, but *mai* 'hither' and *kau* 'thither' do not. If *mai* and *kau* cannot occur as main verbs they should not be regarded as verbs when they follow a verb but as postverbal particles. The more difficult circumstance is where the directional morpheme in question can serve as a main verb as well as a modifier. In many Oceanic languages the crucial factor in deciding the status of the directional is its placement relative to (a) the transitive suffix, if any, (b) the object pronouns, and (c) any other modifiers following the main verb, such as generic objects, modifying verbs that are not part of an SVC, or peripheral particles. If the directional can follow elements of type (a), (b) or (c) it is part of

the postposed periphery. If it always precedes (a), (b) or (c) it is part of the nucleus.

Lynch, Ross and Crowley reconstruct three POc directional particles: *mai 'towards speaker or proximate deicitic centre', *lako 'away from both speaker and hearer, towards distal deictic centre' and *ua[tu] 'towards hearer'. (Here I reconstruct *[w]atu rather than *ua[tu]. Square brackets indicates that two forms are reconstructable, with and without the bracketed material.) They add that "it is clear that these enclitics are derived from the verbs *mai 'come', *ua[tu] 'go (to you)' and *lako 'go away (to)'" (Lynch *et al.* 2002:83). However, a few pages later (2002:85), they qualify this reconstruction, saying that "It is possible...that all apparent reflexes of the directional enclitics are the outcome of post-POc enclicitisation." The qualification is made following the observation that a shift from serial verb to particle has clearly occurred in more recent times in a number of Oceanic languages.

Comparison of a small sample of languages drawn from various subgroups shows that languages most commonly reflect the forms *mai, *[w]atu, *sake and *sipo in one or more of the following three functions:
(i) as independent verbs, usually having as their respective core meanings 'come', 'go towards 2nd or 3rd person', 'go up' and 'go down';
(ii) as final verbs (V2) in serial verb constructions, with a modifying function, to indicate the direction of the action denoted by the first verb;
(iii) as modifying particles or suffixes, also indicating direction of the action, but occurring postposed to the nucleus of the verbal complex.

	Motu (Papuan Tip)		
	Main verb	V2 (nuclear SVC)	Postverbal particle
mai	come'	'hither'	–
vasi	'go toward 2/3 pers.'	'thither'	–
dae	'ascend'	'upwards'	–
diho	'descend'	'downwards'	–

The Motu verbs can occur (a) alone as the head, (b) as the first verb in a verb series, or (c) as second verb in a series of motion verbs, where they mark the direction of the action denoted by the first verb, e.g. *dae vasi* 'ascend towards you', *diho-kwaralimu* 'desert one's husband' (*kwalimu* 'succeed, overcome') *dae-kau* 'ascend and reach a place (*kau* 'reach'). All the verbs have a variant that loses the final vowel before certain aspectual suffixes and with the subjunctive suffixes.

Manam (North New Guinea)

Manam has cognate forms that occur both as verbs and as suffixes or post-clitics separable by various modifiers from the head of the VC:

	Main verb	V2 (core SVC)	Postverbal particle
mai	'come, move from *ata* direction'	+	'hither, etc.'
oti	'move seawards'	+	'seawards'
ra?e	'move up, go right (facing sea), go left (facing inland)'	+	'upwards, etc.'

as well as one reflex, *ria* 'downwards', which occurs only as a directional suffix.

Roviana (Meso-Melanesian)

Roviana has reflexes of three directional verbs, only as verbs. In one case, *atu*, the distribution is defective.

	Main verb	V2 (SVC)	Postverbal particle
mae	'come'	+	–
atu, atuatu	'move on, go away (mainly as imperative)'	+	?
sage	'go up, rise'	+	–

Nggela (SE Solomonic)

Nggela has reflexes of two directional verbs, one only as a verb, the other both as verb and directional modifier:

	Main verb	V2 (core SVC)	Postverbal particle
mai	'come'	–	'hither'
hage	'enter, come in' embark'	–	–

Toqabaqita (SE Solomonic)

Toqabaqita has reflexes of four directional verbs, two only as verbs, two only as postverbal particles.

	Main verb	V2 (core, nuclear)	Postverbal particle
mai	–	–	'hither, towards speaker'
kau		–	'thither, away from speaker'
ta?e	'go up'	+	–
sifo	'go down'	+	–

Arosi (SE Solomonic)
Arosi has reflexes of three directional verbs. *mai is reflected as both verb and modifier, *watu only as a modifier and *sake only as a verb.

	Main verb	V2	Postverbal particle
mai	'come'	–	'hither'
wou	–	–	'away from, there, further on'
ta'e	'go up, alight, embark, rise to surface'	–	

Lolovoli, Ambae (Vanuatu)

	Main verb	V2 (SVCs)	Postverbal particle
mai	'come'	+	–
hage	'go up'	+	–
hivo	'go down'	+	–
vano	'go'	+	–

Tamambo (Vanuatu)

	Main verb	V2 (nuclear, core)	Postverbal particle
mai	'come'	+	–

Tamambo (Vanuatu)

	Main verb	V2 (nuclear, core)	Postverbal particle
mai	'come'	+	–
sahe	'go up'	+	–
jivo	'go down'	+	–
vano	'go (to)'	–	–

Wayan Fijian (Central Pacific)
All four POc directional verbs have reflexes but their grammatical statuses are diverse. Two reflexes occur only as particles, one only as a verb and one as a particle and verb but with restricted uses as a verb.

	Main verb	V2	Postverbal particle
mai	'come' (1)	–	'hither'
ati	–	–	'thither'
cake	'ascend, climb on'	–	–
civo	'downwards'	–	–

(1) *mai* occurs as a verb only as in imperative constructions and as the first or auxiliary verb in a two verb sequence, meaning 'come in order to'

Tongan (Polynesian)

	Main verb	V2	Postverbal particle
mai	'give, send' (1)	–	'hither'
atu	–	–	'thither, towards you, onward'
hake	'go up, come into being, arise'	–	'upwards, to completion, along, etc.'
hifo	'go down'	–	'downwards, to state of stillness of inactivity, to oneself'

(1) Used as a verb only in imperatives.

Woleai (Nuclear Micronesian)

Woleai has reflexes of all four POc directional verbs but only as functors:

	Main Verb	Postverbal particle	Preposition
me	–	–	'from'
tage	–	'upward, eastward'	–
tiwe, tiw	–	'downward, westward'	–
waiu, weiu	–	'out, outward, north or south'	–

It can be seen that in this sample there are no languages where a particular directional occurs *both* as a V2 modifier in SVCs and as a postposed adverbial particle. Call this the one directional modifier constraint. Perhaps the same constraint applied to POc. At any rate, can we determine whether any or all of the directional verbs *mai, *[w]atu, *sake and *sipo had undergone a a shift from serial verb to particle in POc?

There is a small piece of morphological evidence indicating that in POc the modifier *[w]atu occurred immediately after a V1 root (as in a nuclear verb series), rather than after a subject pronoun (as a in core serial verb construction). The sequence **pano + [w]atu*) 'go + (go) thither' is reflected in at least two Oceanic subgroups with phonological fusion. The Lolovoli Ambae (Vanuatu) reflex *vanatu* shows a reduction of the sequence **o[w]a* to *a* that is matched in Polynesian languages: Maori *whanatu* 'go away' (also *whanake* 'move onwards or upwards'), Tuvalu *fanatu* 'go away' (also *fanake* or *fanaka* 'go up').

It seems that two of the directional verbs, *mai and *[w]atu, were probably already postverbal particles in POc. The main reason for this conclusion is that their occurrence as postverbal particles in contemporary Oceanic languages is probably too widespread for all cases to be attributed to independent innovation. It is less likely that the directional verbs *sake 'go up' and *sipo 'go down' served in POc as postverbal particles. In contemporary languages, except in Central Pacific, these two verbs occur more widely in the V2 position in serial verb constructions than as postverbal particles.[7]

These findings, admittedly tentative, support Lichtenberk's (1991a,b) conclusion that grammaticisation of the members of a lexical class usually proceeds in an uneven manner. New paradigmatic sets arise in a piecemeal fashion, with some members starting earlier, and/or moving faster along the grammaticisation channel than others.

3.4 Did POc have postverbal aspectual markers

Now to the question of whether POc had one or more postverbal aspectual markers. Lynch *et al.* (2002:85-6) write that

> it is quite common to find postverbal aspect morphemes (especially for the completive). However we have not reconstructed this slot in our [POc] formula for two reasons. First, morphemes occurring in this slot in Oceanic languages do not form a cognate set. Second, and more pressingly, postverbal aspect markers seem mainly to be derived from verbs like "finish" used in ambient verb serialisation...and this cliticisation has occurred mainly in languages with verb final clause order where the two verbs would have occurred one after the other. We infer that POC was not verb-final – and was probably verb-initial – and that the two verbs would often have been separated by other material.

Some of Lynch *et al.*'s statements need qualifying. First, it is one thing not to attribute particular aspectual forms to POc, but it is another not to attribute an aspectual slot to the postposed periphery. There is little doubt that the process of deriving postverbal aspect markers from quasi-aspectual uses of verbs in serial verb constructions has often occurred independently in Oceanic languages. Usually it is verbs of posture, residence and going which give rise to markers of imperfect or progressive aspect, or to markers of varying degrees of duration or extendedness: temporary, permanent, etc) and verbs of completion giving rise to markers of completive aspect. However , we should not suppose that, just because such parallel changes have occurred in the daughter languages, POc itself did not use certain verbs in aspectual functions. The question arises whether there are some circumstances in which structural agreements between daughter languages are sufficient to reconstruct a grammatical category even in the absence of cognate morphemes.

A second qualification is that there are, in fact, two or three quite widespread cognate sets among postverbal aspect markers. Thirdly, postverbal aspect markers are not rare among languages whose word order is VO rather than OV.

How did aspect markers become postverbal particles in Oceanic languages with VO order? A necessary precondition is that modifiers follow heads in such languages, and that is the case. Thus, modifying verbs are commonly placed in V2 position in complex nuclei. I refer here not to V2 serial verbs which specify the last in a sequence of sub-events, but to V2 stative and action verbs which give information about the manner or circumstance of the preceding verb, e.g. Samoan *nofo lelei* (sit good) 'sit properly', *tagi tautala* (cry speak) 'cry and talk at the same time', *'ai ola* (eat alive) 'eat s.t. alive' (Mosel 2002). The modifying verbs can be verbs of posture. In Wayan Fijian the posture verb is usually reduplicated when it serves as a modifier, e.g. *kani tokotoko* (eat squat) 'eat while squatting', *lave dokidoki* (carried lie) 'be carried lying down' (Pawley and Sayaba n.d.).

A recent paper by Lichtenberk (2002) investigates the polysemies of posture verbs in a range of Oceanic languages and provides a convincing account of the grammaticisation pathways of such verbs. Lichtenberk notes that in many Oceanic languages verbs that carry posture meanings like STAND, LIE and SIT are heterosemous. A given posture verb may have additional senses and functions of the following kinds: (a) locative-existential, (b) temporal extendedness, (c) aspectual, (d) event-location. Thus, there are languages where certain verbs of posture have a second use as verbs denoting location and existence (but without any indication of posture or spatial orientation). There are languages where posture verbs have a second use as verbs marking quasi-aspectual meaning, extendedness in time. And there are languages where posture verbs have become true grammatical functors, marking aspect. The aspectual functions of such verbs are generally of the following sorts: 'progressive', 'continuous', 'durative', 'imperfective' (progressive and habitual) or 'continuative/persistive'. The grammatical functors usually retain trappings of their earlier verbal uses, i.e. there are historical layers in the language.

Lichtenberk found various pieces of evidence indicating the following path of grammaticisation:

(11) posture verb > locative/existential verb > aspectual

That is to say, the posture meanings were historically prior to the others, but aspectual uses have developed from existential-locative meanings rather than directly from posture meanings. The presence of a grammatical function of a posture etymon implies the presence of a locative/existential meaning but not vice versa. Thus, in Manam SIT and LIE have locative/existential meanings and are used as aspect markers. But STAND is not used as a locative/existential verb and has no aspectual function. In Numbami, another New Guinea language, SIT and LIE have locative/existential meaning and have grammatical functions, but STAND has neither. Furthermore, there are languages that have locative/existential verbs that do not carry posture meanings, but where forms identical to the verb forms have aspectual functions.

Most often it is SIT that becomes a progressive aspect marker. Verbs meaning 'sit' acquire semantically unmarked locative/existential uses in which the subjects are typically human. Progressive aspect develops first with dynamic activity verbs, whose subjects are agents (Bybee et al. 1994). This is natural when one considers that humans are the quintessential agents and sitting is a characteristically human posture, whereas standing and lying are characteristic of many things. Whereas SIT forms mark progressive and continuous, LIE forms tend to mark persistence or extendedness. This is consistent with lying posture being normally maintained for longer periods of time than sitting.

A cursory inspection of a small sample of languages reveals several cases where cognate posture verbs occur in languages belonging to two or more subgroups of a fairly high order and where the same verbs also occur as existential-locative and/or postverbal aspect markers. The forms in question are:

	Posture verb	Existential-locative verb	Aspectual particle
*qenop	'lie'	+	+
*tuqur	'stand'	+	+
*toka	'sit, settle'	+	+
*tiko	'squat'	+	+

Let us leave open the question of whether the starred forms can be attributed to POc. The following are notes on the heterosemy of posture verbs in a small sample of Oceanic languages. All of these languages retain reflexes of one of more of the reconstructed forms *qenop, *tuqur, *toka and *tiko.

Posture or motion verb	Existential/ locative verb	Aspectual particle
Motu		
eno 'lie down'	+	+
noho 'dwell, stay'	–	+
Manam		
eno 'lie'	+	+
soa?i 'sit'	+	+
Lolovoli Ambae		
eno 'lie'	+	+
Tamambo		
ate 'sit'	+	–
eno 'lie'	+	–
turu 'stand'	+	–
Raga		
dohi 'abide, endure'	+	+ (preverbal)
eno 'lie'	+	+ (preverbal)
to, do 'sit, stand'	+	+
tu 'stand, be fitting'	+	+
Wayan Fijian		
noo 'stay'	+	+
tau 'settle'	+	–
tuu 'stand'	+	+

Standard Fijian		
tiko 'stay'	+	+
tuu 'stand'	–	+
koto 'lie, stretched'	–	+
toka 'squat'	–	+
Tongan (Polynesian)		
tu?u 'stand'	+	+
toka 'come to rest, be settled'	+	(adv. 'slowly, calmly')

Do we have grounds for choosing between the two hypotheses: (i) that certain posture verbs, such as *qenop and *tuqur, had already become aspectual markers in POc, and (ii) that the extension or shift to these aspectual markers had not yet occurred in POc but happened independently in a number of different branches of Oceanic? It seems the case for (i) must rest on one's assessment of how often parallel changes are likely to have occurred. A more rigorous study of the distribution of cognates is needed before sound judgment can be made.

4. Conclusions

In this brief survey I have tried to show that the Oceanic verb complex, with its peripheral particles distributed around the verb nucleus, is a promising domain for the study of principles of grammaticisation and grammatical organisation. One domain that would repay further research is the search for cross-linguistic regularities in the ordering of grammatical categories in the preposed and postposed peripheries. Exploration of such regularities must be related to the study of grammaticisation and grammatical category change. Both centrifugal and centripetal forces appear to be at work influencing the positioning of grammatical elements. Some kinds of serial verbs tend to grammaticise and move out of the VC nucleus into the postposed periphery, or into adjunct phrases. In contrast, other kinds of elements tend to be drawn towards the head of the VC, either entering the VC periphery from outside or moving into the VC head as affixes.

I have followed others in arguing for the value of historical reconstruction, as well as typological comparison, for understanding how grammars work and change. All languages are something of a ruin, carrying traces of their past with them, in the form of irregularities and multiple layers of functionally equivalent material. And as much as speakers strive towards greater regularity and isomorphism (in the sense of one meaning for one form), they also introduce new variations and anomalies. We need to keep in mind, of course, that such irregularities and extra layers were as much a part of the prehistoric languages we strive to reconstruct as they are of today's languages.

Endnotes

* Thanks are due to Frank Lichtenberk for extensive critical comments on successive drafts of this paper and to John Bowden, Harold Koch, Ulrike Mosel and Malcolm Ross for helpful discussion and comments on a number of points.

1. The kinds of constructions typically referred as 'the verb phrase' in accounts of Oceanic languages differ from the 'verb phrase' posited in standard generative treatments of languages such as English and French. In the latter, the VP is strictly a syntactic unit; it includes direct objects represented by lexical NPs but excludes subjects. As Lichtenberk (1997) has argued for Toqabaqita, at least some Oceanic languages have a VP which includes direct objects, as well as having the constituent type we are calling the verb complex.
2. It happens that because of the strong association between the well-dated appearance and spread of an archaeological culture, Lapita, and the initial dispersal of Oceanic languages (Kirch 1997, Pawley and Ross 1995) we can determine rather accurately the latest date by which POc broke up, and the location and the directions in which its immediate descendants spread. The Lapita culture, which has close relatives and antecedents in Indonesia, the Philippines and Taiwan, appeared suddenly in several parts of the Bismarck Archipelago around 3500-3300 years ago. Bearers of Lapita were the first humans to settle Vanuatu and New Caledonia (by 1200-1100 BC), and Fiji, Tonga and Samoa (by 1000-900 BC).
3. Biggs noted that the conventional distinction between morphology and syntax runs into difficulty when the language being described is predominantly of an isolating type, as is the case with Polynesian language. The first rigorous analyses of the verb complex in Polynesian and Fijian languages (e.g. Biggs 1961, Buse 1963, Pawley 1966) all followed this model.
4. Abbreviations and other notational conventions used in this paper are

ADDIT	additive	IR	irrealis
agr	agreement	loco	locomotive
ANAPH	anaphoric	MAN	manner
APP	applicative	NEG	negative, negator
ASP	aspect	NP	noun phrase
BEN	benefactive	obj	object
BUF	buffer element	P	plural
compl	continuative	perf	perfective
CONT	continuative	POc	Proto Oceanic
DEIC	deictic	PRO	personal pronoun
DL	dual	REP	repetitive
DIR	directional	RSTRICT	restrictive
EMPH	emphatic	TR	transitive
ERG	ergative	S	singular
gener	generic	sub	subject
geog	geographic	TAM	tense/aspect/mood
HAB	habitual	V	verb
i	inclusive	x	exclusive
IMPF	imperfect	*[x]	disjunctive reconstruction
incorp	incorporated		
INTENS	intensifier		

5. Data are taken from the following languages and sources :
Papuan Tip: Motu (Lister-Turner and Clark 1934), Saliba (Margetts 1999)
North Coast New Guinea: Manam (Lichtenberk 1983), Jabêm (Bradshaw 1985, Ross 2002)
Meso-Melanesian: Nakanai (Johnston 1980), Teop (Reinig 2002), Roviana (Waterhouse 1949), Kokota (Palmer 2001)
SE Solomonic (Cristobal-Malaitan): Longgu (Hill 1992), Toqabaqita (Lichtenberk 1984) and (Guadalcanal-Gelic): Nggela (Fox 1955)
NC Vanuatu: Lolovoli Ambae (Hyslop 2001), Tamambo, Banks Is. (Jauncey 1997)
Fijian: Standard Fijian (Milner 1956), Wayan (Pawley and Sayaba f.c.)
Polynesian: Maori (Bauer), Samoan (Mosel and Hovdhaugen 1992), Tongan (Churchward 1959)
Nuclear Micronesian: Woleai (Sohn & Tawerilmang 1975)
6. In recent years scholars have made appreciable advances in reconstructing details of POC verb morphology, especially Evans (2001) and Ross (1998), and have begun to look at some details of the nucleus and peripheries of the verb complex (Lynch, Ross and Crowley 2002:80-86, Ross 2002).
7. Using the same distributional argument, Ross (2002) proposes that POc either had directional enclitics in the postposed periphery or that it had V2 verbs that appeared without subject markers, i.e. as nuclear serial verbs rather than as core serial verbs.

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Control in Malagasy

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1. Introduction

Bresnan 1982 describes *control* as an interpretational dependency between two argument positions in which the referential properties of an overt one, the *controller*, determine the referential properties of a non-overt one, the *controllee*. For example, in the English sentence in (1), *the farmer* is the controller and the unpronounced external argument of *kill*, which we represent atheoretically as Δ, is the controllee.

(1) The farmer$_i$ tried Δ_i to kill the chicken.

Malagasy control constructions have received some discussion in the literature, most notably in Keenan 1976 and Law 1995 (see also Keenan 1995, Paul and Ranaivoson 1998, Pearson 2001, Polinsky and Potsdam 2001). This paper is a contribution towards a more comprehensive coverage and analysis of Malagasy control. Section 2 introduces two previously recognized control structures. In section 3 we suggest that these structures instantiate the distinction between obligatory control and non-obligatory control. Section 4 then introduces a third, previously undocumented control structure. We explore possible analyses of this construction in sections 5 and 6. Our partial conclusion is that the newly introduced construction represents a control structure in which the embedded clause corresponds to a thetic judgment. Section 7 summarizes our findings.

2. Control Structures in Malagasy

Malagasy is an Austronesian language spoken by approximately nine million people on the island of Madagascar. Its basic word order is VOS, (2a).[1] Malagasy has a well-known voice system which advances thematically diverse elements to subject position. Corresponding to the active sentence in (2a), the passive sentence in (2b) has the direct object as the subject and the circumstantial sentence in (2c) has an oblique element as its subject.

(2) a. n-i-vidy ny akoho (hoan-dRasoa) Rabe — ACTIVE
PAST-ACT-buy the chicken (for-Rasoa) Rabe
'Rabe bought a chicken for Rasoa.'

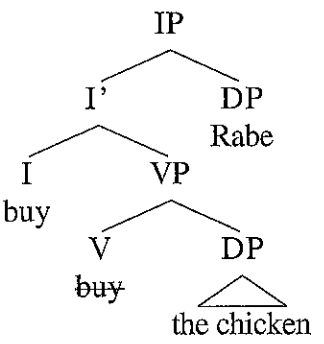
b. no-vidi-n-dRabe (hoan-dRasoa) ny akoho — PASSIVE
PAST-buy-PASS-Rabe for-Rasoa the chicken
'The chicken was bought (for Rasoa) by Rabe.'

c. n-i-vidi-anan-dRabe ny akoho Rasoa — CIRCUMSTANTIAL
PAST-ACT-buy-CIRC-Rabe the chicken Rasoa
'Rasoa was bought a chicken by Rabe.'

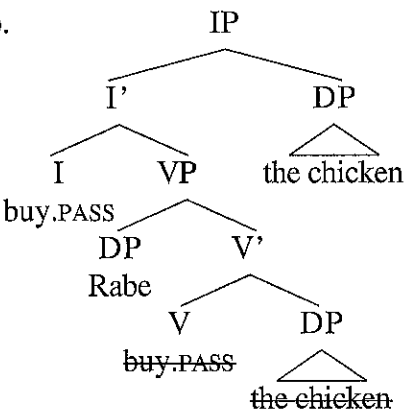
Following Guilfoyle, Hung, and Travis 1992 (GHT), we adopt the structure for VOS in (3a) with the clause-final subject occupying a right specifier of IP. The verb-initial order is compatible with verb raising, V°-to-I°, which that work also assumes.[2] Also following GHT, we assume for non-active sentences the structure in (3b) in which the subject is in the right specifier of IP and the immediately post-verbal agent is in spec,VP.

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(3) a.



b.



2.1. Two control structures

Keenan 1976 and Law 1995 document two control structures in Malagasy. (4) illustrates what we will call the *active control construction.*[3]

(4) a. n-an-andrana n-a-mono ny akoho Rabe
PAST-ACT-try PAST-ACT-kill the chicken Rabe
'Rabe tried to kill the chicken.'

b. m-an-aiky ho-sas-ana ny zaza
PRES-ACT-agree FUT-wash-PASS the child
'The child agrees to be washed.'

The morphosyntactic characteristics of the active control construction are that 1) the control predicate is in the active voice, 2) the voice of the embedded predicate is not restricted, and 3) the controller and controllee are both subjects. The construction is fundamentally similar to its English translation and we adopt a structure as in (6a), with the control relationship highlighted.

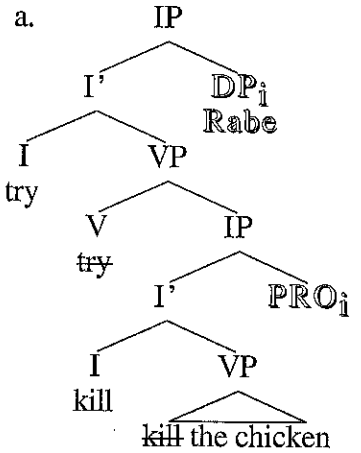
(5) illustrates the second construction, which we will call the *passive control construction.*

(5) a. n-andram-an-dRabe no-vono-ina ny akoho
PAST-try-PASS-Rabe PAST-kill-PASS the chicken
lit. The chicken was tried by Rabe to be killed
'Rabe tried to kill the chicken.'

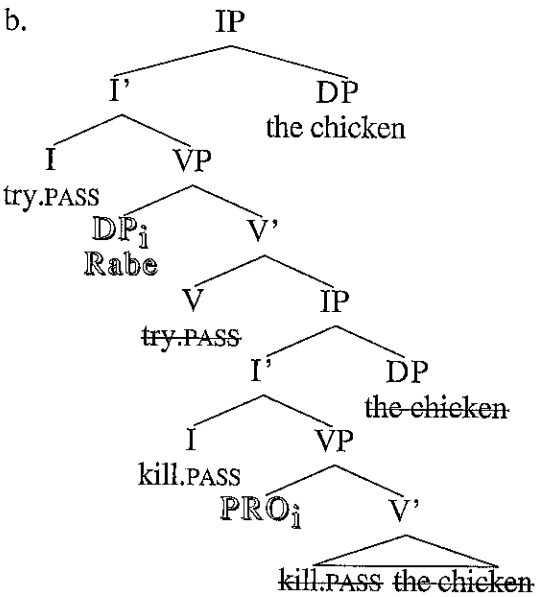
b. eke-n-dRasoa ho-sas-ana ny zaza
agree-PASS-Rasoa FUT-wash-PASS the child
lit. The child is agreed by Rasoa to be washed
'Rasoa agrees to wash the child.'

The characteristics of this control structure are that 1) the control predicate is in the passive voice, 2) the embedded predicate is non-active, and 3) the controller and controllee are both passive agents, rather than subjects as in the active construction. For such examples, we assume a structure and derivation as in (6b). The control relationship is between the two highlighted DPs in Spec,VP. In the derivation, the matrix subject arrives at its surface position through successive cyclic A-movement. It first undergoes passive in the embedded IP and then subject-to-subject raising into the matrix IP.

(6) a.



b.



Assuming these structures are on the right track, can the Malagasy data inform the current debate between base-generation and movement analyses of control? The two competing analyses are the traditional Principles and Parameters analysis (e.g. Chomsky & Lasnik 1993) in which the controllee is the null formative PRO, coindexed with the controller, (7a), and recent Minimalist analyses (Hornstein 1999) in which the controllee is a trace of movement of the controller, (7b).

(7) a. Kim_i tried PRO_i to succeed
b. Kim_i tried t_i to succeed

One relevant observation that would seem to decide between these two analyses for Malagasy is that a movement derivation of the controller-controllee relation in the passive control structure in (6b) would be illicit.[4] There is a well-known restriction on movement in Malagasy, stated in (8), according to which only subjects undergo any kind of movement (Keenan 1976 and others). Movement from the controllee to the controller position in (6b) would violate this restriction because a passive agent cannot move. The passive control construction would thus seem to argue against a movement analysis of control. In the following section, we introduce the distinction between obligatory and non-obligatory control and show that the passive construction does not provide evidence against the movement analysis of control.

(8) *Malagasy extraction restriction*
only subjects may move

3. Obligatory and Non-Obligatory Control

3.1. The OC versus NOC distinction

It is widely recognized that there are two types of control configurations, obligatory control (OC), and non-obligatory control (NOC). Hornstein 1999, building on the work of others, documents a set of systematic differences between OC and NOC PRO, in (9). These characteristics are illustrated in the English data below. In each pair, the first example illustrates OC and the second NOC.

(9)	properties of PRO under OC versus NOC	OC	NOC
a.	no antecedent, allows PRO_{arb} reading	✘	✓
b.	permits a strict reading under ellipsis	✘	✓
c.	paraphrasable with a pronoun	✘	✓
d.	allows a non-local antecedent	✘	✓
e.	allows a non-c-commanding antecedent	✘	✓

(10) a. *It was expected PRO to shave. OC
b. It was believed that PRO shaving is important. NOC

(11) a. Joe expects PRO to win and Kim does too. OC
= Joe expects to win and Kim expects to win. SLOPPY
≠ Joe expects to win and Kim expects Joe to win. *STRICT
b. Joe thinks PRO passing the exam is important and Kim does too. NOC
= ... and Kim_k thinks his_k passing the exam is important. SLOPPY
= ... and Kim thinks Joe's passing the exam is important. STRICT

(12) a. *$John_i$ expects (for) him_i to win. OC
b. $John_i$ thinks his/him_i passing the exam is important. NOC

(13) a. *$John_i$ thinks that it was expected PRO_i to shave himself. OC
b. $John_i$ thinks it is believed that PRO_i shaving himself is good. NOC

(14) a. *$John_i$'s campaign expects PRO_i to shave himself. OC
b. $John_i$'s campaign thinks that PRO_i kissing babies is important. NOC

(10) illustrates that NOC but not OC allows PRO to appear without an antecedent; only NOC allows the so-called PRO_{arb} reading. In (11), NOC PRO but not OC PRO allows a strict reading under ellipsis. The NOC example in (11b) is ambiguous between the strict and sloppy readings; however, the OC example in (11a) has only the sloppy reading. (12) illustrates that NOC PRO but not OC PRO can be replaced by a pronoun. In (13), NOC PRO allows a non-local antecedent outside the immediately dominating clause; OC PRO does not permit a non-local antecedent. Finally, in (14), NOC PRO but not OC PRO can take a non-commanding antecedent.

Because of these clear differences between OC and NOC, OC structures are analyzed with movement but NOC structures involve a base-generated null pronominal, little *pro*, and no movement (see Hornstein 1999 for details).

3.2. OC versus NOC in Malagasy

Returning to Malagasy, we claim that the OC/NOC distinction is relevant and it corresponds to the two control constructions we have introduced. Our proposal is that the active control construction instantiates OC while the passive control construction is NOC:

(15) *OC/NOC Proposal for Malagasy Control constructions*
a. the active control construction is OC
b. the passive control construction is NOC

If this proposal is correct then the passive control construction would not involve movement under Hornstein's analysis and would thus provide no evidence against a movement analysis of control. The data that support the proposal in (15) are given in

(17) through (21) below. In each case, the (a) example is the active construction and the (b) example is the passive construction. The results are summarized in (16).

