

Compositional Interaction of Sub-Event Aspectual Markers, *-in-* and Reduplication, in Tagalog

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0. Introduction

Aspectual information is often analyzed in terms of morphology that contributes aspectual operators to the final logical form of a verb, such as IMPERF(Φ) and PERF(Φ). Analyses of this type are well-suited for languages that show a clean correspondence between the morphology and the semantic information they contribute, including cases like Slavic and Romance languages. These operators, however, can be decomposed into time interval/event-oriented semantics representations. Languages of the Philippines, Tagalog in particular, provide morphological evidence that supports decomposing the aspectual properties of events into sub-event intervals. Furthermore, previous analyses give insight that a proper treatment of Tagalog aspect requires a more fine-grained analysis than traditional labels such as imperfective, perfective, and so on.

The primary goal of this discussion is to provide a compositional account of aspect marking in Tagalog verbs because a compositional analysis of Tagalog aspect has yet to appear in the literature. In particular, aspect marking will be shown to be compositional at a level below the event. This discussion will provide an initial discussion of how the aspectual morphology in Tagalog interacts to produce the final interpretations received.

Another important goal of this analysis involves giving some much overdue attention to a family of languages whose tense and aspect systems have not been well-explored. Dahl asserted that more work was merited for Austronesian languages in his 1985 survey of tense-aspect-modality systems of world languages (160-162).

0.1. Outline

Thus, this discussion will explore the Tagalog aspect system in more detail by first providing an outline of Tagalog verbal morphology. Then, the question of whether or not Tagalog verbs are tenseless will be revisited. This question will be addressed by proposing a rigorous test to examine the claim formally. Previous

analyses of Tagalog aspect will be explored to see what insights can be garnered. Additionally, new facts about where aspectual and temporal information is located in Tagalog structures (within the verb or at a higher level) will be offered. Finally, an explanatory, compositional account of aspect in the language can be developed. At the end, a formal compositional account of aspect will be available for work on more complex temporal phenomena in Tagalog or other closely related languages of the Philippines.

1. Background

A few relevant facts about Tagalog verbs and their traditional analyses will help ground the current analysis:

Tagalog verbs are claimed to mark not temporal information, but aspectual information. This claim has been supported by asserting that these forms are ambiguous temporally (Schachter and Otnes 1972).

Previous analyses treat aspectual marking using traditional labels, including perfective and imperfective. However, a third aspect label, “contemplated,” is unique to Philippine linguistics. This aspect category corresponds to events not yet completed and not yet begun. This form of the verb is most often used in future tense and with modal operators.

Following the insight of Schachter and Otnes (1972), de Guzman (1978), and Kroeger (1993), these aspectual forms are composed of two overt morphemes, allomorphic variants of the infix *-in-* and reduplication of the first CV sequence of the verbal root. The infix *-in-* appears with events that have begun. Reduplication signals events that are not yet completed. Previous proposals (namely Kroeger 1993:17) have asserted that each of the two morphemes needs a null counterpart to encode the opposite information. Thus, *-in-* will require a null counterpart to mark events not yet begun, and reduplication’s counterpart will mark events that are completed.

1.1. Structure of Tagalog Verbs

Generally, Tagalog verbs are formed by combining a root with aspectual affixes: one marking whether the event has begun or not, and the other marking whether or not the event has been completed. Finally, the aspect-marked form combines with an affix (traditionally labeled voice as well as focus) that generally corresponds to which thematic role receives nominative case; the affix also affects the verb valence.¹

¹ The literature on the status of the voice system is large and a variety of views exist. No particular stance is taken in this discussion.

