THE SYNTAX AND SEMANTICS OF THE
TAGALOG PLURAL MARKER Mga

A THESIS

Presented in Partial Fulfillment of the Requirements for the Degree Master of Arts
in the Graduate School of The Ohio State University

By

Michelle Dionisio, B.A., M.Sc.
Graduate Program in Linguistics

The Ohio State University
2012

Master’s Examination Committee:
Professor Judith Tonhauser, Advisor
Professor Craige Roberts
Abstract

This thesis is a formal analysis of the syntax and semantics of the Tagalog plural marker mga. I present data that show that syntactically, mga is a predicate modifier that combines with a one-place predicate to form another one-place predicate. Semantically, mga is a pluralizer of entities: it translates as Link's (1983) ⊗ proper plural operator, which is of type <et,et> and which requires the extension of the predicate it combines with to contain only pluralities. Voice marking on a mga-marked predicate indicates the semantic role of the entities pluralized by mga. In addition, mga is distributive: it requires that the predicate it combines with hold of each subpart of the pluralities in the extension of the predicate; furthermore, these subparts must be the smallest argument units that the predicate can be true of. The formal analysis uses a categorial grammar framework (Lambek 1958) as well as Link's (1983) theory of plurality. This thesis presents empirical and formal characterizations of the syntax and semantics of mga which are intended to serve as a foundation for future work on the optionality of mga as well as its approximative meaning.
I am very grateful to Professors Carl Pollard, Craige Roberts, and Judith Tonhauser for their feedback and help with this project. I would like to especially thank Judith for translating [Kolmer (1998)] for me.
VITA

2003 .......................... B.A., Linguistics and French, Rutgers University
2006 .......................... M.Sc., Speech and Language Processing, University of Edinburgh

Fields of Study

Major Field: Linguistics
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Chapter 1
INTRODUCTION

Tagalog has a plural marker *mga* (pronounced [ma.’ŋa]) that marks expressions that denote more than one entity (Schachter and Otanes 1972; Ikari 1989; Wolff et al. 1991; Kolmer 1998; Corbett 2000; Ortmann 2004). For example, (1) can be used in a context where three dogs barked:

(1) Context: Fido, Rover, and Lassie barked.

\[
\begin{align*}
\text{Tumahol} & \quad \text{ang} \quad \text{mga aso} \\
\text{bark.AV.PERF} & \quad \text{DIR} \quad \text{PL} \quad \text{dog}
\end{align*}
\]

‘The dogs barked.’

An expression marked by *mga* cannot be used to refer to a singular entity. In the context given in (2), where only one dog barked, the sentence with *mga aso* ‘dogs’ is false:

(2) Context: Only Fido barked.

\[
\begin{align*}
\text{Tumahol} & \quad \text{ang} \quad \text{mga aso} \\
\text{bark.AV.PERF} & \quad \text{DIR} \quad \text{PL} \quad \text{dog}
\end{align*}
\]

‘The dogs barked.’

*Mga* is an interesting marker of plurality for the following reasons:

1. It can combine with expressions traditionally classified as belonging to different syntactic categories, such as nouns, verbs, adjectives, and prepositional phrases. This makes it different from plural markers such as *-s* in English, which combines only with nouns.
2. Distributivity is part of its core meaning.

3. It is optional, which raises the question of what prompts its use.

4. It has an approximative meaning, where it makes the expression it combines with imprecise in some way, such as in *mga tatlo* ‘about three’.

Kolmer (1998) analyzes *mga* as a pluralizer of entities. In this thesis, I show that while Kolmer’s claim is correct, it should be recognized that voice marking plays an important role in the pluralization of entities because voice marking indicates which participants in an event are pluralized by *mga*.

As for the syntactic distribution of *mga*, example [1] shows that *mga* co-occurs with expressions that can be translated into English as nouns. Previous descriptions of *mga* (Schachter and Otanes 1972; Ikari 1989; Wolff et al. 1991; Kolmer 1998; Corbett 2000; Ortmann 2004) say that *mga* can also occur with other kinds of constituents, namely: some demonstrative pronouns, names, verbs, adjectives, and prepositional phrases. I show instead that the expressions that *mga* combines with can all be classified as one-place predicates in Tagalog, and therefore *mga* can be analyzed as a predicate modifier that combines with a one-place predicate to form another one-place predicate.

To summarize, this paper makes the following claims about the syntax and semantics of *mga*:

1. *Mga* has a unified syntactic distribution: it combines with one-place predicates to form one-place predicates.

2. *Mga* pluralizes entities.

   - *Mga* applies to a predicate of type <e,t> and requires that the denotation of the predicate contain only pluralities, i.e. non-atomic elements in a Link lattice.

   - *Mga* is distributive: it requires that the predicate it combines with hold of each subpart of the pluralities in the denotation of that predicate. These subparts must be the smallest argument units that the predicate can be true of.
Voice marking on a *mga*-marked predicate indicates the semantic role of the entities pluralized by *mga*.

The formal analysis uses a categorial grammar framework ([Lambek, 1958](#)) as well as [Link's (1983)](#) theory of plurality. The empirical and formal characterization of the syntax and semantics of *mga* presented in this paper is intended to serve as a foundation for future work on the optionality of *mga* as well as its approximative meaning.

I present a grammatical sketch of Tagalog in Chapter 2, which explains the typological features of Tagalog that are relevant for the analysis of *mga*: sentence structure, case marking, and voice. In Chapter 3 I distinguish between morphologically-defined word classes and distributionally-defined syntactic categories in Tagalog. I show how, as noted in works such as [Gil (1992)](#) and [Himmelmann (2008)](#), there is a lack of correspondence between morphologically-defined word classes and syntactic categories in Tagalog. In this section, I also motivate my usage of the terms *predicate* and *case-marked expression* instead of the traditional lexical and syntactic category labels *noun, verb,* and *adjective*. In Chapter 4 I introduce the plural marker *mga* and illustrate its syntactic distribution, while in Chapter 5 I analyze its meaning. In Chapter 6 I present the categorial grammar fragment and the derivations that illustrate my formal analysis of the syntax and semantics of *mga*. Lastly, in Chapter 7 I discuss various directions for future work.
Chapter 2

BACKGROUND

Tagalog is an Austronesian language spoken in the Philippines. It is natively spoken in the capital, Manila, and in the surrounding provinces. Since Tagalog is one of the two national languages of the Philippines (the other one is English), Filipinos from other provinces learn it as a second language. According to the 2000 Philippine census, there were 21.5 million speakers of Tagalog in the Philippines in that year; the Ethnologue report on Tagalog says that there are 23.9 million Tagalog speakers globally (Lewis, 2009). The data in this thesis is from Manila Tagalog, which is the standard dialect.

In this chapter, I discuss the typological characteristics of Tagalog that are relevant for the analysis of the distribution and meaning of *mga*: sentence structure, case marking, and voice.

2.1 Sentence structure

In Tagalog, pragmatically-unmarked declarative sentences are predicate-initial. I define *predicate* syntactically as: (1) a sentence-initial expression that is either unmarked for case,

---

1These provinces are: Cavite, Laguna, Batangas, Bulacan, Rizal, Quezon, Mindoro, Marinduque, Romblon, and Palawan.

2Tagalog declarative sentences that are not predicate-initial are pragmatically marked because the fronted part of the sentence is focused or is topicalized (Kaufman, 2005). There are two types of these pragmatically marked sentences: (1) inverted sentences and (2) cleft sentences. In an inverted sentence, a case-marked expression marked for direct or oblique case is fronted and is followed by the inversion marker *ag*. The predicate and the rest of the sentence come after the inversion marker. Kaufman (2005) claims that the fronted case-marked expression in an inverted sentence is topicalized. A cleft sentence is made up of two case-marked expressions marked for direct case. Schachter and Otanes (1972) and Kaufman (2005), among others, characterize these sentences as cleft sentences, where the sentence-initial case-marked expression is focused. The syntactic analysis I present in this thesis deals only with pragmatically-unmarked, predicate-initial declarative sentences.

---
or marked for oblique case; and (2) an expression that is the complement of a case marker. Semantically, a predicate is an expression that takes zero or more case-marked expressions as arguments. The class of predicates contains expressions of different semantic types. For example, the zero-place weather predicate *umulan* ‘rained’ is a predicate of type <t>. The one-place predicate *tumahol* ‘barked’ is a predicate of type <et>, and the two-place predicate *kumain* ‘ate’ is a predicate of type <e,et>. The three-place predicate *nagbigay* ‘gave’ is a predicate of type <et,<e,et>>. When it is the complement of a case marker, a predicate type-shifts from type <et> to type <e> and denotes the individual of which that predicate holds. In this type-shifting, the voice marking on the predicate indicates the semantic role of the individual of which the predicate holds.

I define *case-marked expression* syntactically as an expression that is made up of a case marker and a predicate. Semantically, a case-marked expression is an expression that can serve as either an argument to a predicate, or as a modifier of a predicate. A case-marked expression that is the argument of a predicate denotes either an individual or (if it is an oblique case-marked expression) a locative relation. A case-marked expression that is a modifier of a predicate takes the predicate as its argument and yields a modified predicate of the same type as the original predicate.

For example, sentence (3) has the predicate *tumahol* ‘barked’ and the case-marked expression *ang aso* ‘the dog’. Sentence (4) has the predicate *kumuha* ‘got’ and two case-marked expressions: one marked for direct case and one marked for indirect case. Lastly, sentence (5) has the predicate *nagbigay* ‘gave’ and three case-marked expressions: one marked for direct case, another marked for indirect case, and a third one marked for oblique case.

(3)  **Tumahol** *ang aso.*
    bark.AV.PERF DIR dog
    ‘The dog barked.’

---

3I use the term *case-marked expression* instead of *argument* in order to maintain a clear distinction between arguments and adjuncts.

4AV=Agent Voice, which means that the expression marked for direct case has the semantic role of Agent. PERF=perfective aspect. A list of all abbreviations is in the appendix.
(4) Kumuha ang aso ng buto.

get.AV.PERF DIR dog IND bone

‘The dog got a bone.’

(5) Nagbigay ang aso ng buto sa tuta.

give.AV.PERF DIR dog IND bone OBL puppy

‘The dog gave a bone to the puppy.’

In a predicate-initial sentence, such as (5), the case-marked expressions that follow the predicate may appear in any order. This is illustrated in (6), which shows the different orderings possible for the case-marked expressions in (5):

(6) a. Nagbigay ang aso ng buto sa tuta.

give.AV.PERF DIR dog IND bone OBL puppy

‘The dog gave a bone to the puppy.’

b. Nagbigay ang aso sa tuta ng buto.

give.AV.PERF DIR dog OBL puppy IND bone

‘The dog gave a bone to the puppy.’

c. Nagbigay ng buto ang aso sa tuta.

give.AV.PERF IND bone DIR dog OBL puppy

‘The dog gave a bone to the puppy.’

d. Nagbigay ng buto sa tuta ang aso.

give.AV.PERF IND bone OBL puppy DIR dog

‘The dog gave a bone to the puppy.’

e. Nagbigay sa tuta ang aso ng buto.

give.AV.PERF OBL puppy DIR dog IND bone

‘The dog gave a bone to the puppy.’

f. Nagbigay sa tuta ng buto ang aso.

give.AV.PERF OBL puppy IND bone DIR dog

‘The dog gave a bone to the puppy.’

Kroeger (1993) notes some preferences in the ordering of case-marked expressions. For example, there is a preference for the case-marked expression marked for direct case to appear at the end of the sentence. There is also a preference for the case-marked expression marked for indirect case to immediately follow the predicate.
The definitions of predicate and of case-marked expression given above, as well as the examples of sentence structure in (3)-(5), are important for characterizing the distribution of mga. I show in Chapter 4 that mga combines only with predicates and not with case-marked expressions.

2.2 Case marking

In this section, I discuss the different case markings of pronouns, of proper names, and of case-marked expressions which are neither pronouns nor proper names. In Tagalog, there are three case markers that mark case-marked expressions which are not pronouns or proper names: ang marks direct case, ng (pronounced [naŋ]) marks indirect case, and sa marks oblique case. In sentence (7), the case-marked expressions are ang aso ‘the dog’, ng buto ‘a bone’, and sa tuta ‘to the puppy’.

(7) Nagbigay ang aso ng buto sa tuta.
   give.AV.PERF DIR dog IND bone OBL puppy
   ‘The dog gave a bone to the puppy.’

In (8), I have replaced the case-marked expressions in (7) with proper names to illustrate that proper names are also case-marked in Tagalog. A proper name in direct case is marked by si; one in indirect case is marked by ni; and one in oblique case is marked by kay.

(8) Binigay ni Fido si Teddy kay Junior.
   give.PV.PERF IND Fido DIR Teddy OBL Junior
   ‘Fido gave Teddy to Junior.’

Personal pronouns are inherently case-marked, as shown in (9).

---

5 These markers have also been analyzed as marking nominative-accusative case (Guilfoyle et al. 1992), ergative-absolutive case (Aldridge 2001), as determiners (Himmelmann [prep]), and as nouns (Reid 2002).

6 In Tagalog, definite Patients must be marked for direct case. This means that a sentence with a definite Patient must have a predicate in the Patient Voice, in order for the Patient case-marked expression to be marked for direct case. Since proper names are definite, in (8) the predicate is in the Patient Voice so that the Patient Teddy can be marked for direct case.

7 Kanya is the oblique form of the third-person singular pronoun. However, as example (9) shows, kanya must also be marked with the oblique case marker sa. (The sentence would be ungrammatical without the sa.) I have no explanation for this at the moment, other than to note that oblique case-marked expressions have special properties that make them different from direct and indirect case-marked expressions. For example, unlike direct and indirect case-marked expressions, oblique case-marked expressions are predicates.
Lastly, demonstrative pronouns (which have proximal (near to speaker), medial (near to hearer), and distal (far from speaker and hearer) forms), are also inherently case-marked, as shown in (10):

(10) Binigay nito iyan doon.
give.PV.PERF IND.PROX DIR.MED OBL.DIS
‘This one gave that one to that one over there.’

Case marking is important for the analysis of mga because, as I show in section 4.1, mga does not combine with case-marked expressions.

2.3 Voice marking

In a sentence with a voice-marked predicate, the direct case marker ang marks the case-marked expression whose semantic role corresponds with the voice marker on the predicate.8 There are five voices in Tagalog: Agent Voice, Patient Voice, Locative Voice, Benefactive Voice, and Instrumental Voice. These voices are named for the semantic role of the direct case-marked expression in the sentence when the predicate bears the corresponding voice marker. Sentences (11)-(15) show how the case marking of the case-marked expressions in a sentence changes depending on the voice marking of the predicate.

For example, in sentence (11), the predicate bili ‘buy’ in the sentence bears the Agent Voice infix -um-; correspondingly, the direct case-marked expression is bata ‘child’, which

8 The relationship between voice marking and semantic role in Tagalog is complicated, for a number of reasons. First, it is not the case that there is only one affix that marks each voice. Second, the correspondence between the voice marker on the predicate and the semantic role of the direct case-marked expression is not the same across predicates. For example, kumain ‘eat’ and uminit ‘become hot’ are both predicates that bear the Agent Voice infix -um-. While the direct case-marked expression that is the complement of kumain ‘eat’ is always an Agent (the eater), the direct case-marked expression that is the complement of uminit ‘become hot’ is actually always a Patient (the entity that undergoes a change in temperature). Thus lexical differences among predicates do not allow for a neat correspondence across different predicates between the voice marking of a predicate and the semantic role of the direct case-marked expression that is its complement. I adopt the traditional view, assumed in works such as Schachter and Otanes (1972), that voice marking in Tagalog corresponds with the semantic roles of the case-marked expressions in the sentence. Which semantic roles correspond with which voice marker, however, varies depending on the predicate.
has the semantic role of Agent.

(11) **Agent Voice**

\[
\text{[Binili]} \quad \text{[ang bata]}_{Agent} \quad \text{[ng mangga]}_{Patient} \quad \text{[sa tindahan]}_{Locative} \quad \text{para buy.AV.PERF} \quad \text{DIR} \quad \text{child IND mango OBL store for}
\]

\[
[\text{sa babae}]_{Benefactive} \quad \text{OBL woman}
\]

‘The child bought a mango at the store for the woman.’

The Patient in (11) is marked for indirect case by \textit{ng}, and the Locative and Benefactive case-marked expressions are both marked for oblique case by \textit{sa}.

When the predicate is in the Patient Voice, marked in (12) with a null suffix -∅\textsuperscript{9}, the Patient is marked for direct case. The Agent, \textit{bata} ‘child’, is marked for indirect case, while the Locative and Benefactive case-marked expressions are marked for oblique case:

(12) **Patient Voice**

\[
\text{[Binili-∅]} \quad \text{[ng bata]}_{Agent} \quad \text{[ang mangga]}_{Patient} \quad \text{[sa tindahan]}_{Locative} \quad \text{para buy.PERF-PV} \quad \text{IND} \quad \text{child DIR mango OBL store for}
\]

\[
[\text{sa babae}]_{Benefactive} \quad \text{OBL woman}
\]

‘The mango was bought at the store for the woman by the child.’

When the predicate is in the Locative Voice, marked in (13) with the suffix -an, the Locative is marked for direct case. The Agent \textit{bata} ‘child’ and the Patient \textit{mangga} ‘mango’ are both marked for indirect case, while the Benefactive is marked for oblique case\textsuperscript{10}:

(13) **Locative Voice**

\[
\text{[Binili-han]} \quad \text{[ng bata]}_{Agent} \quad \text{[ng mangga]}_{Patient} \quad \text{[ang tindahan]}_{Locative} \quad \text{para buy.PERF-LV} \quad \text{IND} \quad \text{child IND mango DIR store for}
\]

\[
[\text{sa babae}]_{Benefactive} \quad \text{OBL woman}
\]

\textsuperscript{9}The infix -in- in binili-∅ ‘bought’ marks realis aspect. This infix did not appear in (11) because it does not co-occur with the voice infix -um-. The Patient Voice suffix -in is null in binili-∅, but is overt in the imperative form of the predicate: \textit{bilb-in} ‘buy’.

