

STRUCTURE-SENSITIVE INTERPRETATION: A CASE STUDY IN TAGALOG

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Abstract

How are indefinite or definites interpreted in languages which lack definite or indefinite articles? Previous works which have addressed this question have observed that cross-linguistically indefinite and definite readings of bare noun phrases are at least partly determined by the broader syntactic structure of their containing clause. However, these analyses often do not consider the reasoning that interlocutors engage in when calculating the meanings of bare noun phrases.

In this dissertation, I explore the issue of noun phrase interpretation in article-less languages using a case study in the Philippine language Tagalog. Compared to English, Tagalog demonstrates very different strategies of expressing (in)definiteness. Tagalog uses a complex interaction of case marking, voice affixes and word order in order to signal a nominal as definite or indefinite. I argue that this system sheds light on how we should understand the compositional semantics and pragmatic reasoning underlying definiteness.

I argue for a particular compositional semantics for Tagalog which captures the observed patterns of definite and indefinite readings of bare noun phrases. I give an account for the cross-linguistically common observation that bare NPs which are syntactically local to their selecting verb are interpreted as indefinites, while bare NPs in other syntactic positions are not subject to this restriction. The account deals with the conventional meanings of definite and indefinite expressions, however, in order to consider the entire empirical picture, I also consider meanings which arise as non-conventionalized pragmatic enrichments. I discuss how interlocutors calculate conversational implicatures in a language which lacks articles. I argue for a model of pragmatic competition which assumes that interlocutors take the broader grammatical structure of an utterance into consideration when calculating a conversational implicature. If pragmatic alternatives are ruled out by the morphosyntactic and lexical idiosyncrasies of the interlocutors' language, conversational implicatures can fail to emerge.

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Chapter 1

Introduction

1.1 (In)definites and compositional semantics

Definites and indefinites have been a central topic of inquiry in several subfields of linguistics and the philosophy of language for decades. Several influential studies have explored the semantic contributions of articles like English *the* and *a* (e.g., Russell 1905, Strawson 1950, Sharvy 1980, Barwise and Cooper 1981), as well as the ways in which definites and indefinites semantically compose with other expressions (e.g., Lewis 1970, Montague 1973, Heim 1982, Partee 1986, Coppock and Beaver 2015). Another particularly fruitful strand of research has dealt with the non-conventionalized, pragmatic inferences which arise from the competition between definite and indefinites (e.g., Grice 1975, Prince 1981, Heim 1991, Schlenker 2012).

However, the vast majority of these studies have focused almost exclusively on languages (like English) which encode definiteness and indefiniteness largely via the use of articles like *the* and *a*. Many languages use strategies besides articles in order to mark definiteness. According to Dryer and Haspelmath (eds.) 2013, approximately 39% of languages (243 out of 620) in Dryer's survey lack a definite article, while approximately 55% lack (295 out of 620) an indefinite article. How do these languages behave with respect to the theoretical questions cited above? How do these alternative expressions of definites and indefinites compose semantically with other expressions? Do they give rise to the same kinds of pragmatic inferences?

This dissertation investigates these questions via a case study of the Philippine language Tagalog, a language which signals the definiteness of a noun phrase not by articles, but by a

combination of case marking, verbal affixes, and word order. Incorporating this case study into our theories of definiteness provides us with a more cross-linguistically comprehensive understanding of how expressions are assigned definite and indefinite meanings in natural language.

(1.1) is an example of how definiteness is expressed in Tagalog. In (1.1a), the verb is marked by the so-called ‘patient voice’ prefix *na-* which is accompanied by nominative case marking on the patient noun phrase, signalled by the case marker *ang*. In (1.1b), the verb is marked by the ‘actor voice’ prefix *naka-*, accompanied by genitive case marking on the patient, signalled by the genitive marker *ng* (pronounced *nang*). The change in verbal affix and case marking is accompanied by a semantic alternation, reflected in the English translation as a change in definiteness.

- (1.1) a. *Na-kilala=ko* *ang* *may-akda* *ng* *palabas*
 PERF.PV-meet=GEN.1SG NOM author GEN play
 I met the author of the play.
- b. *Naka-kilala=ako* *ng* *may-akda* *ng* *palabas*
 PERF.AV-meet=NOM.1SG GEN author GEN play
 I met an author of the play.

We can verify the appropriateness of the English translations by testing whether the Tagalog sentences give rise to the same kinds of inferences. Like its English translation with *the*, the Tagalog patient voice sentence in (1.1a) gives rise to the inference that the play has just one author. Again, like its English translation with *a*, the actor voice sentence in (1.1b) does not give rise to this inference. In fact, the indefinite in both the Tagalog example and its English translation may give rise to the opposite inference: that there are multiple authors.