(16)

		active construction	passive construction
a.	no antecedent, PRO_{arb} reading	✗	✓
b.	permits strict reading under ellipsis	✗	✓
c.	paraphrasable with a pronoun	✗	✓
d.	allows a non-local antecedent	✗	✗
e.	allows a non-c-commanding antecedent	✗	✗

(17) a. mikasa hanasa ny lapa-ny ny andriana ACTIVE/OC
intend.ACT wash.ACT the castle-3SG the king
*'The king intends someone to clean his castle.'
(only 'The king intends to clean his castle.')

b. kasain'ny andriana hosasana ny lapa-ny PASSIVE/NOC
intend.PASS'the king clean.PASS the castle-3SG
'The king intends someone to clean his castle.'

(18) a. te hamono ny omby Rasoa. izaho koa. ACTIVE/OC
want.ACT kill.ACT the zebu Rasoa I also
'Rasoa wants to kill the zebu and I do too.' SLOPPY
*'Rasoa wants to kill the zebu and I want her to also.' *STRICT

b. tian-dRasoa hovonoina ny omby. izaho koa. PASSIVE/NOC
want.PASS-Rasoa kill.PASS the zebu I also
'Rasoa wants to kill the zebu and I do too.' SLOPPY
'Rasoa wants to kill the zebu and I want her to also.' STRICT

(19) a. *te handao i Tana izy Rasoa ACTIVE/OC
want.ACT leave.ACT Antananarivo 3SG Rasoa
('Rasoa wants to leave Antananarivo.')

b. tian-dRasoa hilaoza-ny i Tana PASSIVE/NOC
want.PASS-Rasoa leave.PASS-3SG Antananarivo
'Rasoa wants to leave Antananarivo.'

(20) a. mino Rasoa fa ACTIVE
think.ACT Rasoa that
mikasa handao an'i Tana ny governemanta
intend.ACT leave.ACT LOC'Antananarivo the government
'Rasoa thinks that the government intends to leave Antananarivo.'
*'Rasoa thinks that the government intends her to leave Antananarivo.'

b. mino Rasoa fa PASSIVE
think.ACT Rasoa that
kasain'ny governemanta hilaozana i Tana
intend.PASS'the government leave.PASS Antananarivo
'Rasoa thinks that the government intends to leave Antananarivo.'
*'Rasoa thinks that the government intends her to leave Antananarivo.'

(21) a. te hanambady an-dRasoa ny fianakavian-dRabe ACTIVE
want.ACT marry.ACT ACC.Rasoa the family-Rabe
'Rabe's family wants to marry Rasoa.'
*'Rabe's family wants him to marry Rasoa.'

b. tian'ny fianakavian-dRabe hovadina Rasoa PASSIVE
want.PASS'the family-Rabe marry.PASS Rasoa
'Rabe's family wants to marry Rasoa.'
*'Rabe's family wants him to marry Rasoa.'

(17) shows that only the passive construction allows a non-controlled, PRO_{arb} reading. Both of the examples can mean 'The king intends to clean his castle' but only the passive construction has the additional meaning 'The king intends for his castle to be cleaned' in which the agent of the embedded verb is unstated. (18) shows that only the passive control construction allows a strict reading under ellipsis. Like the English translation, the active control construction is unambiguous, permitting only a sloppy reading. In (19b), PRO can be replaced by an overt pronoun. This is not possible with the active control construction.[5] Unexpectedly, the data in (20) and (21) seem to show that in neither construction can PRO pick up a non-local or non-c-commanding antecedent. This is the expected result if the active construction is OC but not if the passive construction is NOC. In (20), PRO cannot be interpreted as coreferential with the DP *Rasoa* in the matrix clause. Similarly, in (21), PRO cannot be construed as the possessor of the matrix subject, *Rabe*, despite the fact that this would be the pragmatically preferred interpretation.

In summary, the active control construction shows all the characteristics of OC. The passive control construction shows most of the characteristics of NOC. Surprisingly however, PRO in the passive construction does not allow a non-local or non-c-commanding linguistic antecedent. There are two analytical possibilities: either these characteristics are accidental to NOC or they are relevant but permit cross-linguistic variation. If this unexpected difference between English and Malagasy can ultimately be accounted for, then the passive control construction can be reduced to NOC and does not provide evidence against control as movement (recall Hornstein's assumption that NOC should not be analyzed as movement).

3.3. Analytical issues for future investigation

The Malagasy control data raise several interesting analytical questions which we would like to highlight briefly.

First, with regard to the active construction and the structure in (6a), the controllee seems to appear in a Case-marked and governed position. Further investigation is required to determine if this is in fact the case or whether there are other considerations which might avoid this conclusion. If the controllee is in a governed, Case position, we are lead to ask how this is permitted given current understanding of the controllee position as typically being syntactically deficient in some way. While there are languages documented in the literature in which the controllee seems to be governed or Case-marked, some of these have been given alternative analyses: Icelandic (Sigurðsson 1991), Irish (McCloskey and Sells 1988), Greek (Terzi 1997), Ancient Greek (Andrews 1971).

Second, the Malagasy data support the distinction between OC and NOC; nevertheless, the OC/NOC distinction is cashed out in a different way than in English. In English, NOC obtains when the controlled clause is in subject position or certain adjunct positions (Hornstein 1999, Landau 2000, and references therein). When the controlled clause is a complement, only OC seems to be possible. In Malagasy, by contrast, the controlled clause is apparently a complement in both NOC and OC. The choice depends upon the structural position of the controller and controllee. Given that the theory must ultimately capture the OC/NOC distinction, the fact that Malagasy realizes the contrast differently from English is potentially important in determining the proper analysis.

Finally, if the OC/NOC distinction is indeed valid and the passive control construction in Malagasy instantiates NOC, we need to explain why its behavior diverges in part from the established characteristics of NOC. In particular, what accounts for the antecedent locality that NOC in English does not show? We speculate that the answer to this question is related to the differing structural realization of OC versus NOC in Malagasy discussed above; however, we leave these theoretical issues for future investigation.

4. The Mixed Voice Control Construction

In the remainder of the paper, we turn to a third, previously undocumented control-like structure which we will call the *mixed voice control construction* (MVC).[6] The morphosyntactic characteristics of the MVC are a combination of the two previously discussed constructions: the control predicate is in the active voice and the embedded predicate is non-active. The subject of the active verb is not the controller however; instead, the controller appears as the agent on the embedded verb:

(22) a. nanandrana novonoin-dRasoa ny akoho
try.ACT kill.PASS-Rasoa the chicken
'Rasoa tried to kill the chicken.'
#'The chicken tried to be killed by Rasoa.'
b. mikasa hovaki-ko ity boky ity
intend.ACT read.PASS-1SG this book this
'I intend to read this book.'
#'This book intends to be read by me.'

Such sentences look like the active control construction and can indeed have the meanings that would be expected if they were active control examples; (22b) for example can have the anomalous meaning 'This book intends to be read by me'. Surprisingly however, the examples also have the indicated sensible readings. (22b) also means 'I intend to read this book'. This latter interpretation is the one which we will be concerned with.

The MVC has two interesting distributional characteristics. First, the construction is subject to dialectal variation. Some speakers get only the anomalous interpretations in (22). Second, the MVC is lexically restricted and is not possible with all control predicates. We have found it with *manandrana* 'try', *mikasa* 'intend', *te* 'want, *mijanona* 'stop', *mitsahatra* 'cease', and *manaiky* 'agree' but not, for example, with *manadino* 'forget', *mahavita* 'finish', or *manantena* 'hope'.

In addition, the MVC presents an unusual combination of syntactic and semantic features not found in the other Malagasy control constructions. With respect to VP-right edge identifiers that separate the matrix subject DP from the VP (Keenan 1976, 1995), the clause-final DP in the MVC behaves as the matrix subject—it has to follow the question particle *ve* and negative polarity items:

(23) a. nijanona novaki-nao (ve) ny boky (*ve)?
stop.ACT read.PASS-2SG Q the book Q
'Did you stop reading the book?'
b. tsy nikasa hosasan-dRasoa (intsony) ny fiara (*intsony)
NEG intend.ACT wash.PASS-Rasoa any.longer the car any.longer
'Rasoa didn't intend to wash the car (any longer).'

However, the clause-final DP does not extract, as subjects in Malagasy normally do (see (8) above). (24a,b) are ungrammatical:

(24) a. *ny boky dia nijanona novaki-ko TOPICALIZATION
the book TOPIC stop.ACT read.PASS-1SG
('This book, I stopped reading.')
b. *inona no nijanona novaki-nao? WH-QUESTION
what FOCUS stop.ACT read.PASS-2SG
('What did you stop reading?')

Another unusual property of the MVC involves the semantics of control. As in other control structures, the matrix predicate in the MVC imposes selectional restrictions on its subject, which accounts for the infelicity of (25a,b). However, unlike more familiar control structures, (26a), the MVC does not form an imperative, (26b). In the remainder of the paper we investigate possible accounts of this unusual behavior.

(25) a. #nanandrana nandrava io tanana io ny afo ACTIVE
try.ACT destroy.ACT this town this the fire
('The fire tried to destroy this town.')
b. #nanandrana noravan'ny afo io tanana io MIXED
try.ACT destroy.PASS'the fire this town this
('The fire tried to destroy this town.')

(26) a. manandrama mamono ny akoho! ACTIVE
try.ACT.IMPER kill.ACT.INDIC the chicken
'Try to kill a chicken!'
b. *manandrama vonoina ny akoho! MIXED
try.ACT.IMPER kill.PASS.INDIC the chicken
('Try to kill the chicken!')

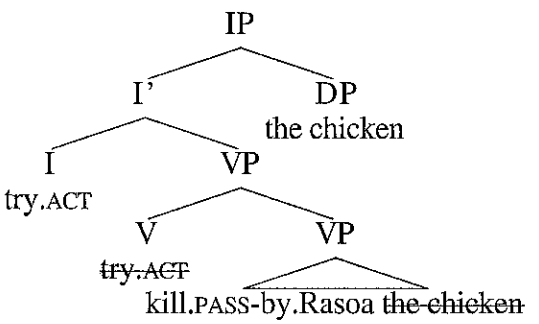
5. Towards a Structural Analysis of the Mixed Control Construction

In this section, we will consider and reject two possible analyses of the MVC.

5.1. Restructuring (Clause union)

The first analytical possibility is that the MVC is monoclausal; the active verb takes a reduced VP complement and the clause-final DP is the subject. The structural representation of the MVC in (22a) is shown in (27).

(27)



Although the restructuring analysis would account for the subject behavior of the clause-final DP with respect to right edge identifiers, it cannot explain why this DP does not extract. In addition, there is good evidence that the MVC is biclausal, contrary to the restructuring analysis. First, both verbs in the MVC can have their own negation, which is unexpected if the MVC is monoclausal:

(28) a. tsy nitsahatra hanin-dRabe ny siramamy
NEG stop.ACT eat.PASS-Rabe the sugar
'Rabe didn't stop eating sugar.'
b. nitsahatra tsy hanin-dRabe ny siramamy
stop.ACT NEG eat.PASS-Rabe the sugar
'Rabe stopped not eating sugar.'

Second, each verb can take distinct adverbial modifiers. In (29a), the temporal reference is in the future, the time when the killing will occur, and the adverbial is interpreted with the lower verb. In (29b), the temporal reference is to the past event when the farmer decided to kill the zebu, and the adverbial is interpreted with the matrix verb. Distinct adverbial modification is also incompatible with a monoclausal structure.

(29) a. nanaiky hovonoin'ny mpiompy rahoviana ny omby?
PAST.agree.ACT FUT.kill.PASS'the farmer when.FUT the zebu
'When(fut) did the farmer agree to kill the zebu?'
b. nanaiky hovonoin'ny mpiompy oviana ny omby?
PAST.agree.ACT FUT.kill.PASS'the farmer when.PAST the zebu
'When(past) did the farmer agree to kill the zebu?'

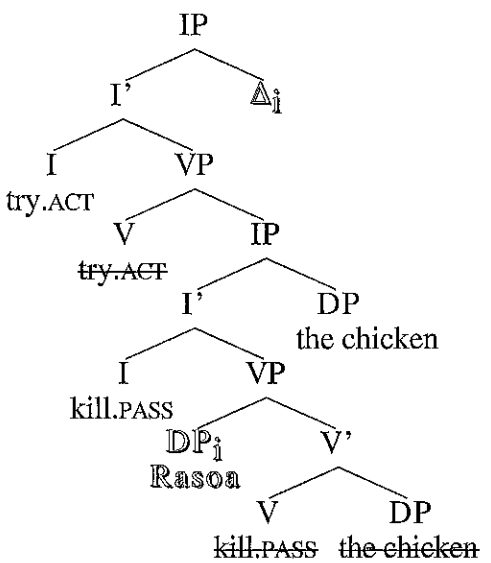
We conclude that MVC is biclausal and cannot be analyzed as restructuring.

5.2. Backward Control

The second analysis we would like to consider is Backward Control (BC) (Polinsky and Potsdam 2001, 2002). A BC structure is properly biclausal; in this construction, the overt controller is in the embedded clause and it is coindexed with a non-overt controllee in the matrix clause. Under this analysis, the MVC in (30) would have the structure shown in (31) in which the overt passive agent is the controller and there is a covert controllee in the matrix clause subject position.

(30) nanandrana novonoin-dRasoa ny akoho
try.ACT kill.PASS-Rasoa the chicken
'Rasoa tried to kill the chicken.'

(31)



The BC analysis is able to capture the observed selectional restrictions and the biclausal nature of the MVC; however, the analysis is incompatible with other facts. First, the BC analysis incorrectly claims that the clause-final DP is in the embedded clause. VP-right edge identifier diagnostics from (23) indicate that the clause-final DP is in the matrix clause. Coordination confirms this result. Under BC, the embedded predicate and the final DP form a constituent and should coordinate but this is not possible:

(32) *nanandrana novidin-dRabe ny antsy sy novonoin-dRasoa ny akoho
try.ACT kill.PASS-Rabe the knife and kill.PASS-Rasoa the chicken
('Rabe tried to buy the knife and Rasoa tried to kill the chicken.')

Second, a crucial component of the BC analysis is the presence of a null syntactic argument, the controllee, which is the subject of the matrix clause; see (31). If such an agent argument were present, it should be able to license imperative formation. As we saw above in (26b), however, imperatives are impossible with the MVC. In addition, this empty category should license a floating quantifier or reciprocal marking on the matrix verb but neither is grammatical in the MVC:

(33) *nanandrana novonoin'ny mpiompy$_i$ daholo$_i$ ny akoho Δ_i
try.ACT kill.PASS'the farmers all the chicken
('The farmers all tried to kill the chicken.')
(grammatical w/meaning 'The farmer(s) tried to kill all the chickens.')

(34) a. n-if-anaiky hividy fiara Rabe sy Rasoa ACTIVE
PAST-RECIP-agree.ACT buy.ACT car Rabe and Rasoa
'Rabe and Rasoa agreed with each other to buy a car.'
b. *n-if-anaiky hovidin-dRabe sy Rasoa ny fiara MIXED
PAST-RECIP-agree.ACT buy.PASS-Rabe and Rasoa the car
('Rabe and Rasoa agreed with each other to buy a car.')

To sum up, contrary to the BC analysis, the clause final DP is in the matrix, not embedded clause, and there is no evidence for a syntactic representation of the agent in the matrix clause. The BC analysis is therefore untenable. In the following section, we will propose a partial analysis of MVC which addresses the characteristics in (35) observed thus far.

(35) *Summary of mixed voice construction characteristics*
a. MVC is dialectally and lexically restricted
b. MVC is biclausal
c. clause-final DP is the matrix clause subject
d. clause-final DP does not undergo extraction
e. MVC predicate imposes selectional restrictions
f. there is no evidence for a syntactic representation of the controller in the matrix clause
g. MVC does not permit imperative formation

6. A Partial Analysis: The Thetic Hypothesis

Our proposal is that many of the unusual properties of the MVC follow not from its syntax but from the judgment type associated the complement clause. The contrast between THETIC and CATEGORICAL judgments is widely recognized (Kuroda 1972, 1992, Sasse 1978). A thetic judgment consists of a simple perception or recognition

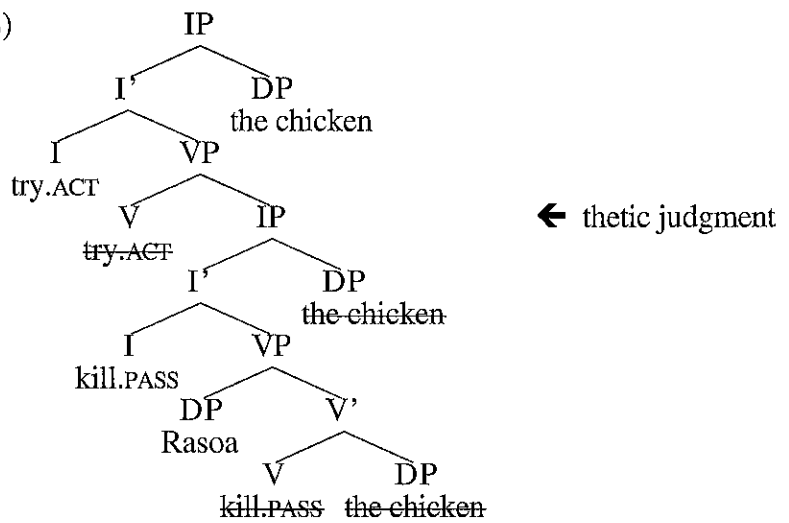
of a situation. This judgment is unitary (simple) because it does not rely on the prior recognition of an entity that would be then made into the subject of a logical predication. The singling out of an entity and the subsequent predication of a property of that entity constitutes a categorical judgment. Because it implies two separate cognitive acts (the recognition of an entity and the predication of a property), a categorical judgment is also called a double judgment. A sentence such as (36a) is ambiguous between representing a thetic and a categorical judgment. It may be interpreted as a description of an event as in (36b), or as a recognition of the entity 'three people' and subsequent predication of the arrival as in (36c). In the former case it corresponds to a thetic judgment, in the latter, to a categorical judgment.

(36) a. Three people arrived
b. $[_{\text{EVENT}}$ Three people arrived] THETIC
c. $[_{\text{PROPOSITION}}[_{\text{ENTITY}}$ Three people] arrived] CATEGORICAL

Crucially, we propose that the embedded clause in the MVC represents a thetic judgment and cannot represent a categorical judgment.[7] For the familiar MVC example in (37), we suggest the structure in (38).

(37) nanandrana novonoin-dRasoa ny akoho
try.ACT kill.PASS-Rasoa the chicken
'Rasoa tried to kill the chicken.'

(38)



← thetic judgment

As (38) shows, the thetic structure is desirably biclausal. Further, the clause-final DP is the subject of the higher clause, which is compatible with the observed constituency facts from matrix VP-right edge identifiers, (23), and coordination, (32). Since the matrix clause does not contain an agent— there is no representation of the controller in the matrix clause—the ban on imperative formation is also accounted for. Thus we account for properties (35b,c,f,g). We propose that the other characteristics of the MVC follow from semantic considerations.

Many sentence forms are ambiguous with respect to the representation of judgment types but there are also correspondences between judgment types and sentence forms (Kuroda 1992, Ogihara 1987, and others). It is therefore possible to identify distinct grammatical correlates of each judgment type. For a thetic judgment, the following grammatical correlates have been proposed in the literature:

(39) *Grammatical correlates of a thetic judgment*
- a. shows strong preference for unaccusatives and passives (Diesing 1992, Lambrecht 1994)
- b. incompatible with individual-level predicates, such as *have (own), contain, be tall* (Kuroda 1972, 1992, Ladusaw 1994)
- c. cannot be partitioned into topic and comment and maps into an "all-focus" sentence (Kuroda 1972, 1992, Sasse 1978, Lambrecht 1994)
- d. incompatible with relational quantifiers, which require reference to a subset within a presupposed set, such as *most* (Ladusaw 1994)
- e. licenses event anaphora (Sasse 1978, 1995)

Using the grammatical correlates in (39) as diagnostics, let us now apply them to the embedded clause in the MVC. One defining characteristic of the MVC is that the embedded clause has a non-active predicate, consistent with (39a). Next, individual-level predicates are indeed ungrammatical in MVC, which accounts for the contrast between (40a) and (40b):

(40) a. mikasa hanana io fiara io Rasoa — ACTIVE
intend.ACT have.ACT that car that Rasoa
'Rasoa intends to have that car.'

b. *mikasa hananan-dRasoa io fiara io — MIXED
intend.ACT have.PASS-Rasoa that car that
('Rasoa intends to have that car.')

If a sentence form corresponds exclusively to a thetic judgment, its arguments cannot map into a previously recognized and established referent. In terms of information structure, this entails property (39c): a thetic judgment cannot be partitioned into topic and comment. Hence no part of it can be topicalized, by Topicalization or Relativization, or focused, by wh-questioning. This accounts for the impossibility of extracting the subject of the MVC that we saw earlier:

(41) a. *ny boky dia nijanona novaki-ko — TOPICALIZATION
the book TOPIC stop.ACT read.PASS-1SG
('This book, I stopped reading.') (= (24a))

b. *inona no nijanona novaki-nao? — WH-QUESTION
what FOCUS stop.ACT read.PASS-2SG
('What did you stop reading?') (=(24b))

Property (39d) predicts that relational quantifiers should be ungrammatical as subjects of thetic structures. Expectedly then, the Malagasy relational quantifier *ankabeazana* '(the) most of' is acceptable in the active control construction but ungrammatical in the MVC:

(42) a. mikasa hamaky boky ny ankabeazan'ny mpianatra — ACTIVE
intend.ACT read.ACT book the most'the student
'Most of the students intend to read the book.'

b. *mikasa hovakin'ny ankabeazan'ny mpianatra — MIXED
intend.ACT read.PASS'the most'the student
ny boky
the book
('Most of the students intend to read the book.')

Finally, of the three control constructions considered here, only the MVC permits the licensing of event anaphora by the embedded clause, (43c). This is again compatible with one of the grammatical correlates of a thetic judgment, (39e).

(43) a. *nanandrana namono ny akoho Rasoa ka vita-ny ACTIVE
try.ACT kill.ACT the chicken Rasoa and finish.PASS-3SG
b. *nandraman-dRasoa novonoina ny akoho ka vita-ny PASSIVE
try.PASS-Rasoa kill.PASS the chicken and finish.PASS-3SG
c. nanandrana novonoin-dRasoa ny akoho ka vita-ny MIXED
try.ACT kill.PASS-Rasoa the chicken and finish.PASS-3SG
'Rasoa tried to kill the chicken and she did (it).'

The Thetic Hypothesis thus accounts for a wide range of facts: the mixed voice nature of the construction and the syntactic and semantic properties in (35b,c,d,f,g). While it does not have the fatal empirical flaws of the restructuring analysis or Backward Control analysis, it leaves unexplained where the MVC receives its control interpretation from. At this point, we have no explanation for this interpretation and leave it open for future investigation.

Another theoretically important question that we would like to mention here concerns the selection of a thetic judgment by the matrix verb. All the verbs that participate in the MVC can also select for embedded clauses that either represent a categorical judgment or are ambiguous between judgment types. Moore (1997) proposes that in Spanish, the category of the complement constitutes the grammatical basis of selection for one judgment type over the other: full complements correspond to a categorical judgment, reduced, to thetic. Further research is needed to determine whether such selection principle applies cross-linguistically.

7. Conclusions

We have presented and analyzed three different control structures of Malagasy. Two of these structures, active (44a) and passive (44b) have been discussed in the literature; the mixed voice construction in (44c) has not been described previously.

(44) a. nanandrana namono ny akoho Rabe ACTIVE
try.ACT kill.ACT the chicken Rabe
b. nandraman-dRabe novonoina ny akoho PASSIVE
try.PASS-Rabe kill.PASS the chicken'
c. nanandrana novonoin-dRasoa ny akoho MIXED
try.ACT kill.PASS-Rasoa the chicken
'Rabe tried to kill the chicken.'

The active and the passive control constructions show systematic differences. The active construction instantiates obligatory control and most closely resembles the canonical control construction of English. The passive construction represents non-obligatory control and is therefore not subject to the movement analysis of control which has been proposed exclusively for obligatory control structures. The difference between the two constructions in Malagasy is similar to the difference between obligatory and non-obligatory control in English; however, unlike in English, non-local antecedents are impossible under non-obligatory control in Malagasy. Our analysis of these constructions has at least two implications for a general theory of Control: first, it contributes to our understanding of the principled

difference between obligatory and non-obligatory control, second, it suggests the possibility of the controllee appearing in a Case-marked position.

The lexically and dialectally restricted mixed voice control construction (44c) displays an unusual combination of semantic and structural properties. We have rejected restructuring and Backward Control analyses of this construction. To account for its characteristics, we propose that the embedded clause in this construction represents a thetic judgment. If this analysis of the mixed voice construction is on the right track, it contributes to our general understanding of the correspondences between judgment types and sentence forms and it establishes a new case where a judgment type is mapped into an embedded clause.

Endnotes

* We would like to thank our Malagasy consultants Tina Boltz, Noro Brady, Hanitry Ny Ala, and Landy Rahelison. For valuable comments and questions we thank Yuki Kuroda, Ileana Paul, Matt Pearson, and the audience at AFLA 9. This work was supported by NSF grants BCS-0131946 and BCS-0131993.

[1] We use the following abbreviations in glossing: 1/2/3-person, ACC-accusative, ACT-active voice, CIRC-circumstantial voice, FUT-future tense, IMPER-imperative, INDIC-indicative, LOC-locative, NEG-negative, PASS-passive voice, PRES-present tense, Q-question marker, RECIP-reciprocal, SG/PL-number.

[2] See MacLaughlin 1995, Pensalfini 1995, and Pearson 2001 for alternative clause structures for Malagasy.

[3] Malagasy has no non-finite verb forms, so embedded verbs in Malagasy are all tensed. We briefly address the implications of this situation in section 3.3.

[4] We owe this argument to Jill Heather Flegg and Ileana Paul.

[5] These data require further investigation. The passive example with coreference was not possible with two other control verbs, *manandrana* 'try' and *mikasa* 'intend'. Further, the active example is ungrammatical on any interpretation, even the non-coreferential one, *'Rasoa wants him to leave Antananarivo'.

[6] To our knowledge the construction was first noticed in Law 1995:fn. 9.

[7] It is common to think of the judgment type contrast as pertaining to root clauses only. The idea that embedded clauses may differ in judgment type has been discussed by Mejias-Bikandi (1993), Kuroda (1992), Sasse (1995), and Moore (1997).

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What the Indonesian Morphological Causative Can Tell Us about Aphasic Comprehension

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1. Verbal Suffixes in Standard Indonesian

This paper explores verbal complexes in Standard Indonesian ('SI') that utilize the two suffixes *–kan* and *–i*. An example of a monotransitive verb with null suffix is given in (1a). (Prefix *meN-*, glossed as 'AT' for 'Agent Topic', indicates active voice.) When *–kan* is added as in (1b), the result is an applicative verb whose direct object has the thematic role of instrument ('INSTR' for 'Instrumental'). When the suffix is *–i* as in (1c), the resulting verbal complex is an applicative whose direct object has the role of goal or location ('GO' for 'Goal').

The suffix *–kan* can also form verbs with causative meaning as illustrated in (2).[1] The object *anak itu* 'the child' is caused to engage in a certain activity which is specified by the verbal stem, in this case crying.

(1) a. Dia **men**ulis surat.
S/he **AT**-write letter
'S/he writes a letter'

b. Dia **men**ulis**kan** kapur pada papan.
S/he **AT**-write-**INSTR** chalk on board
'S/he writes with chalk on the board'
(adapted from Echols & Shadily 1989)

c. Dia **men**ulis**i** kertas putih.
S/he **AT**-write-**GO** paper white
'She writes on white paper'
(adapted from Echols & Shadily 1989)

(2) Ali **men**angis**kan** anak itu.
Ali **AT**-cry-**CAUS** child that
'Ali caused the child to cry'
(from Sie 1988)

2. Comparative Structural Complexity of Causatives and Applicatives in SI

SI constructions with *-kan* provide an interesting testing ground for **aphasia** - an impairment of the power to use or comprehend words usually as a result of stroke or other brain injury. The verbs in (1b) and (2) appear equally complex. Both consist of a voice prefix, a stem and suffix *–kan*, and both take one internal argument. They appear to be equivalent in terms of parsing demands. On the other hand, causatives like (2) require more elaborate underlying representations than applicatives like (1b). As a result, verbs with causative *–kan* may pose more of a

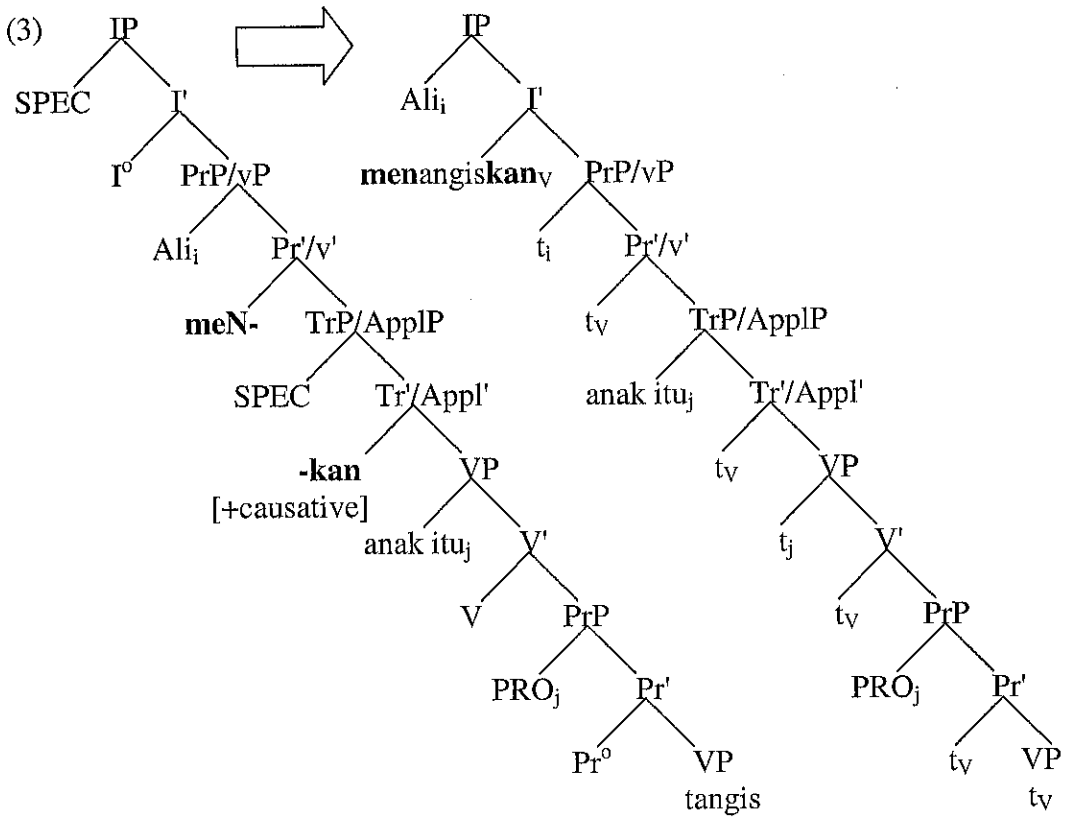
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challenge for people with impaired comprehension than verbs with instrumental –*kan*.