\textsuperscript{10}Binili+-an is pronounced as binilhan ‘bought’ as a result of phonological processes.
‘The child bought a mango at the store for the woman.’

In sentence (14), the predicate ibinili ‘bought’ bears the Benefactive Voice prefix i-.

The Benefactive babae ‘woman’ is marked for direct case:

(14) **Benefactive Voice**

\[
[I\text{-}binili]\text{BV-buy.PERF}\left[\text{ng}\right. \text{IND}\text{agent}\text{child}[\text{ng}\text{INDmango}\text{patient}\text{mango}[\text{sa}\text{OBLstore}\text{store}\text{ang}\text{ang}\text{babae}\text{Benefactive}].}
\]

‘The woman was bought a mango by the child at the store.’

Lastly, in sentence (15), the predicate ipinambili ‘used to buy’ bears the Instrumental Voice prefix ipang-

The Instrumental pera ‘money’ is marked for direct case:

(15) **Instrumental Voice**

\[
[I\text{-}pinambili]\text{IV-buy.PERF}\left[\text{ng}\right. \text{IND}\text{agent}\text{child}[\text{ng}\text{INDmango}\text{patient}\text{mango}[\text{sa}\text{OBLstore}\text{store}\text{ang}\text{ang}\text{pera}\text{Instrumental}\text{para}\text{for}\text{OBLwoman}\text{money}\text{para}\text{for}\text{OBLwoman}\text{babae}\text{Benefactive}].}
\]

‘The money was used by the child to buy a mango at the store for the woman.’

The Agent and Patient in (15) are marked for indirect case, while the Locative and Benefactive are marked for oblique case.

The sentences in (11)-(15) show that when case-marked expressions are not marked for direct case, they are marked for either indirect or oblique case depending on their semantic role. Specifically, when they are not marked for direct case, Agents and Patients are marked for indirect case, while Locatives and Benefactives are marked for oblique case.

Different kinds of predicates subcategorize for different kinds of arguments. For example, the one-place Agent Voice predicate tumahol ‘bark’ requires only one argument: an Agent marked for direct case. The two-place Agent Voice predicate bumili ‘buy (something)’ requires two arguments: an Agent marked for direct case and a Patient marked for indirect
The three-place Agent Voice predicate *magbigay* ‘give (something to someone)’ requires three arguments: an Agent marked for direct case, a Patient marked for indirect case, and a Recipient marked for oblique case. In order to have a grammatical sentence, the direct case-marked argument is syntactically obligatory. The other subcategorized arguments may undergo ellipsis, but they must be recoverable from the discourse context; otherwise, the sentence is infelicitous. For example, in (16) below, the predicate *bumili* ‘buy (something)’ requires an Agent argument and a Patient argument. The Agent is present in the sentence but the Patient is not. In order for the sentence to be felicitously uttered, the Patient must be understandable from the discourse context. Thus (16) is felicitous in Context 1, where the Patient is understood to be the chocolates. In Context 2, however, where there is no Patient understandable from the context, (16) is infelicitous.

- **Context 1**: (16) is felicitous) We are walking through a shopping mall with a mutual friend when we pass by a store selling expensive imported chocolates. We take some time to look at the chocolates on display in the window, but we don’t go into the store. Instead, we each go into other stores. When we meet up later, you notice that our friend is holding a shopping bag from the chocolate store. I tell you: “She bought (some).”

- **Context 2**: (16) is infelicitous) I visit a friend’s house, and she tells me to wait for her roommate, whom she wants me to meet. The roommate returns home after a trip to the mall. My friend wants to tell me: “She went shopping.” However, she cannot use (16) to do so.

(16) Bumili siya.
buy.AV.PERF 3sg.DIR
‘She bought (some).’

Thus, even though only the direct case-marked expression is syntactically obligatory in order to have a grammatical sentence, if the predicate subcategorizes for indirect and/or oblique arguments, these arguments must be recoverable from the discourse context in order for the sentence to be a felicitous utterance.
Table 2.1 summarizes the correspondences between the voice marking of predicates and the case marking and semantic roles of case-marked expressions.

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<th>Case Markers and Semantic Roles</th>
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<td>ang Agent</td>
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<td>ng Patient</td>
<td>indirect</td>
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<td></td>
<td>sa Locative</td>
<td>oblique</td>
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<td></td>
<td>para sa Benactive</td>
<td>‘for’ + oblique</td>
</tr>
<tr>
<td>Patient Voice -in</td>
<td>ang Patient</td>
<td>direct</td>
</tr>
<tr>
<td></td>
<td>ng Agent</td>
<td>indirect</td>
</tr>
<tr>
<td></td>
<td>sa Locative</td>
<td>oblique</td>
</tr>
<tr>
<td></td>
<td>para sa Benactive</td>
<td>‘for’ + oblique</td>
</tr>
<tr>
<td>Locative Voice -an</td>
<td>ang Locative</td>
<td>direct</td>
</tr>
<tr>
<td></td>
<td>ng Agent</td>
<td>indirect</td>
</tr>
<tr>
<td></td>
<td>ng Patient</td>
<td>indirect</td>
</tr>
<tr>
<td></td>
<td>para sa Benactive</td>
<td>‘for’ + oblique</td>
</tr>
<tr>
<td>Benefactive Voice i-</td>
<td>ang Benefactive</td>
<td>direct</td>
</tr>
<tr>
<td></td>
<td>ng Agent</td>
<td>indirect</td>
</tr>
<tr>
<td></td>
<td>ng Patient</td>
<td>indirect</td>
</tr>
<tr>
<td></td>
<td>sa Locative</td>
<td>oblique</td>
</tr>
<tr>
<td>Instrumental Voice ipang-</td>
<td>ang Instrumental</td>
<td>direct</td>
</tr>
<tr>
<td></td>
<td>ng Agent</td>
<td>indirect</td>
</tr>
<tr>
<td></td>
<td>ng Patient</td>
<td>indirect</td>
</tr>
<tr>
<td></td>
<td>sa Locative</td>
<td>oblique</td>
</tr>
<tr>
<td></td>
<td>para sa Benactive</td>
<td>‘for’ + oblique</td>
</tr>
</tbody>
</table>

Table 2.1: Predicate voice with corresponding case markers and semantic roles

Sentence (17) is a sentence where the predicate is not voice-marked. The predicate in (17) is mainit ‘hot’, which is made up of the stative prefix ma- and the root init ‘heat’. A stative-prefixed predicate takes only one case-marked expression as its argument, which, as (17a) shows, is marked for direct case. (17b) shows that if we add another case-marked expression (the indirect case-marked expression ng pamilya ‘family’), it can only be understood as a modifier of the direct case-marked expression, not as another argument of the predicate. The direct case-marked expression denotes the entity that has the stative property denoted by the predicate.
(17) a. Mainit ang bahay.
    hot   DIR house
    ‘The house is hot.’

b. Mainit ang bahay ng pamilya.
    hot   DIR house IND family
    ‘The family’s house is hot.’

Mainit ‘hot’ is not voice-marked because the root init ‘heat’ has voice-marked forms that are distinct from mainit ‘hot’. (18) shows the Agent and Patient voice-marked forms of init ‘heat’. In (18a), the predicate is the Agent Voice form uminit ‘became hot’, while in (18b), the predicate is the Patient Voice form ininit ‘was heated up (by someone)’.

(18) a. Uminit ang bahay.
    heat.AV.PERF DIR house
    ‘The house got hot.’

b. Ininit ang tinapay.
    heat.PV.PERF DIR bread
    ‘The bread was heated up (by someone).’

Thus the voice-marked forms of init ‘heat’ are distinct from its stative-prefixed form mainit ‘hot’. Stative-prefixed forms, such as mainit ‘hot’, themselves cannot take on any voice-marking, so they are unable to become voice-marked predicates.

Since stative-prefixed predicates take only one argument, which denotes the entity that has the stative property denoted by the predicate, if a stative-prefixed predicate is marked with mga, this sole argument is the entity that is pluralized. For example, the predicate mga mainit ‘hot (ones)’ in (19) denotes plural hot entities, which are the houses of the family. (19) must be uttered in a context where the family owns more than one house and each of these houses are hot; otherwise, the sentence is false.

(19) Mga mainit ang bahay ng pamilya.
    PL hot   DIR house IND family
    ‘The houses of the family are hot.’

The situation is different for voice-marked predicates because they can subcategorize for more than one case-marked argument. If a voice-marked predicate is marked with mga,
the voice marking indicates which participants in the event denoted by the predicate are plural. For this reason, voice marking is important for the analysis of *mga.*
Chapter 3

Lexical and Syntactic Categories in Tagalog

The term *lexical category* is commonly used to mean a category of lexical items that share morphological and distributional properties (see for example Haspelmath (2001)). For the analysis of Tagalog in this thesis, I define *lexical category* differently: a *lexical category* is a category of expressions that share morphological properties. Expressions that share distributional properties belong to the same *syntactic category*.

In English, there is a close correspondence between the morphological properties a lexical item has and its distributional properties. This is illustrated in Figure 3.1, which shows how, for example, lexical items that have the morphological property of being able to be inflected for number also have the distributional property of being able to combine with a determiner to form a noun phrase. Lexical items with this combination of morphological and distributional properties are classified in English as *nouns*. Similarly, in English lexical items that are able to be inflected for the comparative and the superlative have the distributional property of being able to appear between the adverb *very* and a noun. These lexical items are classified as *adjectives*. Lastly, in English lexical items that are able to be inflected for tense have the distributional property of being able to follow modals. These lexical items are classified as *verbs*.

In Tagalog, however, this close correspondence between morphological and distributional properties has been claimed to not exist (Gil, 1993; Himmelmann, 2008). Lexical items can be classified into categories based on their morphological properties, but these
Figure 3.1: Lexical and syntactic categories in English

<table>
<thead>
<tr>
<th>Morphological Properties</th>
<th>Syntactic Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Combines with a DET to form an NP</td>
</tr>
<tr>
<td>Can be inflected for number</td>
<td>✓ NOUN</td>
</tr>
<tr>
<td>Can be inflected for comparative and superlative</td>
<td>✓ ADJECTIVE</td>
</tr>
<tr>
<td>Can be inflected for tense</td>
<td></td>
</tr>
</tbody>
</table>
morphologically-based classifications do not line up with distributionally-based classifications. This is illustrated in Figure 3.2, which shows how expressions with different morphological properties, such as voice-marked expressions, aspect-marked expressions, expressions with the stative prefix ma-, and expressions bearing the “nominalizing” prefix taga- ‘person from’, all share the distributional properties of being able to occur sentence-initially and being able to combine with a case marker to form a case-marked expression.\(^{12}\)

The data in (20)-(24) illustrate the generalizations in Figure 3.2 and also includes examples of other kinds of morphological expressions. Example (20) has the uninflected root aso ‘dog’; example (21) has the voice- and aspect-marked expression tumatahol ‘is barking’; example (22) has the stative expression maganda ‘beautiful’; example (23) has the prepositional expression para sa iyo ‘for you’; example (24) has an expression with the prefix taga- ‘person from’, which is commonly described as a nominalizing prefix (Schachter and Otanes 1972; de Guzman 1996). As the examples show, these different morphological expressions all share the distributional property of being able to occur sentence-initially and as the complement of a case marker in a case-marked expression (abbreviated as cme in (20)-(24)).

\(^{12}\)There are many other kinds of morphological marking in Tagalog, but I chose to use the ones listed in Figure 3.2 because these are the morphological properties used by authors such as Schachter and Otanes (1972) and de Guzman (1996) to distinguish lexical categories of verb (voice and aspect marking), adjective (ma-stative prefixation), and noun (prefixation with taga-) in Tagalog.
Figure 3.2: Lexical and syntactic categories in Tagalog

<table>
<thead>
<tr>
<th>Morphological Properties</th>
<th>Syntactic Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Can occur sentence-initially</td>
</tr>
<tr>
<td>Can be inflected for voice</td>
<td>✔</td>
</tr>
<tr>
<td>Can be inflected for aspect</td>
<td>✔</td>
</tr>
<tr>
<td>Can be prefixed with the stative <em>ma-</em></td>
<td>✔</td>
</tr>
<tr>
<td>Can be prefixed with the “nominalizing” <em>taga-</em> ‘person from’</td>
<td>✔</td>
</tr>
</tbody>
</table>
Consequently, in Tagalog we cannot classify lexical items into categories in the same way we do in English, which is by looking at what morphological and distributional properties lexical items have in common. Instead, in Tagalog it is necessary to distinguish between word classes (which I call lexical categories) that are defined on the basis of morphological paradigms, and syntactic categories that are defined on the basis of distribution.

In the following sections I discuss lexical and syntactic categories in Tagalog in more detail.

### 3.1 Lexical categories in Tagalog

The existence of lexical categories such as noun and verb in Tagalog continues to be debated (Kaufman, 2009). The reference grammar (Schachter and Otanes, 1972) and most works on the language (for example, Ramos, 1974; McFarland, 1976; Guilfoyle et al., 1992; Kroeger, 1993; de Guzman, 1996; Rackowski, 2002; Richards, 2009a) assume that there are nouns and verbs in Tagalog. In these studies, lexical items that bear both voice and aspect morphology are taken to be verbs, while nouns are distinguished based on the presence of case marking, certain “nominalizing” affixes, and on semantic grounds. For example, if a lexical item denotes a thing or an individual, it is taken to be a noun. Other works, such as Kaufman (2009), argue that there are only nouns in Tagalog and no verbs. On this view, all predicates are nominal and all predication is copular. Still another view, put forth by Gil (1993), is that there are neither nouns nor verbs in Tagalog — rather, lexical items belong to one class which Gil names with the Tagalog word parirala ‘phrase’.

Controversy has arisen from the fact that if lexical categories are defined based on morphological properties and syntactic distribution, then it is impossible to define the traditional lexical categories of noun and verb in Tagalog because lexical items other than pronouns and function words can all occur sentence-initially and also as the complement of a case marker (Gil, 1992; Kolmer, 1998; Himmelmann, 2008). This was illustrated earlier...
with the data in (20)-(24). Thus, on this traditional definition of lexical category, it is not possible to use the morphological property of being marked for voice and aspect along with the syntactic property of occurring sentence-initially in order to distinguish a lexical category of *verb*, because the property of occurring sentence-initially does not belong exclusively to voice- and aspect-marked lexical items. The fact that lexical items other than pronouns and function words can freely occur sentence-initially and as complements of case markers makes it impossible to define lexical categories in Tagalog based on syntactic distribution as well as on morphological properties.

However, if we limit our definition of *lexical category* to mean a class of lexical items that share a certain morphological property, then there are in fact lexical categories in Tagalog. This is because roots and affixed forms in Tagalog have different morphological combinatorial possibilities. Thus, it is possible to distinguish categories of lexical items based on what kinds of morphological processes and affixation they can undergo.

For example, there is the lexical category of *roots*, which can be defined as lexical items that have undergone no morphological processes. Examples of roots are *bili* ‘buy’, *saya* ‘joy’, and *aso* ‘dog’. Roots themselves can be classified into subclasses based on what kind of affixes they can take on. For example, roots like *kuha* ‘take’ and *patay* ‘kill’ take the Agent Voice infix *-um-* and not *mag-*; while roots like *taka* ‘astonishment’ and *kunwari* ‘pretend’ take only *mag-* and never *-um-*. In addition, not all roots can be marked for all the possible voices. For example, *taka* ‘astonishment’ cannot be marked for Patient Voice. Thus, roots can be classified into morphologically-based lexical categories because they each differ in the kinds of affixes they can take on. Ramos (1974), McFarland (1976), and Schachter and Otanes (1972) propose inventories of morphologically-defined word classes for Tagalog roots.

Voice-marked lexical items also form their own lexical category, by virtue of being marked for voice. These include *bilhin* ‘buy (something)’, *sumaya* ‘become happy’, and *mag-aso* ‘have a dog’. Aspect-marked lexical items can also be distinguished as a lexical category, by virtue of being marked for aspect. These include *binili* ‘bought (something)’,

---

There is more than one voice affix per voice class. *Mag-* is another Agent Voice affix.
sumasaya ‘becoming happy’, and nag-aso ‘had a dog’. Furthermore, different voice-marked forms are aspect-marked in different ways. For example, the contemplated aspect form of sumaya ‘become happy’ is sasaya ‘will become happy’, which involves only reduplication of the first syllable of the root saya ‘joy’. In contrast, the contemplated aspect form of nag-aso ‘had a dog’ is mag-a-aso ‘will have a dog’, which involves a change in the prefix nag- to mag-, in addition to reduplication of the first syllable of the root aso ‘dog’. Thus, lexical items can be put into different categories depending on how they are voice- and aspect-marked.

Lexical items that bear the stative prefix ma- also form their own lexical category. The lexical items in this category have the property of being unable to be marked for aspect. Examples of such stative-prefixed lexical items include ma-bili ‘bestselling’, ma-saya ‘happy’, and ma-aso ‘overrun with dogs’.

There are many more word classes that can be defined morphologically in Tagalog. In fact, it is possible to define a word class for each morphological affix or process — the members of such classes would be those lexical items that take that affix or undergo that process.