(1) Sample Tagalog Verb Paradigm²

Voice marker	Perfective [- <i>in-</i> + Ø _{complete}]	Imperfective [- <i>in-</i> + RED]	Contemplated [Ø _{-begun} + RED]
a. <i>mag-</i>	nag-basa	nag-ba-basa	ba-basa
b. <i>-um-</i>	b-um-asa	b-um-a-basa	ba-basa
c. <i>-in</i>	b-in-asa	b-in-a-basa	ba-basa-hin
d. <i>-an</i>	h-in-ugas-an	h-in-u-hugas-an	hu-hugas-an
e. <i>i-</i>	i-pr-in-ito	i-p-in-i-prito	i-pi-prito

Examples of the paradigm follow in (2)–(4).³

- (2) I-pr-in-ito ni Lola ang mga longganisa.
 OV.PERF.fry GEN grandma NOM PLUR sausage
 ‘Grandma fry (completed) the sausages.’
- (3) I-p-in-i-prito ni Lola ang mga longganisa.
 OV.IMPERF.fry GEN grandma NOM PLUR sausage
 ‘Grandma fry (incompleted) the sausages.’
- (4) I-pi-prito ni Lola ang mga longganisa.
 OV.CONTEMP.fry GEN grandma NOM PLUR sausage
 ‘Grandma fry (contemplated) the sausages.’

These forms were traditionally analyzed using past/present/future *tense* labels (Aspillera 1969). This analysis isn’t entirely erroneous because speakers assign default tense readings when no temporal adjunct is available. Those readings follow in (5).

(5) Default Temporal Assignments for Aspectual Forms

Tagalog Aspect Label	Temporal Default
Perfective	Past
Imperfective	Present (usually progressive)
Contemplated	Future

² (a) Infixation of *-in-* is realized by changing *mag* → *nag*. (b) The *-um-* paradigm of verbs does not fit these generalizations and a slightly different story must be told. (c) Infixation of *-in-* on *-in-* suffixed verbs triggers the final *-in* to be deleted. (d) and (e) The infixation and reduplication appears most clearly in this paradigm.

³ The abbreviations OV and AV stand for ‘object’ and ‘actor’ voice respectively. The case-marking labels are taken from Kroeger (1993) without any commitment to the debate regarding the status of *ang*. For now, the broad aspect labels (e.g., PERF, IMPERF) are used.

2. Are Tagalog Verbs Really Tenseless?

The answer to the above question is a hedged “yes.” The real question is whether default temporal readings for the aspectual forms are entailed in the logical content of the verb or are assigned somewhere else after the verb root composes with its aspectual marking. Where does the “hedged” yes come from? If Tagalog verbs were truly tenseless, then they would be expected to be completely ambiguous on their own. However, those verbs have default temporal interpretations. Thus, at some level, Tagalog verbs must be asserted to contain a slot for temporal information because of the default readings, but that slot remains unfilled at the level of the verb. The following test rigorously examines whether or not verbs are devoid of temporal information.

Test: Combine verb forms with adverbs that encode temporal information. If no contradiction results, then the forms are devoid of temporal information, and the temporal information is supplied at some other level of the grammar.

Rationale: Temporal adverbs encode a temporal variable that is specified in relation to utterance time (usually either past, present, or future). If temporal information is not encoded in the verb, then we should expect the verb to be compatible with past, present, or future adverbs (no contradiction).

English

(6) I ate the mango {yesterday, *right now, *tomorrow}

The present and future adverbs in English are illicit because they logically contradict a time specification in the verb. The simplified logical formula (7) illustrates the contradiction for the sentence **I ate the mango right now*.

(7) $\exists t[\text{EAT}(I,m,t) \wedge (t < n) \wedge (t = n)]$
Past tense Right now

The logical formula illustrates that the time interval specified by the past tense explicitly excludes the time constant *n* (now) with the less-than operator. This time interval is contradicted by the adverbial *right now* because it tries to establish equality between the same interval and the present time.

Running the same tests for the Tagalog data shows that the verbs forms are compatible with a wide variety time adverbials. The full paradigm is given below where each of the “aspects” (perfective, imperfective, contemplative) is combined with a past, present, and future tense adverb (‘yesterday’, ‘now/today’, ‘tomorrow’).