2.1. *Structural Representation of Causatives*

Causative verbs are, in most languages, semantically and syntactically complex in crucial ways. They seem to entail the postulation of an extra predicate that is not required in the meaning of other verbs such as ditransitives (Williams 1980). Their objects can be interpreted as having two semantic roles - as "causee" or "affected argument" of the causing event and as participant of the caused event or change of state (Hale & Keyser 1993, Pylkkänen 1999).

A proposal for the structure of (2), inspired by the Predicate Phrase Hypothesis of Bowers (1993, 2001) and the Transitivity Phrase Hypothesis of Bowers (2002), is given in (3). (For more discussion, see Postman 2002). The causing event is represented by an upper Predicate Phrase ('PrP') or vP and a lower PrP represents the caused event. The upper PrP selects a Transitivity Phrase ('TrP') or Applicative Phrase ('ApplP') headed by causative *–kan*, which behaves like a causal verb by assigning the affected role to the object *anak itu* 'the child'. The object controls PRO, which is agent or experiencer of the caused event or change of state in the lower predicate. The object moves to [Spec,TrP] for accusative case. The intransitive stem *tangis* 'cry' originates in VP selected by the lower PrP and raises successively to check features in Tr^o (or $Appl^o$), Pr^o and I^o. The subject *Ali* moves to [Spec,IP] for nominative case.[2,3]

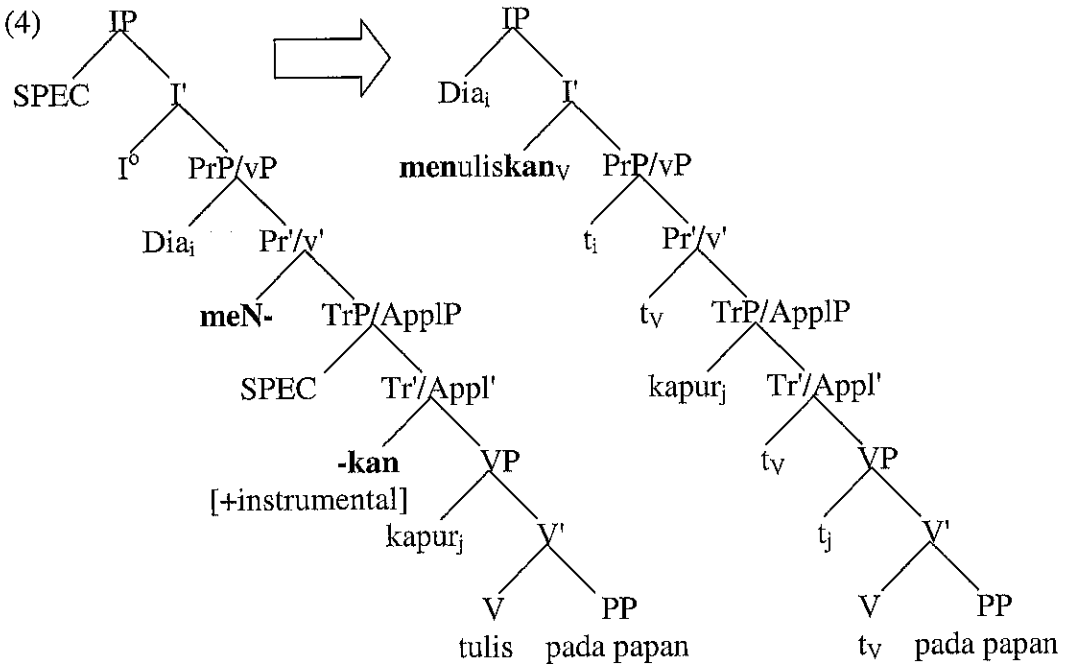


2.2. *Structural Representation of Applicatives*

2.2.1. *Applicatives with –kan*

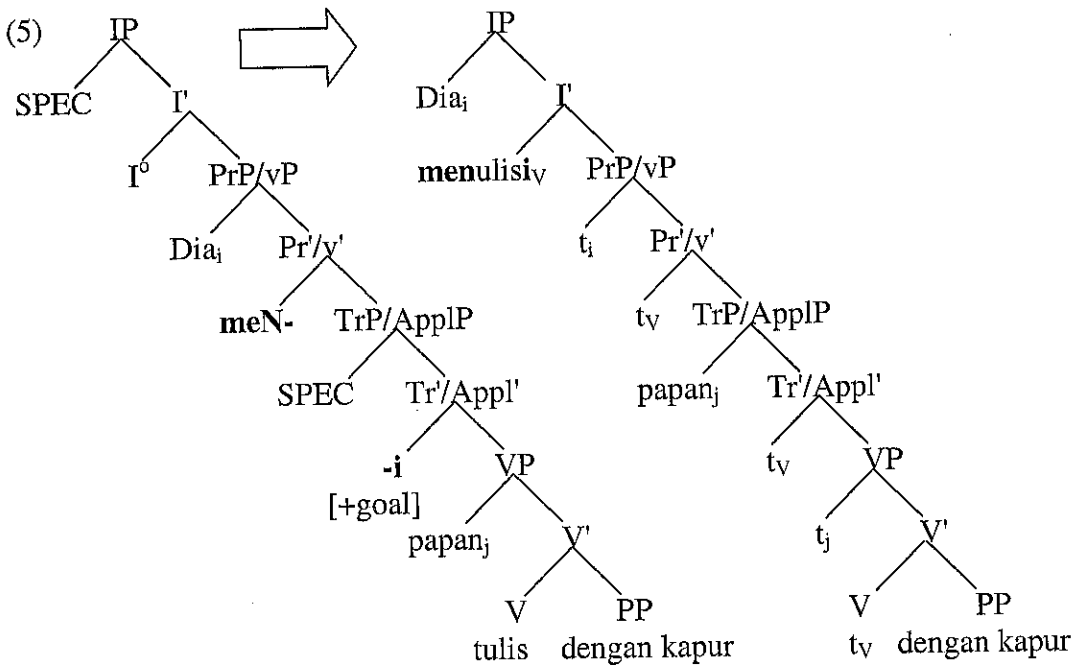
No such syntactic or semantic complexity arises with instrumental verbs. The representation for (1b) is given in (4) (from Postman 2002). Instrumental *–kan*, behaves like an incorporated preposition in that it checks its [+instrumental] feature in Tr^{o} or $Appl^{o}$. Note that (4) is structurally simpler than (3) because it consists of a singular predicate (only one PrP). (4) is also thematically simpler than (3) because the direct object *kapur* 'chalk' plays a unique thematic role. It is not coindexed with an empty category receiving a separate thematic role.

(4)



2.2.2. *Applicatives with –i*

Structures for applicatives with *–i* such as (1c) share the functional architecture of instrumentals with *–kan*. As such they also lack the complex predication involved in causatives constructions. The [+goal] feature of *-i* is checked in Tr^{o} or $Appl^{o}$, as shown in (5).



3. Hypotheses

The nature of these constructions in SI and the proposals for their underlying representations outlined above lend themselves to two hypotheses about how they might be processed by people with aphasia.

Hypothesis 1: The suffix *-kan* may be more confusing for a person with language impairment than the suffix *–i*, because it is more polysemous, hence less transparent.[4]

Hypothesis 2: If computational load is proportional to representational complexity, and if people with aphasia have limited computational resources (e.g., Frazier & Friederici 1991), then they may experience greater difficulty assigning thematic roles to arguments of causative verbs than to arguments of applicative verbs. The reason for this is that simple (one-predicate) sentences with applicative verbs may be easier to process than complex (two-predicate) sentences with causative verbs. Such a finding would show that aphasic comprehension is sensitive to semantic and syntactic complexity not evident in surface structure.

4. Test of Comprehension: Forced Choice Task

4.1. *Method*

The participants (described in Section 5) listened to a pair of sentences, which were identical except for the verbal suffix. They had to decide which suffix was more appropriate in the sentential context. Five tokens were designed for each type, for a total of 60 pairs of sentences. One token for each type is given in (6)-

(8). Test items were balanced for length (5-6 words), and were randomized within each of the 5 batteries. Subjects were required to use the context of each pair of sentences to figure out which meaning of *–kan* was being compared against goal suffix *–i*. The order in which the correct answer appeared was random. Sometimes the well-formed sentence was read first, in which case the participants were expected to say "A" or "ONE." Other times the well-formed sentence was the second one in the pair read to participants, in which cases they were to answer "B" or "TWO."

4.1. *Design*

The test items consisted of three types of minimal pairs in which sentences alternated between either causative verbal suffix *-kan* and goal suffix *–i*, causative stative suffix *-kan* and goal suffix *–i* or instrumental suffix *-kan* and goal suffix *–i*.[5] There were two subtypes for each comparison. Either the more appropriate sentence in each minimal pair had a verb with suffix *–i*, or it had a verb with suffix *–kan*. Sentence pairs were read in both Agent Topic (*meN-*) and Patient Topic (*di-*) forms. Examples of each type of contrast are given in (6)-(8). Sentence pairs favoring use of *–kan* as suffix have *–kan* as "target" (a,b sentences) whereas sentence pairs favoring use of *–i* as suffix have *–i* as "target" (c,d sentences).

(6) Contrast between *–i* and causative verbal *–kan*:

a. *Oma **meni**duri anak-cucunya dengan lagu.[6]
✓Oma **meni**dur**kan** anak-cucunya dengan lagu.
Grandma **AT**-sleep-**CAUS** grandchild-POSS with song
'Grandma puts her grandchild to sleep with song'

b. *Anak itu **di**tiduri Oma dengan lagu.
✓Anak itu **di**tidur**kan** Oma dengan lagu.
Child that **PT**-sleep-**CAUS** Grandma with song
'The child is put to sleep by Grandma with song'

c. *Gadis itu **meni**dur**kan** dataran rumput.
✓Gadis itu **meni**duri dataran rumput.
Girl that **AT**-sleep-**GO** yard grass
'That girl sleeps on a plot of grass'

d. *Dataran rumput **di**tidur**kan** gadis remaja.
✓Dataran rumput **di**tiduri gadis remaja.
Yard grass **PT**-sleep-**GO** girl adolescent
'The grass plot is slept on by the adolescent girl'

(7) Contrast between *–i* and causative stative *–kan*:[7]

a. *Lelaki itu **men**erangi keadannya dalam surat.
✓Lelaki itu **men**erang**kan** keadannya dalam surat.
Man that **AT**-clear-**CAUS** situation-POSS inside letter
'The man made his situation clear in a letter'

b. *Keadaannya **di**terangi lelaki dalam surat.
✓Keadaannya **di**terang**kan** lelaki dalam surat.
Situation-POSS **PT**-clear-**CAUS** man inside letter
'The situation was made clear by the man in a letter'

c. *Pemburu itu **men**erang**kan** jalan dengan senter.
✓Pemburu itu **men**erangi jalan dengan senter.
Hunter itu **AT**-clear-**GO** road with flashlight
'The hunter lit the road with a flashlight'

d. *Jalan itu **di**terang**kan** pemburu dengan senter.
✓Jalan itu **di**terangi pemburu dengan senter.
Road that **PT**-clear-**GO** hunter with flashlight
'The road is lit by the hunter with a flashlight'

(8) Contrast between *–i* and instrumental *–kan*:

a. *Tukang kayu **me**merciki cat pada dinding.
✓Tukang kayu **me**mercik**kan** cat pada dinding.
Expert wood **AT**-stain-**INSTR** paint on wall
'The carpenter stained the wall with paint'

b. *Cat putih **di**perciki tukang kayu pada dinding.
✓Cat putih **di**percik**kan** tukang kayu pada dinding.
Paint white **PT**-stain-**INSTR** expert wood on wall
'White paint was used by the carpenter to stain the wall'

c. *Pelukis **me**mercik**kan** kain kanvas dengan cat.
✓Pelukis **me**merciki kain kanvas dengan cat.
Painter **AT**-stain-**GO** cloth canvas with paint
'The painter stained the canvas with paint'

d. *Kain kanvas **di**percik**kan** pelukis dengan cat.
✓Kain kanvas **di**perciki pelukis dengan cat.
Cloth canvas **PT**-stain-**GO** painter with paint
'The canvas was stained by the painter with paint'

5. Subjects

Two adult stroke patients participated in this experiment, one with right-hemisphere damage and one with left-hemisphere damage.[8] See Table 1 for a summary of information on their etiologies and symptoms. HS fit the profile of a person with Broca's aphasia. HM had no aphasia but he did suffer from a speech impediment. His written production of language was perfect.

Three neurologically intact control subjects also completed this task. All subjects were native to and residents of the area of Manado, Indonesia. All spoke and read Standard Indonesian and the local Manado Malay dialect on a daily basis. All were literate, university-educated professionals who had previously lived in various parts of Indonesia. They each claimed to have begun speaking SI as young children. The three control subjects (WR (male, age 50), SW (female,

age 62) and BM (female, age 61)) were matched to patients for age (roughly), languages spoken, level of education and type of employment.

Table 1. Patient Information (N=2)

Patient Initials	Age (yrs)	Etiology	Affected Hemisphere	Aphasic Symptoms	Years from Onset
HS	68	embolic occlusion of right middle cerebral artery	left (right hemiparesis)	non-fluent speech, good comprehension in conversation	7
HM	61	lateral medullary thrombotic infarction	right (left hemiparesis)	difficulty swallowing and closing mouth, no speech	5

6. Results

6.1. *Overall Success with –i vs. –kan*

Subjects' choices of the wrong suffix (e.g., the starred sentences in (6)-(8)) were scored as "misses". Their choices of the correct suffix (e.g., the checked sentences in (6)-(8)) were scored as "hits".

Subjects' responses are arranged by appropriate suffix or "target" in Table 2. The column "% *-kan* Targets Correct" shows raw scores and percentages of hits when the more fitting suffix ("target") was *–kan*, e.g., (6a,b), (7a,b) and (8a,b). The column "% *-i* Targets Correct" shows raw scores and percentages of hits when the more fitting suffix "target" was *–i*, e.g., (6c,d), (7c,d) and (8c,d). Active and passive conditions are collapsed.

Table 2. Number and Percentage Hits on All 3 Contrasts between *–i* and *–kan*, Combining Active and Passive Conditions

Subject/ Group	**Group Type**	**% *-kan* Targets Correct**	**% *-i* Targets Correct**	**% Total Correct**
HS	left hem. damage	13/30 **43%**	20/30 **67%**	33/60 **55%**
HM	right hem. damage	25/30 **83%**	26/30 **87%**	51/60 **85%**
Controls (N=3)	control group	78/90 **87%**	80/90 **89%**	158/180 **88%**

Participants' choices were not generally affected by the voice of the sentence pairs. In other words, it made no difference whether the sentences were presented in active or passive voice (see Appendix). HM and the controls were equally successful at detecting the correct suffix ("hitting the target") when it was

–i as when it was *–kan*. The man with aphasia due to left hemisphere damage, HS, showed significantly greater success with *–i* targets than with *–kan* targets. His score of 67% on *–i* targets barely reached above-chance level (z=1.643, p=0.028). His performance on pairs with *–kan* targets was not significantly different from chance. An illustration of HS's errors is given in (9). These results are graphed in Figure 1.

(9) HS chose the sentence with *meniduri* in the following contrast (same as (6a)) even though the correct choice is the sentence with *menidurkan*:

* Oma	**meni**duri	anak-cucunya	dengan	lagu.
✓Oma	**meni**dur**kan**	anak-cucunya	dengan	lagu.
Grandma	**AT**-sleep-**CAUS**	grandchild-POSS	with	song

'Grandma puts her grandchild to sleep with song'

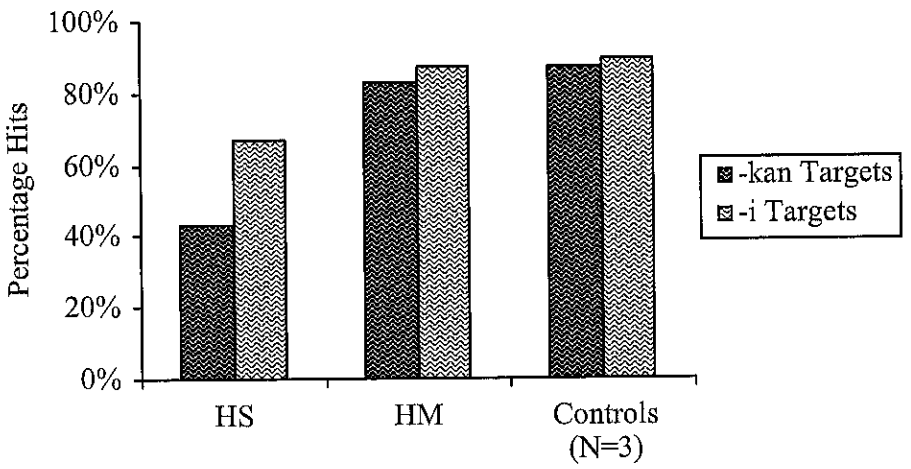


Figure 1. Comparison of Subjects' Choices by Target: *-i* vs. *–kan*

6.2. *Results on Three Types of Contrasts*

6.2.1. *Contrast between –i and Causative Verbal –kan*

Results of participants' decisions on contrasts between goal suffix *–i* and causative verbal *–kan*, exemplified in (6), are presented in Table 3. Overall, HS performed at chance on this type of contrast (50% correct). Closer inspection of his results on the two different targets, however, reveals that he often preferred sentences containing verbs with goal suffix *–i*, even when the intended meaning of the sentences favored causative verbal *–kan*. He only chose *–kan* when it was the target 30% of the time, that is, for 70% of the choices with target *–kan*, HS instead chose *–i* as the correct suffix. However, HS correctly selected *–i* as the better suffix for the majority of pairs in which it was the target (70%), HM and the controls, in contrast, did just as well regardless of target.

Table 3. Number and Percent Hits on Contrast between *–i* and Caus. Verbal *–kan*

Subject/ Group	Group Type	% -kan Targets Correct	% -i Targets Correct	% Total Correct
HS	left hem. damage	3/10 **30%**	7/10 **70%**	10/20 **50%**
HM	right hem. damage	9/10 **90%**	9/10 **90%**	18/20 **90%**
Controls (N=3)	control group	27/30 **90%**	28/30 **93%**	55/60 **92%**

6.2.2. *Contrast between –i and Causative Stative –kan*

Subjects' results on contrasts between *–i* and causative stative *–kan*, exemplified in (7), are displayed in Table 4. As usual, HM and the controls achieved above chance levels of success on both targets. HS's total score on this type of contrast (60%) was statistically no different from chance. His scores on the two different targets attest to his obvious preference for choosing *–i* as the more appropriate suffix, even when, in fact, the more fitting one was *-kan*. His score on sentence pairs with *-i* as target was very high (90%). However, when the target was causative stative *–kan* he only chose it 30% of the time).

Table 4. Number and Percent Hits on Contrast between *–i* and Caus. Stative *–kan*

Subject/ Group	Group Type	% -kan Targets Correct	% -i Targets Correct	% Total Correct
HS	left hem. damage	3/10 **30%**	9/10 **90%**	12/20 **60%**
HM	right hem. damage	8/10 **80%**	9/10 **90%**	17/20 **85%**
Controls (N=3)	control group	23/30 **77%**	25/30 **83%**	48/60 **80%**

6.2.3. *Contrast between –i and Instrumental –kan*

Subjects' results on the type of contrast between *–i* and instrumental *–kan*, exemplified in (8), are given in Table 5. HM and the controls' discrimination between *–i* and instrumental *-kan* was very successful (well above chance). Once again, HS's overall performance on this contrast as a whole was at chance. However in this case he manifested the opposite tendency from the previous two contrasts by favoring the use of *–kan*. Although his 70% success rate on targets with *–kan* is not significantly different from chance ($z=0.949$, $p=0.117$), the trend demonstrates that he did not on this task uniformly reject sentences containing verbs with *–kan*.

Table 5. Number and Percent Hits on Contrast between *–i* and Instrumental *–kan*

Subject/ Group	Group Type	% -kan Targets Correct	% -i Targets Correct	% Total Correct
HS	left hem. damage	7/10 **70%**	4/10 **40%**	11/20 **55%**
HM	right hem. damage	8/10 **80%**	8/10 **80%**	16/20 **80%**
Controls (N=3)	control group	28/30 **93%**	27/30 **90%**	28/60 **92%**

7. Summary

7.1. *The Control Group*

The control subjects achieved above-chance results on every type of contrast. Thus, their judgments corroborate those assumed by the test design.

A word about the subjects' multilingualism is in order. Since all participants were fluent speakers of Manado Malay as well as Standard Indonesian, it is possible that their knowledge of that dialect could have interfered with their performance on this task in SI (David Gil and Yassir Tjung, personal communication).This seems unlikely since the control subjects' very high scores indicate that they must have been consulting their knowledge of SI without undue influence from their local dialect.

In addition, it is not clear how the grammar of Manado Malay could have interfered with their judgments. Manado Malay does not have either of the suffixes (or cognates) *–i* or *–kan*. Only one verbal suffix *–akang* exists in this dialect, and it is unclear how this fact would have been relevant to subjects' choices between *–i* and *-kan* on a task in SI.[9] Finally, the contrast between the performance of HS and the others, he himself a speaker of both SI and Manado Malay, remains significant.

7.2. *Left vs. Right Hemisphere Damaged Subjects*

Locus of brain damage was a decisive factor for success on this experiment. HM, the man with right hemisphere damage, consistently performed significantly better than HS. His performance was comparable to the control group's, suggesting that his linguistic judgments were unaffected by the type of brain damage he had suffered.

The marked disparity between the poor performance of HS, the patient with left hemisphere damage, on the one hand, and the successful performances of HM and the control subjects on the other, validates the design of this study, which plainly revealed linguistic deficits associated with left hemisphere damage. This finding is expected, since aphasia is usually a consequence of left but not right hemisphere damage.

Altogether, HS's performance on this test was no different from chance. Nevertheless, he evidenced an interesting pattern of choices, which was dependent on the meaning of *–kan*. His avoidance of *–kan* and his over-reliance on *–i* in the two contrasts with causative *–kan* are plotted in Figure 2 against his preference for instrumental *–kan*.

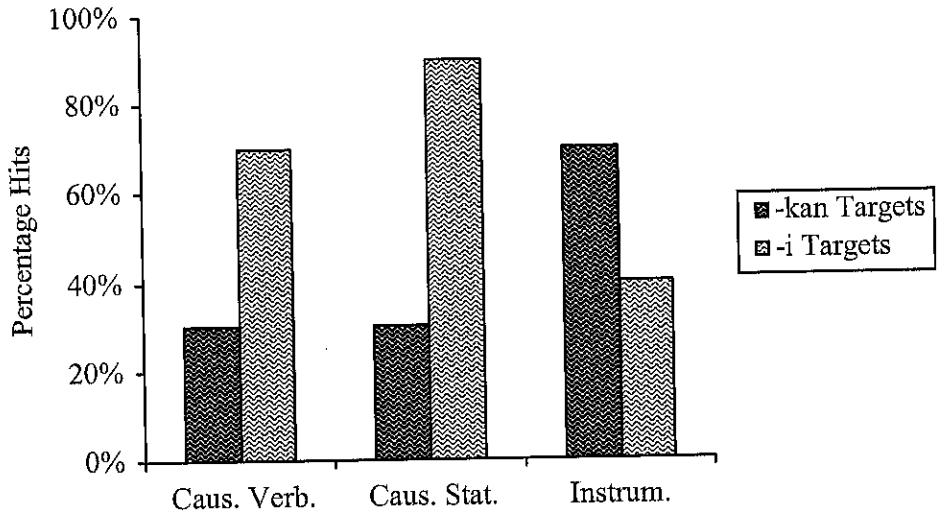


Figure 2. Response Pattern by HS: Targets *–i* vs. Causative Verbal *–kan*, Causative Stative *–kan* and Instrumental *-kan*

8. Discussion

8.1. *Specific Difficulty with Causatives*

HS's avoidance of choices with causative *–kan* in this experiment is evidence that he had difficulty mapping the form of causatives to their meaning. If on *all* types of contrasts, HS had consistently preferred *–i* over *-kan*, then it could be concluded that he failed to grasp the different meanings associated with the polysemous verbal suffix *–kan*. Nevertheless, HS usually did choose verbs with *–kan* over verbs with *–i* in non-causative contexts, namely when the verbal complex with *–kan* was an applicative form with instrumental meaning. On contrasts with instrumental *–kan* (e.g., in (8)), 65% of his choices were of verbs with *–kan*, whereas only 30% of his choices on contrasts with causative verbal *–kan* (e.g., in (6)) and 20% of his choices on contrasts with causative stative *–kan* (e.g., in (7)) were of sentences containing verbs with *–kan*.

It could be argued that if HS still had full competence for the structure and form of applicative verbs, then he should have performed better than chance on these, as did all of the other subjects.[10] The point emphasized here is that even though HS did make many errors on this type of construction, the nature of his errors on instrumentals (applicatives) is qualitatively different from the nature of his errors on causatives. Most specifically, he no longer avoided the target *–kan* in

the applicative constructions. Possibly, the difference between the two applicative suffixes (goal *–i* and instrumental *–kan*) was less obvious to HS than the difference between applicative (goal) *–i* and causative *–kan*. Therefore, for him, the choice between the two applicative suffixes was more of a "toss-up", whereas the choice between applicative (goal) *–i* and causative *–kan* was nearly always in favor of applicative *–i*.

8.2. *Greater Structural and Computational Complexity of Causatives*

The additional structural complexity of causatives (represented in (3)), justified by their undeniably more complex thematic and event structure, renders them more taxing to the grammatical processor than the simpler structure of applicatives (represented in (4) and (5)). The link between processing success and representational difficulty in both intact and aphasic populations has been hypothesized by Frazier & Friederici (1991), Friederici & Frazier (1992), Kolk & Van Grunsven (1985) and Kolk (1995), among others. The findings presented here support that theory.

8.3. *Strategy of HS, the Man with Left Hemisphere Damage*

HS seems to have employed a decision-making strategy based on relative thematic and structural complexity according to which he rejected sentences containing verbs whose thematic structure he could not analyze. When faced with pairs of sentences such as those in (6) and (7), he chose the sentence in the pair with *–i* because he was unable to analyze the sentence with *–kan*. He may have been unable to comprehend causatives due to a computational deficit that prevented him from creating and maintaining their full structural representations. Yet this deficit was not so severe as to prevent him from building the less complex representations of sentences containing verbs with instrumental *–kan*. He was able to grasp the meanings of sentences whose contexts called for instrumental but not for causative *–kan*.

9. Directions for Future Research

More research on the possible fluctuation, convergence and overlap of thematic roles associated with *–i* and *–kan* in Indonesian and related Malay dialects should be fruitful. A better understanding of phenomena with *–i* and *–kan* would help to formulate more precise analyses of strategies that subjects might employ in tasks such as those utilized in this type of experiment.

More cross-linguistic research into the processing of causatives and applicatives by people with aphasia as well as neurologically intact adults would help to test the prediction advanced here. One possible direction would be to use the Cross Modal Lexical Priming paradigm (e.g., Shapiro, Gordon, Hack & Killackey 1993) to test people's reaction times to probes as they read causative and applicative sentences with *–kan*. If causatives were in fact more

computationally demanding than applicatives, then we would expect that reaction times would be slower.

Processing of periphrastic causatives in Standard Indonesian should be compared with that of morphological causatives to investigate the mapping of different forms to similar meanings (thanks to John Wolff, personal communication, for this idea). Two colloquial ways of expressing causation use the verbs *kasi* 'cause to be done' and *bikin* to 'make, cause' followed by an infinitival verb. A fundamental difference between causatives with *–kan* and the periphrastic expressions is that the former are singular complex verbs that represent two predicates, a causative event and a caused event or change of state (see (3)). These "conflated" forms may be less transparent than the latter type of "analytic" causative in which the upper causative predicate is expressed as a separate verb. The fact that the complex predication of causation is explicitly broken down in the analytic expressions may render them easier for people with language impairment to decipher.

Appendix

Subjects' responses are arranged by verbal prefix in Table 6, with *meN-* indicating active voice (e.g., (6a,c), (7a,c), (8a,c)) and *di-* indicating passive voice (e.g., (6b,d), (7b,d), (8b,d)). HS performed at chance on both active (*meN-*) verbs and passive (*di-*) verbs. HM and the controls scored above chance with active (*meN-*) and passive (*di-*) verbs. (HM's score of 70% on choices with active verbs is significantly higher than chance.)

Table 6. Number and Percentage Hits, Combining All 3 Types of Contrasts between *–i* and *-kan*

Subject/ Group	**Group Type**	**% *meN-* Correct**	**% *di-* Correct**	**% Total Correct**
HS	left hem. damage	16/30 **53%**	17/30 **57%**	33/60 **55%**
HM	right hem. damage	21/30 **70%**	30/30 **100%**	51/60 **85%**
Controls (N=3)	control group	81/90 **90%**	77/90 **86%**	158/180 **88%**

Endnotes

* The original idea for the experiment described in this paper belongs to Gita Martohardjono, my first and most enduring mentor. All errors and quirks in sentence design are my own responsibility. I'd also like to thank the participants of AFLA 9 for their extremely helpful comments and support, especially Bill Davies, David Gil, Paul Kroeger, Frantisek Lichtenberk, Diane Massam, Kenji Oda, Ileana Paul, Min-Jeong Son and Yassir Tjung.

[1] Double object and benefactive constructions are ignored here in order to focus on stems that can combine with both *–kan* and *–i*. For example, *buat* 'make' can be combined with *–kan* to form the benefactive complex *PREFIX-buatkan* 'to make something for someone', but it cannot be combined with *-i*. For suggestions as to why this is so, see arguments in Sie (1988: 199-200). For more complete descriptions of the uses of *–kan*, see Verhaar (1984) and Wolff (1981).

[2] I'm grateful to Ileana Paul for suggesting that (3) could be modified to include the postulation of a causative phrase ('CauseP') above TrP/ApplP, so that causative features would be checked in a different (higher) position. Indeed, a more articulated and profound analysis of causative structures in Indonesian is warranted. However, nothing in the results presented here hinges on this issue.

[3] For the structure of the corresponding passive causative sentence *Anak itu ditangiskan Ali* 'The child was made to cry by Ali', see Postman 2002.

[4] Iterative *–i* was ignored in this task, but both literal and metaphorical uses of *–i* with goal meaning were used. Also, thanks to Bill Davies for pointing out that causative verbs with *–i* do exist in Indonesian. In this study none of the test items with *–i* had causative meaning.

[5] The experiment also included contrasts between double object constructions with *–kan* and verbs with no suffix. These are excluded here for reasons outlined in endnote 1. See Postman (2002) for complete presentation of all the results.

[6] The verb *meniduri* has two senses. According to the dictionary by Echols & Shadily (1989), it can mean 'have intercourse with' as well as 'lie or sleep on'. Thanks to Yassir Tjung for pointing out this ambiguity.