As noted earlier, the usual practice is to call the class of voice- and aspect-marked lexical items verbs, the class of ma-prefixed stative forms adjectives, and those lexical items that are not marked with these morphemes nouns. While in principle, one can give these names to these morphologically-defined word classes in Tagalog, it is not a good idea to do so for the following reason. As explained earlier, in languages like English, lexical categories such as noun and verb are also syntactic categories — items that belong to a given lexical category also share syntactic properties. This, however, is not the case in Tagalog. As shown in (20)-(24) above, word-class distinctions among lexical items in Tagalog do not carry over into the syntax. Syntactically, any root or affixed form (other than pronouns and function words) can occur sentence-initially and as the complement of a case marker. Thus, using traditional lexical category labels such as noun and verb for Tagalog lexical items can be misleading because these lexical distinctions do not correlate with the syntactic distinctions that can be made in Tagalog.
I adopt the position advocated in Himmelmann (2008) that morphologically-based lexical categories must be distinguished from distributionally-defined syntactic categories in Tagalog, and that the traditional labels of noun and verb are not appropriate for describing Tagalog data. I will refer to morphologically-based lexical categories by the morphological property that defines them — for example, “voice-marked expressions”, “aspect-marked expressions”, and “ma-prefix ed statives”. In the following section, I explain why I use the syntactic distinction between predicate and case-marked expression in my analysis of the distribution of mga instead of the traditional syntactic categories of noun and verb.

3.2 Syntactic categories in Tagalog

Richards (2009b, p.181) claims that there are syntactic contexts in Tagalog in which the predicate must be “morphologically verbal”. Richards does not explicitly define what he means by “verbal”, but the examples he provides contrast the voice- and aspect-marked predicate mag-aral ‘study’, which he calls a verbal predicate, with expressions that are not voice- or aspect-marked and are commonly translated into English as nouns (doktor ‘doctor’), adjectives (maganda ‘beautiful’), and prepositional phrases (nasa gitna ‘in the middle’). He calls these expressions non-verbal predicates. Richards claims that in infinitival clauses, only verbal predicates may occur as-is; non-verbal predicates must be preceded by what he analyzes as the copula in Tagalog, maging ‘become/be’. Thus, infinitival clauses, Richards claims, are an example of a syntactic context that distinguishes between verbal predicates and non-verbal predicates.

For example, in (25), doktor ‘doctor’ must be preceded by maging ‘become/be’ when it occurs as a complement of the control predicate ayaw ‘not want’ (Richards 2009b, p.182):

not.want 1sg.IND already.LK be doctor
‘I don’t want to be a doctor anymore.’

b. *Ayaw ko nang doktor.
not.want 1sg.IND already.LK doctor
‘I don’t want to be a doctor anymore.’
In contrast, in (26), *mag-aral* ‘study’ does not need to (and in fact, cannot) co-occur with *maging* ‘become/be’ when it occurs as a complement of the control predicate *ayaw* ‘not want’:

(26) a. Ayaw ko nang mag-aral.
    not.want 1sg.IND already.LK study.AV
    ‘I don’t want to study anymore.’

b. *Ayaw ko nang maging mag-aral.
    not.want 1sg.IND already.LK be study.AV
    ‘I don’t want to study anymore.’

However, I claim that it is not the case that expressions such as *doktor* ‘doctor’ cannot occur as the complement of a control predicate such as *ayaw* ‘not want’ without *maging* ‘become/be’. (27) shows that *doktor* ‘doctor’ can occur in this syntactic position if it is inflected for voice:

(27) Ayaw ko nang mag-doktor.
    not.want 1sg.IND already.LK doctor.AV
    ‘I don’t want to be a doctor anymore.’

Thus, the distinction made by the complement position of the control verb *ayaw* ‘not want’ is a lexical one: it requires a voice-marked expression. *Mag-doktor* ‘become/be a doctor’ and *mag-aral* ‘study’ are both voice-marked predicates. Since voice-marked predicates are verbal predicates in Richards’s analysis, this does not contradict his claim that the complement of the control verb must be a verbal predicate — that is to say, that it must be a voice- or aspect-marked predicate, or a non-verbal predicate that is verbalized by the copula *maging* ‘become/be’. However, as I discuss in this chapter, it is misleading to call a distinction between voice-marked expressions and non-voice-marked expressions a distinction between verbs and non-verbs. The reason for this is that the distinction between voice-marked expressions and non-voice-marked expressions is a morphological one in Tagalog, based on the presence or lack of voice marking. In contrast, the distinction between verbs and nouns evokes correspondences in syntactic and semantic properties that do not occur in Tagalog.
de Guzman (1996) uses the semantic distinction between event-denoting expressions and entity-denoting expressions to differentiate syntactic categories of verbs and nouns in Tagalog. For example, she claims that in the X nang X construction, which can be translated as ‘keep on X-ing’, only certain expressions can occur as X. She claims that these expressions are verbs, and that those that cannot occur as X are nouns. According to de Guzman (1996, p. 309), in (28), for example, bumili ‘bought’ can occur as X in X nang X, while maestra ‘teacher’ cannot:

(28) a. Bumili nang bumili ang bata ng saging.
    buy.AV.PERF CONJ buy.AV.PERF DIR child INDIR DIR banana
    ‘The child kept buying bananas.’

      teacher CONJ teacher DIR mother 3sg.IND
      ‘Her mother keeps being/acting like a teacher.’

But in fact, (28b) can be acceptable — for example, in the context given in (29):

(29) Context: We are talking about our friend’s mother who continues to take on teaching jobs even though she is not qualified to do so.

   Maestra nang maestra ang nanay niya.
   teacher CONJ teacher DIR mother 3sg.IND
   ‘Her mother keeps being/acting like a teacher.’

Thus, in contrast to de Guzman’s (1996) claim, the X nang X construction does not provide evidence for syntactically differentiating categories of noun and verb in Tagalog. In addition, this construction also illustrates how expressions such as maestra ‘teacher’ can have an event-denoting meaning even though they are not inflected for voice. (29), for example, shows that in the X nang X construction, maestra ‘teacher’ can denote an event (‘be/act like a teacher’) even though it is not inflected for voice. This is why it is not acceptable to use semantic criteria to differentiate lexical and syntactic categories, because expressions that have different lexical and syntactic properties (such as roots and voice-marked expressions) can have the same kind of meaning (such as being event-denoting).
Given the lack of evidence for a syntactic distinction between nouns and verbs in Tagalog, in my analysis of the distribution of mga, I distinguish between predicates and case-marked expressions instead.

There are expressions in Tagalog that are neither predicates nor case-marked expressions. These expressions include the case markers, the inversion marker ay, and predicate modifiers such as the negator hindi ‘not’. Other expressions that are neither predicates nor case-marked expressions include the modals baka ‘maybe’, siguro ‘most probably’, dapat ‘should’, kailangan ‘it is necessary that’, maaari ‘it is possible that’, sana ‘I hope/wish’, as well as conjunctions such as kung ‘if’, and dahil ‘because’. These expressions take a sentential complement and form another sentence. Since the plural marker mga only applies to predicates, I do not include these sentential modifiers in my analysis.

3.3 Conclusion

While Tagalog expressions can be classified into lexical categories based on their morphological properties, these morphological distinctions do not correspond to syntactic distinctions. Thus in my analysis of the distribution of mga, I make use of the syntactic distinction between predicates and case-marked expressions instead of the traditional categories of noun, verb, and adjective since these distinctions are not able to be made in Tagalog. In the next chapter, I show that the syntactic distribution of mga is that it occurs only before a one-place predicate, and it combines with this predicate to form another one-place predicate.
Chapter 4
THE SYNTAX OF Mga

In this chapter, I first present my own analysis of mga as a predicate modifier that occurs before a one-place predicate and combines with this predicate to form another one-place predicate. Then I discuss the previous descriptions of the syntactic distribution of mga. Taken together, these previous descriptions characterize mga as having a varied syntactic distribution because they claim that mga can co-occur with constituents of different syntactic categories. The analysis I present shows that instead of characterizing mga as a plural marker that applies to constituents of different syntactic categories, it can be more simply described as a modifier of one-place predicates.

4.1 The syntactic distribution of mga

The discussions of mga in Schachter and Otanes (1972), Wolff et al. (1991), Ikari (1989), Kolmer (1998), Corbett (2000) and Ortmann (2004) describe mga as a plural marker that can combine with constituents that belong to different syntactic categories. This is illustrated in (30), where mga combines with constituents that are translated into English as, respectively, a noun, a name, a verb, an adjective, a prepositional phrase, and a complex noun phrase:

(30)  a. Mga [aso] sila
      PL  dog 3pl.DIR
      ‘They are dogs.’

 b. Mga [Maria] sila
      PL  Maria 3pl.DIR
‘They are Marias.’

c. **Mga** [nagaaral] sila
   PL study.AV.IMPERF 3pl.DIR
   ‘They are students.’

d. **Mga** [maganda] sila
   PL beautiful 3pl.DIR
   ‘They are beauties.’

e. **Mga** [para sa iyo] sila
   PL for OBL 2sg.OBL 3pl.DIR
   ‘They are for you.’

f. **Mga** [bumili ng isda sa palengke] sila
   PL buy.AV.PERF IND fish OBL market 3pl.DIR
   ‘They are buyers of fish at the market.’

I claim that what is actually going on in the examples in (30) is that **mga** is combining with one-place predicates that combine with a direct case-marked expression to form a sentence. This is better illustrated if we look at versions of the sentences in (30) without **mga**, given in (31):

(31) a. **[Aso]** _pred_ sila
    dog 3pl.DIR
    ‘They are dogs.’

b. **[Maria]** _pred_ sila
    Maria 3pl.DIR
    ‘They are Marias.’

c. **[Nagaaral]** _pred_ sila.
    study.AV.IMPERF 3pl.DIR
    ‘They are studying.’

d. **[Maganda]** _pred_ sila.
    beautiful 3pl.DIR
    ‘They are beautiful.’

e. **[Para sa iyo]** _pred_ sila
    for OBL 2sg.OBL 3pl.DIR
    ‘They are for you.’
f. \([\text{Bumili ng isda sa palengke}]_{\text{pred}} \text{sila.}\)

\[\text{buy.AV.PERF IND fish OBL market 3pl.DIR}\]

‘They bought fish at the market.’

For example, in (31a)-(31e), the sentence-initial predicate (which I have put in brackets for clarity) combines with the direct case-marked third-person plural pronoun \(\text{sila} \ ‘\text{they}’\) to form a sentence. In (31f), the predicate \(\text{bumili} \ ‘\text{buy}’\) has already combined with its indirect case-marked Patient argument \(\text{ng isda} \ ‘\text{fish}’\) and an oblique case-marked Locative modifier \(\text{sa palengke} \ ‘\text{at the market}’\) to form the one-place predicate \(\text{bumili ng isda sa palengke} \ ‘\text{bought fish at the market}’\), which only needs to combine with its direct case-marked Agent argument in order to form a sentence.

Thus, in the sentences in (30), \(\text{mga}\) combines with a one-place predicate and forms a predicate of the same type (i.e. one that needs to combine with just a direct argument to form a sentence). This new predicate then goes on to combine with the direct case-marked pronoun \(\text{sila} \ ‘\text{they}’\) to form a sentence. This means that syntactically, \(\text{mga}\) is a predicate modifier: it combines with a one-place predicate to form another one-place predicate.

The data in (32) and (33) show that: (1) the expressions that \(\text{mga}\) combines with are indeed predicates, and (2) the resulting \(\text{mga}\)-marked expressions are themselves also predicates. In each of the sentences in (32), the boldfaced expressions are predicates because they occur sentence-initially and they can also occur as complements of a case marker:

\[
\begin{align*}
\text{(32) a. } & \quad [\text{Aso}]_{\text{pred}} [\text{ang [aso]}_{\text{pred}}]_{\text{cme}} \\
& \quad \text{dog} \quad \text{DIR dog} \\
& \quad \text{‘The dog is a dog.’} \\
\text{b. } & \quad [\text{Maria}]_{\text{pred}} [\text{ang [Maria]}_{\text{pred}}]_{\text{cme}} \\
& \quad \text{Maria} \quad \text{DIR Maria} \\
& \quad \text{‘The Maria is a Maria.’} \\
\text{c. } & \quad [\text{Nagaaral}]_{\text{pred}} [\text{ang [nagaaral]}_{\text{pred}}]_{\text{cme}} \\
& \quad \text{study.AV.IMPERF DIR study.AV.IMPERF} \\
& \quad \text{‘The student is studying.’} \\
\text{d. } & \quad [\text{Maganda}]_{\text{pred}} [\text{ang [maganda]}_{\text{pred}}]_{\text{cme}} \\
& \quad \text{beautiful} \quad \text{DIR beautiful} \\
& \quad \text{‘The beauty is beautiful.’}
\end{align*}
\]
In each of the sentences in (33), *mga* combines with these boldfaced predicates to form expressions that themselves are also predicates because they occur sentence-initially and as complements of the direct case marker *ang*:

   PL dog  DIR PL dog
   ‘The dogs are dogs.’

   PL Maria  DIR PL Maria
   ‘The Marias are Marias.’

   PL study.AV.IMPERF  DIR PL study.AV.IMPERF
   ‘The students are students.’

   PL beautiful  DIR PL beautiful
   ‘The beauties are beauties.’

   PL for OBL 2sg.OBL  DIR PL for OBL 2sg.OBL
   ‘The (ones) for you are (ones) for you.’

   PL buy.AV.PERF IND fish OBL market  DIR PL
   ‘The buyers of fish at the market are buyers of fish at the market.’

I will now show that *mga* cannot combine with expressions that are not predicates. The sentences in (34) show that *mga* cannot combine with direct and indirect case-marked expressions:
The grammatical versions of the sentences in (34), given in (35), show that mga must combine with predicates. In (35c), for example, Fido is no longer a case-marked proper name si Fido ‘Fido’, but is now a predicate Fido that means ‘one named Fido’. As (35c) shows, mga can combine with the predicate Fido, and what gets case-marked with the non-proper-name direct case marker ang is the predicate expression mga Fido, which means ‘ones named Fido’.

In sentence (36), the argument of the predicate tumahol ‘barked’ is the third person singular direct case pronoun siya. As (36) shows, mga cannot combine with the pronoun siya because siya is inherently marked for direct case. Thus analyzing mga as a predicate modifier correctly predicts that siya cannot combine with mga.
In contrast to direct and indirect case-marked expressions, *mga* can combine with oblique case-marked expressions. This is because oblique case-marked expressions are predicates, as in (37a).

(37) a. [Sa Manila]\_pred [ang kasal]\_cme
    OBL Manila   DIR wedding
    ‘The wedding is in Manila.’

b. Mga sa Manila ang kasal.
    PL OBL Manila DIR wedding
    ‘The weddings are (ones) in Manila.’

Expressions marked for indirect case cannot occur as predicates, as shown by (38), which does not have an English translation because its ungrammaticality makes it nonsensical:

(38) *[Ng bata]\_pred [ang mangga]\_cme
    IND child   DIR mango

Expressions marked for direct case can occur sentence-intially — however, such sentences are equative sentences made up of two direct case-marked expressions. The sentence-initial expression marked for direct case is not a predicate:

(39) [Ang bata]\_cme [ang estudyante]\_cme
    DIR child   DIR student
    ‘The child is the student.’

Since oblique case-marked expressions are predicates, it is not surprising under an analysis of *mga* as a predicate modifier that *mga* can combine with oblique case-marked expressions. Further examples of *mga* with oblique case-marked expressions are in (40). In (40a) and (40c), *mga* combines with the oblique case-marked expression *sa Manila*, while in (40b) it combines with the oblique personal pronoun *akin* ‘mine’.

(40) a. Kumain ang *mga* [sa Manila].
    eat.AV.PERF DIR PL OBL Manila
    ‘The Manilans ate.’

b. Kumain ang *mga* [akin].
    eat.AV.PERF DIR PL 1sg.OBL
    ‘Mine (pl.) ate.’
To summarize, *mga* is a predicate modifier that combines with a one-place predicate to form another one-place predicate.

4.2 Previous descriptions of *mga*

4.2.1 Schachter and Otanes (1972)

Schachter and Otanes (1972) characterize *mga* as marking what they call nouns and nominalizations, some demonstrative pronouns, and adjectives. For Schachter and Otanes, nouns are entity-denoting case-marked expressions, while nominalizations are voice- and aspect-marked expressions that are case-marked. As for adjectives, Schachter and Otanes acknowledge that it can be difficult to distinguish between nouns and adjectives in Tagalog since an expression such as *bato* ‘rock’ can be classified in their analysis as a noun if it is case-marked, and as an adjectival predicate if it occurs sentence-initially. They treat as adjectives the expressions prefixed by the stative *ma-* , as well as expressions that can be prefixed by *napaka-* ‘very’. Using prefixation with *napaka-* ‘very’ to distinguish a class of adjectives is problematic, because even expressions such as *aso* ‘dog’, which Schachter and Otanes classify as a noun, can be prefixed with *napaka-* . This is shown in (41).

\[(41) \text{Napaka-aso ang ugali niya.} \]
\[
\quad \text{very-dog DIR conduct 3sg.IND}
\quad \text{‘His conduct is so dog-like.’}
\]

In the grammar fragment that I present in Chapter 6, I treat the different categories that Schachter and Otanes list as being able to combine with *mga* as simply predicates.\[14\]

The syntactic distinctions I make in my fragment allow for a simpler characterization of the

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\[14\] Except for demonstrative pronouns, which are inherently case-marked expressions. Because they are case-marked expressions, my analysis incorrectly predicts that demonstrative pronouns are unable to combine with *mga*. I leave the interaction of demonstrative pronouns and *mga* for future work because not all demonstrative pronouns can combine with *mga*, so the irregularities need to be examined more closely.
syntactic distribution of *mga* — namely, that it occurs before predicates and modifies these predicates.