Tagalog⁴

- (8) a. K-in-ain-Ø ko ang mangga kahapon.
 PERF.eat.OV I.GEN NOM mango yesterday
 ‘I ate the mango yesterday.’
- b. K-in-ain-Ø ko (lang) ang mangga ngayon.⁵
 PERF.eat.OV I.GEN (just) NOM mango now
 ‘I (just) have eaten the mango now.’
- c. K-in-ain-Ø ko ang mangga bukas #(...)⁶
 PERF.eat.OV I.GEN NOM mango tomorrow #(...)
 ‘I will have eaten the mango tomorrow, #(context)’
- (9) a. K-in-a-kain-Ø ko ang mangga kahapon #(...)
 IMPERF.eat.OV I.GEN NOM mango yesterday #(...)
 ‘I was eating the mango yesterday #(context)’
- b. K-in-a-kain-Ø ko ang mangga ngayon.
 IMPERF.eat.OV I.GEN NOM mango now
 ‘I am eating the mango now.’
- c. K-in-a-kain-Ø ko ang mangga bukas #(...)
 IMPERF.eat.OV I.GEN NOM mango tomorrow #(...)
 ‘I will be eating the mango tomorrow #(context)’
- (10) a. Ka-kain-in ko ang mangga kahapon #(...)
 CONTEMP.eat.OV I.GEN NOM mango yesterday #(...)
 ‘I was about to eat the mango yesterday #(context)’

⁴ The object voice forms of the verbs have been chosen here because they illustrate the morphology most clearly. A consequence of this choice is that the nominative argument ‘mango’ must always receive a definite interpretation, which would make these examples infelicitous in a context where a specific mango has not yet been introduced into the discourse.

⁵ Speakers prefer an alternate form to this construction (*ka-* recent perfectives) that explicitly specifies temporal information at the verb level, though they do report that this example is okay.

⁶ Several of these examples are only felicitous when they appear with some other context. This behavior patterns with languages like English very closely. To illustrate, take example (8c). The English correspondent, *I will have eaten a mango tomorrow*, is hard to imagine uttered out of the blue. This utterance feels better with context like the following: *I will have eaten a mango tomorrow when you arrive*. Most of my consultants felt that sentences where the default interpretations are distant from the temporal adverbs (say perfective with future tense) are only acceptable with the appropriate context.

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b. Ka-kain-in ko ang mangga ngayon.
CONTEMP.eat.OV I.GEN NOM mango now
'I am about to/will eat the mango now.'

c. Ka-kain-in ko ang mangga bukas
CONTEMP.eat.OV I.GEN NOM mango tomorrow
'I will eat the mango tomorrow.'

Other evidence

Existential constructions are not specified for tense and are compatible with past/present/future adverbs. A default present tense reading is assigned to all these constructions in the absence of other temporal information.

(11) May dalawa-ng mangga sa mesa {kahapon, ngayon, bukas}.
EXIST 2.LNK⁷ mango LOC table yesterday, now, tomorrow.
'There were/are/will be two mangoes on the table yesterday/today/
tomorrow.'

(12) Wala.ng pera sa bangko {kahapon, ngayon, bukas}.
NOT EXIST.LNK money LOC bank yesterday, now, tomorrow.
'There wasn't/is/will be money in the bank yesterday/today/tomorrow.'

A class of so-called 'pseudo-verbs' also provides evidence. These verbs are verbs of ability, needing, wanting, and so on.

(13) Pwede mo-ng bumili ng sapatos {kahapon, ngayon, bukas}.
can you.LNK buy.INF GEN shoe(pair) {yesterday, now, tomorrow}
'You can/could/will be able to buy shoes yesterday, now, tomorrow.'