Thus, despite the lack of articles, Tagalog is able to express notions of definiteness which are very similar to those observed in English. This raises the question of whether theories of definiteness, largely built for article-languages like English, can be appropriately applied to Tagalog. In answering this question, I explore some prominent theories of (in)definiteness, the semantic composition of definite and indefinite noun phrases, and pragmatic competition. I argue that case studies of languages like Tagalog with dramatically different grammatical systems to English can significantly enrich our understanding of how definiteness is manifested in natural language.

One central question of the dissertation is whether a unified compositional semantic theory of (in)definite meanings and how they semantically combine with surrounding expressions can be specified which adequately accounts for both article languages and article-free languages. In order to meet one part of this goal, I build a theory of how bare (singular, count) NPs in Tagalog semantically compose with other expressions. This component of the dissertation builds on the theory of type-shifting proposed by Partee and Rooth 1983 and Partee 1987 (though the ideas have predecessors in the lexical rules of Dowty 1979). Under this theory, NPs are *a priori* ambiguous, able to take on any of a constrained set of interpretations, determined by both contextual conditions and constraints imposed by the compositional semantics.

Key to the theory is the idea that type-shifting theories provide covert versions of articles like *the* and *a*, implying that grammars which employ type-shifting can create the kinds of meanings which are ordinarily attributed to articles. For this reason, several theories of the semantics of bare NPs make substantial use of type-shifters (e.g., Chierchia 1998, Dayal 2004). However, despite their usefulness in accounting for the semantics of bare NPs, it is still an open issue as to how the application of type-shifters should be constrained.

Chierchia (1998:361–362) poses this issue as a challenge for cross-linguistic semantics. Chierchia’s broader proposal predicts the existence of languages which lack articles and derive indefinite and definite readings entirely through covert type-shifting. For example, in the following Russian example, the bare NPs may be interpreted as either definites or indefinites. Under Chierchia’s analysis, the ambiguities observed here are derived by applying either definite or indefinite type-shifters to the bare NPs. When and where definite or indefinite type-shifters are applied in such languages is left up to contextual factors.

(1.2) *V komnate byli malčik i devočka*
 in room were boy and girl
 In (the/a) room were (the/a) boy and (the/a) girl. Chierchia 1998:(27d)

In chapter 2 of this dissertation, I argue that Tagalog data motivate a more constrained theory of type-shifting. We observe in (1.1) that bare NPs are *not* ambiguously definite or indefinite, as one would expect if definiteness was derived via free application of type-shifters. Instead, definiteness is determined by factors like verbal morphology, case, and word order. I argue that the NP’s structural position partly determines the NP’s interpretation as definite or indefinite.

Under the theory of type-shifting outlined in Partee 1986, the application of a type-shifter to an NP is understood to be sensitive to the NP's surrounding syntactic context. Therefore, we expect an NP's interpretation to be responsive to its syntactic position.

After laying out the compositional analysis in full, I go on to investigate the pragmatic inferences which arise from the use of indefinites, exemplified by examples like (1.1b) and its English translation. To what can we attribute the associated inference of 'non-uniqueness' (i.e., that the description is instantiated by multiple individuals)? Below I lay out the central claims of the dissertation about non-uniqueness implicatures and how article-free languages like Tagalog have the potential to enrich our understanding of how pragmatic competition and implicature calculation should be understood.

1.2 Pragmatic inferences and competition

What is the role of grammar in the generation of conversational implicatures? Based on the Tagalog case study, I pursue a theory which assumes that interlocutors take morphosyntactic information into consideration when calculating conversational implicatures. I argue that this is entirely consistent with an understanding of conversational implicatures as derived by domain general reasoning about the action choice of an agent. When we reason about the choices an agent could have made, it is natural to assume that we reason about the possible utterances an agent could have made, as an utterance is a type of action. If we conceptualize grammar as a set of constraints on the well-formedness of utterances, it follows that in rational communication, interlocutors should reason about which utterances were available to the speaker for use and which were not, due to being ruled out by the morphosyntax of the speaker's language.

Under the strictest interpretation of Gricean pragmatics, interlocutors collectively reason about each other's actions in a way that bears no intrinsic relationship to linguistic form. In fact, Grice (1975) explicitly states "one of my avowed aims is to see talking as a special case or variety of purposive, indeed rational, behavior" and goes on to provide generalizations for all proposed principles of cooperative communication in non-linguistic domains.¹ Thus, Grice's

¹Grice's maxim of manner, a mutual assumption that interlocutors will keep their utterances short and orderly, may seem to be the principle most tied to the domain of language, but Grice even proposes a non-linguistic generalization for the maxim of manner: "I expect a partner to make it clear what contribution he is making, and to execute his performance with reasonable dispatch" (Grice 1975: 47).

original proposal construes pragmatic principles as *domain general*, applicable to non-linguistic communication.