### 4.2.2 Ikari (1989)

Ikari (1989) compares pluralization in Japanese and Tagalog, and says that in both languages, number is often unspecified. He characterizes *mga* as being used to explicitly mark the plurality of what he calls nouns, such as *bata* ‘child’ and *libro* ‘book’, and deictic pronouns such as *ito* ‘this’. Ikari does not make explicit how he distinguishes nouns in Tagalog. All of his examples involve expressions which denote entities and which are commonly translated into English as nouns, such as those mentioned above, along with *dalaga* ‘girl’, *bisita* ‘visitor’, *propesor* ‘professor’, *mansanas* ‘apple’, and *mesa* ‘table’. As I discuss in Chapter 3, expressions such as these are best classified as predicates in Tagalog.

Ikari claims that when the plurality of an expression is already marked by a numeral, *mga* does not occur because it would be redundant plural marking. For example, he claims that *mga* cannot occur in an expression such as *dalawang mansanas* ‘two apples’ (p.52) because plurality is already explicitly marked by *dalawa* ‘two’. However, he does note some instances in which *mga* is redundant plural marking but can nevertheless occur — specifically, with modifiers such as *marami* ‘many’, and *lahat* ‘all’.

There is evidence that *mga* can occur even in an expression where a numeral already provides a meaning of plurality. For example, the traditional Tagalog children’s song *Sampung Mga Daliri* ‘Ten Fingers’, which names the parts of the body, begins with:

(42) Sampung mga daliri, kamay, at paa . . .  
	ten.LK PL finger hand and feet  
‘Ten fingers, hands, and feet . . . ’

Even though *sampung* ‘ten’ already contributes the meaning of plural fingers, *mga* also occurs. Thus this is evidence against the claim that *mga* cannot occur in an expression when a numeral already provides a meaning of plurality.
4.2.3 Wolff et al. (1991)

Wolff et al. (1991, p.16) describe plural marking in Tagalog as being optional, and characterize *mga* as being able to pluralize “almost any form”. However, they do not elaborate on what kinds of forms can be pluralized by *mga*. The examples and exercises they give relevant to *mga* (p.23) involve expressions that are traditionally classified as nouns, which are simply one-place predicates in my analysis: *anak* ‘child’, *bahay* ‘house’, *kwarto* ‘room’, *kaibigan* ‘friend’, *kasama* ‘companion’, *babae* ‘woman’, and *iskwelahan* ‘school’. They also give a few examples of *mga* with demonstrative pronouns, such as *mga ito* ‘these’ and *mga iyan* ‘those’ (p.87).

4.2.4 Kolmer (1998)

Kolmer (1998) examined 423 occurrences of *mga* in Bloomfield (1917), and concluded that *mga* occurs in the following syntactic contexts:

(43)  
\begin{enumerate}
\item \textbf{Before a sentence-initial predicate:}
\[ \text{Mga tamad sila.} \quad \text{PL lazy 3pl.DIR} \]
\[ 'They are lazy.' \quad \text{\cite{Kolmer1998} p.13} \]
\item \textbf{In between a case marker and its complement:}
\[ \text{Iyon ang mga bago.} \quad \text{DIR PL new} \]
\[ 'Those are the new ones.' \quad \text{\cite{Kolmer1998} p.12} \]
\item \textbf{After the existential *may*:}
\[ \text{May mga aso.} \quad \text{EXIST PL dog} \]
\[ 'There are dogs.' \]
\item \textbf{In between the locative *nasa* ‘in’ and its complement:}
\[ \text{Nasa mga barrio ang fiesta.} \quad \text{DIR village} \]
\end{enumerate}

\footnote{Kolmer does not give examples for all of these syntactic contexts in which *mga* can occur, so in (43) I note which examples come from her paper. The examples that are not from her paper are my own.}
‘The festival is in the villages.’

e. **Before a prepositional construction beginning with *para sa* ‘for’:**

Iyon ang mga para sa iyo.
those DIR PL for OBL 2sg.OBL

‘Those are the (ones) for you.’ (Kolmer, 1998, p.12)

Kolmer defines a predicate as a sentence-initial expression that is not marked for case, which is similar to my definition of predicate except for two things: first, Kolmer does not classify the complement of a case marker as a predicate; second, Kolmer’s definition does not allow for oblique case-marked expressions to occur sentence-initially as predicates. Kolmer characterizes *mga* as always occurring before the expression it modifies; however, because she does not classify sentence-initial expressions and the complements of case markers as predicates, she is not able to make the generalization that the expressions that *mga* combines with can all be classified as belonging to the same syntactic category, which I call one-place predicate. Although Kolmer does say that *mga* is a modifier and precedes the expression that it modifies, she does not make the claim that I do, which is that *mga* is modifier of one-place predicates because it combines with one-place predicates to form one-place predicates. Under my analysis, *mga* has a simpler and unified syntactic distribution.

As for the meaning of *mga*, Kolmer says that when *mga* combines with expressions denoting countable entities, it denotes “distributive plurality” (p.18); however, she does not provide any further explanation or examples of what she means by “distributive plurality”. She says that *mga* can combine with expressions that denote either entities (which she takes to be case-marked expressions) or expressions that denote events or states (which she takes to be predicates), but the resulting expression with *mga* always denotes plural entities.

I agree with Kolmer’s analysis of *mga* as an entity pluralizer. However, as I discuss in the next chapter, voice-marking on a *mga*-marked predicate is also important because it indicates which entity in an event is pluralized by *mga*. I also explore in greater detail the distributive meaning of *mga*. 

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4.2.5 Corbett (2000)

Corbett (2000, pp.16, 134) says that *mga* “may occur before virtually any constituent”. The examples he gives involve expressions traditionally classified as count nouns, such as *mga aso* ‘dogs’, *mga bahay* ‘houses’; mass nouns, such as *mga tubig* ‘cups/units of water’; personal names, such as *mga Marcos* ‘Marcoses’; and expressions with the stative prefix *ma-*, which have traditionally been called adjectives, such as *mga maputi* ‘white ones’.

In my analysis, these expressions are all classified belonging to the syntactic category of one-place predicates, which *mga* modifies.

4.2.6 Ortmann (2004)

Ortmann (2004) characterizes Tagalog as a language where redundant plural marking is not allowed in expressions where plurality is already marked by a numeral or a quantifier. In his analysis, which uses Optimality Theory (Prince and Smolensky 1993), a constraint that prevents plural marking within the DP, *PL(DP)*, is ranked highest in a language such as Tagalog. He also notes that plural marking is optional in Tagalog, and that expressions can be unspecified for number. He describes *mga* as occurring before nouns and adjectives.

(42) showed that *mga* can occur even when the plural meaning it contributes is redundant. I agree, however, with Ortmann’s claims that plural marking is optional in Tagalog, and that expressions are unspecified for number. The nouns and adjectives that Ortmann describes *mga* as occurring with are more simply analyzed as one-place predicates in my fragment.
Chapter 5
THE SEMANTICS OF Mga

In this section, I discuss the meaning of mga. First, I establish that predicates of type \(<et>\) in Tagalog are unspecified for number because they can have either singular or plural referents. I then introduce Link’s (1983) approach to plurality, which is the framework that I adopt for my analysis of the meaning of mga. Then, I discuss the three main parts of the meaning of mga: (1) mga applies to a predicate denoting a set of entities and requires that the denotation of the mga-marked predicate contain only pluralities; (2) mga is distributive; (3) voice marking on a mga-marked predicate indicates which entity in an event is being indicated as plural by mga.

5.1 Tagalog predicates of type \(<et>\) are unspecified for number

In order to describe the meaning of mga, we first have to establish the number interpretation of the type \(<et>\) predicates that it combines with. As noted in Schachter and Otanes (1972); Kolmer (1998); Corbett (2000), type \(<et>\) predicates in Tagalog are unspecified for number. Thus libro ‘book’ in (44) can be used to refer to a single book or a pile of books:

(44) Nasa mesa ang libro.
OBL.on table DIR book
‘The book(s) is/are on the table.’

Schachter and Otanes (1972) p.111

Here are two more examples, with indirect and oblique arguments that can be understood as either singular or plural. (45) can be uttered in a context where the woman brought
one book, and also in a context where she brought more than one book:

(45) Nagdala ng libro ang babae.
   bring.AV.PERF IND book DIR woman
   ‘The woman brought a book/books.’

Similarly, (46) can be uttered in the following contexts: (1) the woman put a single bookmark in a single book; (2) the woman put several bookmarks in a single book; (3) the woman put several bookmarks in several books; (4) the woman put a single bookmark in several books over a period of time.

(46) Naglagay ng bookmark ang babae sa libro.
   put.AV.PERF IND bookmark DIR woman OBL book
   ‘The woman put a bookmark/bookmarks in a book/books.’

Thus, predicates of type <et> in Tagalog are unspecified for number. Consequently, their denotations must contain both singular and plural individuals. To formally represent this kind of denotation, I use Link’s (1983) analysis of English plurals, which has an individual sum (i-sum) operation \( \sqcup_i \), represented syntactically as \( \oplus \). The i-sum operation takes two individuals and yields their i-sum, which itself is an individual of the same type as the original two individuals that comprise it. For example, if \( a \) and \( b \) are individuals of type \( e \), then their i-sum \( a \oplus b \) is also an individual of type \( e \).

Using Link’s framework, we could represent the denotation of boys as the set \{ j, b, j\oplus b \}. Each element of this set is an individual of type \( e \). Thus, predicates that apply to this set only need to take arguments of one type — namely, \( e \).

It is also possible to represent plural members of a set as subsets instead of as plural individuals. However, this approach will necessitate type-shifting the predicate or the argument, because individuals and sets of individuals are of different types. For example, in a subsets approach the denotation of boys would be \{ j, b, \{ j, b \} \}. The plurality \{ j, b \} is no longer of type \( e \) but is of type \( et \). Thus a predicate like happy, which is of type \( et \), cannot take the plurality \{ j, b \} as its argument. We must either type-raise the predicate or shift the type of \{ j, b \} to \( e \).
The \textit{i-sum} operation in Link’s framework that allows pluralities to be individuals of type \textit{e} gives us the same result as this type-shifting, so essentially one can use either approach to represent pluralities. In this paper, I adopt Link’s framework. The meaning of a Tagalog predicate of type \textit{<et>} can be represented as \textit{*P}, which uses Link’s * operator. This operator is of type \textit{<et, et>}: it applies to a predicate \textit{P} of type \textit{<et>} and yields a set containing all the atomic members of \textit{P} as well as the \textit{i-sums} that can be formed from these atomic individuals. Thus \textit{*P} contains both atomic and plural individuals. This is the correct denotation for a Tagalog predicate of type \textit{<et>}, which is unspecified for number.

5.2 \textit{Mga} indicates plural entities

\cite{Kolmer} correctly characterized the meaning of \textit{mga} as indicating that the predicate it combines with holds of plural entities only. \textit{Mga} combines with a predicate of type \textit{<et>} and requires that the denotation of this predicate contain only pluralities. There are therefore no atoms in the denotation of \textit{mga}-marked predicate, which is consistent with the fact that a \textit{mga}-marked predicate cannot be used to refer to a singularity. This is shown by (47)-(49), which are each false in their respective given contexts:

\begin{enumerate}
\item Context: There is one book on the table.
\begin{verbatim}
Nasa mesa ang mga libro.
on.OBL table DIR PL book
\end{verbatim}
‘The books are on the table.’
\item Context: The woman brought one book.
\begin{verbatim}
Nagdala ng mga libro ang babae.
bring.AV.PERF IND PL book DIR woman
\end{verbatim}
‘The woman brought books.’
\item Context: The woman put a bookmark in one book.
\begin{verbatim}
Naglagay ng bookmark ang babae sa mga libro.
put.AV.PERF IND bookmark DIR woman OBL PL book
\end{verbatim}
\end{enumerate}
‘The woman put bookmarks in books.’

That *mga* indicates plural entities and not plural events is shown by the contrast between (50) and (51). In (50), there are two sneezers, and so the use of *mga* with the predicate *humatsing* ‘sneezed’ is acceptable. In (51), however, there is only one sneezer but two sneezing events — *mga* is not able to be used in this example to mean that there was more than one sneezing event. Thus, when *mga* combines with a predicate, it indicates that there are plural entities of which that predicate is true.

(50) Context: The two children standing in front of me each sneeze once.

\[
\text{Mga humatsing \ ang \ mga bata.}
\text{PL sneeze.AV.PERF DIR PL \ child}
\]

‘The children are sneezers.’

(51) Context: The child standing in front of me sneezed two times.

\[
*\text{Mga humatsing \ ang \ bata.}
\text{PL \ sneeze.AV.PERF DIR \ child}
\]

Intended meaning: ‘The child sneezed multiple times.’

To formally capture the generalization that *mga*-marked predicates can only have plural entities in their denotations, I make use of Link’s (1983) proper plural operator \(\oplus\). This operator \(\oplus\), which is of type \(<\text{et, et}>\), applies to a predicate \(P\) of type \(<\text{et}>\) and generates a set containing only the non-atomic individuals in the extension of \(P\). Formally, \(\oplus P\) is defined as \(\oplus P(a) \leftrightarrow \ast P(a) \land \neg \text{Atom}(a)\), where \(P\) is a one-place predicate of type \(<\text{et}>\) and \(a\) is an individual of type \(<\text{e}>\). The definition says that \(\oplus P\) is true of \(a\) iff \(\ast P\) is true of \(a\) and \(a\) is not an atom (namely, \(a\) is a plural individual with subparts). Since Tagalog predicates are unspecified for number, their meaning can be represented as \(\ast P\), which is a set that contains both atomic and plural individuals. Thus the non-atomic, plural individual \(a\) can be a member of \(\ast P\). If the non-atomic, plural individual \(a\) is a member of \(\ast P\), then it is also a member of \(\oplus P\).
I take the function of \textit{mga} to be exactly what Link’s proper plural operator \(\odot\) does — namely, \(mga\) excludes atomic individuals from being included in the denotation of the predicate it forms. In this way, a \(mga\)-marked predicate denotes only pluralities.

5.3 \textit{Mga} is distributive

Without \(mga\), a predicate can have a collective or a distributive interpretation. Sentence (52), which contains the predicate \textit{mabigat} ‘heavy’, is true in both contexts 1 and 2 below:

1. Collective heaviness: Ten basset hounds want to sleep on an inflatable mattress. Each hound weighs 50 pounds, which is a normal weight for a basset hound. Together, all ten hounds weigh 500 pounds, which is over the weight limit for the inflatable mattress.

2. Distributive heaviness: I take care of ten basset hounds. Each hound weighs 100 pounds, which is overweight for a basset hound.

\[(52) \quad \text{Mabigat ang mga aso.} \]
\[\text{heavy \quad DIR PL \quad dog} \]
\[\text{‘The dogs are heavy.’} \]

A predicate marked by \(mga\) is distributive: it must be true of all subparts of the pluralities in the denotation of the predicate; furthermore, these subparts must be the smallest units that the predicate can be true of. For example, in Contexts 1 and 2 above, the smallest unit that the predicate \textit{mabigat} can be true of is an atomic individual dog. Thus, in Context 1, where each dog is not individually heavy, (53) is false, while in Context 2, where each dog is individually heavy, (53) is true.

\[(53) \quad \text{Mga mabigat ang mga aso.} \]
\[\text{PL \quad heavy \quad DIR PL \quad dog} \]
\[\text{‘The dogs are (each) heavy.’} \]

The following meaning postulate formalizes the distributive meaning of \(mga\). It says that for all predicates \(P\) that \(mga\) combines with and all plural individuals \(X\), if \(\odot \ast P(X)\)
is true then the predicate \( *P \) is true of all subparts \( x \) of the plural individual \( X \) which are the smallest units that the predicate \( *P \) can be true of:

\[
(54) \quad \forall P \forall X [\circ *P(X) \rightarrow \forall x [x \leq \text{smallest.arg.unit.of.} *P \ X \rightarrow *P(x)]]
\]

As discussed in section 5.1, since Tagalog predicates of type \( <\text{et}> \) are unmarked for number, I translate them semantically as Link’s (1983) starred (*) predicates, which contain both atoms and pluralities in their denotations. This is why \( *P \) is present in the meaning postulate in (54) above. As for the distributivity itself, a \( mga \)-marked predicate must be true of all subparts of the pluralities in the denotation of that predicate. These subparts are not necessarily atoms; instead, they must be the smallest units that the predicate can be true of. For example, in (55), the predicate \( \text{tamad} \) ‘lazy’ can be true of an atomic individual. Thus, when \( mga \) combines with \( \text{tamad} \) ‘lazy’ and forms the predicate \( mga \text{ tamad} \) ‘lazy (ones)’, which contains only pluralities in its denotation, it must be the case that \( \text{tamad} \) ‘lazy’ is true of all the atomic individuals that are subparts of the pluralities in the denotation of \( mga \text{ tamad} \) ‘lazy (ones)’.

\[
(55) \quad \text{Mga tamad sila.}
\]
\[
\text{PL lazy 3pl.DIR}
\]

‘They are (each) lazy.’

In contrast, a predicate such as \( \text{pares} \) ‘pair’, cannot be true of an atomic individual but can be true of a plurality made up of two atomic individuals. When \( mga \) combines with \( \text{pares} \) ‘pair’ to form \( mga \text{ pares} \) ‘pairs’, it must be the case that \( \text{pares} \) ‘pair’ is true of all the subparts of the pluralities in the denotation of \( mga \text{ pares} \) ‘pairs’ that are made up of two atomic individuals. In Context 1, (56) is true because the assortment of shoes is composed of subparts which are each pairs. In Context 2, however, (56) is false because there is at least one shoe that is not part of a pair.

- **Context 1**: We work in a shoe store, and it’s our job to sort out the jumble of shoes in the clearance bin. I tell you that the shoes are all pairs. (56) is **true** in this context.