[7] The structure of causative statives are assumed to be identical to that for causative verbals, except that the stem originating in the lower PrP is an adjective. See Postman (2002) for a detailed proposal for their representation.

[8] Another neurologically intact control subject, DR, took part in this study, but as he was not a fluent speaker of SI, his performance is not comparable with that of the other controls. Also, another person with aphasia, MS, participated in this experiment. Besides fluent aphasia due to left hemisphere hemorrhage, she evidenced short-term memory problems and some dementia. Therefore her performance is impossible to explain from a purely linguistic perspective.

[9] The productivity of this suffix is in question. Prentice (1994) does not record any verbal suffixes in this dialect at all. He states: "Nor does Manado Malay possess any equivalents for the derivational transitivising affixes *per-*, *-i* and *–kan* of Standard Malay. Transitive verbs in Manado Malay appear always in their base forms, except when they are reduplicated to denote repeated action..." (p. 430).

[10] Thanks to Kenji Oda for this crucial observation.

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The Case of Voice in Tagalog

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1. Introduction

In Tagalog, voice affixes on the verb vary according to features of the subject of the clause (the argument marked with *ang*), as illustrated in (1) (voice markers are in bold and subjects are underlined).

(1) a. B-**um**-ili ang bata ng tela sa palengke para sa Nanay *Agent*
AV.prf-buy ANG child CS cloth DAT market P DAT mother
'The child bought cloth at the market for mother.'

b. B-in-ili-**Ø** ng bata ang tela sa palengke para sa Nanay *Theme*
TV.prf-buy CS child ANG cloth DAT market P DAT mother
'The child bought the cloth at the market for mother.'

c. B-in-ilh-**an** ng bata ng tela ang palengke para sa Nanay *Dir.*
DV.prf-buy CS child CS cloth ANG market P DAT mother
'The child bought cloth at the market for mother.'

d. **I**-b-in-ili ng bata ng tela sa palengke ang Nanay *Ben.*
BV-prf-buy CS child CS cloth DAT market ANG mother
'The child bought (the) cloth at the market for mother.'
(Maclachlan 1992)

In this paper I argue that the verbal voice affixes are manifestations of agreement for the case of the subject argument.[1]

A common assumption in much of the literature on Austronesian is that voice agreement is thematic-role-based, signifying the theta-features of the *ang*-argument (Kroeger 1993, Schachter & Otanes 1972, de Guzman 1978, Carrier 1985, Sells 1998). The evidence discussed in this paper, however, falsifies the theta-agreement hypothesis and shows rather that Tagalog voice agreement more closely resemble case patterns in other languages (following Ramos 1974). Through a cross-linguistic comparison of case marking, I show that a case agreement analysis of the Tagalog voice marking facts is both theoretically and empirically preferable to the theta-agreement alternative.

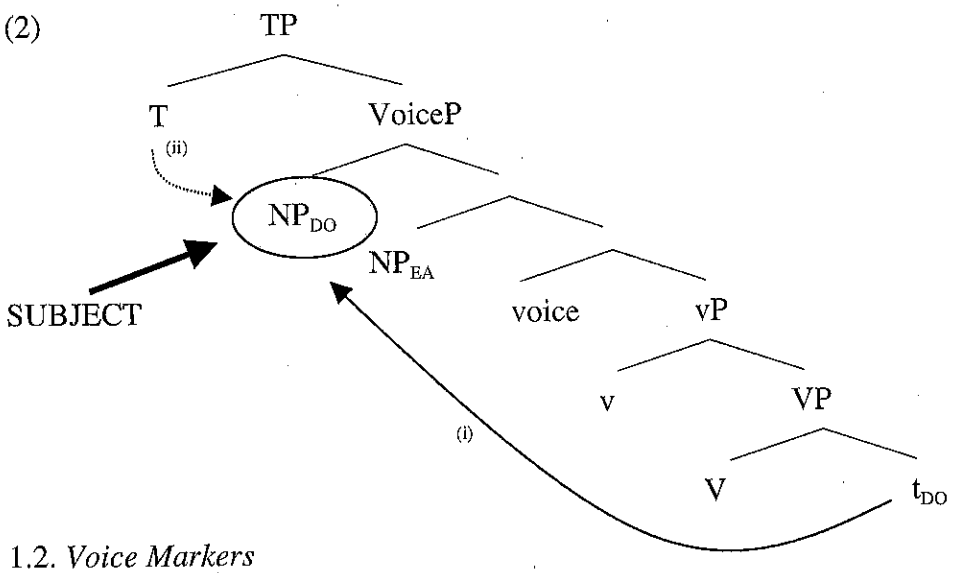
This paper begins with some background on Tagalog clause structure and voice morphology. This is followed by a presentation of the evidence against voice as theta-role agreement. Next I present a theory of configurational case assignment and illustrate how it can account for the voice system of intransitive and transitive verbs. Following that is an extension of the theory to ditransitive and applicative clauses.

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1.1. *Background on specificity shift*

On the basis of the specificity requirements of arguments in Tagalog, I have argued in previous work (Rackowski 2002) that Tagalog subjects are actually arguments that have undergone object shift of the sort familiar from Germanic languages (Diesing 1992, 1996, Collins & Thrainsson 1996, Holmberg 1991, 1999, Chomsky 2001). Following the account of object shift in Chomsky 2001, I argue that arguments in Tagalog shift to the edge of VoiceP when they are specific as the result of an EPP feature on voice (i). When T is subsequently merged into the structure, it probes for an argument within its domain to satisfy its uninterpretable features and, since the shifted argument is the closest to T, Agree obtains between T and that argument (ii). Crucially, this Agree relation has two results: the relevant argument is marked with *ang*, and features of the argument are copied onto T and spelled-out as voice agreement, making this argument into the 'subject' of the clause (see Kroeger 1993, Schachter 1976, 1996 for discussion of the notion of subjecthood). Thus the argument that becomes the subject of the clause is the one that is structurally highest at the point when T is looking for some DP to Agree with.[2] The structure I assume from Rackowski 2002 for Tagalog shift and subject-Agree is given in (2).

(2)



1.2. *Voice Markers*

The first issue to be settled when looking at the Tagalog voice pattern is exactly which elements are voice markers. Schachter and Otanes 1972 and Ramos 1971 each list dozens of different morphemes, but, along with de Guzman 1978, Maclachlan 1992, and Latrouite and Naumann 2000, I believe the number of voice markers to be much fewer, including only the four listed in (3), although for reasons of space I will not justify this list here, but simply take it as given.[3]

(3)		
	-um-	external argument
	-in	complement of verb
	-an	goals, locatives, IO of ditransitives
	i-	benefactives, instruments, some objects

There is one important instance of allomorphy to keep in mind when examining the voice morphology of Tagalog. The accusative ('theme') voice marker *–in* is realized by a null allomorph in the context of the aspectual infix *–in-*. Therefore the *–in* voice marker is absent in the perfective and imperfective aspect forms but present in contemplative and imperative constructions. I mark the morpheme as Ø when it is not spelled out as *-in.*

(4)	a.	a-awit-**in**	b.	*in*-a-awit-**Ø**	c.	*in*-awit-**Ø**
		RED-sing-Acc		asp-RED-sing-Acc		asp-sing-Acc
		'will sing'		'is/are singing'		'sang'

2. Theta-Agreement and Counter-evidence

Austronesian voice marking is commonly referred to as a system of thematic role agreement, meaning that the voice markers signal the semantic function of the subject NP (e.g. Kroeger 1993, Schachter & Otanes 1972, Schachter 1996, de Guzman 1978, Carrier 1985). In the context of this hypothesis, *-um-* would agree with an agentive theta-role, *-in* with a theme theta-role, and *i-* with a benefactive theta-role.

(5) a. **m**ag-lu-luto ang lalaki ng adobo para sa asawa *Agent, -um-*
Nom.PAG-asp-cook ANG man CS adobo P DAT spouse
'The man will cook adobo for his wife.'

b. lu-lutu-**in** ng lalaki ang adobo para sa asawa *Theme, -in*
asp-cook-Acc CS man ANG adobo P DAT spouse
'The man will cook the adobo for his wife.'

c. **i**-pag-lu-luto ng lalaki ng adobo ang asawa *Ben., i-*
Obl-PAG-asp-cook CS man CS adobo ANG spouse
'The man will cook (the) adobo for his wife.'

Leaving aside the serious conceptual issues raised by theta-agreement (see footnote 4), this analysis could account for the many sentences where subject agreement does indeed correlate with the semantic function of the subject NP.[4] For instance, theme subjects tend to occur with the *–in* voice marker, locative subjects co-occur with *–an*, and benefactive subjects take *i-* as a voice marker, all illustrated in (6) - (8).

(6) a. Kudkur-**in** mo ang niyog. *Theme, -in*
Grate-Acc you ANG coconut.
'Grate the coconut.' (S&O)

b. Patay-**in** mo siya. *Theme, -in*
Kill-Acc you ANG.he
'Kill him.' (L&N 1999)

(7) a. P-in-amamangka-**an** mo ba ang ilog? *Locative, -an*
Asp-boat-Dat you ? ANG river
'Do you go boating on the river?'

b. P-in-agsulat-**an** ko ang desk na ito. *Locative, -an*
Asp-write-Dat I ANG desk dem.
'I wrote on this desk.' (S&O)

(8) a. **I**-pagluluto ko ng pagkain si Maria. *Benefactive, i-*
Obl-asp-cook I CS food ANG Maria
'I'll cook some food for Maria.'

b. **I**-pipirma ko ang Tatay. *Benefactive, i-*
Obl-asp-sign I ANG father
'I'll sign (as proxy) for Father.' (S&O)

These few examples demonstrate that the theta-agreement hypothesis does in many cases capture the semantic integrity of the classes of arguments that take the same voice markers.

There are other cases, however, where theta-roles and voice marking diverge, and such examples clearly demonstrate that the theta-agreement hypothesis cannot be correct. First, the same voice morpheme may agree with subject arguments that bear different theta roles. For instance, the 'agent voice' marker *–um-* often corresponds to an agent subject, as illustrated in (9).

(9) **Um**-i-inom ako ng gatas. *Agent, um*
Nom-asp-drink I.ANG CS milk
'I am drinking milk.' (Ramos 1974)

Agents are not the only arguments which co-occur with *–um-* when promoted to subject, however. Animate and inanimate theme subjects of unaccusatives, (10), also correlate with this affix.

(10) a. B-**um**-agsak siya sa putik. *Animate Theme, um*
AV.asp-fall ANG.he DAT mud-puddle
'He fell in the mud puddle.'

b. K-**um**-ulo ang tubig. *Inanimate Theme, um*
AV.asp-boil ANG water
'The water boiled.' (Ramos 1974)

The examples in (10) illustrate a many-to-one relation between theta-roles and voice-marking. The opposite situation also occurs: different voice markers can be used to express agreement with the same thematic role, creating a double dissociation of theta-roles from voice markers. In transitive/ditransitive alternations as in (11), for example, the same goal subject corresponds to both *–in* and *–an* voice agreement on the verb, depending on the presence of other arguments in the clause.

(11) a. Akyat-**in** mo ang kanyang kuwarto. *Goal, -in*
Go.up-Acc you ANG poss. room
'Go up to his room.'

b. Akyat-**an** mo ang kanyang kuwarto ng mga libro. *Goal, -an*
Go.up-Dat you ANG poss. room CS pl. book
'Bring the books up to his room.' (L&N 1999)

Similarly, the intransitive and transitive uses of an unaccusative root correspond to different voice agreement for the very same argument.

(12) a. B-in-uks-**an** ni Aida ang pintuan. *Theme, -an*
asp-open-Dat CS Aida ANG door
'Aida opened the door.'

b. B-**um**-ukas ang pintuan. *Theme, -um-*
Nom.asp-open ANG door
'The door opened.'

Another problematic case for the theta-agreement hypothesis is the voice marking for causee-subjects in causative constructions. These are marked with what would be the 'theme' voice marker (*–in*), rather than what would be considered the agent voice marker (*–um-*) on a theta-agreement analysis.

(13) a. T-**um**-akbo ang batang lalaki. *Agent, -um-*
Nom.asp-run ANG child-LK man
'The boy ran.'

b. P-in-atakbo-Ø ko ang batang lalaki. *Agent, -in*
asp-cause-run-Acc I ANG child-LK man
'I made the boy run.'

Finally, as discussed by Latrouite and Naumann 2000, certain verbs admit a choice of voice markers even when all arguments are held constant, also pointing to an imperfect correspondence between thematic role and voice marking.[5]

(14) a. **I**-bukas mo ang pinto. *Theme, i-*
Acc-open you ANG door
'Open the door.'

b. Buks-**an** mo ang pinto. *Theme, -an*
open-Dat you ANG door
'Open the door.' (L&N 2000)

The data in this section show that while the theta-agreement hypothesis may be able to account for some of the voice marking facts of Tagalog, it cannot explain the full pattern of agreement. However, it is important to note that in many cases the theta-agreement hypothesis does correctly predict the correlation between the theta-role of the subject and the voice marker that appears on the verb. In the next section I argue that this correlation is a result of the structures in which both case and theta-roles are assigned, and it is the structural basis for both which creates a resemblance between theta- and case-agreement for most arguments.

3. Case and configuration

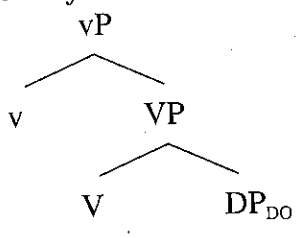
The subject agreement pattern in Tagalog exhibits certain similarities to case marking phenomena in other languages, where in many but not all instances case

and theta-roles pattern together. In this section I first examine the structural configurations of arguments in Tagalog, and then consider the case assignment possibilities for each position. The predicted case assignment to a particular position correlates strikingly with the pattern of voice agreement markers. Teasing case and theta-roles apart in this way allows a more complete and explanatory account of voice agreement as resulting from the case rather than the theta-role available for a given position.

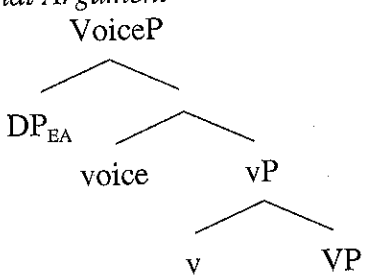
Some of the basic vP configurations of Tagalog are listed in (15), as discussed in Rackowski 2002.

(15)

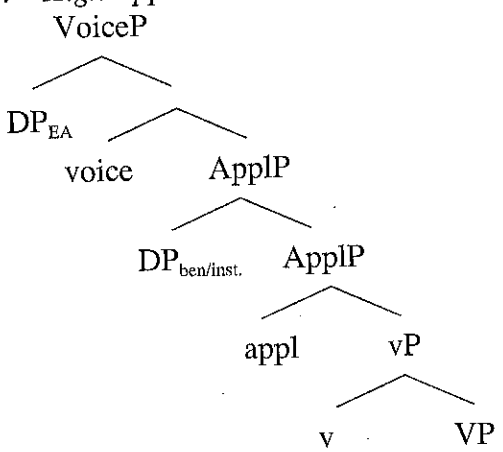
a. *Direct Object*



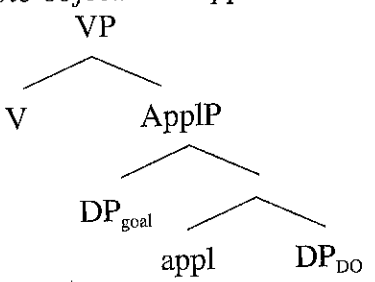
b. *External Argument*



c. *High Applicative*



d. *Double-object/Low Applicative*



The next section presents the distinction between high and low applicatives in more detail.

3.1. *Applicatives*

Pylkkänen 2001, 2002 argues for a split between 'high' and 'low' applicatives (building on previous observations in the literature, e.g. Baker 1988, Marantz 1993). A high applicative is located above the verb phrase but below the position of the external argument, where it relates an entity to the event denoted by the verb phrase. A low applicative, by contrast, relates two entities in a possessor relationship, creating a complex object made up of the theme and goal as the complement to the verb root. The relation between the two objects is mediated by a preposition-like head which takes both as arguments.

One diagnostic that can be used to differentiate between the two kinds of applicatives is the possibility of forming them on unergative verbs (Pylkkänen 2001). Since low applicatives are generated as complex objects, they require the presence of an underlying direct object, while high applicatives, given their structure, have no such requirement, requiring only a vP. This means that only high, and not low, applicatives may be formed on unergative verbs. In English, this test can be used to show that benefactive applicatives are low, since they are ungrammatical when the DO is not present.

(16) Brendan baked Cara *(a cake).

The opposite situation obtains in Kinyarwanda, where the unergativity test shows that benefactive applicatives are high.

(17) *Kinyarwanda*:
Umugabo a-rá-som-er-a umugóre.
Man SP-pres-read-appl-asp woman
'The man is reading for the woman.' (McGinnis 2001)

Applying this diagnostic to Tagalog, we can see that benefactive and instrumental applicatives are high (for independent reasons this test is only relevant when the verb is in the voice corresponding to the applicative argument).

(18) a. **I**-tinakbo niya ang kanyang asawa *unergative with benefactive*
Obl-asp-run he ANG poss. wife
'He ran for his wife.'

b. **I**-pinangtulog niya ang bata. *unergative with instrumental*
Obl-asp-pang-sleep he ANG robe.
'He used his robe for sleeping.' (Ramos 1974)

This data suggests the high structure illustrated above in (15c) for benefactive and instrumental applied arguments in Tagalog.

The structure in (15c) is not the only way to introduce a benefactive phrase in Tagalog. The example in (19) shows that, when another argument is the subject (marked with *ang*), a benefactive is introduced by a preposition and the applicative construction (with the benefactive not marked by a preposition) is impossible. For reasons of space I will not discuss this restriction on applied non-subject arguments; for present purposes, it is important just to be aware of the contrast in (19).

(19) a. Ang lalaki ay t-**um**-awa [para sa kanyang asawa]
ANG man AY Nom.asp-laugh P DAT poss. spouse
'The man laughed for his wife.'

b. *Nagluto ng adobo ng babae si Romeo.[6]
Nom.asp-cook CS adobo CS woman ANG Romeo
'Romeo cooked adobo for a woman.'

The same sort of transitivity test can be used to show that goal applicatives are low in Tagalog. As the following examples show, it is ungrammatical to have an applicative goal without a direct object, implying that goals in Tagalog are not

possible on verbs without direct objects. (This holds only for a neutral context which does not favor pro-drop, i.e. when there is no overt antecedent for the absent argument.)

(20) a. Binigy-**an** ko ang ama ng anak. *√transitive with goal*
Asp-give-DAT I ANG father CS child.
'I gave the father his child.'

b. *Binigy-**an** ko ang ama. **intransitive with goal*
asp-give-Dat I ANG father
'I gave (to) the father.'

The structure suggested for goal constructions by these data is the low applicative one shown above in (15d).

Because word order is generally not available as a structural diagnostic in Tagalog, in order to determine the relative positions of arguments, we must turn instead to other tests. One useful diagnostic for argument position is pronominal variable binding. As shown in (21a), it is impossible for a quantifier in direct object position to bind a pronominal variable embedded in the external argument, but, as (21b) shows, a quantifier in the external argument position can bind a variable in direct object position.

(21) a. *Nagmamahal ang kanyang$_i$ ama ng bawat anak$_i$.
Nom.asp-pag-love ANG poss. father CS every child
'Her$_i$ father loves every child$_i$.' (Richards 1993)

b. Nagmamahal ang bawat ama$_i$ ng kanyang$_i$ anak.
Nom.asp-pag-love ANG every child CS poss. father
'Every father$_i$ loves his child$_i$.'

The variable binding relations are altered with the promotion of the direct object to subject position, as discussed in the context of weak crossover by Richards 1993 (Tagalog promotion to subject is much like cases of A-movement in English). Thus, a derived subject can bind into the external argument even if it begins as an underlying object

(22) Minamahal-**Ø** ng kanyang$_i$ ama ang bawat anak$_i$.
Asp.love-Acc CS poss. father ANG every child
'Every child$_i$ her$_i$ father loves.'

These binding facts show that the landing site for the derived subject must be structurally higher than the starting position for the external argument, since the pronoun inside the external argument is grammatically bound by the moved direct object.[7]

Pronominal variable binding in benefactive sentences points to the same conclusion reached on the basis of the high applicative tests: the prepositional benefactives originate lower in the structure than the direct object. The sentence in (23) has a prepositional benefactive containing a pronominal variable that is grammatically bound by the quantifier direct object 'every child', which indicates that the prepositional phrase must originate lower in the structure than the direct object.

(23) B-**um**-antay ako ng bawat anak$_i$ [para sa kanyang$_i$ magulang].
Nom.asp-watch ANG.I CS every child P DAT poss. parent
'I watched every child$_i$ for his$_i$ parents.'

Pronominal variable binding in a benefactive voice clause such as (24) exhibits a different pattern. It is impossible for a direct object quantifier to bind a variable inside the benefactive argument.

(24) ***I**-binantay ko ng bawat anak$_i$ ang kanyang$_i$ magulang.
Obl-asp-watch I CS every child ANG poss. parent.
'I watched every child$_i$ for his$_i$ parents.'

The impossibility of direct object binding in this example contrasts with the possibility for the (structurally higher) EA to bind a variable in the DO, as shown above in (21b). This data suggests that the applied benefactive begins in a position above that of the DO: the high applicative position of Pylkkänen 2002.

The pattern of pronominal variable binding in low applicative (ditransitive) constructions is also consistent with the structure suggested by the transitivity tests of applicatives. As the examples in (25) show, in the dative-voice (goal subject) clause, the goal can bind into the theme, but not vice versa, indicating that that the goal must originate in a higher position than the theme.

(25) a. Binigy-**an** ko ang bawat bata$_j$ ng kanyang$_j$ laruan.
Asp-give-Dat I ANG every child CS poss. toy
'I gave every child$_j$ his$_j$ toy.'

b. *Binigy-**an** ni Maria ng bawat anak$_j$ ang kanyang$_j$ ama.
Asp-give-Dat CS Maria CS each child ANG poss. father
'Maria gave his$_j$ father each child$_j$.'

3.2. *Case and position*

With this as the basic structural arrangment of arguments in Tagalog, we can now turn to the question of what case arguments receive in these positions. On the basis of case-marking in other languages I assume that arguments can receive different types of case depending on their position, either inherently from the licensing head, or structurally, in the case of nominative and accusative, from a higher head. Typical cases for each position are listed in (26).

(26)

Type of Argument	*Type of Case*
a. Complement of verb	Accusative (from *v*)
b. External argument	Nominative (from T)
c. High Applicative	Dative/Oblique (from appl)
d. Low Applicative	Dative (from appl)

The case pattern and Tagalog voice marking patterns correlate strikingly, as shown in the table in (27).

(27)

Predicted System		**Tagalog Marking**
Type of Argument	**Type of Case**	**Voice Marker**
a. Complement of verb	Accusative	-in (i-, -an)
b. External argument	Nominative	-um-
c. High Applicative	Dative/Oblique	i-
d. Low Applicative	Dative	-an

The complement of verb position, which can plausibly be expected to check accusative case (when the structure obeys 'Burzio's Generalization'), generally takes *–in* voice agreement, as in (28a) (with exceptions to be discussed below). The external argument that gets nominative case corresponds to *–um-* on the verb, (28b). High applicative arguments (e.g. benefactives and instruments) that might be expected to get oblique case from the introducing applicative head take *i-* voice agreement, (28c-d), and low applicatives that might be expected to get dative case correspond to *–an* voice marking, (28e).

(28) a. Bi-bilh-**in** ng bata ang tela sa palenke para sa Nanay *Compl. Of V*
prf-buy-Acc CS child ANG cloth DAT market P DAT mother
'The child will buy the cloth at the market for mother.'

b. B-**um**-ili ang bata ng tela sa palenke para sa Nanay *Ext. Arg.*
Nom.prf-buy ANG child CS cloth OBL market P DAT mother
'The child bought cloth at the market for mother.'

c. **I**-t-in-akbo ni Cory ang asawa para sa pagkapresidente. *High Appl.*
Obl-asp-run CS Cory ANG spouse P DAT president
'Cory ran for her husband for president.'

d. **I**-p-in-ang-balot ko sa libro ang diyaryo. *High Appl.*
Obl-asp-PANG-wrap I DAT book ANG newspaper.
'I wrapped the book with the newspaper.'

e. B-in-igy-**an** ko ang bawat ina ng laruan *Low Appl.*
asp-give-Dat I ANG each mother CS toy
'I gave each mother a toy.'

The configurational case hypothesis can now be elaborated as follows: First, all arguments receive case either in their base positions, assigned by the licensing head (inherent case) (e.g. Pesetsky 1982, Schütze 1997), or receive case through a structural case mechanism (accusative and nominative). Next, one argument becomes subject after Agreeing with T, resulting in the case feature of that argument being copied onto T. The case feature is then spelled out on the

verb as subject marking (voice). The case features and the correlating voice agreement morphemes are presented more precisely in (29).

(29)

Type of Case	**Subject Marker**
Accusative (*structural*)	-in
Nominative (*structural*)	-um-
Dative (*inherent*)	-an
Oblique (*inherent*)	i-

Note that case agreement is not a novel or exotic innovation found only in Tagalog; case agreement is also found in Icelandic, where participles agree with the case of the subject. The example in (30a) shows agreement for a nominative subject and (30b) shows agreement for an accusative subject.

(30) *Icelandic*:

a. Strakarnir voru kitlaðir.
The-boys(N-masc-pl) were tickled(N-masc-pl)

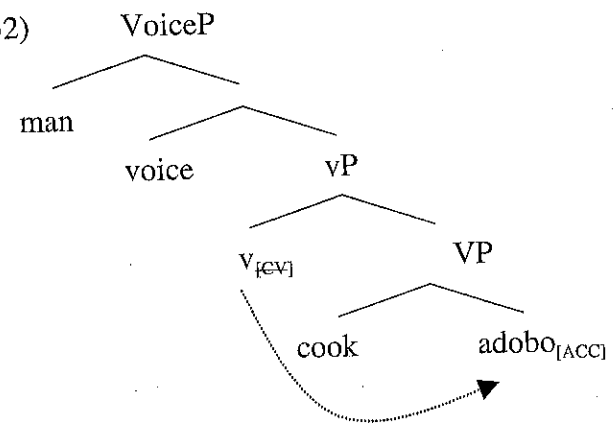
b. þeir telja drengina hafa verið kyssta.
They(N) believe the-boys(A) to-have been kissed(A-masc-pl)
(Schütze 1997)

3.3. *Accusative Derivation*

The derivation of an accusative voice clause such as the one in (31) begins with *v* checking the case of the direct object in its base position, as shown in (32).[8]

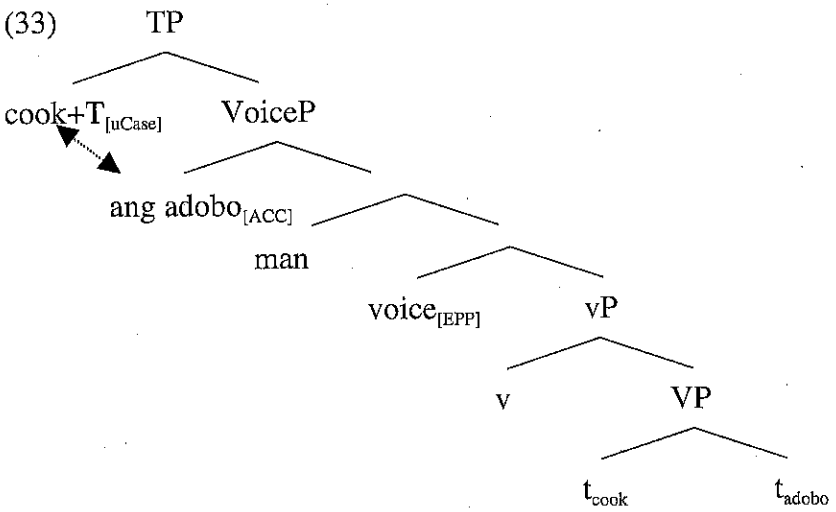
(31) Lu-lutu-**in** ng lalaki ang adobo.
Asp-cook-Acc CS man ANG adobo
'The man will cook the adobo.'

(32)



Because the DO is specific, it shifts to the edge of the phase, which is the specifier of VoiceP (which has a [+EPP] feature). The next step in the derivation is for T to be merged into the structure, and, once present, it requires Agree with the closest DP (the shifted DO), whose case feature it copies.

(33)



Finally, as a result of the Agree relation between T and the direct object, the accusative case feature of the DO is spelled-out on the verb as verbal agreement and is realized as the *-in* voice marker on the verb.[9,10]

3.4. *External Arguments*

A priori there are two possibilities for how the external argument checks its case. The first is that the EA gets inherent case from its licensing head, VoiceP, yielding an ergative analysis similar to that proposed by, e.g. Maclachlan 1992, 1996, Nakamura 1996. The second possibility is that the EA gets structural case from T, which is defined as nominative (cf. Chomsky 2001). Once the implications of both options are examined, however, it is clear that Tagalog external arguments must have nominative rather than ergative case, because the ergative analysis makes incorrect predictions for unaccusative subjects (also causatives, which will be discussed in section 4.3 below).

If ergative is an inherent case licensed by VoiceP, it should be available for all and only those external arguments merged in as specifiers of VoiceP. An ergative analysis thus predicts that there should be different cases for external arguments of transitive verbs on the one hand and subjects of unaccusatives on the other, since the latter begin in a different position. As the following examples show, however, the case reflected by the voice marking is the same for both sorts of subjects, indicating that there is no such split among arguments.