(14) Gusto ni Imelda-ng bumili ng sapatos {kahapon, ngayon, bukas}.
want.GEN Imelda.LNK buy.INF GEN shoe(pair) {yesterday, now, tomorrow}
'Imelda wanted/want/will want to buy shoes {yesterday, now, tomorrow}.'

These tests have shown that all the inflected forms of Tagalog verbs are compatible with past, present, and future time adverbials. Therefore, Tagalog verbs do not encode any *explicit* temporal information at the level of the verb.

3. Previous Analyses

A popular approach to Tagalog aspect has been to decompose the classes into two binary features, [\pm completed] and [\pm begun] (Schachter and Otanes 1972, de Guzman 1978, Kroeger 1993). These features generate a four-way typology, in

⁷ LNK = 'linker', a morpheme that has several functions, none of which are discussed here.

which the three aspects can be classified: perfective [+begun, +completed], imperfective [+begun, -completed], and contemplated [-begun, -completed]. Two of these features have overt morphological realizations (sometimes characterized as modality⁸).

(15) Aspect Typology (Kroeger 1993)

	[+completed] Ø ₂	[-completed] RED
[+begun] -in-	Perfective	Imperfective
[-begun] Ø ₁	**	Contemplated

The typology overgenerates a contradictory category of events, [-begun, +completed], which needs to be ruled out. The infinitive form of the verb sometimes appears in that slot because it matches the surface realization; however, the semantic features specified in that combination simply do not make sense. Despite its insight, the analysis does not show the compositionality of the internal event structure that Tagalog demonstrates.

Associating these forms (perfective, imperfective, contemplated) with more classical aspectual operators IMPERF(Φ) and PERF(Φ), a couple of problems surface:

1. These operators are more appropriate to explain interactions of aspect where there is a neat one-to-one correspondence between morphology and these operators (i.e., Slavic). This analysis would miss the fact that morphemes overtly mark internal event properties.
2. The contemplated aspect doesn't correspond to a traditional operator, so a new one would have to be invented whose properties may well not be borne out crosslinguistically.
3. Verbal reduplication marks non-completion of events across aspects, and this analysis would not account for critical entailments of non-completion. The infix *-in-* marks events that have some degree of initiation; this entailed information also needs to be accounted for.

4. Entailments of Event (Non)Initiation and Non(Completion)

The featural analysis will be tested by trying to tease apart the beginning and end point information. An analysis of Tagalog verbs must account for the fact that the (non)initiation and (non)culmination of the eventualities in question are encoded in the core semantic content of the aspectual markers. This property can be shown through explicitly trying to cancel the [±begun] with *inumpisa* 'started' and with

⁸ These markers lie at the boundary between mood and aspect. Here, a purely aspectual analysis is pursued because the evidence suggests that the markers only encode information about the event structure. Furthermore, these markers interact independently with other clearly modal morphemes in the language, such as *sana* 'hope/want'.

tinapos ‘finished’ for [\pm completed]. Contradictions arise from trying to cancel the information; therefore, the information is not defeasible, and they are entailed.

Perfective ([+begun, +completed]): try [–begun, –completed]

(16) #I-pr-in-ito ni Lola ang mga longganisa kahapon, pero *hindi* niya *inumpisa* ito.

‘Grandma fried the sausages yesterday, but she didn’t start this.’

(17) #I-pr-in-ito ni Lola ang mga longganisa kahapon, pero *hindi* niya *tinapos* ito.

‘Grandma fried the sausages yesterday, but she didn’t finish this.’

Imperfective ([+begun, –completed]): try [–begun, +completed]

(18) #I-p-in-i-prito ni Lola ang mga longganisa kahapon, pero *hindi* niya *inumpisa* ito.

‘Grandma was frying the sausages yesterday, but she didn’t start this.’

(19) #I-p-in-i-prito ni Lola ang mga longganisa kahapon at *tinapos* niya ito.

‘Grandma was frying the sausages yesterday and she finished this.’

In example (19), the reference times of the frying and the finishing of the frying are the same.