- **Context 2**: We work in a shoe store, and it’s our job to sort out the jumble of shoes in
the clearance bin. I know that some of the shoes in the bin are missing their partners and are therefore not part of a pair. (56) is false in this context.

(56) Mga pares sila.
   PL pair 3pl.DIR
   ‘They are pairs.’

Thus, the distributivity of mga does not require that the predicate it combines with be true of all atomic individuals in the denotation of that predicate; rather, it requires that the predicate must be true of all subparts of the pluralities in the denotation of that predicate that are the smallest units that the predicate can be true of.

5.4 Voice marking on a mga-marked predicate

Voice marking on a mga-marked predicate indicates the semantic role of the entities pluralized by mga. For example, in (57), mga combines with the type <et> predicate bumili ng mangga sa tindahan ‘buyer(s) of mangoes at the store’. The meaning of ‘buyer(s)’ comes from the agent voice marking on the predicate. Thus, the meaning of the mga-marked predicate is that there are plural buyers of mangoes at the store.

(57) Mga bumili ng mangga sa tindahan ang mga bata.
   PL buy.AV.PERF IND mango OBL store DIR PL child
   ‘The children are buyers of mangoes at the store.’

In (58) mga combines with the type <et> predicate binili ng mga bata sa tindahan ‘bought by the children at the store’, which is marked for patient voice. Thus the pluralized entity is the thing that is bought – the purchases made by the children at the store.

(58) Mga binili ng mga bata sa tindahan ang mangga.
   PL buy.PV.PERF IND PL child OBL store DIR mango
   ‘The mangoes are purchases of the children at the store.’

Lastly, in (59) mga combines with the type <et> predicate binilhan ng mangga ng mga bata ‘(location(s) at which) the children bought mangoes from’, which is marked for
locative voice. The pluralized entity is therefore the location at which the children bought the mangoes.

(59) Mga **binilhan** ng mangga ng mga bata **ang tindahan**.
    PL  buy.LV.PERF IND mango  IND PL  child DIR store
    ‘The stores are places where the children bought mangoes.’

Although Kolmer (1998) correctly characterized *mga* as an entity pluralizer, the voice marking on the predicate that *mga* combines with makes an important contribution to the meaning of the pluralized predicate, because it indicates which participants in an event are being indicated as plural.

5.5 Conclusion

*Mga* is a distributive entity pluralizer: it applies to a predicate of type \(<\text{et}>\), which denotes a set of entities, and pluralizes this predicate by requiring that the denotation of the predicate contain only pluralities. Kolmer’s (1998) description of *mga* as an entity pluralizer is correct; however, the following two points are also important for describing the meaning of *mga*: first, *mga* is distributive: it requires that the predicate hold of each subpart of the pluralities in the denotation of the predicate; these subparts must be the smallest argument units that the predicate can be true of. Second, voice marking on a *mga*-marked predicate indicates the semantic role of the entities pluralized by *mga*.

Formally, *mga* translates as Link’s (1983) $\otimes$ proper plural operator, which is of type \(<\text{et}, \text{et}>\), and removes any atomic individuals from the extension of the predicate it applies to, leaving only pluralities. The distributive meaning of *mga* is formalized by a meaning postulate which says that for all predicates $P$ that *mga* combines with and all plural individuals $X$, if $\otimes *P(X)$ is true then the predicate $*P$ is true of all subparts $x$ of the plural individual $X$ which are the smallest units that the predicate $*P$ can be true of.
Chapter 6
A CATEGORIAL GRAMMAR FRAGMENT FOR TAGALOG

In this chapter, I present the categorial grammar fragment for Tagalog that I use to formalize my analysis of the syntax and semantics of mga. First, I introduce the notations and combinatory rules of the categorial grammar variant that I am using, which is Lambek calculus (Lambek 1958). Then, I show the syntactic categories that my grammar fragment for Tagalog uses, along with the semantic translations that expressions of each syntactic category have. Lastly, I go through several derivations of sentences to illustrate my formal analysis of the syntax and semantics of mga.

6.1 Categorial grammar notation

The lexical entries that I present in this chapter use the following notation:

\[ \vdash p; A; a \]

which means that the grammar generates a sign with phonology \( p \), syntactic category \( A \), and meaning \( a \).

Lambek calculus uses directional slashes to indicate the direction in which a functor category combines with its argument. For example, an expression of syntactic category \( B/A \) combines with an expression of category \( A \) to its right (hence the rightward-leaning slash) to form an expression of category \( B \). Similarly, an expression of category \( A\backslash B \)
combines with an expression of category $A$ to its left (hence the leftward-leaning slash) to form an expression of category $B$.

In my derivations, I use the combinatory rules of \textit{forward function application} and \textit{backward function application}. In forward function application, the functor category combines with an argument to its right. \textbf{(60)} shows how this combination proceeds for the phonological, syntactic, and semantic parts of a lexical entry. The phonology $p_1$ of the first expression is concatenated with the phonology $p_2$ of the second expression to form the phonology of the resulting expression $p_1p_2$. The first expression is of syntactic category $A/B$ and so it can combine with the second expression, which is to its right and is of syntactic category $B$, to yield the resulting expression with syntactic category $A$. Lastly, the semantic translation of the first expression is a function $a$ that takes as its argument the semantic translation of the second expression, $b$, to yield the semantic translation of the resulting expression, which is $a(b)$.

\textbf{(60)  Forward function application}

$$
\frac{p_1:A/B;a}{p_1p_2:A:a(b)} \text{ FA}
$$

In backward function application, the functor category combines with an argument to its left. \textbf{(61)} shows how this combination proceeds for the phonological, syntactic, and semantic parts of a lexical entry. The phonology $p_1$ of the second expression is concatenated with the phonology $p_2$ of the first expression to form the phonology of the resulting expression $p_2p_1$. The second expression is of syntactic category $B\backslash A$ and so it can combine with the first expression, which is to its left and is of syntactic category $B$, to yield the resulting expression with syntactic category $A$. Lastly, the semantic translation of the second expression is a function $a$ that takes as its argument the semantic translation of the first expression, $b$, to yield the semantic translation of the resulting expression, which is $a(b)$.

\textbf{(61)  Backward function application}

$$
\frac{p_2:B:b}{p_2p_1:A:a(b)} \text{ BA}
$$
6.2 Syntactic categories and semantic translations

In this section, I present lexical entries that illustrate the syntactic categories in the Tagalog grammar fragment as well as the semantic translations that expressions of each syntactic category have.

6.2.1 Predicates

In Chapter 2, I defined a predicate syntactically as a sentence-initial expression that is either unmarked for case, or marked for oblique case, as well as an expression that is the complement of a case marker. Semantically, I defined a predicate as an expression that takes zero or more case-marked expressions as arguments. Predicates are classified into syntactic categories based on what case-marked expressions they subcategorize for. For example, a weather predicate such as \textit{uulan} ‘will rain’ in (62) does not subcategorize for any case-marked expressions and constitutes a sentence in itself. Therefore \textit{uulan} ‘will rain’ is of category \textit{S}. The semantic translation of \textit{uulan} ‘will rain’ is \textit{will.rain'}, which is of type \textit{<t>}.

(62) Uulan.
    rain.CONT
    ‘It will rain.’

(63) **Lexical entry for \textit{uulan} ‘will rain’:**

\[ \vdash \textit{uulan}; \textit{S}; \textit{will.rain'} \]

A one-place predicate (type \textit{<et>}) such as \textit{tumahol} ‘barked’ in (64) has the syntactic category \textit{S/Dir} since it combines with a direct case-marked expression to its right to form a sentence. The semantic translation of \textit{tumahol} ‘barked’ is \( \lambda x. *\textit{barked}'(x) \land \textit{Agent}(x) \), which is a function of type \textit{<et>}. As discussed in section 5.1, predicates of type \textit{<et>} in Tagalog are unspecified for number; consequently, the semantic translation of \textit{tumahol} ‘barked’ contains the starred predicate \textit{*barked}' . The conjunct \textit{Agent}(x) is the semantic contribution of the Agent Voice infix -\textit{um}- to the meaning of the predicate \textit{tumahol} ‘barked’.
(64) Tumahol   ang aso.
bark.AV.PERF DIR dog
‘The dog barked.’

(65) **Lexical entry for tumahol ‘barked’:**

\[ \lambda \text{tumahol; } S/\text{Dir}; \lambda x. \ast \text{barked}'(x) \wedge \text{Agent}(x) \]

A two-place predicate such as kumain ‘ate’ in (66) combines first with an indirect case-marked expression to its right, then with a direct case-marked expression also to its right to form a sentence. Thus this predicate has the syntactic category (S/Dir)/Ind. The semantic translation of kumain ‘ate’ is \( \lambda y.\lambda x.\text{ate}'(x)(y) \wedge \text{Agent}(x) \), which is a function of type \(<e,<et>>\).

(66) Kumain   ng buto ang aso.
       eat.AV.PERF IND bone DIR dog
‘The dog ate a bone.’

(67) **Lexical entry for kumain ‘ate’:**

\[ \lambda \text{tumahol; } (S/\text{Dir})/\text{Ind}; \lambda y.\lambda x.\text{ate}'(x)(y) \wedge \text{Agent}(x) \]

A three-place predicate such as nagbigay ‘gave’ in (68) combines with the following case-marked expressions to its right to form a sentence: first an oblique case-marked expression, then an indirect case-marked expression, and lastly a direct case-marked expression. Thus this predicate has the syntactic category ((S/Dir)/Ind)/Obl. The semantic translation of nagbigay ‘gave’ is \( \lambda P.\lambda y.\lambda x.\text{gave}'(x)(y)(P(x)) \wedge \text{Agent}(x) \), which is a function of type \(<et,<e,<et>>\). The oblique case-marked expression that nagbigay ‘gave’ combines with is semantically a predicate \( P \) of type \(<et>\) that relates the Agent to the Recipient in the giving event.\(^{16}\) The Agent and the Theme are represented in the semantic translation by the variables \( x \) and \( y \), which are both of type \(<e>\).

(68) Nagbigay   sa aso ng buto ang bata.
give.AV.PERF OBL dog IND bone DIR child
‘The child gave a bone to the dog.’

\(^{16}\) The semantic translation of oblique arguments is illustrated in the derivations in section 6.3.
(69) **Lexical entry for nagbigay ‘gave’:**

\[ \vdash \text{nagbigay; }((S/\text{Dir})/\text{Ind})/\text{Obl}; \lambda P.\lambda y.\lambda x.gave'(x)(y)(P(x)) \land Agent(x) \]

Oblique case-marked expressions are also predicates. I discuss the syntactic category and semantic translation of oblique case-marked expressions in the next section.

**6.2.2 Case-marked expressions**

The direct case marker *ang* together with its predicate complement forms a direct case-marked expression. An example is *ang bata* ‘the child’ in (70). Similarly, the indirect case marker *ng* combined with its predicate complement forms an indirect case-marked expression, and the oblique case marker *sa* combined with its predicate complement forms an oblique case-marked expression. Examples of these indirect and oblique case-marked expressions are *ng buto* ‘a bone’ and *sa aso* ‘to the dog’ in (70).

(70) Nagbigay sa aso ng buto ang bata.

\text{give.AV.PERF OBL dog IND bone DIR child}

‘The child gave a bone to the dog.’

Tagalog case-marked expressions can be viewed as being unmarked for definiteness, for the following reasons. First, although direct case-marked expressions are usually interpreted as definite, they can also have an indefinite interpretation if *isang* ‘one’ occurs between the direct case marker and its predicate complement. An example of this is *ang isang bata* ‘a child/one of the children’ in (71):

(71) Context: John works at an animal shelter. A group of schoolchildren arrive to drop off some donated items for the animals. When they leave, John sees one of the dogs with a bone and he thinks that one of the children must have given the bone to the dog. However, another employee at the shelter was the one who actually gave the bone. This employee can say:

Akala ni John na nagbigay sa aso ng buto ang isang bata.

\text{thought IND John that give.AV.PERF OBL dog IND bone DIR one.LK child}

‘John thought that a child/one of the children gave a bone to the dog.’
Oblique case-marked expressions can be interpreted as definite or indefinite:

- **Context 1:** \(tindahan\) ‘store’ is definite) We are sitting at a cafe. We see a police car pull up. The cop gets out and heads into the convenience store across the street. I tell you:

- **Context 2:** \(tindahan\) ‘store’ is indefinite) We are sitting at a cafe. We see a police car pull up. The cop gets out and heads somewhere we can’t see. When he returns, he is holding a shopping bag. I tell you:

\[
\begin{align*}
(72) \text{Pumunta} & \quad \text{go.AV.PERF} \\
\text{ang} & \quad \text{DIR} \\
\text{pulis} & \quad \text{police} \\
\text{sa} & \quad \text{OBL} \\
\text{tindahan}. & \quad \text{store}
\end{align*}
\]

‘The cop went to the/a store.’

Indirect case-marked expressions can have definite or indefinite interpretations, as exemplified by the two contexts in which (73) can be felicitously uttered:

- **Context 1:** \(daga\) ‘rat’ is definite) I have a pet rat. I find a half-eaten mango on the kitchen floor with sharp little bite marks in it.

- **Context 2:** \(daga\) ‘rat’ is indefinite) I find a half-eaten mango on the kitchen floor with sharp little bite marks in it, and I remember hearing some rodents scurrying about at night.

\[
\begin{align*}
(73) \text{Kinain} & \quad \text{eat.PV.PERF} \\
\text{ng} & \quad \text{IND} \\
\text{daga} & \quad \text{rat} \\
\text{ang} & \quad \text{DIR} \\
\text{mangga}. & \quad \text{mango}
\end{align*}
\]

‘The/a rat ate the mango.’

Indirect case-marked expressions do have one peculiarity with respect to definiteness: definite Patients must be marked for direct case. This means that the predicate of a sentence with a definite Patient must be in the Patient Voice. For example, in both of the contexts for (73), the Patient \textit{mangga} ‘mango’ is definite. Thus the predicate in (73) is in the Patient Voice and \textit{mangga} ‘mango’ is marked for direct case. If the Patient is not marked for direct case, it can only be interpreted as indefinite. Thus in (74) the indirect case-marked \textit{mangga} ‘mango’ cannot be understood as referring to a particular mango:
Context: (mangga ‘mango’ is definite) I find a half-eaten mango on the kitchen floor with sharp little bite marks in it. I point to the mango and I want to tell you that the rat ate the mango we are looking at.

#Kumain ng mangga ang daga.
eat.AV.PERF IND mango DIR rat

‘The rat ate a mango.’

In order to simplify the derivations in section 6.3, the grammar fragment that I present in this chapter treats all indirect and direct case-marked expressions as definites (i.e., as individual-denoting expressions of type <e>). The definiteness restriction on Patients is a serious challenge for my analysis because a Patient marked for indirect case cannot be interpreted as definite and therefore must be given a semantic translation with an indefinite meaning. I adopt the present strategy of treating indirect and direct case-marked expressions as definites in the interest of simplicity; however, this strategy is ultimately untenable because of the definiteness restriction on Patients, which is an issue that will need to be dealt with in a more fully developed grammar fragment of Tagalog.

Predicates that are the complements of the case markers are of type <et>, such as tindahan in (72). Predicates that are lexically of other types, such as bumili ‘bought’ which is of type <e,<et>>, must have their extra arguments bound so that the predicate is of type <et> when it serves as the complement of a case marker. For example, in (75), where the Agent Voice predicate bumili ‘bought’ is the complement of the direct case marker ang, the Patient in the buying event must be understandable from the discourse context in order for the sentence with the elided Patient to be felicitously uttered. Thus (75) is felicitous in Context 1, where the Patient in the buying event is understood to be the house. In Context 2, however, where there is no Patient understandable from the discourse context, (75) is infelicitous.

- **Context 1:** We are talking about the house across the street, which was recently bought. The buyer of the house and the seller of the house were involved in a lawsuit, which the buyer won. (75) can be uttered in this context to convey the meaning that
the buyer of the house won.

- **Context 2**: Two women participate in a prize drawing at the shopping mall. One of the women is a shopper, and the other is a mall employee. (75) cannot be uttered in this context to convey the meaning that the shopper won.

\[(75)\quad \text{Nanalo ang bumili.} \]
\[\text{win.AV.PERF DIR buy.AV.PERF} \]
\[\text{‘The buyer won.’} \]

Thus the predicate that serves as the complement of the case marker must be of type \(<\text{et}>\). However, I analyze direct and indirect case-marked expressions as being of type \(<\text{e}>\). Consequently, in the fragment I make use of a null type shifter which shifts the type of the predicate complement of the case marker from \(<\text{et}>\) to \(<\text{e}>\). Syntactically, this type shifter combines with a predicate of category \(\text{S/Dir}\) to form a type-shifted expression of category \(\text{TS}\). Thus the type shifter has the syntactic category \(\text{TS}/(\text{S/Dir})\). Semantically, the type shifter is translated as \(\lambda P.\iota x.P(x)\), which is a function of type \(<\text{et},\text{e}>\). The iota operator returns the unique individual that has the property \(P\); thus, the type-shifted expression has a definite meaning\(^{17}\)

\[(76)\quad \text{Lexical entry for the null type shifter:} \]
\[\vdash \emptyset; \text{TS}/(\text{S/Dir}); \lambda P.\iota x.P(x) \]

The direct and indirect case markers combine with the type-shifted predicate to yield a case-marked expression. Syntactically, the direct case marker is of category \(\text{Dir/TS}\) and the indirect case marker is of category \(\text{Ind/TS}\). Semantically, both the direct and indirect case markers are identity functions \(\lambda x.x\) of type \(<\text{e},\text{e}>\).

\[(77)\quad \text{Lexical entry for the direct case marker } \text{ang:} \]
\[\vdash \text{ang; Dir/TS; } \lambda x.x \]

\(^{17}\)As noted earlier in this section, this strategy of using the iota operator to type-shift direct and indirect case-marked expressions into individual-denoting definite expressions runs into a problem when we consider the fact that indirect case-marked Patients cannot have a definite interpretation. I treat direct and indirect case-marked expressions as definites in order to simplify the derivations in section 6.3; however, the problem raised by the definiteness restriction on Patients needs to be addressed in a more fully developed grammar fragment of Tagalog.
Lexical entry for the indirect case marker $ng$:

\[ \vdash ng; \text{Ind/TS}; \lambda x.x \]

Oblique case-marked expressions are different from direct and indirect case-marked expressions because they denote a locative relation between the individual denoted by the type-shifted predicate complement of the oblique case marker and the individual denoted by the direct case-marked expression. In the lexical entry for the oblique case marker in (79), I translate this semantic relation as $to'$; however, it can also be translated into English as ‘in’, ‘at’, or ‘on’. The oblique case marker $sa$ combines with the type-shifted predicate of category $TS$ to form an oblique case-marked expression. Thus, the oblique case marker has the syntactic category $\text{Obl/TS}$. Semantically, the oblique case marker is translated as $\lambda y.\lambda x.to'(y)(x)$, which is a function of type $<e,et>$.