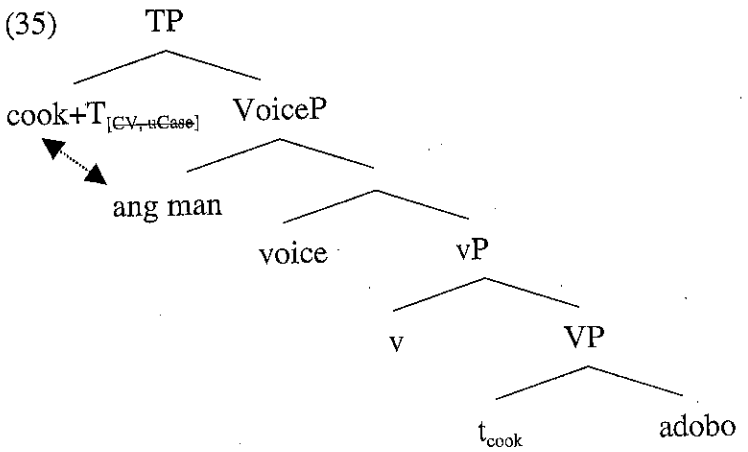
(34) a. **Um**-i-inom ako ng gatas. *Agent, -um-*
Nom-asp-drink ANG.I CS milk
'I am drinking milk.'

b. B-**um**-agsak siya sa putik. *Theme, um-*
Nom.asp-fall ANG.he DAT mud-puddle
'He fell in the mud puddle.'

c. K-**um**-ulo ang tubig. *Theme, -um-*
Nom.asp-boil ANG water
'The water boiled.' (Ramos 1974)

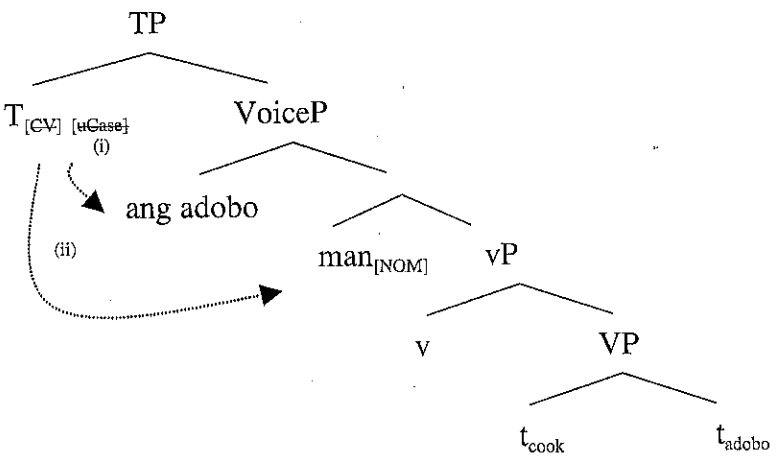
On the other hand, if the EA case is nominative, it necessarily implies an Agree relation between T and the EA in order to value the argument's case feature. In sentences where the object is nonspecific and does not shift to the edge of the phase, this is unproblematic since, in these sentences, T simply Agrees with the closest argument. Agree in these clauses allows T both to check nominative case on the DP and to satisfy its own uninterpretable case feature, so that all of the feature requirements of T are satisfied through Agree with just one argument, as sketched in (35).

(35)



When the direct object does shift, however, Multiple Agree (Richards 1997, Chomsky 2001) of the T head is necessary in order to account for the nominative case marking on the Agent. Multiple Agree means that the head may enter into more than one Agree relation with an argument in its domain if uninterpretable features are left on the head after the first instance of Agree. In the case of Tagalog, T performs two separate Agree relations: (i) checking case (nominative) on an argument and (ii) checking its own uninterpretable case feature by copying the case feature of some argument. It is possible for T to perform both Agree relations with the same argument, if that argument is a good candidate for both (the EA when closest, as in (35)), but it is also possible for T to Agree more than once if the first Agree relation leaves it with leftover features to check, i.e. if the first Agree is with an argument like the direct object that already has case and T still has a case valuation feature available. For instance, in a structure such as the one in (36) where the object has shifted, once T has copied the case feature of *ang adobo* in order to check its uninterpretable case feature, it still has an unchecked NOM feature, so it may probe for another DP past the closest one, resulting in NOM case checking with the external argument *man*.

(36)



A similar operation of Multiple Agree obtains in Icelandic dative subject constructions. When the subject bears inherent dative case, the object can still have its case valued as nominative, as shown in (37), which is by definition the result of Agree with T.[11] In such sentences, however, the dative subject must also be entering into Agree with T, since it moves to the specifier of T position, and such movement is, in this system, a result of Agreeing in order to check the [EPP] feature of T. (See also Zaenen, Maling, and Thráinsson 1985, McGinnis 1998 for arguments that the dative subjects occupy the regular structural subject position.)

(37) *Icelandic*:
Henni leidist Haraldur
her.Dat is.bored.by Harald.Nom
'She is bored by Harald.' (Maling and Sprouse 1995)

The existence of Multiple Agree with T in other languages makes the existence of the process in Tagalog less than surprising. Actually, the parallel between Icelandic and Tagalog is even stronger, since multiple agree in both languages is related to T's checking case on a non-subject argument.

Since ergativity seems to be untenable for Tagalog (Kroeger 1993 gives strong arguments against it based on completely different considerations), multiple agree with T gives a more satisfactory account of the apparent structural case on all external arguments and unaccusative subjects.[12] In addition, viewing external argument case as nominative and checked by T allows a tidy characterization of the similarities among those true external arguments that begin in VoiceP and unaccusative subjects that begin as arguments in the VP but shift into the external argument position (this is discussed in more detail in the next section).

4. Solving the Theta Problems

This section reviews the configurational case analysis in the context of those structures that are problematic for the theta-agreement hypothesis, as well as several other constructions that receive neat analyses in the configurational case agreement framework.

4.1. *External Arguments*

The sentences in (38) were a problem for the theta-agreement hypothesis because the arguments that correspond to the *–um-* subject agreement morpheme bear different theta-roles.

(38) a. **Um**-i-inom ako ng gatas. *Agent, -um-*
Nom-asp-drink ANG.I CS milk
'I am drinking milk.'

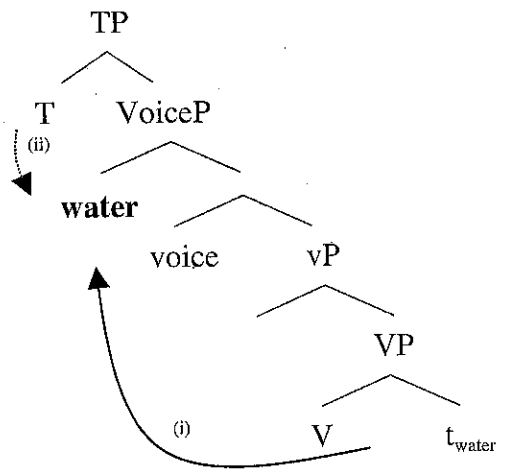
b. B-**um**-agsak siya sa putik. *Theme, um-*
Nom.asp-fall ANG.he DAT mud-puddle
'He fell in the mud puddle.'

c. K-**um**-ulo ang tubig. *Theme, -um-*
Nom.asp-boil ANG water
'The water boiled.' (Ramos 1974)

However, the case agreement hypothesis offers a natural explanation for the appearance of *–um-* in these clauses. In all three, the argument that is subject receives nominative case from T. The (a) case is straightforward – the subject is generated as the external argument and checks nominative case in its base position, as illustrated in above in (35).

The unaccusative verbs in (38b,c) also take nominative agreement for their subjects (*um*). Unaccusatives in general are characterized by the unavailability of accusative case for the direct object, and in a Tagalog unaccusative clause, this DO, when specific, raises to the edge of VoiceP as a result of the semantic requirement on specific arguments (i) (in unaccusative clauses with no specific argument, an existential construction is used). In that edge position, the direct object is eligible to check case with T (ii), resulting in the valuing of that argument's case features as nominative. Then, just as for the first type of subject, T copies the argument's (interpretable) case feature and registers nominative agreement.

(39)



The case agreement hypothesis thus naturally accounts for the behavior of unaccusative subjects in Tagalog. They may be semantically object-like because

of their base positions, but as far as case is concerned they are classed with subjects. Their agreement is determined according to their case, rather than the object theta-role they bear by virtue of their base position.

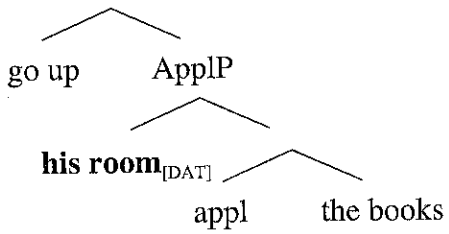
4.2 *Alternations*

Another situation in which the theta-agreement hypothesis runs into problems is in valency alternations such as the one in (40).

(40) a. Akyat-**in** mo ang kanyang kuwarto. *Goal, -in*
Go.up-Acc you ANG poss. room
'Go up to his room.'

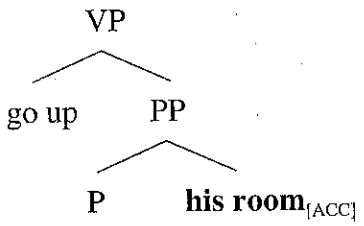
b. Akyat-**an** mo ang kanyang kuwarto ng mga libro. *Goal, -an*
Go.up-Dat you ANG poss. room CS pl. book
'Bring the books up to his room.' (L&N 1999)

The alternation in voice marking is easily explained on the basis of case alternations, however. Given the different structures for the two sentences, we expect different cases to be available for the arguments. Beginning with the ditransitive construction in (b), the goal forms a part of a low applicative construction, with the goal argument in the applied position (meaning something like 'the books go up to his room').

(41)


In this position, the applied argument receives inherent dative case from the appl head, so T agreement with this argument spells-out the dative agreement marker *–an*. (Note that it is very common cross-linguistically for goal arguments of low applicatives to bear dative case, (e.g. Icelandic, Greek, Albanian, as discussed by McGinnis 1998).)

In contrast, in (40a), I assume the goal 'his room' is introduced by a null preposition that licenses accusative case on its argument and then incorporates into the verb (a process which will be discussed in more detail in the next section).[13]

(42)


Once this directional goal shifts into subject position and Agrees with T, the [ACC] feature is copied onto the verb complex and results in agreement for accusative on the verb.

4.3. *Causee Agents*

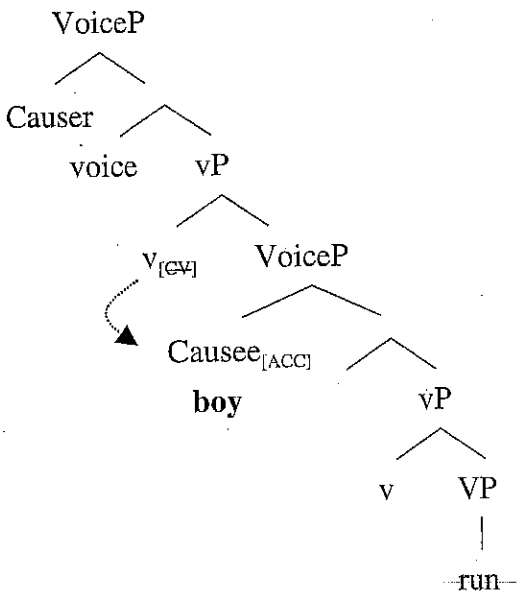
Causees trigger accusative subject agreement on the verb, as demonstrated in (43b), repeated from (13) above.

(43) a. T-**um**-akbo ang batang lalaki. *Agent, -um-*
Nom.asp-run ANG child-LK man
'The boy ran.'

b. P-in-atakbo-**Ø** ko ang batang lalaki. *Lower Agent, -in*
asp-cause-run-Acc I ANG child-LK man
'I made the boy run.'

This voice pattern can also be accounted for on the basis of the case available for the arguments. Assuming the approach to causative structure from Pylkkänen 2002, Travis (to appear), among others, the causee-subject is located in the specifier position of the lower VoiceP. The causative *v* has the ability to check and value accusative case (this is *v*'s normal function in transitive clauses) for the nearest case-less argument, which in this type of clause is the causee.

(44)



In contrast, in the non-causative sentence in (43a), 'boy' is in the standard external argument position and is valued with nominative case from T in the normal manner for external arguments. Nominative is then registered on the verb as the subject agreement for 'boy'.

4.4. *High and Low Applicatives*

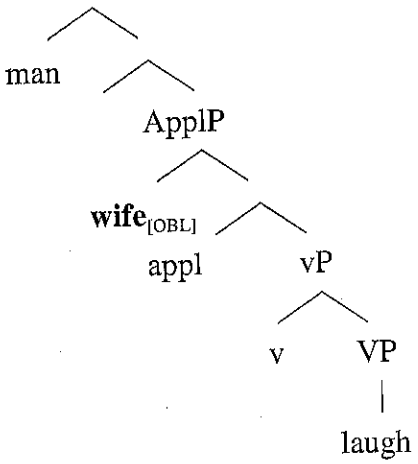
Applicative constructions are divided into two types in Tagalog (as in many other languages, see Pylkkänen 2001, 2002). As discussed above, benefactives in

Tagalog are high, introduced above the vP, while goals are low, introduced as part of a complex direct object.

Given that there are different structures for each of type of applicative, we might expect that the case possibilities would also be different. As is evident from the sentences in (45) and (46), this prediction is borne out by the appearance of different case agreement markers on the verb. High benefactive applicatives trigger agreement for oblique case, while, as also seen in the previous section, dative case agreement occurs on verbs with low goal applicative subjects.

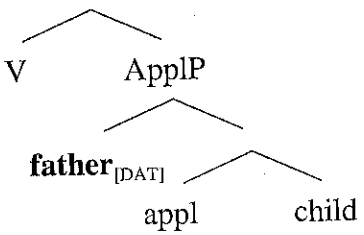
(45) a. **I**-tinawa ng lalaki ang kanyang asawa. *High, Benefactive*
Obl.asp-laugh CS man ANG his wife
'The man laughed for his wife.'

b. VoiceP



(46) a. In-abut-**an** ko ang ama ng kanyang anak. *Low, Goal*
asp-hand-Dat I ANG father CS poss. child.
'I handed the father his child.'

b. VP



This result is completely in accordance with the prediction that different cases should be available for different positions and provides further support for the case agreement hypothesis.

5. Unexpected Dative Objects

Two kinds of transitive verbs do not spell-out *–in* (ACC) as the subject marker for the complement of V.[14] Instead they take *–an* (DAT). The first class consists of verbs that alternate between a completive and a partitive interpretation of the

direct object, with a concomitant change in voice marker on the verb. As discussed by Latrouite and Naumann 1999, the (a) sentence below implies completion of fish-eating, but the (b) sentence contains no such implication.

(47) a. Kain-**in** mo ang isda. *implies completion of eating fish*
Eat-Acc you ANG fish
'Eat the fish up.'

b. Kain-**an** mo ang isda. *no implication of completion*
Eat-Dat you ANG fish
'Eat some/part of the fish.' (L&N 1999)

A similar alternation occurs in English, where the presence or absence of a preposition correlates with differing degree of completion of action.

(48) a. Matt walked the Appalachian Trail. *implies completion of trail*[15]
b. Matt walked **on** the Appalachian Trail. *no completion implication*

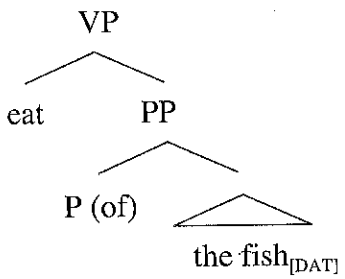
Finnish also has a well-known partitive alternation in which, depending on the case marking, the verb phrase may have either a completive or a partitive reading.

(49) *Finnish*:
a. Ammu-i-n karhu-**a**. *no implication of the bear's deadness*
shoot-Pst-1Sg bear-Part
'I shot at the (a) bear.'

b. Ammu-i-n karhu-**n**. *implies the bear was shot dead*
shoot-Pst-1Sg bear-ACC
'I shot the (a) bear.' (Kiparsky 1998)

Taking the cross-linguistic pattern into consideration, I suggest that Tagalog contains elements of both the English and the Finnish partitive alternations: Partitive results from the presence of a null preposition ('of') in the structure that licenses dative case on its object.

(50)



Since Tagalog does not allow PP objects to become subjects, as shown in (51), this analysis requires that the preposition must incorporate into the verb before its argument can shift.

(51) *I-tinakbo ng lalaki ang para sa asawa
Obl-asp.run CS man ANG P DAT spouse
'The man ran for his wife.'

Thus, in order for 'the fish' to become subject in (47b), it must be a DP argument of the verb, which is made possible by preposition incorporation or reanalysis into

the verb, a process commonly argued to exist for the English pseudo-passive construction by, e.g., Hornstein & Weinberg 1980 and Stowell 1981. English allows the pseudo-passive of sentences like (52a), as in (52b). In such cases, the P is reanalyzed as part of the verb, thus allowing its argument to raise into subject position in the same way as a direct object.

(52) a. Sarah slept in this bed.

b. This bed was slept in (by Sarah)

Reanalysis of the partitive P in Tagalog similarly creates a structure that allows the movement of the argument to subject position, and since this subject bears dative case, dative agreement is registered on the verb, spelled-out as *-an*.

The second class of transitive verbs that take dative objects is related to the first. It consists of verbs that have been described by Ramos 1974 and Latrouite & Naumann 1999 as not wholly affecting the object or as affecting only its surface, such as those exemplified in (53).

(53) a. O Maria, tulung-**an** mo po kami sa oras ng panganib.
Oh Mary, help-Dat you PRT ANG.us DAT hour CS danger
'Oh Mary, help us in the hour of danger.' (English 1986)

b. Labh-**an** mo ang marumi-ng damit.
Wash-Dat you ANG dirty-LK clothes
'Wash the dirty clothes.' (L&N 1999)

This class of verbs consists mainly of 'non-core transitive verbs' in the sense of Levin 1999. Cross-linguistically, non-core transitive verbs exhibit much variation in the case-marking on their arguments. For comparison, consider the German quirky object verbs that take dative objects instead of accusative (also widespread in Icelandic, e.g. Svenonius 2001, Maling 2001):

(54) *German*:

a. Sie hilft **ihm**.
She helps him-DAT
'She helps him.'

b. **Ihm** wird geholfen.
Him-DAT is helped.
'He is helped.'

c. ***Er** wird geholfen.
He-NOM is helped
'He is helped.' (Haegeman 1991, p. 174)

Sentences like these illustrate the fact that some objects of transitive verbs take cases other than structural accusative. Therefore, since it is apparent that there have to be case mechanisms besides structural accusative available in order to account for quirky objects cross-linguistically, the existence of such objects in Tagalog can be handled in the same way as dative objects of transitives more generally. For instance, to capture the generalization that case marking often correlates with the measuring out or boundedness of events (discussed by, e.g. Kiparsky 1998), one analysis proposed recently is that morphological dative case is assigned by an aspectual projection (Svenonius 2001 on Icelandic, Pearson 2001 on Malagasy). On an aspectual-licensing type of analysis, the two classes

of unexpected dative objects (those that give rise to a partitive reading and those that are not wholly affected) may be reducible to the same phenomenon, since in both situations dative correlates with the aspectual property of incompleteness.

An alternative analysis is that dative objects are introduced by null prepositions which assign inherent dative case to their complements and incorporate into the verb (Emonds 1985, 1987, Nikanne 1993, McFadden 2002). Such an account is attractive for Tagalog dative objects as well, since it is already motivated on the basis of comparison with English pseudopassives for the partitive datives discussed above. If both types of dative objects result from the same prepositional structure it would obviously simplify the grammar considerably. For present purposes, however, the mechanics of the analysis are less important than noticing that once again Tagalog subject agreement patterns with what we know of the connection between dative case marking and the aspectual interpretation of the verb phrase in other languages.

6. Conclusion

In this paper I have argued that the voice agreement on Tagalog verbs is a reflex of the case of the subject argument. The widely assumed thematic role agreement hypothesis has been shown to be incapable of accounting for the voice marking pattern of Tagalog. In addition, it has been demonstrated that viewing the Tagalog voice pattern as reflecting case marking aligns the behavior of Tagalog with what is known about case marking in other languages, thus preserving a constrained cross-linguistic theory of case and agreement systems.

Endnotes

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[1] ANG=subject marking (including *ang*, *si*), CS=case, DAT=dative case, asp=Aspect, Nom=Nominative Agreement, Acc=Accusative Agreement, Dat=Dative Agreement, Obl=Oblique Agreement, EA=External Argument, S&O=Schachter and Otanes 1972, L&N 1999=Latrouite and Naumann 1999, L&N 2000=Latrouite and Naumann 2000.

[2] See also Richards (in progress) for a similar analysis.

[3] The inventory can be reduced to four partly through a reanalysis of the multi-morphemic traditional 'voice markers' into their component parts. The most notable absence from this list of a morpheme traditionally considered to be a voice marker is that of *mag*, which is usually classed as an agent voice marker. Also missing are the related *pag-...-an*, and *ipag* markers. The reduction in number of voice markers is possible because *pag* is analyzed as a separate morpheme, the 'lexical causative' (Travis to appear, Maclachlan 1992). Similarly, the so-called 'instrumental voice' marker *ipang* can be analyzed as the combination of the voice marker *i-* with *pang*, which is the allomorph of the appl head that is conditioned in the context of an instrumental applicative (as discussed in Rackowski 2002).

[4] From a theoretical perspective, the concept of theta-agreement is already problematic, since it seems to require the use of theta features on arguments, along the lines of Hornstein 2001. These features are conceptually difficult to justify, and are explicitly contrary to any configurational theory of semantic roles, such as Hale and Keyser 1993. Verbal agreement for case, by contrast, is relatively common (found in Icelandic, for instance, as shown in (30) below).

[5] Judgments vary for these sentences.

[6]This sentence is grammatical if *ng adobo ng babae* is interpreted as a possessive construction, with the meaning 'Romeo cooked the woman's adobo.'

[7] I assume the surface word order of Tagalog is derived by scrambling (Richards 1993), so this analysis of structural relations should not make any strong predictions about the order of elements in the clause.

[8] I assume the theory of Chomsky 2001 in which structural case features are unvalued for either nominative or accusative before they enter into an Agree relation. Agree with a probe is what values the case feature of a DP: nominative for T and accusative for *v*. In other words, a DP is merged into the structure with an unvalued [uCase] feature, and only when it 'matches' or enters into Agree with a higher probe is its case feature checked and valued as either nominative, if the probe is T, or accusative, if the probe is *v*. As for the T and *v* heads, they check and value DP case when they are merged into the structure bearing a case-valuing feature which I refer to as 'CV'.

[9] The same process holds for sentences with PRO subjects. As Sigurdsson 1991 has shown, it is possible for PRO to bear structural case just like an overt DP. This is evident in Icelandic from the case agreement marked on floated quantifiers and in, e.g., secondary predicate agreement. Thus it is unsurprising that clauses with PRO subjects in Tagalog trigger case agreement on the verb just like any other subject phrase. The sentence in (ia) illustrates nominative agreement with PRO and (ib) illustrates dative agreement.

(i) a. Nag-umpisa si Mariang [mag-aral PRO ng Ingles].
Asp.Nom.PAG-start ANG Maria-LK Nom.pag-study CS English
'Maria started [PRO] to study English.' (Raphael Mercado, p.c.)

b. Nagpilit si Mariang [bigy-an PRO ng pera ni Ben].
Asp.Nom.PAG-insist ANG Maria-LK give-Dat CS money CS Ben
'Maria insisted on [PRO] being given money by Ben.' (Kroeger 1993)

[10] Since Tagalog allows clauses as well as DPs to function as subjects, the approach to voice marking argued for in this chapter requires that at least some CPs in Tagalog must bear case features. Voice agreement for clausal subjects supports the existence of case-marking on CPs, since it varies according to the verb, just as DP complements may be differently case-marked depending on the verb. For instance, the verb *paniwala* 'think' requires dative case on its CP complement, while the semantically similar verb *palagay* 'deem/consider' takes an oblique-marked CP, as reflected by the case agreement when the clause functions as the subject.

(i) a. Noong araw ay pinaniniwala-**an** ng mga tao [na ang mundo ay lapad].
One-LK time AY asp.think-Dat CS pl. person LK ANG world AY flat
'People used to think [that the world was flat].'

b. **I**-pinalagay niya-[-ng kailangang **i**-pagbili ang lupa].
Obl-asp.deem he-LK necessary Obl-PAG-sell ANG land
'He deemed [it necessary to sell the land].'

The idea that CPs may sometimes check case has been suggested in several other contexts. See for instance Pesetsky and Torrego 2001 for a discussion of clausal subjects in English and Plann 1986 on the phenomenon of case-marked CPs in Spanish.

[11] See Schütze 1997 on the Accord Maximization Principle.

[12] Kroeger's main argument is that what is claimed to be an antipassive on the ergative analysis (nominative voice) actually does not have antipassive characteristics. On the basis of argument tests (adjunct fronting and participial control clauses) Kroeger demonstrates that the object in external argument voice clauses does not have the properties of a demoted oblique and behaves instead like a normal argument.

[13] It is quite common cross-linguistically for the complements of endpoint-of-motion prepositions to be marked with accusative case, as occurs in German and Russian.

[14] There are also certain constructions where, counter to expectations, a DO subject triggers oblique case agreement on the verb; direct objects are generally expected to check accusative, not oblique, case if it is available. Ditransitives, causativized unaccusatives, and causativized unergatives all display this pattern of oblique agreement for direct objects. As discussed in Rackowski 2002, the property that all of these constructions share is that the object is introduced in a predication structure, rather than a simple complement of V relation. The appearance of oblique agreement in these constructions can thus also be analyzed as a result of their structure.

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Tagalog Ellipsis

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Tagalog has a kind of ellipsis which affects material after the verb. (1b) is a natural response to (1a)[1]:

(1) a. Nasaan si Juan?
where T Juan
'Where's Juan?'
b. Umalis na ~~[si Juan]~~
left now ~~[T Juan]~~
'He's left'

An example like (1b) could in principle either involve pro-drop or DP-ellipsis of the DP *si Juan*. Alternatively, it is possible that (1b) is an instance of ellipsis of some verbal projection out of which the verb has raised. In what follows I will try to show that the latter is the correct analysis for Tagalog; I will refer to the relevant kind of ellipsis as vP-ellipsis, though nothing will hinge on the exact verbal projection being elided.

The result is of interest, as we will see, because theories of the syntax of ellipsis have been constructed which would rule out vP-ellipsis in an example like (1b). Investigation of the Tagalog case therefore adds to our understanding of the syntactic conditions on ellipsis, and will also turn out to offer a way of understanding the nature of the EPP.

1. Distinguishing vP-ellipsis from DP-ellipsis

Like Tagalog, Japanese exhibits a type of ellipsis which might be analyzed as either DP- or vP-ellipsis:

(2) a. John-wa tegami-o suteta
John TOP letter ACC discarded
'John threw away a letter'
b. Mary-mo [~~tegami-o~~] suteta
Mary also letter ACC discarded
'Mary did too'

Ellipsis in (2b) could in principle either be DP-ellipsis of the DP *tegami-o* 'letter-ACC', or of some larger verbal projection which the verb has moved out of. There has been some discussion of this issue in the literature on Japanese, and it will be useful to compare the Tagalog facts with those found in languages like Japanese and Korean.

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1.1. *vP- and DP-ellipsis, part 1: strict and sloppy identity*

Huang 1987 and Otani and Whitman 1991 offer arguments for a vP-ellipsis analysis of examples like (2b) in Chinese and Japanese, on the basis of the behavior of strict and sloppy readings. They take as their starting point a theory of strict and sloppy readings developed by Sag (1976) and Williams (1977), which is meant to account, among other things, for the fact that examples like (3) have both strict and sloppy readings while examples like (4) have only the strict reading:

(3) Juan gave flowers to his wife, and Bill did too
  a. **Strict** reading: Bill gave flowers to Juan's wife
  b. **Sloppy** reading: Bill gave flowers to Bill's wife

(4) Juan heard that I gave flowers to his wife,
  and Bill heard that you did
  a. **Strict** reading: ...that you gave flowers to Juan's wife
  b.*__Sloppy__ reading: ...that you gave flowers to Bill's wife

Sag and Williams develop theories in which the distribution of strict and sloppy readings follows from the nature of the predicates which can be taken to have been elided. In (3), the elided predicates could be either of those in (5):

(5) a. [λx (x gave flowers to Juan's wife)] **(Strict)**
  b. [λx (x gave flowers to x's wife)] **(Sloppy)**

Applied to *Bill*, the predicate in (5a) (the property of having given flowers to Juan's wife) yields the strict reading; Bill has given flowers to Juan's wife. The predicate in (5b) yields the sloppy reading; Bill shares with Juan the property of having given flowers to one's own wife.

Crucially, in (4), the elided predicate cannot be (5b); this is not the predicate that has been applied to *I* in the first conjunct. The elided predicate can therefore only be (5a), and only the strict reading is available. More generally, Sag's and Williams' theories lead us to expect that sloppy readings will only be available when the binder for the variable is the subject of the elided predicate, and this seems to fit the facts in (3-4).

Otani and Whitman (1991) note that the facts are similar in Japanese. Strict and sloppy readings are both available in examples like (6):

(6) a. John-wa [zibun-no tegami-o] suteta.
  John-TOP self-GEN letter-ACC discarded
  'John threw away self's letters'
  b. Mary-mo [___] suteta
  Mary-also discarded
  'Mary did too'

On the other hand, in examples like (7), where *John* is not the subject of the clause containing *zibun*, only the strict reading is available:

(7) a. John-wa [*NY Times*-ga zibun-no kizi-o inyoositeiru to]
John-TOP *NY Times*-NOM self-GEN article-ACC is-quoting that
kiita
heard
'John heard that the *NY Times* is quoting self's article'

b. Bill-mo [*NY Times*-ga [____] inyoositeiru to] kiita
Bill-also *NY Times*-NOM is-quoting that heard
'Bill also heard [that the *NY Times* is quoting ____]'

If we assume that the relevant ellipsis in Japanese is vP-ellipsis, and assume Sag's and Williams' approaches to the semantics of elided vPs, the facts follow straightforwardly.

The facts discussed by Otani and Whitman for Japanese hold for Tagalog as well. Examples like (8) have both a strict and a sloppy reading, as expected:

(8) Nagbigay si Juan ng bulaklak sa kanyang asawa,
AV-gave T Juan Unm flower DAT his spouse
'Juan gave flowers to his wife...'

a. ...at nagbigay din si Bill [____]
and gave also T Bill
'...and Bill did too'

b. ... at nagbigay naman si Bill ng tsokolate [____]
and AT-gave NAMAN T Bill Unm chocolate
'...and Bill, on the other hand, gave (her) chocolate'

Examples like (9), on the other hand, where a clause boundary separates *Juan* and the ellipsis site, have only a strict reading[2]:

(9) Narinig ni Juan na nagbigay ako ng bulaklak
TV-heard Unm Juan LI AV-gave T-I Unm flower
sa kanyang asawa,
DAT his spouse
'Juan heard that I gave flowers to his wife...'
...at narinig naman ni Bill na nagbigay ka [____].
and TV-heard NAMAN Unm Bill LI AV-gave T-you
'...and Bill, on the other hand, heard that you did'

In this regard, then, Tagalog ellipsis behaves like Japanese and English ellipsis, and to the extent that Otani and Whitman's arguments succeed in establishing that Japanese ellipsis is vP-ellipsis, they carry over to Tagalog as well.

On the other hand, a number of arguments have been offered against Otani and Whitman's approach in the literature, notably by Hoji (1998) and Kim (1999). I will discuss one of these arguments in the following section.

1.2. *vP- and DP-ellipsis, part 2: against DP-ellipsis for Tagalog*

A number of people have pointed out counterexamples to the theories of ellipsis developed by Sag and Williams, on which Otani and Whitman's arguments are based. Fiengo and May (1994), for instance, discuss examples like the following:

(10) I didn't know Bill was a bigamist. Mary just said he's married to her, and Sue said he is [___], too.

Surprisingly for Sag and Williams, (10) seems to have both a strict and a sloppy reading, unlike the structurally similar examples which we were considering earlier; it is possible for Sue to be claiming that Bill is married to Sue. Fiengo and May take this as evidence that we need a theory that does not make the predictions discussed in the previous section, and construct one, in which the distinction between strict and sloppy readings does not rest in properties of the elided predicate as a whole, but rather in properties of the relation between the variable and its binder. If their approach is right, none of the data in the previous section can be used to distinguish between DP-ellipsis and vP-ellipsis[3].