(20) I-p-in-i-prito ni Lola ang mga longganisa kahapon noong dumating ang mga bisita, *tapos tinapos* niya ang pagpiprito.

‘Grandma was frying the sausages yesterday when the visitors arrived, later she finished the frying.’

Contemplated ([–begun, –completed]): try [–begun, –completed]

(21) #I-pi-prito ni Lola ang mga longganisa kahapon, *tapos inumpisa* niya ito.

‘Grandma was about to fry the sausages yesterday, afterwards she started this.’

Example (21) should be enough evidence to assert that trying to culminate the event is out, since the nature of events demands that events not begun be not culminated. However, to exhaust the argument, *ginawa* ‘did’, which encodes both begun and culminated eventualities, is used here to attempt to close off both ends of the event.

(22) #I-pi-prito ni Lola ang mga longganisa kahapon, *tapos ginawa* niya ito.

‘Grandma was about to fry the sausages yesterday, afterwards she did this.’

Speakers report that example (19) is contradictory on its own, but it can be repaired by moving the reference time as in (20). Example (22), however, bears “anti-initiation” and “anti-culmination,” as speakers report strongly that the event never starts and consequently never culminates.

5. A Compositional Analysis

The intuitions of the traditional feature-based analysis will be useful to capture the internal event properties. However, to show the compositionality of how reduplication interacts with infixes like *-in-*, a sub-event analysis in the spirit of Parsons (1990) will prove necessary. However, unlike Parsons, this analysis does not separate the thematic roles of the arguments from the predicate and apply them to the event variable introduced.

5.1. Semantics for *-in-*

To account for the semantics of *-in-*, an INITIATE predicate is employed. INITIATE works much like Parsons’ CULMINATE, except that it differs in indicating that an event has begun.

$$(23) \quad \llbracket -in- \rrbracket = \lambda P. \lambda e. \lambda t. [\text{INITIATE}(e, t) \wedge P(e)]$$

$$(24) \quad \llbracket \emptyset_{\text{-begun}} \rrbracket = \lambda P. \lambda e. \neg \lambda t. \neg \lambda t'. [\text{INITIATE}(e, t) \wedge \text{CULMINATE}(e, t') \wedge P(e)]$$

The formula in (24) guarantees that there is no time ever that the event will culminate. As will be seen, the culmination information is redundant, but yet not in conflict with the information that will be represented in the semantics for reduplication. By encoding a time variable in these formulas, an assertion is made that temporal information exists at the verb level, though it remains unspecified.

5.2. Semantics for Reduplication

Parsons (1990) defines a predicate CULMINATE(*e, t*) that marks the completion of an event *e* at a time *t*. To account for the semantic contribution of verbal reduplication (event non-completion), negating CULMINATE (or, equivalently, negating any time interval it applies to) is necessary. The variable *t'* is used to provide clear distinctions between the beginning and end points.

$$(25) \quad \llbracket \text{RED} \rrbracket = \lambda P. \lambda e. \lambda t. \neg \exists t'. [\text{CULMINATE}(e, t') \wedge t < t' \leq t_{\text{ref}} \wedge P(e)]$$

An abstract over times must be introduced since a time variable was introduced in the semantics for *-in-* / $\emptyset_{\text{-begun}}$. Thus, the order of composition is assumed to be Root + [\pm begun] and finally [\pm completed]. Furthermore, a free time variable, t_{ref} , is introduced to account for reference time, whose value is supplied either by an adverbial or through existential closure, which would provide the default interpretations seen before in the table in (5).

combinations. Another interesting area would be to see how these markers affect temporal anaphora, if at all. Such a discussion would help support/refute the question as to what degree Tagalog verbs bear temporal information. Furthermore, examining how aspect and modal operators interact in the language would lend insight to the question of whether aspect in the language is modality to some degree. Finally, all of these questions could be explored crosslinguistically within the family of Philippine languages as well as Austronesian in general.

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