Lexical entry for the oblique case marker $sa$:

\[ \vdash sa; \text{Obl/TS}; \lambda y.\lambda x.to'(y)(x) \]

The oblique case marker $sa$ specified in the lexical entry in (79) produces an oblique case-marked expression that is a subcategorized argument of a predicate. However, oblique case-marked expressions can also be adjuncts. In order to produce these adjunctive oblique case-marked expressions, a different lexical entry for the oblique case marker is required. This lexical entry is given in (80), where I translate the adjunctive locative relation as $at'$. The adjunctive oblique case marker combines with a type-shifted expression of syntactic category $TS$ to form a predicate modifier of syntactic category $((S/\text{Dir}) \backslash (S/\text{Dir}))/TS$. Thus the adjunctive oblique case marker has the syntactic category $((S/\text{Dir}) \backslash (S/\text{Dir}))/TS$. Semantically, the adjunctive oblique case marker combines with a type-shifted expression of type $<e>$ and forms an adjunctive oblique case-marked expression that is a predicate modifier of type $<et,et>$. The adjunctive oblique case marker is therefore of the semantic type $<e,<et,et>>$ and its semantic translation is $\lambda y.\lambda P.\lambda x.\left[P(x) \land at'(y)(x)\right]$.

---

18Oblique case-marked expressions can be freely ordered within the sentence. The grammar fragment presented in this thesis does not model the free ordering possibilities of expressions in Tagalog. I give the syntactic category of the adjunctive oblique case-marked expression as $((S/\text{Dir}) \backslash (S/\text{Dir})$/TS$)$. Thus the adjunctive oblique case marker would change to $((S/\text{Dir}) \backslash (S/\text{Dir})$/TS$)$ instead.
Lexical entry for the adjunctive oblique case marker \textit{sa}:

\[ \vdash \text{sa}; ((S/\text{Dir}) \setminus (S/\text{Dir}))/TS; \lambda y.\lambda P.\lambda x.\left[ P(x) \wedge \text{at}(y)(x) \right] \]

An example sentence with an adjunctive oblique case-marked expression is (81):

\begin{align*}
\text{(81)} \quad \text{Ngumiti [sa \ aso] ang bata.} \\
\text{smile.AV.PERF OBL dog DIR child} \\
\text{‘The child smiled at the dog.’}
\end{align*}

Lastly, oblique case-marked expressions can also be one-place predicates of syntactic category \textit{S/Dir} and semantic type $<\text{et}>$: they can be a sentence-initial expression that combines with a direct case-marked expression to form a sentence, as in (82). They can also be the complement of a case marker, as in (83), where the oblique case-marked expression \textit{sa Manila} is a complement of the direct case marker \textit{ang}.

\begin{align*}
\text{(82)} \quad \left[ \text{Sa Manila} \right] \text{ang kasal.} \\
\text{OBL Manila DIR wedding} \\
\text{‘The wedding is in Manila.’}
\end{align*}

\begin{align*}
\text{(83)} \quad \text{Pinuntahan ko ang [sa Manila].} \\
\text{go.LV.PERF 1sg.IND DIR OBL Manila} \\
\text{‘I went to the one in Manila.’}
\end{align*}

When oblique case-marked expressions are used predicatively, as in (82) and (83) above, they can combine with the plural marker \textit{mga}:

\begin{align*}
\text{(84)} \quad \text{Mga [sa Manila] ang kasal.} \\
\text{PL OBL Manila DIR wedding} \\
\text{‘The weddings are each in Manila.’}
\end{align*}

\begin{align*}
\text{(85)} \quad \text{Pinuntahan ko ang mga [sa Manila].} \\
\text{go.LV.PERF 1sg.IND DIR PL OBL Manila} \\
\text{‘I went to the ones in Manila.’}
\end{align*}

When oblique case-marked expressions are not used predicatively, they cannot combine with \textit{mga}. For example, in (86) the predicate \textit{pumunta} ‘went’ subcategorizes for the oblique case-marked expression, so the oblique case-marked expression is an argument. In (87) the
oblique case-marked expression is an adjunct that modifies the predicate *ngumiti* ‘smiled’. In both of these examples, *mga* cannot combine with the oblique case-marked expression.

(86) *Pumunta *mga* [sa tindahan] ang bata.
    go.AV.PERF PL OBL store DIR child
    Intended translation: ‘The child went to the stores.’

(87) *Ngumiti *mga* [sa aso] ang bata.
    smile.AV.PERF PL OBL dog DIR child
    Intended translation: ‘The child smiled at the dogs.’

Assigning oblique case-marked expressions the syntactic category *Obl* when they are subcategorized arguments and *(S/Dir)*(S/Dir) when they are adjuncts correctly prevents *mga* from combining with these expressions. However, when oblique case-marked expressions are used predicatively, they need to be assigned the syntactic category *(S/Dir)* and semantic type *<et>* in order to capture the fact that they behave like other one-place predicates and can combine with *mga*. Thus it is necessary to define a lexical entry for the oblique case marker in a predicative oblique case-marked expression. I translate the locative relation as *at’*

(88) **Lexical entry for the predicative oblique case marker *sa***:

$$\vdash \text{sa}; (S/Dir)/TS; \lambda y.\lambda x.\text{[at’}(y)(x)]$$

6.2.3 Personal names

Personal names are ambiguous — they can be predicates of type *<et>*, or they can be names of type *<e>* , denoting individuals. For example, *Maria* can be a sentence-initial predicate that means ‘person(s) named Maria’:

(89) *Maria* ang nakilala ko.
    Maria DIR meet.PV.PERF 1sg.IND
    ‘The one I met was a Maria.’
Predicative personal names can be complements to the case markers \textit{ang}, \textit{ng}, and \textit{sa}, in which case they undergo type-shifting to type \textit{<e>}.

(90) Pinakilala \textit{ng} Maria \textit{ang} Juan \textit{sa} Anna.
introduce.PV.PERF IND Maria DIR Juan OBL Anna
‘The/a Maria introduced the Juan to the/an Anna.’

Individual-denoting personal names are case-marked by the personal name case markers \textit{si} (which marks direct case), \textit{ni} (which marks indirect case), and \textit{kay} (which marks oblique case).

(91) Pinakilala \textit{ni} Maria \textit{si} Juan \textit{kay} Anna.
introduce.PV.PERF IND Maria DIR Juan OBL Anna
‘Maria introduced Juan to Anna.’

An individual-denoting personal name is of syntactic category \textit{PN} and is semantically a constant of type \textit{<e>}.

(92) **Lexical entry for the individual-denoting personal name \textit{Juan}:**
\[ \vdash \text{Juan}; \text{PN}; j \]

The distribution of the plural marker \textit{mga} provides evidence that individual-denoting personal names are of a different syntactic category and semantic type than predicative personal names. Predicative personal names are of the syntactic category \textit{S/Dir} and of the semantic type \textit{<et>}; like other predicates with this syntactic category and semantic type, predicative personal names can be the complement of \textit{mga}:

(93) **Context:** I spotted two women, whom I know are both named Maria.

\[ \text{Nakita} \textit{ko} \textit{ang} \textit{mga} Maria. \]
\[ \text{see.PV.PERF 1sg.IND DIR PL Maria} \]
‘I saw the Marias.’

Individual-denoting personal names, however, are unable to be the complement of \textit{mga}.

\textsuperscript{19}\textit{Sina} is the plural form of the personal name direct case marker \textit{si}.
(94) Context: I spotted our mutual friends Maria and Maria.

*Nakita ko sina mga Maria.
see.PV.PERF 1sg.IND DIR.PL PL Maria

‘I saw Maria and Maria.’

Thus, individual-denoting personal names must be of a syntactic category and semantic type different from those of predicative personal names. In my analysis, individual-denoting personal names are of syntactic category PN and semantic type \(<e>\).

The personal name case markers have the following syntactic categories: Dir/PN for \(si\), Ind/PN for \(ni\), and Obl/PN for \(kay\). Semantically, the direct and indirect personal name case markers are identity functions \(\lambda x.x\) of type \(<e,e>\). The oblique personal name case marker is translated as \(\lambda y.\lambda x.t\theta(y)(x)\), which is a function of type \(<e,et>\).

(95) Lexical entry for the personal name direct case marker \(si\):
\[
\vdash si; \text{Dir/PN}; \lambda x.x
\]

(96) Lexical entry for the personal name indirect case marker \(ni\):
\[
\vdash ni; \text{Ind/PN}; \lambda x.x
\]

(97) Lexical entry for the personal name oblique case marker \(kay\):
\[
\vdash kay; \text{Obl/PN}; \lambda y.\lambda x.t\theta(y)(x)
\]

In addition to being subcategorized arguments, as in (98), oblique expressions containing personal names can also be adjuncts (as in (99)) and predicates (as in (100) and (101)). Predicative oblique expressions containing personal names have only a possessive meaning.

go.AV.PERF OBL Fido DIR child
‘The child went to Fido.’

smile.AV.PERF OBL Fido DIR child
‘The child smiled at Fido.’
As with other oblique case-marked expressions, oblique case-marked expressions containing personal names can only combine with *mga* when they are used predicatively, as in (102) and (103) below. *Mga* cannot combine with the oblique case-marked expression *kay Fido* when it is a subcategorized argument, as in (104), or when it is an adjunct, as in (105).

(102) **Mga** [kay Fido] ang kama.
PL OBL Fido DIR bed
‘The beds are each Fido’s.’

(103) Binili ko ang *mga* [kay Fido].
buy.PV.PERF 1sg.IND DIR PL OBL Fido
‘I bought (the ones that are) Fido’s.’

go.AV.PERF PL OBL Fido DIR child
Intended translation: ‘The child went to Fido and Fido.’

smile.AV.PERF PL OBL Fido DIR child
Intended translation: ‘The child smiled at Fido and Fido.’

The lexical entry for the adjunctive oblique case marker *kay* is in (106). Its syntactic category is \(((S/\text{Dir}) \setminus (S/\text{Dir})) / \text{PN}\) because it combines with a proper name to form an adjunct of category \((S/\text{Dir}) \setminus (S/\text{Dir})\), and it is of the semantic type \(<e,<e,t,e,t>>\).

(106) **Lexical entry for the adjunctive oblique case marker *kay*:**

\[
\vdash \text{kay}; \quad ((S/\text{Dir}) \setminus (S/\text{Dir})) / \text{PN}; \quad \lambda y. \lambda P. \lambda x. [P(x) \land at'(y)(x)]
\]
The lexical entry for the predicative oblique case marker *kay* is in (107). Its syntactic category is \((S/\text{Dir})/\text{PN}\) because it combines with a proper name to form a one-place predicate of category \(S/\text{Dir}\). Its semantic type is \(<\text{e,et}>\). Since predicative oblique case-marked expressions containing personal names have a possessive meaning, I translate the semantic relation as *possess*′.

(107) **Lexical entry for the predicative oblique case marker *kay*:**
\[
\vdash \text{kay; (S/Dir)/PN}; \lambda y.\lambda x.\left[\text{possess}'(y)(x)\right]
\]

6.2.4 The plural marker *mga*

*Mga* is a predicate modifier that combines with a predicate of syntactic category \(S/\text{Dir}\) to its right to form another predicate of the same category. Thus *mga* is of the syntactic category \((S/\text{Dir})/(S/\text{Dir})\). Semantically, *mga* is Link’s (1983) proper plural operator \(\odot\), which applies to a predicate of type \(<\text{et}>\) and yields another predicate of the same type that does not contain any atomic individuals in its denotation. A meaning postulate, given as part of the semantic translation of *mga* in the lexical entry in (108), expresses *mga*’s distributivity: it says that for all predicates \(P\) that *mga* combines with and all plural individuals \(X\), if \(\odot *P(X)\) is true then the predicate \(*P\) is true of all subparts \(x\) of the plural individual \(X\) which are the smallest units that the predicate \(*P\) can be true of.

(108) **Lexical entry for the plural marker *mga*:**
\[
\vdash \text{mga; (S/Dir)/(S/Dir); \odot, where } \forall P \forall X \left[\odot *P(X) \rightarrow \forall x \left[ x \leq \text{smallest.arg.unit.of.}*P\right. X \rightarrow *P(x)\right]\right]
\]

Analyzing *mga* as having the above syntactic category and semantic translation allows the grammar fragment to capture its syntactic and semantic behavior, which was described in Chapters 4 and 5. For example, giving *mga* the syntactic category \((S/\text{Dir})/(S/\text{Dir})\) means that the grammar fragment will correctly not allow *mga* to combine with expressions that it does not combine with, such as sentences (which are of category \(S\)), individual-denoting proper names (which are of category \(\text{PN}\)), and case-marked expressions (which are of category \(\text{Dir, Ind, or Obl}\)). In addition, the grammar fragment also correctly predicts
that a _mga_-marked predicate is itself a predicate of syntactic category S/Dir, since it can combine with a direct case-marked expression to form a sentence.

Translating _mga_ semantically as Link’s (1983) proper plural operator ⊗, which is of type <et,et> captures the fact that _mga_ applies to a predicate denoting a set of individuals (atomic and non-atomic) and pluralizes these individuals by requiring that the denotation of the resulting _mga_-marked predicate contain no atomic individuals. This analysis correctly predicts that a _mga_-marked predicate cannot denote a singular individual. In addition, analyzing _mga_ as being of type <et,et> correctly predicts that it cannot apply to expressions of type <t>, such as sentences, and expressions of type <e>, such as case-marked expressions. Lastly, the meaning postulate expressing the distributivity of _mga_ captures the fact that a _mga_-marked predicate can only hold of a plurality if the predicate that is the complement of _mga_ holds of each subpart of the plurality which is the smallest unit that the predicate can be true of.

### 6.2.5 Summary of syntactic categories and semantic types

Table 6.1 summarizes the syntactic categories of the grammar fragment, and the semantic translations that expressions of these categories have.

### 6.3 Derivations

In this section, I present derivations that illustrate how the grammar fragment works.

#### 6.3.1 Derivation 1: A sentence with a 3-place Agent Voice predicate and _mga_-marked case-marked expressions

Here is the derivation for (109), which contains the 3-place Agent Voice predicate _nagbigay_ ‘gave’ and direct, indirect, and oblique case-marked expressions marked with _mga_. For clarity, the derivation is presented and explained in several steps.