Kim (1999), working within Fiengo and May's (1994) approach to ellipsis, notes that Korean ellipsis can have very different properties from English VP-ellipsis. He notes, for example, the availability of at least three readings for examples like (11)[4]:

(11) a. Mike-ka [caki-uy ai]-lul ttayli-ess-ta
Mike NOM self GEN child ACC hit PAST IND
'Mike hit his/her child'

b. Kuleca Jeanne-to ttohan [___] ttayli-ess-ta
then Jeanne-also too hit PAST IND
'And then, Jeanne hit...'
(i) '...her (Jeanne's) child, too'
(ii) '...his (Mike's) child, too'
(iii) '...Mike, too'

The readings in (i) and (ii) are no surprise; these are the sloppy and strict readings, respectively. The surprise is the reading in (iii), which is definitely unavailable for English vP-ellipsis:

(12) Mike hit his child, and then Jeanne did [___].
(i) [hit her (Jeanne's) child]
(ii) [hit his (Mike's) child]
(iii)*[hit Mike]

As an extreme example of the reading in (iii) above, Kim offers the example in (13):

(13) Mike-ka [___] ttayli-ca, John-to [___] ttayli-ess-ta
Mike NOM hit when John also hit PAST IND
'When Mike hit (John), John also hit (Mike)'

These facts are surprising if we think that the only parse of an example like (11b) involves vP-ellipsis; Kim argues that we must allow DP-ellipsis as an option for Korean (though this argument does not rule out the possibility that vP-ellipsis also exists).

Interestingly, the readings that Kim uses to motivate a DP-ellipsis account of the Korean facts are absent in Tagalog:

(14) a. Sinuntok ni Mike ang anak niya
TV-hit Unm Mike T child his
'Mike hit his child'
b. At sinuntok din ni Jeanne [___]
and TV-hit also Unm Jeanne
'And then Jeanne also hit....
(i) '...her (Jeanne's) child'
(ii) '...his (Mike's) child'
(iii) * '...Mike'

(15) *Noong sinuntok ni Mike [___],
when-PAST TV-hit Unm Mike
sinuntok din ni John [___]
TV-hit also Unm John
'When Mike hit (John), John also hit (Mike)'

Like English (12) and unlike Korean (11), the Tagalog example in (14) is constrained to the strict and sloppy reading possibilities. The Korean example in (13), translated literally into Tagalog as (15), makes no sense. Whether or not Kim is right about Korean, then, it seems clear that Tagalog is behaving differently. Ellipsis in Tagalog is more restricted in its possible readings than Korean (and Japanese) ellipsis seems to be; in particular, Tagalog ellipsis lacks the readings that motivate Kim's DP-ellipsis analysis of Korean, suggesting that Tagalog ellipsis may indeed be vP-ellipsis.

1.3. *vP- and DP-ellipsis, part 3: ellipsis and clitics*

Another argument for regarding Tagalog ellipsis as ellipsis of some verbal category, rather than DP-ellipsis, has to do with the interaction of ellipsis with Tagalog clitics. Tagalog has a number of second-position clitics. Some of these are pronouns, like the ones in (16):

(16) a. Masaya *siya* ngayon
happy T-he today
'He is happy today'
b. Hindi *siya* masaya ngayon
not T-he happy today
'He is not happy today'
c. Bakit *siya* hindi masaya ngayon?
why T-he not happy today
'Why isn't he happy today?'

The pronominal clitic *siya* 'he/she (Topic)' is placed in second position in all of the above examples. This is not ordinary behavior for nominal arguments; non-clitic arguments generally follow the predicate head:

(17) a. Masaya *si Juan* ngayon
happy T Juan today
'Juan is happy today'
b. Hindi masaya *si Juan* ngayon
not happy T Juan today
'Juan is not happy today'
c. Bakit hindi masaya *si Juan* ngayon?
why not happy T Juan today
'Why isn't Juan happy today?'

In addition to these pronominal clitics, Tagalog has another class of clitics which I will refer to here as *adverbial clitics*; they have meanings having to do with things like aspect, veridicality, and addressee honorification:

(18) a. Masaya *ho raw yata* si Pete ngayon
happy HON they-say apparently T Pete today
'They say that Pete's happy today, apparently'
b. Hindi *ho raw yata* masaya si Pete ngayon
not HON they-say apparently happy T Pete too
'They say that Pete's not happy today, apparently'

Pronominal clitics and adverbial clitics behave differently under different types of ellipsis, as we will see.

In what I have been calling vP-ellipsis, a pronominal clitic in the model must correspond to a pronominal clitic in the elided version:

(19) a. Sinabi kong magbibigay **ako** ng pera
TV-said Unm-I-LI AV-will-give T-I Unm money
sa simbahan, at nagbigay nga *(**ako**) [ ]
DAT church and AV-gave indeed T-I
'I said I would give money to the church, and I did'

b. Sinabi ni Juan na magbibigay **siya** ng pera
TV-said Unm Juan that AV-will-give T-he Unm money
sa simbahan, at nagbigay nga *(**siya**) [ ]
DAT church and AV-gave indeed T-he
'Juan said he would give money to the church, and he did'

c. Sinabi kong magbibigay **si Juan** ng pera
TV-said Unm-I AV-will-give T Juan Unm money
sa simbahan, at nagbigay nga (**siya**) [ ]
DAT church and AV-gave indeed T-he
'I said Juan would give money to the church, and he did'

In all of the examples in (19), just when the subject of the first conjunct is a clitic pronoun, the subject of the second conjunct cannot be elided by vP-ellipsis. The generalization seems to be that vP-ellipsis cannot elide pronominal clitics[5] (and perhaps cannot elide clitics at all; it is difficult to find a context in which an adverbial clitic would be expected to be obligatory, which makes it hard to test whether adverbial clitics can be affected by vP-ellipsis)[6].

We might be tempted to attribute this difficulty with eliding clitics to the ellipsis process itself. Because clitics are attaching to a head which is not itself being elided, the reasoning might go, they obligatorily escape the ellipsis process. While this approach is perfectly reasonable, further investigation seems to reveal that it is on the wrong track; clitics behave differently under other kinds of ellipsis in Tagalog, even when the heads to which they would cliticize are not elided.

Tagalog negation is preverbal, and ellipsis of the complement of negation is possible:

(20) Hindi ko alam kung nagbigay si Juan ng pera
not Unm-I know if AT-gave T Juan Unm money
sa simbahan, pero sinabi ni Maria na hindi [ ]
DAT church but TT-said Unm Maria LI not
'I don't know if Juan gave money to the church, but Maria said he didn't'

In this kind of ellipsis, pronominal clitics are required to be absent, even though the head to which they would cliticize, *hindi* 'not', is not elided. Adverbial clitics, by contrast, are allowed to appear:

(21) Hindi ko alam kung nagbigay ako ng pera sa simbahan...
not Unm-I know if AV-gave T-I Unm money DAT church
'I don't know if I gave money to the church...'

a. ...pero sinabi ni Maria na hindi **(* ako)**
but TV-said Unm Maria LI not T-I
'...but Maria said I didn't'

b. ... pero sinabi ni Maria
but TV-said Unm Maria
na hindi **pa / raw / yata**
LI not yet they-say apparently
'...but Maria said I didn't yet/reportedly/apparently'

Tagalog also exhibits Sluicing (and Sprouting):

(22) a. May dumating, pero hindi ko alam kung sino
EXIST AT-came but not Unm-I know +WH who
'Somebody came, but I don't know who'

b. Darating si Juan, pero hindi ko alam kung kailan
AT-will-come T Juan but not Unm-I know +WH when
'Juan will come, but I don't know when'

In Sluicing examples, no clitics at all may appear[7]:

(23) Gusto kong bumalik sa Pilipinas,
want Unm-I-LI AV-return DAT Philippines
'I want to go back to the Philippines...'

a. ... pero hindi ko alam kung kailan **(* ako)**
but not Unm-I know +WH when T-I
'...but I don't know when'

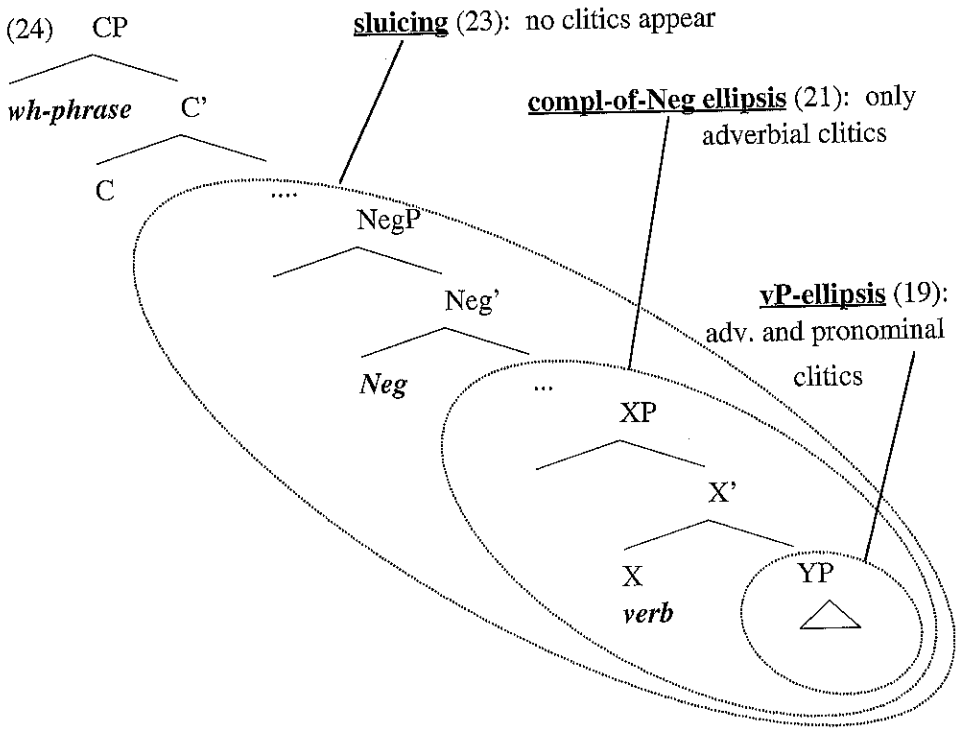
b.* ... pero hindi ko alam
but not Unm-I know
kung kailan **nga / kaya / naman**
+WH when indeed I-wonder NAMAN
'...but I don't know when indeed/I-wonder/"by-contrast"

c. ... pero hindi ko alam
but not Unm-I know
kung kailan **nga / kaya / naman *(ako)**
+WH when indeed I-wonder NAMAN T-I
babalik
AV-will-return

As the contrast between (23b) and (23c) shows, these particular adverbial clitics are semantically felicitous with this kind of question; they simply cannot appear in Sluicing contexts.

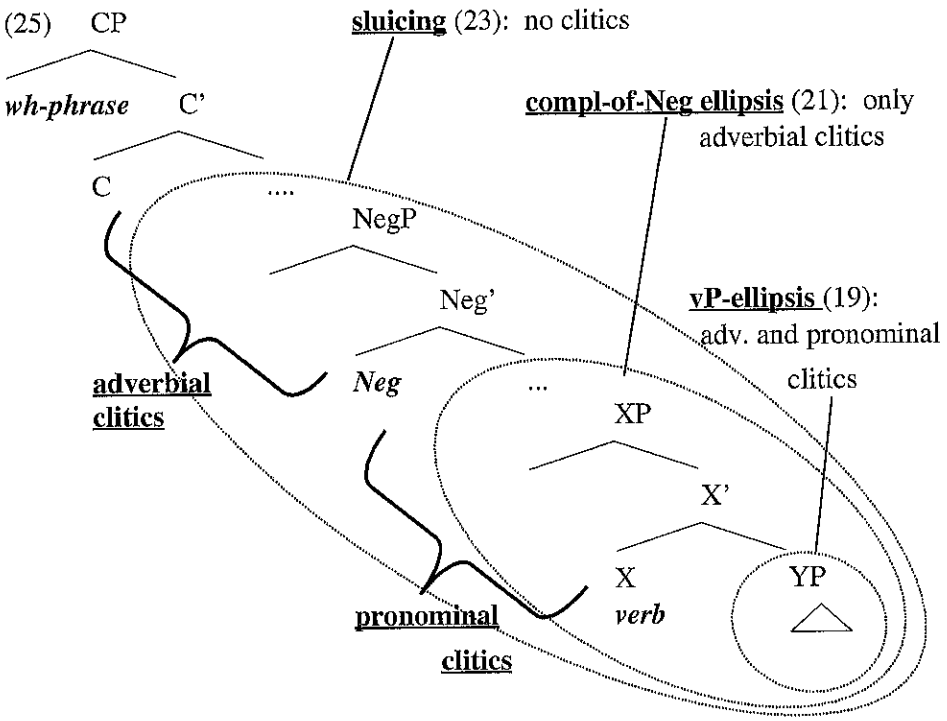
It is worth noting, first of all, that these facts are problematic for an account that attributes to Tagalog the possibility of eliding a DP without eliding any other material (DP-ellipsis, or pro-drop, or any equivalent mechanism). It is unclear why, if Tagalog had DP-ellipsis, DP-ellipsis just of pronouns should be impossible, or why it should become possible again, and in fact obligatory, when the verb is elided.

The facts discussed above are summarized in the tree in (24):



The concentric ovals represent the different types of ellipsis we have just discussed. As we saw above, vP-ellipsis (represented by the smallest oval) is unable to affect clitics at all, while ellipsis of the complement of negation (the next larger oval) obligatorily eliminates pronominal clitics, and Sluicing (the largest oval) is incompatible with all clitics.

This subset relation between the different clitics could be captured straightforwardly if ellipsis operated on a structure in which adverbial clitics were placed between C and Neg, and pronominal clitics between Neg and the raised position of the verb:



The facts about the interactions between clitics and ellipsis follow straightforwardly from a tree like the one in (25). vP-ellipsis, according to this tree, cannot affect clitics because they are not inside the constituent being elided. Ellipsis of the complement of negation obligatorily elides pronominal clitics, which are inside the elided constituent, but not adverbial clitics, which are outside it. Finally, sluicing elides all clitics, along with everything else inside the complement of C.

Of course, the tree in (25) does not accurately predict the word order of the clitics. All other things being equal, this tree leads us to expect that a sentence containing an adverbial clitic, a pronominal clitic, and a verb should put them in the order in (26a); the correct order is in fact (26b):

(26) a. *Ba siya* nagngangawa?
Q T-he AV-is-babbling
'Is he babbling?'
b. Nagngangawa *ba siya*?
AV-is-babbling Q T-he

I am forced to conclude, then, that these second-position clitics are placed in second position by a process which follows ellipsis in the derivation, perhaps a post-syntactic process. I will give two arguments for such a conclusion in the following section, trying to show that clitics are indeed ordered by a PF operation.

1.3.1. *Post-syntactic clitic ordering, part 1: sorting by syllables*

Tagalog clitics appear in an order which is more or less fixed, as shown in (27) (in the list in (27), the highest clitics are the once which come first in a sequence):

(27)

a.	***ko***	**'I (Unm)'**	**[*mo* 'you (Unm)', *ka* 'you (T)']**
b.	*na*	'as of now'	[*pa* 'still']
c.	*man*	'even'	
d.	*nga*	'indeed'	
e.	*din*	'also'	
f.	*lang*	'just, merely'	
g.	*daw*	'they say'	
h.	*po, ho*	'honorific'	
i.	*ba*	'question'	
j.	*muna*	'first, for a while'	
k.	*naman*	'on the other hand'	
l.	*kasi*	'because'	
m.	*kaya*	'maybe'	
n.	*sana*	'counterfactual'	[*pala* 'I have just discovered']
o.	***niya***	**'he/she (Unm)'**	**[*nila* 'they (Unm)'...]**
p.	***ako***	**'I (T)'**	**[*siya* 'he/she (T)'...]**

As the list in (27) shows, monosyllabic clitics generally precede disyllabic clitics in Tagalog; (a-i) are monosyllabic, and (j-p) are disyllabic. This by itself suggests that there are non-syntactic principles at work in the ordering of the clitics; the syntax should not be responsible for sorting the clitics by number of syllables.

Within the disyllabic clitics, the ordering is what we would expect given the tree in (25); adverbial clitics precede pronominal clitics. Within the monosyllabic clitics, the ordering is the reverse of what we expect. The result is that the pronouns are on the periphery of the clitic cluster, with the monosyllabic pronouns coming first and the disyllabic pronouns coming last. If the claim developed here about the syntactic positioning of clitics is on the right track, then the post-syntactic process responsible for sorting the clitics by number of syllables apparently reverses the order given by the syntax to the monosyllabic clitics, while leaving the disyllabic clitics as they are.

In a perfect world, the easiest way to argue for this conclusion would be to look at the ordering of the pronominal clitics. For disyllabic clitics the principle is straightforward: clitics in the "unmarked" case precede Topic clitics[8]. The theory then predicts that for monosyllabic clitics the order should be reverse. Unfortunately, monosyllabic clitics never cooccur, making the prediction untestable[9].

The ordering of monosyllabic adverbial clitics, however, seems to be consistent with the idea that structurally higher clitics are ordered later within this field. For example, the adverbial clitics *na* 'as of now' and *pa* 'still', which modify the aspect of the clause, are the earliest monosyllabic adverbial clitics, while the latest is *ba*, which marks the sentence as a question. On the common assumption that the syntactic representation of aspect is structurally lower than the part of the structure responsible for making the clause a statement or a question, this ordering suggests that hierarchically higher clitics are following hierarchically lower clitics, within the monosyllabic clitic domain.

In this section I have tried to show that clitic placement is at least partly achieved by post-syntactic operations which make reference to factors like number of syllables. I have also suggested that the facts of clitic ordering offer indirect support for the conclusion reached in the previous section on the basis of the ellipsis facts, that adverbial clitics generally are structurally above pronominal clitics.

1.3.2. *Post-syntactic clitic ordering, part 2: order and scope*

Facts about the scope interactions of clitics with non-clitics also suggest that clitics sometimes undergo post-syntactic lowering into second position. Tagalog has two aspectual clitics, *na* and *pa*, exemplified below:

(28) a. Matanda *na* siya
old as-of-now T-he/she
'He/she is old now (and wasn't before)'
b. Bata *pa* siya
young still T-he/she
'He/she is still young'

When negation is added to these sentences, the clitics obligatorily take scope over negation:

(29) a. Hindi *na* siya bata
not as-of-now T-he/she young
'He's not young any more' **as-of-now > NEG**
b. Hindi *pa* siya matanda
not still T-he/she old
'He's not old yet' **still > NEG**

This is what the tree in (25) would lead us to expect. The adverbial clitics *na* and *pa* begin the derivation above negation and are interpretated there; they only follow negation in (29) because they are post-syntactically lowered into second position.

1.3.3. *Ellipsis and clitics: conclusions*

We have seen some evidence in this section that Tagalog sentences like (30) should be analyzed as involving vP-ellipsis, rather than DP-ellipsis or pro-drop:

(30) a. Nasaan si Juan?
where T Juan
'Where's Juan?'
b. Umalis na ~~[si Juan]~~
left now ~~[T Juan]~~
'He's left'

The vP-ellipsis account, unlike the DP-ellipsis account, has the potential to explain why ellipsis of postverbal material is unable to delete pronominal clitics. The account developed here of that fact claimed that pronominal clitics are in fact above the verb in the syntax, and are lowered into second position post-syntactically, after ellipsis has applied. I offered some independent evidence that Tagalog clitics are moved post-syntactically, including evidence that they are post-syntactically sorted so that monosyllabic clitics precede disyllabic clitics, and evidence from scope interactions that they are sometimes pronounced in a lower position than they are interpreted[10].

2. EPP, ellipsis, and linearization

So far I have presented some arguments that Tagalog examples like (31b) should be understood as involving vP-ellipsis. McCloskey (1991) argues for the same conclusion for the Irish examples in (41):

(31) a. Nasaan si Juan? [*Tagalog*]
where T Juan
'Where's Juan?'
b. Umalis na ~~[si Juan]~~
left now ~~[T Juan]~~
'He's left'

(32) a. Ar cheannaigh siad teach? [*Irish*: McCloskey 1991, 274]
Q bought they house
'Did they buy a house?'
b. Creidim gur cheannaigh ~~[siad teach]~~
I-believe that bought ~~[they house]~~
'I believe they did'

The existence of vP-ellipsis in verb-initial languages like Tagalog and Irish is interesting, since it violates a syntactic condition on ellipsis proposed by Saito and Murasugi (1990) and Lobeck (1995) with more or less[11] the following character:

(33) An ellipsis site must be the complement of a head with a specifier.

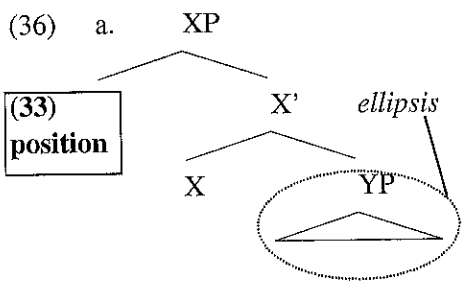
(33) is meant to deal with data like those in (34-35):

(34) a. I wanted to read a book, so I stole [$_{DP}$ John 's [__]]
b.* I wanted to read a book, so I stole [$_{DP}$ a [__]]
(35) a. Although she doesn't know [$_{CP}$ how [__]],
Sue thinks John made it to work on time
b.* Although she doesn't know [$_{CP}$ if [__]],
Sue thinks John made it to work on time

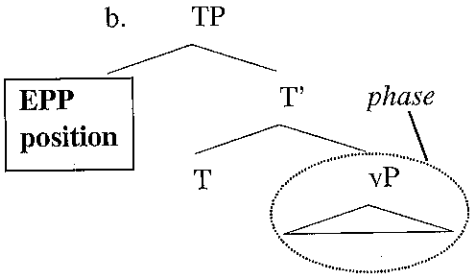
On standard assumptions about the syntax of DPs and of wh-movement, (33) is satisfied in the (a) sentences above but not in the (b) sentences.

The proposal in (33) bears an interesting resemblance to the EPP, in that it requires certain kinds of heads to have specifiers. In a framework like that of Chomsky (2000, 2001), the resemblance is particularly strong, in that both involve a requirement that heads with complements of a certain kind also have specifiers. For (33), as we have seen, this requirement holds for heads with elided complements; for the EPP, the requirement holds of a head which is taken to have a phase as its complement[12]:

(36) a.



b.



If we believed that ellipsis sites and phases had something in common, then, we might be in a position to collapse the EPP with the generalization about ellipsis in (33). Suppose we assume that this is true; in particular, let us assume that ellipsis, like Spell-out of a phase, involves taking a part of the structure and rendering it atomic as far as the computational system is concerned, with no internal syntactic structure[13].

With this assumption, we are in a position to offer the generalized EPP in (37):

(37) A phrase with no internal syntactic structure must be the complement of a head with a specifier.

The EPP in (37) is still fairly mysterious, of course; we would like to know why it should be true. In fact, we have seen that it is not quite true; it fails in Tagalog and Irish, which seem to allow ellipsis of the complement of the head containing the raised verb, even though the verb lacks a specifier.

Tagalog and Irish have some other properties in common as well. McCloskey (1996a) argues that the Irish complementizer lowers to the verb. He notes, for example, that clause-initial adverbs in Irish can precede the complementizer, a fact he attributes to the lowering of the complementizer past the adverb and onto the verb:

(38) Is doíche [***faoi cheann cúpla lá*** go bhfádfaí imeacht]
is probable at-the-end-of couple days that could leave
'It is probable that ***at the end of a couple of days*** they could leave'

I argued in the previous section that Tagalog clitics also lower to the verb. We might try to amend the generalization in (37) to account for the Irish and Tagalog exceptions, then, as follows:

(39) A phrase with no internal syntactic structure must be the complement of a head which either:
(a) has a specifier, or
(b) is lowered to by higher material.

Since (37) was meant to capture both the conditions on ellipsis and the conditions under which EPP effects are found, the revised version in (39) predicts that Tagalog and Irish will lack EPP effects; since the verb is lowered to by higher material, it will not need to have a specifier even though its complement (by hypothesis) is a phase. McCloskey (1996) argues that Irish does indeed lack EPP effects, noting the existence of examples like (40) where no DP arguments are present (and arguing against the existence of a null expletive satisfying the EPP):

(40) Chuaigh [de mo neart]
went of my strength
'My strength waned'

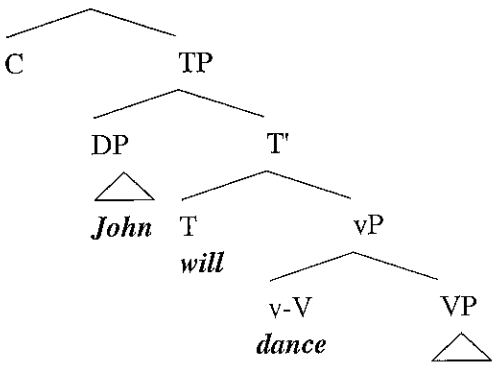
Tagalog seems to lack examples like (40), as far as I can tell, but there are certainly no examples that would compel one to posit an EPP for Tagalog; examples which would involve expletives in languages like English are apparently subjectless:

(41) a. Umulan
AT-rained
'It rained'
b. Mukha -ng masaya si Juan
seem LI happy T Juan
'It seems that Juan is happy'

The condition in (39), then, seems to account for the distribution of possible ellipsis sites, as well as the distribution of EPP positions. On the other hand, (39) is rather descriptive. Is there any way of deducing the effects of (39) from general principles?

The account I will develop of the generalization in (39) will be based on Kayne's (1994) Antisymmetry; I will assume, following Kayne, that there is a mapping between the asymmetric c-command relations in the tree and precedence relations[14]. Consider, for instance, the linearization of a tree like (42):

(42)



Linearizing the tree in (42) is a matter of determining the pairs of (XP or X°) nodes $<\alpha, \beta>$ such that α asymmetrically c-commands β; such pairs are interpreted by the PF interface as instructions that α should precede β. If all the words in the tree can be linearized by this method, then the tree is well-formed. In (42), for instance, the DP dominating *John* asymmetrically c-commands the T dominating *will*, which means that *John* precedes *will*.

I will assume that the derivation proceeds by phases, as in Chomsky (2000, 2001); in the tree in (42), for example, the vP is a phase which is sent to PF once it is completed, rendering its internal structure invisible to the syntax and effectively making vP a head as far as the syntax is concerned[15]. In order to make this consistent with Kayne (1994), I will assume that Spell-Out of the vP phase occurs after T has already been linearized with the interior of vP. Thus, PF already has instructions for T to precede v, before vP is made into a syntactic atom. This avoids a problem with linearization that might otherwise arise; if vP is effectively a head, then T and the vP head are in a mutual c-command relation,

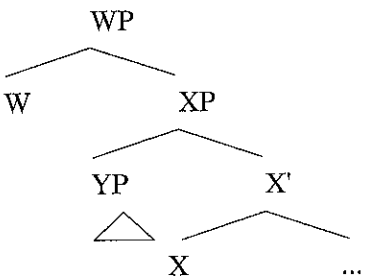
and ordering should be impossible. I will also assume, as before, that ellipsis is like Spell-out in reducing the elided XP to a syntactic atom.

I will also follow Kayne in assuming that the specifier of XP is not dominated by XP. Thus, the DP *John* in (42) is not dominated by TP; the lowest node dominating it is CP, and it is therefore in a mutual c-command relation with C. Linearization is still possible in this case, since C can c-command the internal structure of this DP (for instance, the N *John*).

Finally, I will assume with Chomsky (1995, 2000) that the specifier of XP is just the YP daughter of XP, and that the complement of X is just the YP sister of the head X. These definitions are not exclusive in a phrase structure like the one posited by Chomsky (1995); in the tree in (42), for example, VP is both the complement of v and the specifier of vP. By the assumption in the last paragraph, then, VP, as the specifier of vP, is in a mutual c-command relation with T.

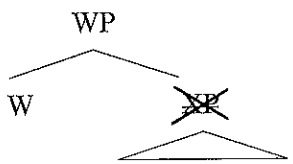
Armed with these assumptions, we can now consider a couple of relevant cases. Consider first a case in which a head W has a phase (or, equivalently, an ellipsis site) as its complement and has a specifier. The tree is built up to the point where W is introduced, yielding the tree in (43):

(43)



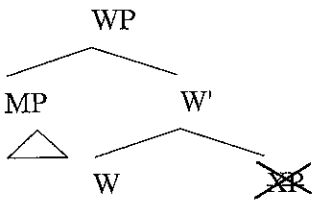
The phase XP undergoes Spell-Out. At this point, W is linearized with various nodes inside XP (including X and Y). After Spell-Out has taken place, XP is a syntactic atom, with no internal structure:

(44)



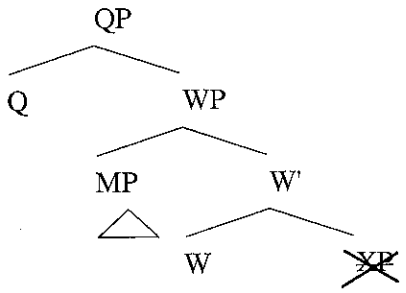
WP's specifier is constructed and Merged:

(45)



Finally, the head Q which takes WP as a complement is Merged:

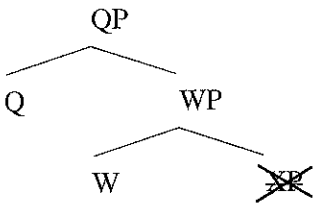
(46)



The subtree in (46) will be linearizable when it undergoes Spell-Out. Q asymmetrically c-commands W, XP, and various parts of the interior of MP. MP asymmetrically c-commands W and XP, and W has previously been ordered with material inside the XP, in the phase that was spelled out previously. A total ordering can therefore be constructed, with Q preceding the material inside MP, which precedes W, which precedes XP.

Suppose we now consider an alternative derivation without a specifier for WP. The derivation proceeds as before up to the step in the tree in (47), at which point the head Q is Merged:

(47)



This subtree is not linearizable. W is linearized with the interior of XP prior to Spell-Out, as before. And Q asymmetrically c-commands W, as before. But XP, as the daughter of the maximal projection WP, is the specifier of WP (as well as the complement of W). As a result, Q and XP are in a mutual c-command relation. Because XP has no internal structure at this point in the derivation, linearization of Q with XP is impossible; they are simply two heads in a mutual c-command relation, as far as the syntax is concerned. Linearization will therefore fail.

There are several imaginable ways of avoiding this outcome, however, even if WP lacks a specifier. Since the relation between Q and XP is the problematic one, one way to avoid the problem would be to post-syntactically lower Q onto W. This makes the ordering between Q and W the problem of the morphology; Q is now in the same position as W, as far as the syntax is concerned, and W's linearization with the interior of XP has been established on a previous phase.

3. Conclusion

We have now arrived at the result we wanted. In a tree like (47), if W's complement XP is a phase or an ellipsis site, some way must be found of linearizing XP with the head Q taking WP as a complement. If WP has a specifier, then the relation between Q and XP is one of asymmetric c-command, and linearization succeeds. If Q post-syntactically lowers onto W, then Q and W are in the same position as far as the syntax is concerned, and since W has already been linearized with the interior of XP on a previous phase, linearization succeeds. The descriptive generalization in (39), repeated here as (48), is thus made to follow from general principles:

(48) A phrase with no internal syntactic structure must be the complement of a head which either:
  (a) has a specifier, or
  (b) is lowered to by higher material.

(48a) would be the case of English EPP (and ellipsis), while (48b), I have argued here, is the case in Tagalog.

It is perhaps worth emphasizing that we have not drawn any conclusions about the specific mechanisms that the grammar uses to implement the EPP. It could be, for instance, that the grammar is capable of determining that linearization will fail unless a specifier is filled, and therefore performs operations that will fill it. Alternatively, we may want to deny the grammar that kind of understanding of its interface with PF, and claim that there is a feature (either a pure "EPP" feature, or some other feature that plays this role) responsible for ensuring that the EPP is satisfied. The account given here has been an explanation of why such a feature, if there is one, should be required.

Endnotes

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[1] A note is in order about the Tagalog abbreviations used in the glosses. Most Tagalog clauses contain one nominal which has had its case morphology replaced with a special morpheme; this nominal has been referred to in the literature as the "topic", the "subject", or the "trigger", among other names. I will refer to it here as the "topic", and gloss the topic-markers *ang* and *si* as T. For discussion of the syntactic properties of the topic, see Schachter 1976, 1996, Kroeger 1993, Richards 1999, Rackowski 2002, and references cited there. The dative markers *sa* and *kay* will be glossed DAT. Nominals which are neither topic nor dative are marked with *ng* or *ni*, which I will gloss as Unm (for Unmarked). Verbal morphology indicating, roughly, the thematic role of the topic will be glossed AV ("agent-voice"), LV ("locative-voice"), or TV ("theme-voice"). Finally, the Tagalog "linker", a morpheme which often serves as a declarative complementizer, will be glossed LI.

[2] This is not because Tagalog disallows vehicle change. Examples like (i) are acceptable with a sloppy reading (or with a strict one):

(i) Nagbigay si Juan ng bulaklak sa kanyang asawa,
AT-gave T Juan Unm flower DAT his spouse
at nagbigay ka rin pala [___]
and AT-gave T-you also I-discover
'Juan gave flowers to his wife, and (I see that) you did too'

[3] In fact, if their approach is right, then the reported contrast in (3-4) is surprising. They claim that such apparent contrasts are illusory.

[4] Ken Hiraiwa, Shigeru Miyagawa, and Shoichi Takahashi (p.c.) tell me that Japanese ellipsis has similar properties, given an appropriate context.

[5] For this to be the correct generalization, the version of (19c) with an elided subject must involve a non-pronominal subject, perhaps *si Juan* 'T Juan'. If the name is actually repeated in the second conjunct, the result is just as awkward-sounding as it would be in English. I have to assume that this awkwardness has to do with actually repeating the name twice in the PF representation, not with simply having it syntactically present twice.

[6] There is an exception to this generalization. Pronominal clitics may be elided by vP-ellipsis when the ellipsis site is in the main clause, and there are no adverbs or negation in the sentence. Thus, successful ellipsis of the pronominal clitic in (ic) contrasts with failure of ellipsis in all the other examples in (i):

(i) a. Sinabi kong magbibigay ako ng pera
TV-said Unm-I-LI AV-will-give T-I Unm money
sa simbahan, at nagbigay nga ***(ako)**
DAT church and AV-gave indeed T-I
'I said I would give money to the church, and I did'

b. Nagbigay ka ba ng pera sa simbahan?
AT-gave T-you Q Unm money DAT church
'Did you give money to the church?'

c. Oo, nagbigay **(ako)**
yes AV-gave T-I
'Yes, I did'

d. Oo, nagbigay ***(ako)** kahapon
yes AT-gave T-I yesterday
'Yes, I did yesterday'

e. Hindi ***(ako)** nagbigay
not T-I AV-gave
'No, I didn't'

Holmberg (1999) discusses a condition on Finnish subject-ellipsis which is remarkably similar, and it is possible that his account will generalize to the Tagalog facts (he claims that the relevant kind of ellipsis in Finnish involves ellipsis of a larger structure than vP).

[7] This is not quite true. The adverbial clitic *pa*, in addition to its aspectual meaning ('still') has a related meaning something like English adnominal *else*:

(i) Alam kong darating si Juan, pero hindi ko alam
know Unm-I-LI AT-will-come T Juan but not A-I know
kung sino pa
+WH who else
'I know Juan is coming, but I don't know who else'

I assume that the clitic *pa* here is modifying the DP *sino* 'who', rather than the clause containing it.

[8] For reasons having to do with the properties of Tagalog Topics (see the literature cited in footnote 1 for details), this means that among the disyllabic pronominal clitics, thematic subjects precede thematic objects.

[9] The one case where one might expect monosyllabic pronominal clitics to cooccur is that of an unmarked 1st person singular clitic *ko* and a Topic 2nd person singular clitic *ka*. As it happens, however, this sequence is always replaced with a portmanteau clitic *kita* (historically a 1st person dual inclusive pronoun).

[10] This account has a peculiar consequence for the nature of pronominal clitics in Tagalog. The facts about the interaction of ellipsis with clitics led us to the proposal that, as far as the syntactic representation operated on by ellipsis is

concerned, pronominal clitics are in a preverbal position, and are lowered post-syntactically to a post-verbal position. Non-pronominal clitics, on the other hand, are apparently always in a post-verbal position. We therefore arrive at the conclusion that pronouns in Tagalog undergo a kind of shift to a pre-verbal position in the syntax which is not undergone by non-pronouns, after which they post-syntactically retreat back to a post-verbal position. There are, of course, other languages in which pronouns undergo an obligatory shift to a high position which cannot be occupied by non-pronouns (this is the behavior, for instance, of object pronouns in Swedish; cf. Bobaljik (1995) and much other work). What makes Tagalog special, on this account, is the subsequent post-syntactic lowering of the shifted pronoun, which conceals the fact that shift has taken place at all.

[11] In fact, their claim is that an ellipsis site must be the complement of a head which agrees with its specifier. I think the proposal in (33) is closer to being on the right track, though considerations of space prevent me from discussing the issue.

[12] Chomsky (2001) assumes that only transitive vPs are phases; I will have to crucially assume here, following Legate (2002), that all vPs are phases.

[13] One version of this assumption might state that ellipsis sites invariably are phases (cf. Holmberg 1999). This approach would entail claiming that the complement of D in (34a), for example, is a phase, while the one in (34b) is not. The resulting approach to phases is reminiscent of Chomsky's (2001) claim that only transitive vPs are phases; having a specifier would have to have consequences for phasehood. I will not develop this alternative further here.

[14] Kayne (1994), along with much subsequent work, assumes one maximally simple version of such a mapping, claiming that if α asymmetrically c-commands β, α precedes β. While this is conceptually attractive, any kind of mapping between c-command and precedence is in principle consistent with Kayne's (1994) basic insight (e.g., "if α asymmetrically c-commands β, then α precedes β unless α is a head, in which case α follows β", which would be a mapping that would yield a head-final language). Thanks to Danny Fox for raising this point.

[15] Throughout, I will talk as though Spell-Out of a phase XP renders XP completely opaque to the computational system, and takes place after the head taking XP as a complement is Merged. Other approaches to phases have been proposed, of course (see Chomsky 2000, 2001, Nissenbaum 2000), and I am using this one here just for ease of exposition. The story developed here can be adapted to other approaches to phases.

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ECM and RTO: Two Competing Analyses in Indonesian

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Introduction

It has been widely noted that the boldfaced NPs in sentences like (1a) in English and (1b) in Indonesian[1] exhibit a dual nature:

(1) a. Mary believed **him** to have read the book.
b. Mary menganggap **dia** telah membaca buku itu.
Mary meN-consider 3Sg already meN-read book that
'John believed him to have read the book.'

In some respects, those NPs behave like the subjects of the lower predicates. Rosenbaum (1967), for example, observes the synonymy between infinitival embedding in (1a) and finite embedding in (2a) in English. The same observation can be extended to Indonesian, as in (2b).

(2) a. Mary believed that he had read the book.
b. Mary menganggap bahwa **dia** telah membaca buku itu.
Mary meN-consider that 3Sg already meN-read book that
'Mary believed that he had read the book.'

In other respects, however, scholars like Postal (1974), Chung (1976), Musgrave (2001), among others, argue that those NPs behave like the objects of the matrix predicates in English and in Indonesian respectively. One of their main arguments for the object status of these NPs is based on passivization, as illustrated in (3).

(3) a. He was believed to have read the book by Mary.
b. Dia dianggap telah membaca buku itu (oleh Mary).
3Sg di-consider already meN-read book that (by Mary)
'He was believed to have read the book (by Mary).'

The examples in (3) seem to indicate that the embedded subject raises out of the lower clause to the matrix object position, which subsequently moves to the matrix subject position under passivization.

Two analyses have been proposed to account for the sentence in (1a) in English: The R(aising) T(o) O(bject)[2] analysis (Postal 1974) and the E(xceptional) C(ase) M(arking) analysis (Chomsky 1981). As for Javanic languages such as Indonesian (Chung 1976, Musgrave 2001), Javanese (Davies 2000), and Balinese (Wechsler and Arka 1998), they are generally assumed to have RTO.

In this paper we show that the RTO analysis is not adequate in accounting for the dual properties of the postverbal NPs like *dia* in (1b) in Indonesian. We

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argue, instead, that the ECM analysis provides a more adequate account for it. The paper is organized as follows. In section 1 we show the dual properties of the NP that immediately follows the verbs such as *menganggap* 'believe/consider' through various constituency tests. In section 2 we provide a possible RTO analysis for sentences like (1b) and in section 3 we sketch an alternative ECM analysis.

1 The Dual Nature of *dia*

1.1 The Subject Properties of dia

In this section we show that constituency tests such as adverbial placement, pronominal binding, and the distribution of *ia* '3Sg' indicate that *dia* '3Sg' in sentences like (1b) is the subject of the embedded clause. We also show that the distribution of reflexives and WH phrases in subject position provides additional evidence for the subject properties of *dia*.

1.1.1 Adverbial Placement

As shown in (4), the position of adverbials affects the interpretation of the sentences: The adverbs *kemarin* 'yesterday' and *tadi* 'just now' following *dia* '3Sg' cannot be interpreted with the matrix verbs *menganggap* 'believe/consider' and *mengira* 'think' respectively, thereby showing that they, together with the subjects, occur in the embedded clauses.

(4) a. Siti menganggap dia **kemarin** memukul Ali.
Siti meN-believe 3Sg yesterday meN-hit Ali
'Siti believed that he hit Ali yesterday.'
*'Siti believed yesterday that he hit Ali.'

b. Tono mengira dia **tadi** di sini.
Tono meN-think 3Sg just.now in here
'Tono thought she/he was here a while ago.'
*'Tono thought a while ago she/he was here.'

1.1.2 Pronominal Binding

Since Indonesian pronouns obey Principle B (Cole and Hermon 1998), the following example shows that the embedded subject is in the embedded subject position:

(5) Siti_i menganggap $\textbf{dia}_{i/j}$ lalai.
Siti meN-believe 3Sg careless
'Siti believed that she/he was careless.'

The third person pronoun *dia* can refer to the subject in the matrix clause. This fact shows that *dia* is the subject of the lower predicate since, if *Siti* and *dia* were clausemates, it would violate Principle B of the Binding Theory (Chomsky 1986).

1.1.3 The Third Person Pronoun Ia

In addition to *dia*, there is another third person pronoun *ia* in Indonesian. Unlike *dia*, the distribution of the pronoun *ia* is restricted to subject position:

(6) a. Dia/**Ia** mencintai Tono.
3Sg meN-love-i Tono
'She loves Tono.'

b. Siti mencintai dia/***ia**.
Siti meN-love-i 3Sg
'Siti loves him.'

c. Siti_i menganggap $\textbf{ia}_{i/j}$ mencintai Tono.
Siti meN-believe 3Sg meN-love-i Tono
'Siti believes that she loves Tono.'

As shown in (6a) and (6c), *ia* occurs in subject position, but not in object position. This fact therefore indicates that *ia* in (6c) is in the subject position of the embedded clause, but not in the object position of the matrix clause.

1.1.4 The Distribution of Reflexives

Similar to its counterpart in English, the Indonesian reflexive *dirinya sendiri* 'himself/herself' obeys Principle A (Cole and Hermon 1998), as illustrated in the following sentences:

(7) a. Siti_i mencintai **dirinya sendiri**$_{i/*j}$.
Siti meN-love self.3Sg alone
'Siti loves herself.'

b. *Siti_i menganggap **dirinya sendiri**$_i$ lalai.
Siti meN-believe self.3Sg alone careless
'Siti believed herself to be careless.'

The reflexive *dirinya sendiri* and its antecedent must be clausemates as in (7a). The ungrammaticality of (7b), however, indicates that the surface position occupied by the reflexive *dirinya sendiri* is not the object position in the matrix clause, but the subject position in the embedded clause.

1.1.5 WH Phrases in the Subject Position

In Indonesian, WH phrases in object position can remain in situ:

(8) a. Ali mencintai **siapa**?
Ali meN-love-i who
'Who did Ali love?'

b. Siti menganggap Ali mencintai **siapa**?
Siti meN-believe Ali meN-love-i who
'Who did Siti believe Ali to love?'

However, when questioning a constituent in subject position, a WH phrase in situ is ungrammatical, or at least reduced in grammaticality:

(9) a. ***Siapa** mencintai Ali?
who meN-love-i Ali
'Who loved Ali?'

b. *Siti menganggap **siapa** mencintai Ali?
Siti meN-believe who meN-love-i Ali
'Who does Siti believe to love Ali?'

The contrast between (8a) and (9a) shows that a WH phrase cannot occupy subject position. This restriction on the distribution of WH phrases indicates that the ungrammaticality of (9b) is due to the violation of this restriction.

To summarize, the array of facts shown by various constituency tests strongly indicates that *dia* '3Sg' occupies the subject position of the embedded clause; it is not in the object position of the matrix clause. This result is not to be expected for examples with verbs like *menganggap* 'believe', which Chung (1976) and Musgrave (2001) analyzed as instances of RTO constructions.

1.2 The Object Properties of dia

We have shown in section 1.1 that various constituency tests indicate that the subjects of the embedded clauses do not raise to the object position of the matrix clauses. However, it is not the case that *dia* shows only subject properties. In the following section we provide the evidence for the object properties of *dia*. The object properties of *dia* can be seen in constructions involving syntactic operations such as predicate movement, and cliticization of the third person pronoun *–nya* '3Sg', as well as in passivization.

1.2.1 Predicate Movement

As exemplifed in (10b) below, an embedded predicate can be moved to the front of the sentence to the exclusion of the embedded subject without deleting the

nasal prefix of the matrix verb. Clausal movement, however, deletes the nasal prefix as in (10d):

(10) a. John menganggap dia lalai.
John meN-believe 3Sg careless
'John believed that she/he was careless.'

b. Lalai$_i$, John menganggap dia t_i.
careless, John meN-believe 3Sg
'John believed that she was careless.'

c. *Dia lalai$_i$, John menganggap t_i.
3Sg careless, John meN-believe
'John believed that she was careless.'

d. Dia lalai, John anggap *t*.
3Sg careless, John believe
'John believed that she was careless.'

Consider now how the embedded subject in (10b), after predicate movement has applied to it, behaves with respect to various other constituency tests:

(11) a. lalai$_i$, John menganggap **dia** kemarin t_i. (adverbial placement)
careless John meN-believe 3Sg yesterday
'John believed yesterday that she was careless.'
'John believed that he was careless yesterday.'

b. lalai$_k$, John$_i$ menganggap **dia**$_{*i/j}$ t_k. (pronominal binding)
careless John meN-believe 3Sg
'John believed that she was careless.'

c. *lalai$_i$, John menganggap **ia** t_i. (distribution of *ia*)
careless John meN-believe 3Sg
'John believed that he was careless.'

All of the tests in (11) show that the original embedded subject, *dia*, is in the matrix object position. The adverbial *kemarin* 'yesterday' can be interpreted in association with the matrix clause in (11a). The pronoun *dia* cannot refer to the matrix subject *John* in (11b), indicating that *dia* is in the object position in the matrix clause. The ungrammaticality of (11c) indicates that *ia* is governed by the verb, thereby violating the distributional restriction of *ia*.

1.2.2 Cliticization of -nya

The clitic *-nya* '3Sg' provides additional evidence for the object properties of *dia*. The distribution of this clitic is determined by Case, namely *-nya* cliticizes to a

lexical head which assigns Case to its complement. Thus, as shown in (12), *-nya* attaches to a verb and preposition, but not to an auxiliary, a complementizer, or an adverb phrase:

(12) a. *Ali pikir bahwa**nya** sakit.
Ali think that-3Sg sick
'Ali thinks that he is sick.'

b. *Besok**nya** pulang.
tomorrow-3Sg go.home
'Tomorrow he will go home.'

c. *Akan**nya** memukul Tono.
will-3Sg meN-hit Tono
'He will hit Tono.'

d. Ali memukul**nya**.
Ali meN-hit-3Sg
'Ali hit him.'

e. Siti membuatkan susu untuk**nya**.
Siti meN-make-kan milk for-3Sg
'Siti prepared some milk for him.'

Now consider the following, where *-nya* cliticizes to the matrix verbs:

(13) a. Saya menganggap**nya** kemarin lalai. (adverbial placement)
1Sg meN-believe-3Sg yesterday careless
'I believed yesterday that she was careless.'
'I believed that she was careless yesterday.'

b. John$_i$ menganggap**nya**$_{*i/j}$ lalai. (pronominal binding)
John meN-believe-3Sg careless
'John believed that she was careless.'

The tests in (13) indicate that the original embedded subject, *-nya*, has raised to the matrix clause and attached to the matrix verb. In (13a) the adverbial *kemarin* 'yesterday' can be interpreted in association with the matrix clause, and in (13b) the cliticized pronoun *-nya* cannot refer to the matrix subject *John*, thereby confirming that *-nya* occupies the object position of the matrix clause.

2 One Plausible Analysis

We have shown in the previous section that *dia* '3Sg' exhibits subject properties when no syntactic movement is involved, but it shows object properties in constructions involving further syntactic operations. To account for the subject

properties, proponents of the RTO analysis might argue that RTO is optional. When further syntactic operations such as passivization, predicate movement, and cliticization are involved, RTO becomes obligatory, thereby explaining the object properties of *dia*. This analysis, however, runs into problem accounting for the distributional restrictions on reflexives and WH phrases. As illustrated in (14), Indonesian does not allow reflexives or WH phrases in subject position.

(14) a. *John menganggap dirinya sendiri memukul Ali.
John meN-believe self-3 alone meN-hit Ali
'John believed himself to hit Ali.'

b. *John menganggap siapa memukul Ali?
John meN-believe who meN-hit Ali
'Who did John believe to hit Ali?'

The distributional restrictions on the WH phrases and reflexives are also observed in the sentences involving syntactic operations such as predicate movement, as illustrated by the illformedness of the examples in (15).

(15) a. *Memukul Ali_i, John menganggap dirinya sendiri t_i.
meN-hit Ali John meN-believe self-3Sg alone
'John believed himself to hit Ali.'

b. *Memukul Ali_i, John menganggap siapa t_i?
meN-hit Ali John meN-believe who
'Who did John believe to hit Ali?'

The ungrammaticality of the sentences in (15) strongly indicates that reflexives and WH phrases occupy subject position in the embedded clause even though predicate movement has applied.

3 An Alternative Analysis

In this section we argue against the RTO analysis for verbs like *menganggap* 'believe'. We contend that verbs like *menganggap* optionally select an IP complement (following Chomsky 1981), or alternatively, a clause-reduction process known as CP-deletion is involved.

According to Chomsky (1981), the subject of the infinitival clause in (16) below, is governed by the matrix verb and assigned accusative Case.

(16) I believed **him** to be intelligent.

The account for (16) is heavily dependent upon the assumption that the embedded clausal projection is transparent for the outside governor (the matrix verb). Since the canonical realization of a clause is a CP, the embedded clause of (16) is best analyzed as CP. However, a CP projection is usually assumed to be a barrier

against an outside governor. In order to allow the matrix verb to govern the specifier of the infinitive in (16), an additional mechanism is called for. Chomsky (1981) proposes that ECM-type verbs select an IP-complement. Alternatively, it has also been proposed that ECM-type verbs select a CP complement, but the projection of CP is deleted in the course of derivation.

Now consider the following sentences in Indonesian:

(17) a. *Lalai$_j$, John$_i$ menganggap **dirinya sendiri**$_i$ t_j. (Reflexive)
careless John meN-believe self-3Sg alone
'John believed himself to be careless.'

b. *Lalai$_i$, John menganggap **siapa** t_i? (WH phrases)
careless John meN-believe who
'Who did John believe to be careless?'

As we have pointed out in sections 1.1.4 and 1.1.5, reflexives and WH phrases cannot occupy subject position in Indonesian. Thus, the ungrammaticality of (17a) and (17b) can be attributed to the fact that *dirinya sendiri* and *siapa* occupy subject position rather than object position. To account for this fact, we propose that optional CP-deletion/IP-selection has applied to the complements of verbs like *menganggap*. Because of this optional CP-deletion, the embedded subject can be governed by the matrix verb just as in the case of English ECM constructions, as illustrated below:

(18) a. *[Lalai$_i$, [$_{IP}$ John$_j$ [$_{VP}$ menganggap [$_{IP}$ **siapa** [$_{VP}$ t_i]]]]]
careless John meN-believe who
'Who did John believe to be careless?'

b. *[Lalai$_i$, [$_{IP}$ John [$_{VP}$ menganggap [$_{IP}$ **dirinya sendiri** [$_{VP}$ t_i]]]]]
careless John meN-believe self-3Sg alone
'John believed himself to be careless.'

Viewed in this way, the ungrammaticality in (18) can now be accounted for. First of all, since CP-deletion has applied in (18), predicate movement crossing the IP boundary is made possible. However, the result of these two syntactic operations leaves the WH phrase and the reflexive in the embedded subject position and thus violates their distributional restriction. On the other hand, if there were no CP-deletion, the CP boundary would block predicate movement.

To account for the difference between English and Indonesian, we propose that the former does not allow NP-movement out of finite clauses, while the latter does. As illustrated in (19a), the occurrence of temporal/modal expressions provides an indication that the embedded clause is finite, but as illustrated in (19b), the subject of the embedded clause has nevertheless raised out of the finite clause:

(19) a. Siti menganggap dia **akan/bisa** menolongnya.
Siti meN-believe 3Sg Fut can meN-help-3Sg
'Siti believes he will/can help her.'

b. Dia$_i$ dianggap t_i **akan/bisa** menolongnya oleh Siti.
3Sg di-believe Fut can meN-help-3Sg by Siti
'He is believed to help her/to be able to help her by Siti'

It should be pointed out that the CP-deletion analysis may raise the following question: Since the complement of *menganggap* class verbs may undergo optional CP-deletion, the structure after CP-deletion may be problematic for sentences like (19a), i.e., the resulting structure allows the matrix verb, as well as the finite I of the embedded clause, to govern the embedded subject. This phenomenon, however, does not uniquely occur in Indonesian since it is also observed in other languages like Imbabura Quechua. When two potential governors compete, lexical government (i.e., the matrix verb) is preferred (Hermon 1984). Let us assume that this is the case with Indonesian. Now reconsider the sentence in (11c), repeated in (20).

(20) *Lalai$_i$, John menganggap **ia** t_i.
careless John meN-believe 3Sg
'John believed that he was careless.'

The ungrammaticality of (20) can be accounted for as follows: After CP deletion has taken place in (20), predicate movement is made possible. These two syntactic operations result in making the matrix verb *menganggap* lexically govern the third person pronoun *ia*, thereby violating its distributional restriction.

There are two pieces of supporting evidence for the CP-deletion analysis. The first evidence comes from the contrastive behavior between *menganggap*-class of verbs and verbs such as *membantah* 'deny'. First, as we have previously shown, a verb such as *menganggap* selects a CP complement, which explains the lower clause subject NP to have all the properties of a finite clause subject can have. In addition, optional CP-deletion enables the lower clause subject to have object properties. In contrast, a verb such as *membantah* invariably selects a CP complement and does not permit CP-deletion:

(21) a. John$_i$ menganggap dia$_{i/j}$ lalai.
John meN-believe 3Sg careless
'John believed that he was careless.'

b. Lalai$_k$, John$_i$ menganggap dia$_{*i/j}$ t_k.
careless, John meN-believe 3Sg
'John believed that he was careless.'

(22) a. John$_i$ membantah dia$_{i/j}$ lalai.
John meN-deny 3Sg careless
'John denied that he was careless.'

b. *Lalai$_i$, John membantah dia t_i.
careless John meN-deny 3Sg
'John denied that he was careless.'

The data in (21) and (22) show that there is a contrast in terms of the possibility of predicate movement depending on the types of the matrix verbs: The embedded predicate in (21b) can be fronted after the application of CP-deletion, but fronting the embedded predicate in (22b) makes the sentence ungrammatical because of the inapplicability of CP-deletion with this class of verbs. In other words, predicate movement can cross the IP boundary, but not the CP boundary.

Next consider the following sentences, in which *dia* is extracted under passivization:

(23) a. Dia$_i$ dianggap t_i lalai (oleh John).
3Sg di-believe careless (by John)
'He was believed to be careless by John.'

b. *Dia$_i$ dibantah t_i lalai (oleh John).
3Sg di-deny careless (by John)
'He was denied to be careless by John.'

The contrast between (23a) and (23b) can also be attributed to the absence or presence of CP: the complements of *menganggap*-class verbs can undergo CP-deletion, but those of *membantah*-class verbs do not. Therefore, the embedded subject in (23a) can move out of the complement clause, while that in (23b) cannot because of the CP boundary.

Finally, consider the following examples in which the pronoun *–nya* cliticizes to the matrix verb:

(24) a. John$_i$ menganggap**nya**$_{*i/j}$ lalai.
John meN-believe-3Sg careless
'John believed that she was careless.'

b. *John membantah**nya** lalai.
John meN-deny-3Sg careless
'John denied that she was careless.'

The embedded subject, *-nya*, has raised to the matrix clause and attached to the verbs *menganggap* and *membantah*. The contrast in grammaticality between (24a) and (24b) shows that cliticization with *menganggap*-class verbs is allowed after the application of CP-deletion, but cliticization with *membantah*-class verbs is prohibited because of the presence of the CP boundary.

Another piece of supporting evidence for the optional CP-deletion analysis comes from the behavior of overt C-elements. These elements force the clause to be a CP and therefore syntactic operations such as predicate movement, passivization, and cliticization that can only cross the IP boundary are expected to fail to apply. Consider the sentences in (25), in which the complementizer *bahwa* 'that' is present:

(25) a. John menganggap **bahwa** dia lalai.
John meN-believe that 3Sg careless
'John believed that he was careless.'

b. *Dia$_i$ dianggap **bahwa** t_i lalai (oleh John). (Passivization)
3Sg di-consider that careless (by John)
'He was believed by John to be careless.'

c. *Lalai$_i$, John menganggap **bahwa** dia t_i. (Predicate Movement)
careless, John meN-believe that 3Sg
'John believed that he was careless.'

d. *John menganggap**nya**$_i$. **bahwa** t_i lalai. (Cliticization)
John meN-believe-3Sg that careless
'John believed that he was careless.'

As shown in (25b) – (25d), syntactic operations such as passivization, predicate movement, and cliticization are blocked from applying when the complementizer *bahwa* is present. The presence of the overt complementizer forces the embedded clauses to be CPs, which are not compatible with such syntactic operations.

4 Conclusion

We have shown that the complements of *menganggap*-class verbs may undergo optional CP-deletion. Once this process applies, the resulting structure allows the matrix verb, as well as the embedded I, to govern the embedded subject. Viewed in this way, we argue that unlike the RTO analysis, the ECM analysis, in which optional CP-deletion allows the matrix verb to govern the embedded subject, provides a more adequate account for the dual nature of the boldface NP in sentences like (1b) in Indonesian. Under this analysis, *menganggap*-class verbs select CP complements. This enables the lower clause subject to have all the properties a finite clause subject can have. In addition, optional CP-deletion enables the lower clause subject to have object properties.

Endnotes

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[1] The following abbreviations are employed in glosses: 1,2,3 Sg (singular), Pl (plural), Fut (future). However, affixes such as the prefixes *meN-*, *ber-* and *di-* and the suffixes *-kan* and *-i* are left unglossed.

[2] We will employ the term *RTO* throughout the paper instead of the older term *Subject-To-Object (SOR) raising*.

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The Role of Canonical Shapes in the Reconstruction of Proto-Austronesian Phonology

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1 Introduction

The Austronesian (An) languages exemplify the role which canonical forms play in determining the course of historical phonologic development. In this paper I look at a process evident in the history of the An languages which exemplifies this role. Then I discuss some implications that this process has for the theory of the comparative method. The process to be discussed is the role of root structure, — that is, the tendency to establish disyllabic roots. This tendency is exemplified in the attested languages across the entire area of the An language family spread. Although Proto-An (PAn) had roots of one, two and three syllables, the current languages across the area occupied by the An languages at present show an overwhelming majority of disyllabic roots in forms inherited from PAn, or they are further developments of a language which had a root structure of this sort. In this paper I assume the existence of these three kinds of roots in PAn. The evidence for their reconstruction is given in Wolff 99.

2 Disyllabization of monosyllabic roots

First, I should discuss the monosyllabic roots. They have been made disyllabic by phonological and analogical processes. The phonologic processes involve syllable or mora addition – stretching of vowel nuclei or vocalic prothesis, and the analogical processes involves reinterpretation of an affixed monosyllable as a root. Appendix I gives a selection of various An monosyllabic roots that have been made disyllabic. This list gives only about one quarter of the total number of reconstructable monosyllabic roots. As the appendix shows, the same monosyllabic root is often subject to a variety of different processes for disyllabization in the various languages, and often a single language has more than one reflex of the same monosyllabic root, usually with different meanings for the different reflexes.

I call this kind of phonological development a 'tendency' rather than a sound law, as the spread of these changes takes place through analogical processes, one form at a time, and rarely are they carried out to completion. In the appendix together with the reconstructed monosyllabic root I also list languages in which monosyllabic reflexes are still attested. The principle by which changes induced by canonical form spread in the

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speech community has to do with the way humans perceive and remember: namely, once a certain shape becomes frequent and another shape becomes rare because of changes which have taken place, the frequent shape becomes canonical and the rare shapes tend to become changed to conform to the frequent shape. Experiments in reaction to nonsense forms and ability to imitate or remember them, show that nonsense forms with frequently occurring sequences are imitated better and more easily remembered than nonsense forms containing rarely occurring sequences. It is this factor which leads to changes induced by canonical form.