(109) _Nagbigay_ sa _mga_ aso ng _mga_-buto ang _mga_-bata.
    give.AV.PERF OBL PL dog IND PL bone DIR PL child
    ‘The children gave the dogs bones.’
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<td>λy. λx. at'(y)(x)</td>
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<td>((S/Dir)/(S/Dir))/PN</td>
<td>λy. λP. λx. [P(x) ∧ at'(y)(x)]</td>
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</tr>
<tr>
<td>predicative personal name oblique case marker</td>
<td>kay</td>
<td>(S/Dir)/PN</td>
<td>λy. λx. possess'(y)(x)</td>
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<td>⊕</td>
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Table 6.1: Syntactic categories and their semantic translations
The predicate *aso* ‘dog’, which is of syntactic category S/Dir, combines with the plural marker *mga*, which is of the syntactic category (S/Dir)/(S/Dir), to form the predicate *mga aso* ‘dogs’, which is of syntactic category S/Dir. Semantically, *aso* ‘dog’ is a starred predicate of type <et> which contains both atomic and plural individuals in its denotation (since type <et> predicates in Tagalog are unmarked for number). *Mga* translates semantically as Link’s [1983] proper plural operator ⊗, which is of type <et,et>. This proper plural operator ⊗ applies to the predicate *dog*(x) and forms the pluralized predicate ⊗ *dog*(x), which is of type <et> and contains no atomic individuals in its denotation.

\[ (110) \quad \vdash \text{mga; } (S/\text{Dir})/(S/\text{Dir}); \otimes \vdash \text{aso; } S/\text{Dir}; \otimes * \text{dog}’(x)\]  

FA

In order for the type <et> predicate *mga aso* ‘dogs’ to combine with the oblique case marker *sa*, which is of type <e,et>, *mga aso* ‘dogs’ must type-shift from <et> to <e>. This is accomplished by the null type shifter ∅ts. The type shifter combines with the predicate to yield a type-shifted expression of syntactic category TS and semantic type <e>.

\[ (111) \quad \vdash \text{∅ts; } TS/(S/\text{Dir}); \lambda P.x.P(x) \vdash \text{mga aso; } S/\text{Dir}; \otimes * \text{dog}’(x)\]  

FA

The type-shifted predicate then combines with the oblique case marker to form an oblique case-marked expression:

\[ (112) \quad \vdash \text{sa; Obl/TS; } \lambda y.\lambda z.to’(y)(z) \quad \vdash \text{∅ts mga aso; } TS; \lambda x. \otimes * \text{dog}’(x)\]  

FA

The oblique case-marked expression *sa ∅ts mga aso* ‘to the dogs’, which is of syntactic category Obl and semantic type <et>, then combines with the 3-place Agent Voice predicate *nagbigay* ‘gave’, which is of syntactic category ((S/Dir)/Ind)/Obl and semantic type <et,<e,<et>>>.

\[ (113) \quad \vdash \text{nagbigay; } ((S/\text{Dir})/\text{Ind})/\text{Obl}; \lambda P.\lambda y.\lambda z.gave’(z)(y)(P(z)) \land \text{Agent}(z) \quad \lambda z.\lambda x. \otimes \text{dog}’(x)(z)\]  

FA

The 2-place predicate *nagbigay sa ∅ts mga aso* ‘gave to the dogs’, which is of syntactic category (S/Dir)/Ind and semantic type <e,et>, will combine next with the indirect case-marked expression *ng mga buto* ‘bones’. This indirect case-marked expression is derived
First, the predicate *buto* ‘bone’, which is of syntactic category $S/\text{Dir}$ and semantic type $<\text{et}>$, combines with the plural marker *mga* to form the predicate *mga buto* ‘bones’, which is also of syntactic category $S/\text{Dir}$ and semantic type $<\text{et}>$.

\[
\begin{align*}
\vdash \text{mga; } & (S/\text{Dir})/(S/\text{Dir}); \oplus \quad \vdash \text{buto; } S/\text{Dir}; \oplus \ast \text{bone}'(x) \\
\text{FA} \\
\end{align*}
\]

The type $<\text{et}>$ predicate *mga buto* ‘bones’ then type-shifts to type $<\text{e}>$.

\[
\begin{align*}
\vdash \emptyset; & \text{TS}/(S/\text{Dir}); \lambda P.\iota x. P(x) \\
\vdash \text{mga buto; } S/\text{Dir}; \oplus \ast \text{bone}'(x) \\
\text{FA} \\
\end{align*}
\]

The type $<\text{e}>$ predicate $\emptyset$ *mga buto* ‘bones’ then combines with the indirect case marker *ng*, which is of syntactic category $\text{Ind}/\text{TS}$ and semantic type $<\text{e},\text{e}>$, to form the indirect case-marked expression *ng* $\emptyset$ *mga buto* ‘bones’, which is of syntactic category $\text{Ind}$ and semantic type $<\text{e}>$.

\[
\begin{align*}
\vdash \text{ng; Ind/TS}; \lambda x. x \\
\vdash \emptyset_{\text{ts}} \text{mga buto; TS}; \iota x. \oplus \ast \text{bone}'(x) \\
\text{FA} \\
\end{align*}
\]

The 2-place predicate *nagbigay sa* $\emptyset_{\text{ts}}$ *mga aso* ‘gave to the dogs’ combines with the indirect case-marked expression *ng* $\emptyset_{\text{ts}}$ *mga buto* ‘bones’ to form the 1-place predicate *nagbigay sa* $\emptyset_{\text{ts}}$ *mga aso* *ng* $\emptyset_{\text{ts}}$ *mga buto* ‘gave bones to the dogs’.

\[
\begin{align*}
\vdash \text{nagbigay sa } & \emptyset_{\text{ts}} \text{ mga aso; } (S/\text{Dir})/\text{Ind}; \lambda y.\lambda z. \text{gave}'(z)(y)(\text{to}'(\iota x. \oplus \ast \text{dog}'(x))(z)) \land \text{Agent}(z) \\
\vdash \text{ng } & \emptyset_{\text{ts}} \text{ mga buto; Ind; } \iota x. \oplus \ast \text{bone}'(x) \\
\text{FA} \\
\end{align*}
\]

The resulting predicate *nagbigay sa* $\emptyset_{\text{ts}}$ *mga aso* *ng* $\emptyset_{\text{ts}}$ *mga buto* ‘gave bones to the dogs’ is of syntactic category $S/\text{Dir}$ and semantic type $<\text{et}>$. It will combine with the direct case-marked expression *ang mga bata* ‘the children’ to form the sentence *nagbigay sa* *mga aso* *ng* *mga buto* *ang* *mga bata* ‘the children gave bones to the dogs’. The direct case-marked expression *ang mga bata* ‘the children’ is derived in (118)-(120). First, the predicate *bata* ‘child’, which is of syntactic category $S/\text{Dir}$ and semantic type $<\text{et}>$, combines with the plural marker *mga* to form the predicate *mga bata* ‘children’, which is also of syntactic category $S/\text{Dir}$ and semantic type $<\text{et}>$.

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The type $\langle et \rangle$ predicate \textit{mga bata} ‘children’ type-shifts to type $\langle e \rangle$.

(18) \[\vdash \text{mga}; \text{S/Dir}/(\text{S/Dir}); \otimes \vdash \text{bata}; \text{S/Dir}; \circ \ast \text{child}(x)\]

\[\vdash \text{mga bata}; \text{S/Dir}; \circ \ast \text{child}(x)\]

FA

The type $\langle e \rangle$ predicate $\emptyset_{ts}$ $\text{mga bata}$ ‘children’ then combines with the direct case marker \textit{ang}, which is of syntactic category Dir/TS and semantic type $\langle e, e \rangle$, to form the direct case-marked expression $\text{ang} \emptyset_{ts} \text{mga bata}$ ‘the children’, which is of syntactic category Dir and semantic type $\langle e \rangle$.

(19) \[\vdash \emptyset_{ts}; \text{TS}/(\text{S/Dir}); \lambda P.\iota x. P(x) \vdash \text{mga bata}; \text{S/Dir}; \circ \ast \text{child}(x)\]

\[\vdash \emptyset_{ts} \text{mga bata}; \text{TS}; \iota x. \circ \ast \text{child}(x)\]

FA

The 1-place predicate \textit{nagbigay sa} $\emptyset_{ts}$ $\text{mga aso}$ $\emptyset_{ts}$ $\text{mga buto}$ ‘gave bones to the dogs’, which is of syntactic category S/Dir and semantic type $\langle et \rangle$, now combines with the direct case-marked expression $\text{ang} \emptyset_{ts} \text{mga bata}$ ‘the children’ to form the sentence \textit{nagbigay sa} $\text{mga aso}$ $\emptyset_{ts}$ $\text{mga buto}$ $\text{ang} \emptyset_{ts} \text{mga bata}$ ‘the children gave bones to the dogs’.

(20) \[\vdash \text{ang}; \text{Dir}/\text{TS}; \lambda x. x \vdash \emptyset_{ts} \text{mga bata}; \text{TS}; \iota x. \circ \ast \text{child}(x)\]

\[\vdash \text{ang} \emptyset_{ts} \text{mga bata}; \text{Dir}; \iota x. \circ \ast \text{child}(x)\]

FA

\[\vdash \text{nagbigay sa} \emptyset_{ts} \text{mga aso} \emptyset_{ts} \text{mga buto} \text{ang} \emptyset_{ts} \text{mga bata}; \text{S/Dir}; \lambda z. \text{gave'}(z)(\iota x. \circ \ast \text{bone'}(x)) \land \text{Agent}(z) \vdash \text{ang} \emptyset_{ts} \text{mga bata}; \text{Dir}; \iota x. \circ \ast \text{child}(x)\]

\[\vdash \text{nagbigay sa} \emptyset_{ts} \text{mga aso} \emptyset_{ts} \text{mga buto} \text{ang} \emptyset_{ts} \text{mga bata}; \text{S}; \text{gave'}(\iota x. \circ \ast \text{child'}(x))(\iota x. \circ \ast \text{bone'}(x)) \land \text{Agent}(\iota x. \circ \ast \text{child'}(x))\]

FA

\[\vdash \text{nagbigay sa} \emptyset_{ts} \text{mga aso} \emptyset_{ts} \text{mga buto} \text{ang} \emptyset_{ts} \text{mga bata}; \text{S}; \text{gave'}(\iota x. \circ \ast \text{child'}(x))(\iota x. \circ \ast \text{bone'}(x)) \land \text{Agent}(\iota x. \circ \ast \text{child'}(x))\]

FA

\[\vdash \text{nagbigay sa} \emptyset_{ts} \text{mga aso} \emptyset_{ts} \text{mga buto} \text{ang} \emptyset_{ts} \text{mga bata}; \text{S}; \text{gave'}(\iota x. \circ \ast \text{child'}(x))(\iota x. \circ \ast \text{bone'}(x)) \land \text{Agent}(\iota x. \circ \ast \text{child'}(x))\]

FA

Mga, translated as $\otimes$, ensures that \textit{mga aso} ‘dogs’, \textit{mga buto} ‘bones’, and \textit{mga bata} ‘children’ denote only plural individuals. In addition, its distributive meaning ensures that each predicate holds of each atomic subpart of the plural individuals in the denotation of that predicate. So all the atomic subparts of the plural individuals in the denotation of \textit{mga aso} ‘dogs’ are themselves each a dog; all the atomic subparts of the plural individuals in the denotation of \textit{mga buto} ‘bones’ are themselves each a bone; and all the atomic subparts of the plural individuals in the denotation of \textit{mga bata} ‘children’ are themselves each a child.
6.3.2 Derivation 2: A sentence with a *mga*-marked 3-place Agent Voice predicate and *mga*-marked case-marked expressions

Here is the derivation for (122), which contains the 3-place Agent Voice predicate *nagbigay* ‘gave’ and direct, indirect, and oblique case-marked expressions marked with *mga*. (122) differs from (109) only in that the predicate *nagbigay* ‘gave’ is marked with *mga* in (122).

(122) Mga nagbigay sa mga aso ng mga buto ang mga bata.  
PL give.AV.PERF OBL PL dog IND PL bone DIR PL child  
‘The children are each givers of bones to the dogs.’

The derivation of (122) is identical to the derivation of (109) except that *mga* combines with the type <et> predicate *nagbigay ng mga buto sa mga aso* ‘gave bones to the dogs’:

\[
\begin{align*}
\vdash \text{mga nagbigay sa } & \emptyset \text{ts mga aso ng } \emptyset \text{ts mga buto; S/Dir;} \\
& \lambda z.\text{gave'}(z)(ix. \circ *\text{bone'}(x)) \\
& (to'(ix. \circ *\text{dog'}(x))(z)) \\
\end{align*}
\]

\[(123) \quad \vdash \text{mga; (S/Dir)/(S/Dir); } \circ \quad \Box[\lambda z.\text{gave'}(z)(ix. \circ *\text{bone'}(x))] \\
\vdash \text{mga nagbigay sa } \emptyset \text{ts mga aso ng } \emptyset \text{ts mga buto; S/Dir;} \\
& \circ[\lambda z.\text{gave'}(z)(ix. \circ *\text{bone'}(x))] \\
& (to'(ix. \circ *\text{dog'}(x))(z)) \wedge \text{Agent}(z) \]

Thus the *mga*-marking on the predicate requires that there be only plural Agent individuals who gave bones to the dogs, and that each atomic individual subpart of these plural individuals must have given bones to the dogs. The type <et> predicate *mga nagbigay sa \emptyset \text{ts mga aso ng } \emptyset \text{ts mga buto* ‘givers of bones to the dogs’ then combines with the direct case-marked expression *ang mga \emptyset \text{ts bata* ‘the children’ to form the sentence *mga nagbigay sa \emptyset \text{ts mga aso ng } \emptyset \text{ts mga buto ang mga \emptyset \text{ts bata* ‘the children are each givers of bones to the dogs.’ The direct case-marked expression *ang mga \emptyset \text{ts bata* ‘the children’ is derived as in (118)-(120).}

\[
\begin{align*}
\vdash \text{mga nagbigay sa } \emptyset \text{ts mga aso ng } \emptyset \text{ts mga buto; S/Dir;} \\
& \circ[\lambda z.\text{gave'}(z)(ix. \circ *\text{bone'}(x))] \\
& (to'(ix. \circ *\text{dog'}(x))(z)) \\
\end{align*}
\]

\[
\begin{align*}
\vdash \text{mga nagbigay sa } & \emptyset \text{ts mga aso ng } \emptyset \text{ts mga buto; S/Dir;} \\
& \circ[\text{gave'}(ix. \circ *\text{child'}(x))(ix. \circ *\text{bone'}(x))] \\
& (to'(ix. \circ *\text{dog'}(x))(ix. \circ *\text{child'}(x))) \\
\wedge \text{Agent}(ix. \circ *\text{child'}(x)) \\
\end{align*}
\]
The contribution to the meaning of the sentence that the direct case-marked expression *ang mga bata* ‘the children’ makes is that the plural individuals who gave bones to the dogs are children. Thus, sentence [122], which has a *mga*-marked predicate, will only be true in a context where each child in the group of children gave bones to the dogs. In contrast, sentence [109], which does not have a *mga*-marked predicate, can be true in a context where the group of children went to an animal shelter to give bones to the dogs, but some children in that group only petted the dogs and did not hand out bones to them.

### 6.3.3 Derivation 3: A sentence with a 3-place Locative Voice predicate and *mga*-marked case-marked expressions

Here is the derivation for [125], which contains the 3-place Locative Voice predicate *binigyan* ‘given (something by someone)’ and direct and indirect case-marked expressions marked with *mga*.

(125) *Binigyan ng mga buto ng mga bata ang mga aso.*

‘The dogs were given bones by the children.’

The 3-place predicate *binigyan* ‘given (something by someone), which is of syntactic category ((S/Dir)/Ind)/Ind and semantic type <e, <e, et> >, combines first with the indirect case-marked expression *ng mga buto* ‘bones’ to form the 2-place predicate *binigyan ng mga buto* ‘given bones (by someone)’.

(126) \[
\frac{\frac{\frac{\frac{\lambda x.\lambda y.\lambda z.\text{gave}(y)(x)(z) \land \text{Recipient}(z)\quad \text{ FA}}{\frac{\frac{\lambda y.\lambda z.gave'(y)(ix. \otimes *\text{bone}'(x))(z) \land \text{Recipient}(z)}}{\text{ FA}}}{\text{ FA}}}{\text{ FA}}}{\text{ FA}}}{\text{ FA}}\]

The 2-place predicate *binigyan ng mga buto* ‘given bones (by someone)’, which has the syntactic category (S/Dir)/Ind and the semantic type <e, et>, combines with the indirect case-marked expression *ng mga bata* ‘the children’ to form the 1-place predicate *binigyan ng mga buto ng mga bata* ‘given bones by the children’.
The 1-place predicate *binigyan ng mga buto ng mga bata* ‘given bones by the children’, which has the syntactic category S/Dir and the semantic type <et>, combines with the direct case-marked expression *ang mga aso* ‘the dogs’ to form the sentence *Binigyan ng mga buto ng mga bata ang mga aso* ‘The dogs were given bones by the children’.

6.3.4 Derivation 4: A sentence with a *mga*-marked 3-place Locative Voice predicate and *mga*-marked case-marked expressions

Here is the derivation for (129), which contains the 3-place Locative Voice predicate *binigyan* ‘given (something by someone)’ and direct and indirect case-marked expressions marked with *mga*. (129) differs from (125) only in that the predicate *binigyan* ‘given (something by someone)’ is marked with *mga* in (129).

(129) Mga binigyan ng mga buto ng mga bata ang mga aso.
   PL give.LV.PERF IND PL bone IND PL child DIR PL dog
   ‘The dogs were each given bones by the children.’
The derivation of (129) is identical to the derivation of (125) except that mga combines with the type <et> predicate binigyan ng mga buto ng mga bata ‘given bones by the children’:

(130) \begin{align*}
\vdash & \text{mga; } (S/\text{Dir})/(S/\text{Dir}); \odot \\
\lambda z. & \text{gave}'(\iota x. \odot \ast \text{child}'(x))(\iota x. \odot \ast \text{bone}'(x))(z) \\
\vdash & \text{mga binigyan ng \(\emptyset\_s\) mga buto ng \(\emptyset\_s\) mga bata; } S/\text{Dir}; \\
\odot & [\lambda z. \text{gave}'(\iota x. \odot \ast \text{child}'(x))(\iota x. \odot \ast \text{bone}'(x))(z) \\
\wedge & \text{Recipient}(z)] \\
\end{align*}

The mga-marking on the predicate ensures that there are only plural Recipient individuals who are given bones by the children, and that each atomic individual subpart of these plural individuals must have been given bones by the children. The type <et> predicate mga binigyan ng mga buto ng mga bata ‘each given bones by the children’ then combines with the direct case-marked expression ang mga aso ‘the dogs’ to form the sentence Mga binigyan ng mga buto ng mga bata ang mga aso ‘The dogs were each given bones by the children.’