A look at the history of Tagalog (Tg[1]) can exemplify the phonological process which lead to disyllabization of the root. An example is the root *cuk for which we cite some reflexes in the appendix. Older Tg had a root suk which reflected this PAn root and to which a stem-forming prefix pa- was added to form a verb stem which meant 'go in'. Similarly there was a root lígu? to which the prefix pa- was added to form a verb stem which means 'bathe'. The following chart shows part of the paradigm of these two stems in old and in contemporary Tg:

Table I. Active and local passive of the verbs 'to bathe' and 'enter'

	'bathe (active)'	'bathe in'	enter (active)	enter into
Old Tg	malígu?	paligú?an	másuk	pasúkan
New Tg	malígu?	paligú?an	pumásuk	pasúkan

We may analyze másuk and malígu? to consist of the following morphemes:

-um- (active) + pa- (stem former) + ´suk = másuk
-um- (active) + pa- (stem former) + lígu? = malígu?

Why did másuk get replaced by pumásuk, but malígu? not by *pumalígu?? My hypothesis is that it was the monosyllabic character of the root which gave impetus to the analogical change which developed pumásuk. This hypothesis is supported by the fact that any number of Tg disyllabic roots which were prefixed with verb-stem formers beginning with /pa-/ have an active prefix beginning /ma-/, but all of the monosyllabic verb roots in Tg which took a stem-forming prefix with pa-[2], now have an active form beginning with puma-.

Further, I hypothesize that it was the stress patterns of phonological words that gave the impetus for the disyllabization of monosyllabic roots. In languages for which we have information on the stress patterns, it turns out that the root which is at the center of the phonological word normally has a stress pattern consisting of two syllables one

of which must be stressed — i.e., the stress pattern must be iambic or trochaic. (Whether the stress pattern is iambic or trochaic is a language-specific question. In Malay it is dependent on the vowel nuclei, Tg allows both kinds, Javanese is iambic, etc.) This two-syllable pattern may be preceded by bound morphemes of one or several syllables and it may be followed by a suffix and/or by one or more enclitics. If the root is suffixed, the stress moves to the last syllable of the root if the stress pattern is trochaic and onto the suffix, if the stress pattern is iambic.

Now, a sentence like the following has a verb pasúkan with the right number of syllables to allow a trochaic stress pattern on the head-stressed verb:

1. pinasúkan nya aŋ negósyo ko
   in+pa+suk+an encl marker business
   past+enter-in by-him the business my
   'He worked in my business.'

Although the root is monosyllabic, the derivative prefix pa- has no semantic content other than that of deriving a verb base, and the derived verb base pásuk has the feel of a root from the point of view of receiving phonological stress intonation and permitting a trochaic contour. However, the active equivalent of this root in older Tg had only one syllable in the root, which made it abnormal in the position of head-stressed verb, for the stressed syllable of the trochaic contour must fall on the prefix in this case:

2. násuk siya sa báhay
   -um-(past)+pásuk he into house
   past+enter he into house
   'He entered into the house.'

In this case the prefix na- is a portmanteau morph containing the meaningless verbal derivative pa- plus the past-tense affix which historically had the shape -in-. This leaves only a single syllable to receive the predicate stress intonation, making the shape abnormal. The existence of a normal form in the paradigm such as pinasúkan in sentence 1, above, allowed for the reinterpretation of the root as a disyllabic root pásuk, for the old prefix pa- had been bleached of all semantic content. This root then was generalized to the whole paradigm, and a new active verb was formed. The result is exemplified in the following sentence, as it would occur in contemporary Tg:

3. pumásuk siya sa báhay
   -um-(past)+pásuk he into house
   past+enter he into house
   'He entered into the house.'

As this example shows, semantic bleaching of a prefix enables the interpretation of a monosyllabic root plus prefix as a single disyllabic root, and this process is set into motion by the need for a the head of a phonological word to have a trochaic or iambic

contour. The appendix supplies examples from across the range of An languages in which this kind of process has taken place.

A subgroup of this type of change is the reinterpretation of stems consisting of a doubled monosyllabic morpheme as a mono-morphemic element. This was possible when process of doubling the monosyllabic root was bleached of semantic content. For example the root *gem 'take hold of, hold in fist'' was doubled to *gemgem. In most cases doubling of a root results in a stem which has a new meaning. In many cases doubled roots referred to a repeated or intermittent action. In the case of the root *gem , which is attested as a monosyllabic root in a few languages but is largely reflected as a doubled monosyllabic element there is no trace of the meaning of repeated or intermittent action. Citations for reflexes of this root are given in the appendix.

In many cases there were factors which interfered with the interpretation of an affixed monosyllabic root as a disyllabic root.[3] There are two routes open for the formation of a disyllabic root in these cases: (1) stretching out the vowel nucleus to two morae or two syllables. (2) development of a prothetic vowel, usually the default vowel ([ə] in most languages), but also of a vowel harmonizing with the vowel of the root in some cases

First, stretching of the vowel nucleus. If the vowel nucleus consists of a diphthong, this may be stretched to two syllables in languages all over the range of the An languages. The word for 'coconut' *ñuɣ, given in Table IV below exemplifies this. The form *ñuɣ also exemplifies the principle that the phonology of the language determines the choice of alternative routes to disyllabization. In many languages in the reflexes of *ñuɣ the palatalization of the *ñ with the following *u is interpreted as a diphthong *yu, which then can become stretched to two syllables *iyu (see the Mgg, Ml and Oceanic examples given in Table IV). However, in ND, where *ñ is a phoneme of very high frequency, and a contrast between /ñu/ and /niu/ is attested in several morphemes, the high frequency of /ñ/ and existence of a contrast interfered with development of a vowel sequence in the nucleus. Instead, in ND a prothetic vowel developed to produce a disyllabic root: eñuh 'coconut' (< earlier *eñuɣ).

If the vowel nucleus is a single vowel, stretching of the nucleus is favored in languages which developed compensatory lengthening. Compensatory lengthening in these languages arose from a variety of phonemic changes. This process of nucleus lengthening is widely found in a limited range of languages, starting from Bunun and Amis in Taiwan and spreading southward through the Philippines and through northern Sulawesi and northern Kalimantan, but it is not found or found in few items in areas outside of this core area. The important factor is the existence of long bimoraic vowels

which could readily be reinterpreted as occupying two syllables. Thus, the root vowel of a verb form like *kuman (= {-um-} + kan "eat") could be given two morae and then reinterpreted as two syllables by lengthening the root vowel (producing *kumaan — which later develops medial /ʔ/ by a rule that /h/ or /ʔ/ develops in all cases of hiatus.

In languages which did not develop long vowels the occurrence of root vowel lengthening and subsequent disyllabization is rare, if it occurs at all. In these languages prothesis of a central vowel or of a vowel homorganic with the root vowel produces a disyllabic root. This process can be traced to PAn times, for there are some roots which show disyllabization of this sort across the board over the entire An area. It continues to the present time in many languages: as phonologic changes produce monosyllabic roots, or monosyllabic roots are borrowed from other languages, the new monosyllabic roots tend to be disyllabized by prothesis of a central vowel in these languages. E.g. Jv luh 'tears' (< *luseq) has developed an alternative form with prothetic /e/: eluh; when *basequ contracted to monosyllabic *bau in earlier ND, a prothetic /e/ was added to disyllabize the root giving ewau 'a smell'. This same root also disyllabized by treating the root with a petrified suffix as a new root, bewan 'smelly' (< *basequ + an). Ml borrows monosyllabic roots from other languages, but in the active verb form disyllabizes the root with a prothetic /e/: pèl 'mop' gets a prothetic /e/ ([ə]) when the prefix meN- is added: meng-epèl. I speculate that the impetus for this, similar to that for the Tagalog example of pásuk, is the need to have an iambic or trochaic stress pattern after the prefix meN-. However, when these monosyllabic borrowings have no affixation or are affixed with the passive prefix di-, they remain monosyllabic.

Table II: Words for 'smell', 'tear', 'mop'

PAn	*basequ	*luseq	-
Ml	baw [baw] 'smell'	-	pèl/epèl 'mop', meng-epèl 'to mop'
ND	ewaw 'a smell' bew-an 'smelly' with petrified suffix	-	-
NJv	mam-bu 'smelly' (with petrified prefix)	eluh 'tear'	-

Up to now I have been fudging the question of whether the canonical form is disyllabic or bimoraic. As I have just mentioned, the development of disyllabic roots stretching the nucleus was in two steps, first the creation of a bimoraic root and thereafter its disyllabization. In some languages the canonical form is either bimoraic or disyllabic — that is, these languages did not disyllabize bimoraic roots which developed.

Other languages tend to disyllabize bimoraic monosyllables. For example, we may look at the reflexes of the verb for 'smell' in Table II. Ml tolerates monosyllabic roots as long as they are bimoraic, whereas in ND, which made contractions of the root analogous to those reflected by Ml, when roots become bimoraic by contraction, these roots must subsequently be disyllabized.

3 Disyllabization of tri-syllabic roots

Second, tri-syllabic roots have been made disyllabic in a large majority of the An languages by syncope of one of the three syllables. Here we refer to any syllable loss as "syncopation", whether the syllable loss is at the beginning or the middle of a root. Syncopation in An languages amounts to a weakening and loss of vowels consisting of a single mora, but generally, at least in its first stages, involves no change of consonants. Not all of the daughter languages have made this innovation. I know of languages in Sulawesi which show almost no incidence of syncope. But the vast majority across the An area do manifest syncopation, although, as our example of the word for 'gall' from Paiwan given in Table III attests, the process of syncopation of tri-syllabic roots has not necessarily been carried to completion: there are tri-syllabic roots for which none of the conditions blocking syncopation obtain but which nevertheless fail to syncopate. Which of the three syllables is lost is a complex matter, the details of which are language specific, correlated with the vowel constituents of the word. The process of syncopation yields medial syllable types with closed codas, a medial syllable which did not exist in PAn. That is, in PAn non-final syllables could only be closed with a nasal but otherwise had to be open, although PAn could have word-final syllables which were closed by any of the existing consonants. After syncopation occurs, penultimate root syllables could also be closed with any consonant, but only a single consonant, not with a sequence of consonants. The process of syncopation was impeded by the existence of a heavy syllable in the penult or antepenult. In PAn non-final closed syllables and syllables with long vowels were heavy. That these heavy syllables were not subject to syncopation is motivated by two factors of the PAn phonology: first, PAn did not permit syllable internal consonant clusters. As the example of the word for 'star' in Table III shows, this would result if there had been syncope in the penult or antepenult of a root having a closed syllable. Second, syncope involves the loss of a single mora. Hence, in forms that have no closed syllables, syncope could only happen if there were three short syllables in a row. For example the word for 'weaver's sword' listed in Table III shows no syncope because (1) loss of the antepenultimate vowel would lead to an initial consonant

sequence and (2) the penult, having two mora, cannot be syncopated. On the other hand the word 'day, sun' which had no heavy syllable —i.e., had three short syllables, shows syncope in all languages except in those exceptional areas in which the process of syncope is not manifested at all (represented in Table III by Muna). However, Ml developed a nasal to close the antepenult in the word for 'gall' before syncopation took place, and this nasal prevented syncopation in Malay.

Table III. Tri-syllabic roots in selected An languages

reconstructed meaning	*day, sun*	*weaver's sword, wolf herring*	*gall*	*star*
PAn form	*qañegaw	*balíga	*qapegu	*bintuqén
Paiwan	qadaw	vaida	qapedu	vitjuqan
Bunun			paqav[4]	bintuqan
Cebuano	adlaw	balíla	apdu	bitú?un
Tondano	edo 'day'		peru	
Manggarai	leso		pesu	
Bugis	esso 'day'	walida	essung	wittoeng
Muna	ɣoleo 'day'	bhalida	ɣofei	
Malay		belira	hampedu	bintang
Ngaju	andaw	balida	peru	< Malay
Tongan	?aho 'day'		?ahu	fetu?u

4 Implications for the comparative method

Linguists in the past two generations have uncovered vast amounts of data and gained historical knowledge of a wide range of languages of all different types. Further, linguistic theory has developed so that we now have a much more complete picture of the processes by which change proceeds. These discoveries certainly have challenged the way in which we look at the comparative method and made it clear that sound changes can indeed have exceptions. However, the basic tenant of the comparative method, which states that the regular correspondences of phonemes in cognate forms in related languages reflect phonemes of the proto-language, is still universally accepted and serves as the foundation for historical linguistic studies. The process I discuss here, the force of canonical form in shaping the development of linguistic forms, is another type of development which has the result that cognate forms in related languages not correspond regularly. It is not one of the widely discussed processes in the literature,

even though it is an internally driven phonological change.[5] For the An languages the influence of canonical shape is a force in phonological change of importance equal to that of the analogical type changes widely discussed in the literature — sound symbolism, onomotopoeia and affective symbolism, avoidance of homophony, morphologically conditioned changes, and various language or contact phenomena. This kind of change is different in type from regular sound change. A look at the reflexes of the word for 'coconut' and the word for 'eat' in a few languages illustrates the essential difference between regular sound change and the change induced by canonical form:

Table IV. Word for 'eat' and 'coconut' in several languages

Reconstruction	*'coconut'*	*'eat'*
in PAn	*ñuɣ	*kan
Amis	ʔafi-nog	kaen
Tg	niyóg	káʔin
Mongondow		kaʔan
Mgg	nio	haŋ
OJv	nyuu	paŋan (paN+kan)
ND	eñuh	kuman (=-um-+kan)
Ml	ñiur	makan (ma+kan)

In the word for 'coconut' only the Amis reflex manifests the development from PAn by regular sound chnge. The fact that the reflex occurs as the second member of a compound which has been reanalyzed as single root has enabled the original monosyllabic form to remain as such. The other reflexes of 'coconut' represent disyllabization in three ways. In Tg, Mgg and Ml the palatalization of the inherited initial consonant was given a mora and this together with the vowel nucleus developed into two syllables. The same development also took place in pre-OJv, subsequently the two syllables were syncopated, yielding a monosyllabic root, after which the vowel nucleus was expanded to a long vowel — that is, bimoraic and possibly it was disyllabic. In ND on the other hand disyllabization took place through prothesis of a central vowel which is subsequently reflected in ND as /e/.

In the word for 'eat' Mgg reflects the PAn monosyllabic root as such. This is an example of a root which has remained monosyllabic. OJv, ND, and Ml disyllabize by reanalyzing the affixed form as a single root (for the original affixes in these forms are dead in those languages). Am, Tg, and Mongondow disyllabize by lengthening the root vowel and turning the lengthened vowel into two syllables. Further, Tg and Mongodow

insert a glottal stop between the two vowels of the nucleus as a result of a subsequent change which eliminated hiatus between vowels by insertion of a glottal stop or [h] between them.

This process of disyllabic reshaping of the root differs from regular change in that results of disyllabization do not yield regular correspondences in the phonemes of reflexes of the same proto-form in related languages, as regular sound change does. Thus, for example, Mongondow ka?an is the regular correspondent of Tg ká?in and Amis kaen even though the /a/ of the final syllable does not correspond to Tg /i/ nor to Amis /e/. Similarly the phonemes of Amis nog correspond regularly to the /n/, /o/ and/g/ of Tagalog niyóg, but there is nothing in the Amis cognate which corresponds with the /iy/ of the Tagalog form. Nor do the phonemes of OJv nyuu and Ml ñiyur correspond, for the Ml reflex was disyllabized by developing a syllabic glide, whereas the OJv reflex was disyllabized by lengthening the nucleus.

The task of providing the evidence for the reconstruction of PAn monosyllabic roots in PAn is outside the scope of this paper. I give here an example of the kind of evidence we have for reconstructing monosyllabic roots . Previous scholars, and in fact most of my colleagues who work on PAn reconstruction, assume a disyllabic shape for *kaen where I reconstruct *kan for PAn. Their belief is that the ubiquitous manifestations of a monosyllabic root are all the result of contraction. Their reasoning is that disyllabic reflexes of this form with two syllables in the root are found in the languages of Taiwan (specifically Bunun and Amis) as well as the Philippines. Now Austronesianists (with a few exceptions) hypothesize that Bunun and Amis split from the An languages outside of Taiwan at an early stage, far earlier than the extra-Taiwan An languages split up from one another. Ergo, the disyllabic form must have existed in PAn. There are, however, arguments to the contrary. In the first place I, for one do not believe the hypothesis, but even if it were to be the case, my argument is that disyllabization is a process independent throughout the An languages. The seeds for disyllabization are sown in PAn, but the process developed independently. In the case of the root meaning 'eat', *kan, there is evidence for a monosyllabic root which is manifested across the board. That is, the word which means 'fish' or 'viand eaten with the staple', which I reconstruct as *isekan. This form is composed of a root *kan plus the instrumental passive prefix *ise-, well reconstructable for PAn. This form is a single root in the current languages — i.e., the prefix is petrified and the old root is now a single syllable in a larger form. The existence of this form everywhere makes it certain that a monosyllabic root *kan existed in PAn. The alternative hypotheses are not acceptable: (1) that the root contains a disyllabic element *kaen which was syncopated

everywhere, including in the languages which manifest reflexes of 'eat' with two vowels in the nucleus or (2) that *isekan is not connected with other words which contain the root 'eat', or (3) that there were two competing forms in the proto-language.

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*I wish to acknowledge the input of my student, Daniel Kaufman, with whom I discussed this paper from its inception and who with his astute and helpful comments to earlier drafts induced me to make numerous improvements.

[1]See footnote 1 of the appendix for language name abbreviations.

[2]There were only two or three of them, to my knowledge. I know only of pánaw 'depart' (= pa+naw) and patay 'die' (= pa+tay). Also panhik 'go up' which originally contained pa- plus a disyllabic root that later became syncopated replaces the active form manhik with pumanhik, treating the root as panhik rather than the monosyllabic nhik. Further, many roots beginning with /p/ also formed the dependent active form by replacing initial /p/ with /m/ and the past active form by replacing /p/ with /n/.:

-um- + puti? 'white' = muti? 'become white' (new Tg pumuti?), etc.

[3]In many cases there were no affixed forms available where the stem-forming morphs became bleached of meaning; in other forms with semantically bleached affixes were available, but the language used other ways of forming a disyllabic root nevertheless; finally, there is any number of cases where the meaning of a productive affix plus the root combines into a single meaning -- that is, a root plus a productive affix is reinterpreted as a single root and subject to the full panoply of inflectional and derivation affixation.

[4]The changes are as follows, beginning with the loss of *-g- (and they are paralleled in other forms): *qapegu > *qapeu > *paqeu > *paqau > paqav

[5]My colleague Michael Weiss pointed some literature out to me on similar phenomena which have been studied for Indo-European. The most extensive treatment is Löfstedt 1933. However, in Indo-European the role of canonical shapes does not influence whole classes of forms or have such a wide-ranging or deep-going input into the phonology as is the case for the An languages.

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[6]I take my citations of An forms entirely from my 1999 article. The bibliography there indicates the source of my citations.

Appendix:List of selected PAn monosyllabic roots according to method of disyllabization in attested languages[7]

I. Disyllabization by petrification

IA. Disyllabization by petrified affixation

*baw 'above'

Cb mabaw 'shallow'

*bay 'woman' (cf. OJv bi 'woman')

OJv wini, Tonsawang bene 'wife, female', Ml bini, Mgg wina 'wife' (< *-in- + *bay)

*bit 'carry in fingers'

Cb bínit 'carry s.t. dangling', Bugotu bini 'carry' (< *-in- + *bit)

*but (cf. Fi vut-ia 'pluck, pull out')

Cb ibut (*i-+but) 'pull out', Gorontalo pahuto (<*pa-but) 'extract', Mgg kebut 'pluck, pull out' (<*ka-but)

*kan 'eat' (cf. Rk kanə , Mgg kang)

ND kuman, Mlg homana, Ml ma-kan, TB ma-han, Fi kan-a, To ka-i, Fu ka-i , Sm ka-i 'eat',Bunun iskan 'fish', Ibanag ikan, Mgg ikang 'seafish', Ba ikane 'fish, viand',

Ml ikan 'fish, what is eaten with staple', Fi ika, To ika, Fu ika, Sm iʔa, PPn ika, Proto-Oceanic ikan 'fish'; Pu pakan, Tg pakáin , OJv amakani (aN-+ pakan-i), ND pakan-an, TB pahan, Kei fa'an 'feed', NJv pakan 'food, weft', Mgg paha 'weft', Mlg fahana 'gift of food for strangers, ration', Ml pakan 'weft ', Fi vaakan-ia 'graze'; NJv pangan, OJv pangan 'food, eating', TB pangan, Sa hanga 'eat', Fu fanga-i, Sm fa-fanga 'feed', To fanga 'feed, keep, breed'

*luk 'concave, bend'

NJv teluk 'bay, inlet ', OJv peluk 'bend, curve' teluk 'bay', ND palok 'embrace', Mlg he-loka 'crookedness, perversity', Ml te-luk 'bay', peluk 'embrace', B tor-luk 'bay', Fi beluk-a 'bend, curve', To, Fu pe-luk-i 'fold, bend', ma-pelu 'bent, folded', Sm mape-lu 'bent', PPn pe-lu 'fold, bend'

*ñeŋ 'look, stare'(cf. Pa lyeng 'look at', Maranao neng 'observe by sight'Murik neng 'face')

Kayan i-neng 'see, look, face'

*ŋa 'agape (mouth)'(cf. Fi ngaa 'mouth, agape'

Td panga-n 'branch', Tg panga 'jaw, lower part of jawbone', Cb panga 'forked stick (e.g. for slingshot)', Td panga-na 'branch', Yamdena fange 'handspan', Fordat fanga 'handspan', Slr pangka 'branch', ND panga 'stocks', Fi vanga 'leech of a canoe sail', Sa ta-hanga 'span (fathom)', To manga 'branch, fork, bifurcation', Fu manga 'branch, forking'; Tboli kana 'toothless, gaps where teeth are missing', ND kanga 'be open (mouth, shellfish)', Mgg kanga 'be open (mouth)', Nggela kanga 'drink by pouring down the throat'

*pit 'held tightly against, pinched against'

Am kafit 'attached to', Tg kápit 'hold, grasp', ND kapet 'get cramps', Ml kapit 'fasten with slats (e.g. thatch onto frame)', TB hapit 'pinch, squeeze', Buru kapi-h 'pinch, squeeze, clamp, bind in a clamping manner (as thatch)', Motu kahi 'fix sticks to keep thatch or walls down, tighten by wedge', Fi kabit-a 'stick, cling', To kapits-i 'bind together', Fu kapits-i 'strengthen', Sm ʔapi-ʔapi 'sew, paste together'

IB. Disyllabization by doubling

*baw 'above'

Samar-Leyte bawbaw 'upstairs'

*beg 'tie around'(cf. Balinese *bed* 'wind, tie around')

Am fedfed 'bind', Pu vetvet 'tie up', Tg bidbid 'spool with twine on it', NJv bebed 'band, tie, bandage, girdle', PMin bedbed 'bind, tie around', Ba wewe 'wind around', Slr baʔbaʔ 'tie s.t. by winding twine around it', OJv bebed 'band, tie, bandage, girdle', ND babat 'belt, band, sash' (<Ml), Ml bebat 'bind s.t. by winding twine about it'

*cuk 'go through, in'

Pu suksuk 'bore', Tg suksuk 'weaving in repair, shuffling of cards, sheathing of weapon', Cb suksuk 'insert s.t. between s.t. else', TB suksuk 'generously apportioned'

*dem 'think, brood'

Rk ki-dhəmədhəmə 'heart, mind', Am demdem 'endure (illness, feelings)', Pu demdem 'heart, feelings', Cb dumdum 'remember ', Ba endo 'rememberance', NJv dhedhem 'hold still', ND ba-rendem 'yearn' (priest language), Ml dendam 'yearning, longing, feeling of love or spite'

*gem 'hold in fist' (cf, OJv a-gem 'hold fast, grab', Rennelese kom-i 'clasp firmly')

Ru gməgmə 'hold in hand', Pa gemgem 'fist', Tg kimkim 'held in fist', Ra kum (< *kengkum) 'hold', Pmin kemkem 'hold in closed hand, handful ', Kei ngungum 'grasp', Mgg anggom 'embrace', Bug karem 'hold in hand', NJv gegem 'balled up', ND sa-genggem 'what can be encircled with four fingers, two from each hand', Ml genggam 'grasp, grip' , TB hokkom 'cover the mouth with the hand', Fi nggonggo-ta 'gather up in handfulls', To kokom-i 'squeeze, press', Fu koko-ʔi 'squeeze, press on', Sm ʔoʔom-i 'squeeze, crush', PPn koko 'scoop up in hands, squeeze'

*pit "held tightly against, pinched against'

Mgg pémpét 'narrow, pressed together', NJv pipit 'pinched, clamped', Ml pipit 'press in, squeeze', TB pitpit 'closed tightly (eyes)'

*kan 'eat' (cf. Rk kanə, Mgg kang)

Bikol kakan

*ñeŋ 'look, stare'(cf. Pa lyeng 'look at', Maranao neng 'observe by sight', Murik neng 'face')

Pangasinan, Dumagat nengneng 'stare', Bali nengneng 'gaze, look at'

IC. Disyllabization by reduplication

*baw 'above'

At babaw 'surface', Am fafaw 'headwaters', Pa i-vavaw 'up, above', vavaw 'high, tall' (dialectal), Tg i-babaw 'above', PMin babo 'above, over', Mgg wéwo 'summit', To fafo 'outside', felemo fafo 'go in and out of house', Fu fafo 'outside', Sm fafo 'outside, out of doors'

*bay 'female'

Rk ababai 'woman', Am fafahi 'woman', Tg babáe, Mlg vavy 'woman'

*bit 'carry in fingers'

Tg bitbit 'carry s.t. in fingers', Ra wewe? 'carry s.t. hanging down from hand', PMin bibit 'carry by rope, carry by handle', Td wiʔwit 'pull on kite string', Bu biʔbiʔ 'take a little bit in the fingers', NJv bibit 'seedling' (possibly not connected), Mlg vivitra 'picked up by finger and thumb', Ml bibit 'carrying in fingers'

*buñ 'top of head'

Am fenfenan 'top of head where the skull can be pierced' (not directly inherited), Pu vulvul 'fontanelle', Tg bumbunan 'crown on top of head', Yamdena fufu 'crown of head', Mgg wuwung 'fontanelle', Ba wuwu 'crown of head', wuwua 'fontanelle', Slr buhung-buhung (<*bubuñ-bubuñ) 'fonanelle', Ml bubun-bubun 'fontanelle'

*cuk 'go through, in'

Am cocok 'stab', NJv susuk 'stabbed', OJv susuk 'anything piercing or penetrating into s.t. else', Mgg cucuk 'hide, slip between', Slr pasusuʔ 'slip in', Ml susuk 'stab', Mlg sosoka 'inserted', TB susuk 'pierce', Sa susu- 'pierce', To huhuk-i 'force s.t. through', Fu susuk-i 'prick', Sm susuʔ-i 'pierce through the place where the coconut sprouts'

*lid 'tie around' (cf. Fi vaka-lii-taka 'twist rope taut with stick', Sm lii 'sennit fastening to attach outrigger boom to outrigger', PPn lii 'bind, wind around')

Mgg lilit 'encircle', Ba lili 'circle, circumference', NJv lilit 'coil around', Sunda lilit 'wind, bind o.s. around', ND lilit 'be wound around', Mlg fa-diditra 'rolling, twisting', Sa lili 'change, move about'

II. Disyllabization by addition of mora

IIA. Disyllabization by addition of prothetic vowel

*cek 'stuff, fill chock full'

Cb úsuk 'drive stakes ' Aklan usok 'pole of fence', Fi uso 'thrust a stick into, pierce'

*cep 'suck' (cf. Bilaan saf 'suck')

Pa qetep 'eat liquid when masticating (e.g. sugarcane)' (the initial q- is a secondary unexplained analogical development), Tiruray esef, Miri m-esap, Long Labid m-esep 'drink ', TB onsop 'suck'

*ɣiq 'Imperata cylindrica' (cf.Maranao giʔ, Kei ri 'kunai grass')

Atayal agiq 'small miscanthus', Sunda eurih

*nem 'six' (cf.Ts nomə, Rk nəmə, OJv nem)

Am ʔnem (< *eʔenem < *e+enem), Pa enem, Pu enem, ʔnem, Tg ánim (< *e+enem), Tonodano enem, Ba ono, Bu enneng, Slr annang, Ml enam, TB onom, Fi ono, Sa ono 'six', Mlg enem-ina 'divided up into six'

*pec 'squeeze, deflate'

Iloko eppes 'reduce, subside', Dumagat epes 'retract, shrink', Tg impis 'shrunken, deflated'

*pu 'grandparent/child'

Td opoʔ 'grandparent, ancestor, lord', Mgg empu 'grandmother, grandchild', OJv mpu 'distinguished persons', ND empo 'father-, mother-in-law', Ml empu-nya 'owner', TB oppu 'grandfather, -mother, owner'

IIB. Disyllabization by lengthening vowel nucleus

*baw 'above'

Sa hao 'down, West, North'

*bay 'female'

Rk ababai 'woman', Am fafahi 'woman', Tg babáe, Mlg vavy 'woman', Cb bayi 'female', Mgg wai 'woman' (To fe-huhu 'mother' retains the monosyllabic root as the

first element in a compound, where the second element has semantically bleached meaning)

*buñ 'top of head'

Cb hubun 'fontanelle' (< *buhun < *bun)

*cuk 'go through, in' (Cf. OJv suk 'enter, penetrate, make a hole, pierce', Fu suk-i 'pierce, spit', Sm su?-i 'pierce')

Western Bukidnon Manobo su?uk 'enter (of evil spirit in a person)', Cb su?uk 'inside or remote place'

*ɣiq 'Imperata cylindrica' (cf.Kn rəəqə, Sangir ehə, Maranao gi?, Kei ri 'kunai grass')

Mgg ri?i, Bu déa, Slr rea

*kan 'eat' (cf. Rk kanə, Mgg kang)

Am kaen, Bunun ka?un, Tg ká?in, Ba kina?a 'food'

*luk 'concave, bend'

Tg lú?ok ' bay, gulf', Ml (Banjarese) luhuk 'bay', TB tor-luk 'bay', Fi beluk-a 'bend, curve', To, Fu pe-luk-i 'fold, bend', ma-pelu 'bent, folded', Sm mape-lu 'bent', PPn pe-lu 'fold, bend'

*pit 'pinched tight, held tight'

Tg pi?it 'in a tight place', Cb pi?ut 'narrow, squeezed'

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[7]Most of the examples come from 23 languages which I abbreviate as follows: Tsou (Ts), Amis (Am), Rukai Budai Dialect (Rk), Puyuma (Pu), Paiwan (Pa), Tagalog (Tg), Tondano (Td), ProtoMinanasa (Proto-Min) Ratahan (Ra), Baree (Ba), Bugis (Bu), Selayar (Slr), Manggarai (Mgg), Ngaju Dayak (ND), old and new Javanese (OJv and NJv), Malay (Ml), Toba Batak (TB), Malagasy (Mlg), Kei, Fijian (Fi), Sa'a (Sa), Tongan (To), Futuna (Fu), Samoan (Sm), Proto-Polynesian (PPn). In a few cases I use data from other languages, and their names are written out in full.