(131) \begin{align*}
\vdash & \text{mga binigyan ng \(\emptyset\_s\) mga buto ng \(\emptyset\_s\) mga bata; } S/\text{Dir}; \\
\odot & [\lambda z. \text{gave}'(\iota x. \odot \ast \text{child}'(x))(\iota x. \odot \ast \text{bone}'(x))(z) \\
\wedge & \text{Recipient}(z)] \\
\vdash & \text{mga; } (S/\text{Dir})/S/\text{Dir}; \odot \\
\lambda z. & \text{gave}'(\iota x. \odot \ast \text{child}'(x))(\iota x. \odot \ast \text{bone}'(x))(z) \\
\vdash & \text{ang \(\emptyset\_s\) mga aso; } S/\text{Dir}; \\
\odot & [\lambda z. \text{gave}'(\iota x. \odot \ast \text{child}'(x))(\iota x. \odot \ast \text{bone}'(x))(\iota x. \odot \ast \text{dog}'(x)) \\
\wedge & \text{Recipient}(\iota x. \odot \ast \text{dog}'(x))] \\
\vdash & \text{mga binigyan ng \(\emptyset\_s\) mga buto ng \(\emptyset\_s\) mga bata ang \(\emptyset\_s\) mga aso;} S \\
\odot & [\text{gave}'(\iota x. \odot \ast \text{child}'(x))(\iota x. \odot \ast \text{bone}'(x))(\iota x. \odot \ast \text{dog}'(x)) \\
\wedge & \text{Recipient}(\iota x. \odot \ast \text{dog}'(x))] \\
\end{align*}

The direct case-marked expression ang mga aso ‘the dogs’ requires that the plural individuals who are given bones by the children are dogs. Thus, sentence (129), which has a mga-marked predicate, will only be true in a context where each dog in the group of dogs receives bones from the children. In contrast, sentence (125), which does not have a mga-marked predicate, can be true in a context where some dogs in the group of dogs did not receive any bones from the children.

6.3.5 Derivation 5: A sentence with an adjunctive oblique case-marked expression

Here is the derivation for (132), which is a sentence that contains the adjunctive oblique case-marked expression sa aso ‘at the dog’.
The children each smiled at the dog.'

First, the adjunctive oblique case marker combines with the type-shifted expression \( \emptyset \) _ts_ aso ‘the dog':

\[
\frac{\vdash \emptyset \_ts; \text{TS}/(S/\text{Dir}); \vdash \text{aso; S/\text{Dir}}; \\
\lambda P.x.P(x) \rightarrow \text{dog}'(x)}{\vdash \text{ngumiti; S/\text{Dir}}; \vdash \text{aso; S/\text{Dir}}; \\
\lambda y.\lambda x.[P(x) \land \text{at}'(y)(x)] \rightarrow \text{ix.} \ast \text{dog}'(x)}
\]

Then the adjunctive oblique case-marked expression _sa_ \( \emptyset \_ts \) aso ‘at the dog' combines with the predicate _ngumiti_ ‘smiled' to form the modified predicate _ngumiti_ _sa_ \( \emptyset \_ts \) aso ‘smiled at the dog':

\[
\frac{\vdash \text{ngumiti; S/\text{Dir}}; \vdash \text{sa; (S/\text{Dir})}/(S/\text{Dir}); \\
\lambda x.([\text{smiled}'(x) \land \text{Agent}(x)] \rightarrow \lambda x.\lambda x.[P(x) \land \text{at}'(\text{ix.} \ast \text{dog}'(x))(x)])}{\vdash \text{sa; (S/\text{Dir})}/(S/\text{Dir}); \vdash \emptyset \_ts \text{aso; S/\text{Dir}}; \\
\lambda x.([\text{smiled}'(x) \land \text{Agent}(x)] \land \text{at}'(\text{ix.} \ast \text{dog}'(x))(x)]}
\]

The modified predicate _ngumiti_ _sa_ \( \emptyset \_ts \) aso ‘smiled at the dog' has the syntactic category S/Dir and the semantic type <et>. It is therefore able to combine with the plural marker _mga_ to form another modified predicate of the same syntactic category and semantic type, _mga_ _ngumiti_ _sa_ \( \emptyset \_ts \) aso ‘each smiled at the dog':

\[
\frac{\vdash \text{ngumiti; S/\text{Dir}}; \vdash \text{mga; (S/\text{Dir})}/(S/\text{Dir}); \vdash \lambda x.([\text{smiled}'(x) \land \text{Agent}(x)] \land \text{at}'(\text{ix.} \ast \text{dog}'(x))(x)])}{\vdash \text{mga; (S/\text{Dir})}/(S/\text{Dir}); \vdash \emptyset \_ts \text{aso; S/\text{Dir}}; \\
\lambda x.([\text{smiled}'(x) \land \text{Agent}(x)] \land \text{at}'(\text{ix.} \ast \text{dog}'(x))(x)]}
\]

Lastly, the predicate _mga_ _ngumiti_ _sa_ \( \emptyset \_ts \) aso ‘each smiled at the dog' combines with the direct case-marked expression _ang_ _mga_ _bata_ ‘the children' to form the sentence _mga_ _ngumiti_ _sa_ \( \emptyset \_ts \) aso _ang_ _mga_ _bata_ _bata_ ‘the children each smiled at the dog':

\[
\frac{\vdash \text{mga; (S/\text{Dir})}/(S/\text{Dir}); \vdash \lambda x.([\text{smiled}'(x) \land \text{Agent}(x)] \land \text{at}'(\text{ix.} \ast \text{dog}'(x))(x)])}{\vdash \text{mga; (S/\text{Dir})}/(S/\text{Dir}); \vdash \emptyset \_ts \text{aso; S/\text{Dir}}; \\
\lambda x.([\text{smiled}'(x) \land \text{Agent}(x)] \land \text{at}'(\text{ix.} \ast \text{dog}'(x))(x)]}
\]

The semantic translation for the sentence requires that the children are a plurality whose atomic individual subparts each smiled at the dog.
6.3.6 Derivation 6: A sentence with a predicative personal name

Here is the derivation for (137), which is a sentence that contains the predicative personal name *Maria* ‘one(s) named Maria’.

(137)  
\[ \text{Mga Maria ang sumayaw.} \]
\[ \text{PL Maria DIR dance.AV.PERF} \]
\[ \text{‘The dancers were Marias.’} \]

The predicative personal name *Maria* ‘one(s) named Maria’ is of syntactic category S/Dir and semantic type <et>. It can therefore combine with *mga* to yield the modified predicate *mga Maria* ‘ones named Maria’:

(138)  
\[ \vdash \text{mga; (S/Dir)/(S/Dir); } \oplus \vdash \text{Maria; S/Dir; } *\text{maria}'(x) \]
\[ \vdash \text{mga Maria; S/Dir; } \oplus *\text{maria}'(x) \]
\[ \text{FA} \]

The predicate *mga Maria* ‘ones named Maria’ then combines with the direct case-marked expression *ang* $\emptyset_{ls}$ *sumayaw* ‘the dancer(s)’ to form the sentence *mga Maria ang* $\emptyset_{ls}$ *sumayaw* ‘the dancers were Marias’:

(139)  
\[ \vdash \text{mga Maria; S/Dir; } \oplus *\text{maria}'(x) \]
\[ \vdash \text{ang } \emptyset_{ls} \text{ sumayaw; Dir;} \]
\[ \vdash \text{mga Maria ang } \emptyset_{ls} \text{ sumayaw; S;} \]
\[ \oplus *\text{maria}'(\text{x} \oplus *\text{danced}'(x) \land \text{Agent}(x)) \]
\[ \text{FA} \]

The resulting semantic translation for the sentence requires that the dancers be a plurality whose atomic individual subparts are each entities named Maria.

In contrast to the predicative personal name *Maria* ‘one(s) named Maria’, the individual-denoting personal name *Maria* is of syntactic category PN and semantic type <e>. Since *mga* is of syntactic category (S/Dir)/(S/Dir) and semantic type <et,et>, the fragment correctly predicts that *mga* cannot combine with an individual-denoting personal name.

6.4 Conclusion

In this chapter, I presented a categorial grammar fragment that formalizes my analysis of the syntax and semantics of the Tagalog plural marker *mga*. I proposed syntactic categories for Tagalog expressions that reflect their combinatory properties, along with semantic
translations for expressions belonging to each syntactic category. I also presented sentence derivations that illustrate how the grammar fragment works with respect to the syntax and semantics of *mga*. 
Chapter 7
CONCLUSION

In this chapter, I discuss some issues relevant to the distribution and meaning of *mga* that I leave for future work. These issues are the approximative meaning of *mga* and the optionality of *mga*. *Mga* can have an approximative meaning, where it lends a sense of imprecision to the predicate it combines with. In addition, I discuss the optionality of *mga* and certain factors that appear to influence whether *mga* occurs or not.

7.1 The approximative meaning of *mga*

*Mga* has an approximative meaning, where it gives a sense of imprecision to the predicate it combines with. For example, when *mga* occurs with cardinal numbers, as in sentence (140), it can have an approximative meaning. Sentence (140) can have an approximative meaning for *mga* in a context where the speaker is unsure of the exact number of dogs on the road. If the speaker knows that there were exactly five dogs on the road, then *mga* would not have an approximative meaning in (140); instead it would have its usual plural meaning.

(140) May *mga limang* aso *sa* daan.
EXIST PL five.LK dog OBL road
‘There were about five dogs on the road.’

*Mga* can also have an approximative meaning with ordinal numbers, as in sentence (141). If the speaker is unsure about his place in the line, then sentence (141) would have an approximative meaning for *mga*. If the speaker does know that he is in fact fifth in line, then sentence (141) would be infelicitous.
Mga panglima ako sa linya.
PL fifth 1sg.DIR OBL line
‘I was about fifth in line.’

Mga can also occur as an approximative marker with other kinds of numbers and with measures, as in (142)-(143). In (142), it occurs with the distributive numeral tigi-tigisa ‘one each’:

(142) Context: Santa Claus is handing out candy to children at the mall. John and Mary are in line with a large group of other children. When John and Mary are asked by their parents how many candies they got from Santa, John replies with the following because he recalls seeing most children receive only one candy each.

Mga tigi-tigisa lang ang natanggap namin.
PL one.each only DIR receive.PV.PERF 1pl.IND
‘We only received about one each.’

In (143) it occurs with a measure term isang kilometro ‘one kilometer’:

(143) Context: John is asked by a tourist how far the nearest gas station is. He is unsure, so he replies:

Mga isang kilometro ang layo.
PL one.LK kilometer DIR distance
‘The distance is about one kilometer.’

Approximative mga can also occur with words denoting times, as in sentence (144):

(144) Context: John is asked by his manager when he will finish his project. He thinks he will probably finish sometime tomorrow, but he is not sure:

Mga bukas siguro ako matatapos.
PL tomorrow probably 1sg.DIR finish.AV.CONT
‘I will probably finish around tomorrow.’

Approximative mga can also occur with expressions denoting locations, as in sentence (145), where mga occurs with the phrase sa gitna ‘in the middle’:
(145) Context: John wants Mary to watch a speech by a politician, but the speech is included in a longer video of his campaign travels. He tells Mary where to find the speech:

\[
\text{Mga sa gitna ng video ang speech niya.}
\]

PL OBL middle IND video DIR speech 3sg.IND

‘His speech is around the middle of the video.’

Approximative \textit{mga} can also occur with descriptive expressions, as in sentence (146), where \textit{mga} occurs with the expression \textit{mala-Audrey Hepburn} ‘Audrey Hepburn-like’\footnote{http://forums.igma.tv/showthread.php?t=7830&page=11} It can also occur with \textit{matangkad} ‘tall’ in (147):

(146) Context: Fans of a popular actress are discussing a picture of hers which appeared on the cover of a fashion magazine.

\[
\text{Mga mala-Audrey Hepburn yung pic niya doon.}
\]

PL like-Audrey Hepburn DIR picture 3sg.IND there

‘Her picture there is somewhat Audrey Hepburn-like.’

(147) Context: John is describing his friends Bill and Bob. Bill is six feet tall. Bob is not as tall as Bill, but he is taller than the average man. John describes Bob as:

\[
\text{Mga matangkad rin siya.}
\]

PL tall also 3sg.DIR

‘He is also somewhat tall.’

Approximative \textit{mga} can also occur with Tagalog expressions that can be translated as quantified expressions in English, as in the sentences in (148):

(148) a. Context: We are cleaning up the sidewalks in our town. When our supervisor asks us how often we stopped to pick up trash, I say the following because I don’t think we stopped at every corner precisely, but we did stop at most of them:

\footnote{http://forums.igma.tv/showthread.php?t=7830&page=11}
**Mga bawat kanto** ang tinigilan namin.
PL every corner DIR stop.LV.PERF 1pl.IND

‘We stopped at approximately every corner.’

b. Context: John asks Mary how often she got to see her friend Jane. Mary and Jane did not meet very often, but they did meet more than once:

**Mga ilang beses** rin kami nagkita.
PL some times also 1pl.DIR meet.AV.PERF

‘We did meet about a few times.’

c. Context: John asks Mary what she ate at the party. She ate one eggroll and some hors d’oeuvres.

**Mga kaunti** lang ang nakain ko.
PL few only DIR eat.PV.PERF 1sg.IND

‘I only ate about a little.’

The approximative meaning of *mga* might be distinct from its plural meaning, in which case we could say that there are two lexical items *mga* — one an approximative marker, and the other a plural marker. However, there are interesting proposals that relate vagueness to plurality, such as [Chierchia (2010)](https://www.jstor.org/stable/392656). For future work, it would be interesting to take a closer look at these proposals and see if the approximative meaning of *mga* can be related to its plural meaning.

### 7.2 The optionality of *mga*

In section 5.1 I characterized Tagalog predicates as being unspecified for number, using data such as the following:

(149) Nasa mesa ang libro.
OBL table DIR book

‘The book(s) is/are on the table.’ [Schachter and Otanes (1972) p.111](https://www.jstor.org/stable/392656)

(149) shows how a plural interpretation is possible for *libro* ‘book’ even though it is not marked with *mga*. Based on data such as this, *mga* has been described as an optional plural marker because its presence is not required for predicates to have a plural interpretation.
However, *mga* is actually not freely optional. For example, some speakers do not accept the plural interpretation for *libro* ‘book’ in (149). For these speakers, the *libro* ‘book’ in (149) which is not marked by *mga* can only be singular. In order to obtain a plural interpretation for *libro*, these speakers require *mga* to be present.

Mysteriously, this restriction only seems to affect expressions marked for direct case. Expressions marked for indirect or oblique case can have plural interpretations in the absence of *mga*, as examples (150) and (151) show. As explained earlier in section 5.1, these examples can be uttered in a context where the woman brought only one book and put a bookmark in only one book, as well as in a context where the woman brought more than one book and put a bookmark in several books:

(150) Nagdala ng libro ang babae.
   bring.AV.PERF IND book DIR woman
   ‘The woman brought a book/books.’

(151) Naglagay ng bookmark ang babae sa libro.
   put.AV.PERF IND bookmark DIR woman OBL book
   ‘The woman put a bookmark in a book.’ or ‘The woman put bookmarks in books.’

It appears that, for some speakers, if the referent of a direct case-marked expression is plural, that argument must be marked with *mga*. Otherwise, the only number interpretation that referent can have is singular. The kind of predicate also appears to matter, because while some speakers can get a plural interpretation for *libro* ‘book’ in (149), no speakers among those I asked consider (152a) acceptable in the given context:

(152) Context: The two dogs in our neighbor’s front yard barked.
   a.#Tumahol ang aso.
      bark.AV.PERF DIR dog
      ‘The dog barked.’ (Cannot mean: ‘The dogs barked.’)
   b. Tumahol ang mga aso.
      bark.AV.PERF DIR PL dog
      ‘The dogs barked.’

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So the question is: why can libro ‘book’ have a plural interpretation in the absence of mga, but aso ‘dog’ cannot? Could it be that books are more readily expected to be a plurality compared to dogs? Or could it be that plurality marking in Tagalog is subject to a hierarchy (Corbett, 2000) where predicates with animate referents must be explicitly marked when they are plural? I leave further discussion of these questions for future work.

7.3 Conclusion

This thesis made the following claims about the syntax and semantics of the Tagalog plural marker mga:

1. Mga has a unified syntactic distribution: it combines with one-place predicates to form one-place predicates.

2. Mga pluralizes entities.
   - Mga applies to a predicate of type \(<\text{e}, \text{t}>\) and requires that the denotation of the predicate contain only pluralities, i.e. non-atomic elements in a Link lattice.
   - Mga is distributive: it requires that the predicate it combines with hold of each subpart of the pluralities in the denotation of that predicate. These subparts must be the smallest units that the predicate can be true of.
   - Voice marking on a mga-marked predicate indicates the semantic role of the entities pluralized by mga.

I characterize mga as having the syntactic category \((\text{S}/\text{Dir})/(\text{S}/\text{Dir})\) — it combines with a one-place predicate to yield another one-place predicate. The seemingly exotic ability of mga to combine with constituents of various types is shown to simply follow from the fact that Tagalog does not have the same inventory of syntactic categories that languages like English do. The grammar fragment that I present in this thesis shows that it is possible to analyze the expressions that mga combines with as one-place predicates, which allows for a simpler account of the syntactic distribution of mga.
The semantic analysis of *mga* that I present in this thesis formalizes the meaning of *mga* as Link’s (1983) proper plural operator ⊗, which is of type <et,et>, and which excludes atomic individuals from the denotation of the predicate it applies to. I show that *mga* is a distributive pluralizer: it requires that the predicate it applies to hold of each subpart of the pluralities in the denotation of that predicate; furthermore, these subparts must be the smallest units that the predicate can be true of. I also show that, as Kolmer (1998) claims, *mga* is an entity pluralizer because it applies to predicates of type <e,t>. However, I also make the point that voice marking plays an important role in the pluralization of entities because it indicates which participants in an event are pluralized by *mga*.

The empirical and formal characterizations of *mga* presented in this thesis are intended to serve as a foundation for future work on the optionality of *mga*, as well as its approximative meaning.
Bibliography


## Appendix A
### ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AV</td>
<td>agent voice</td>
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<tr>
<td>BV</td>
<td>benefactive voice</td>
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<tr>
<td>CONT</td>
<td>contemplated aspectual form</td>
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<td>DIR</td>
<td>direct case</td>
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<td>distal demonstrative</td>
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<td>existential predicate</td>
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<td>imperfective aspectual form</td>
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<td>linker</td>
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<td>LV</td>
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<td>negative existential</td>
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<td>oblique case</td>
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