1.2.1 Motivating scales

However, certain theories of conversational implicature building on Grice do make explicit reference to exclusively linguistic notions, potentially at odds with the view that the domain of pragmatics is entirely generalizable to non-linguistic domains.

For example, neo-Gricean theories, starting with Horn 1972, but see Gazdar 1979, Hirschberg 1985 and others, propose a model of pragmatics which crucially makes reference to linguistic knowledge. In particular, these theories assume the existence of specialized sets of lexical items which interlocutors refer to when calculating certain classes of implicatures.

Under the neo-Gricean account, implicatures are generated as interlocutors reason about why speakers made choices amongst members of these sets. For example, “upper bound” implicatures of weak scalar items are derived via this method. Under this theory, lexical items like *some* or *possible*, generate an upper bound implicature via competition with a corresponding strong lexical item (*all* and *necessary*, respectively). The table in (1.3), adapted from Horn 2006a, provides examples. In each case, we have a weak scalar item (WSI) encoding for a conventional meaning, and additionally giving rise to a non-conventional pragmatic inference via competition with its associated strong scalar item (SSI).

	weak item	conventional meaning	non-conventional meaning	strong item
	some	<i>at least some</i>	<i>some but not all</i>	all
	possible	<i>at least possible</i>	<i>possible but not certain</i>	certain
(1.3)	three	<i>at least three</i>	<i>three but not more than three</i>	<i>larger numerals</i>
	or	<i>or and perhaps both</i>	<i>or but not both</i>	and
	warm	<i>at least warm</i>	<i>warm but not hot</i>	hot

According to neo-Gricean theories, the non-conventional meaning components of WSIs are calculated with reference to an assumption that interlocutors are obeying some principles of cooperative communication. A particular prominent theory of cooperativity comes from Grice (1975), though there are many subsequent variants (see e.g., Horn 1984, Sperber and Wilson

1986, Levinson 2000, and others). The theory consists of an overarching and very general “Cooperative Principle” which is associated with four more specific maxims.

(1.4) *The Cooperative Principle*: Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged.

- a. *Quantity*: Make your contribution as informative as is required, but no more informative than is required, by the current purposes of the exchange.
- b. *Quality*: Contribute only things which are true and supported by evidence.
- c. *Relevance*: Contribute only relevant things (see e.g., Groenendijk 1999: contribute things which resolve (potentially implicit) questions active in the discourse).
- d. *Manner*: Avoid obscurity and ambiguity, be brief and orderly.

Interlocutors reason jointly about the intended meanings of a speaker’s utterances, given the assumption of the speaker’s cooperativity. The following definition of a conversational implicature is adapted from Hirschberg 1985.

(1.5) A speaker S conversationally implicates p to a hearer H by virtue of uttering u in context C only if:

- a. S intends to communicate p to H by uttering u .
- b. S and H mutually believe that S is being cooperative in the sense of (1.4).²
- c. S and H mutually believe that p is required given S ’s utterance of u and (b).

The neo-Gricean theory takes the non-conventional “upper bound” meaning of WSIs in column three of (1.3) to be conversationally implicated in the sense of (1.5). This means that interlocutors collectively assume the upper bound meaning in order to preserve the assumption of the speaker’s cooperativity.³

²Hirschberg 1991 embeds this condition as a belief of S .

³This is not universally assumed by pragmaticists. Competing theories, such as grammaticalist theories (Chierchia 2004, Chierchia et al. 2012, and others) and explicature-based theories (Carston 1988, Sperber and Wilson 2004) assume that the upper bound is directly represented within the conventional meanings of utterances, but that the speech signal underdetermines whether or not an upper bound interpretation is present or not for any given utterance.

The neo-Gricean approach to deriving these conversational implicatures from the utterance of WSIs crucially involves reference to *alternative utterances*. Interlocutors specifically reason about why the speaker chose the WSI over its stronger competitor listed in the final column of (1.3). The reasoning assumed by the neo-Gricean analysis, referencing the notion of an alternative utterance, can be sketched informally as in (1.6), following the format of Potts 2013.

(1.6) *Sp*: ‘Some of the students left’ (= utterance *p*).

Implicature: Not all of the students left.

- a. *Contextual premise*: *Sp* intends to exhaustively answer the (potentially implicit) question *Q*: ‘How many students left’?
- b. *Contextual premise*: *Sp* has full knowledge of the answer to *Q*.
- c. *Sp* is obeying the Cooperative Principle and Gricean maxims.
- d. There is an alternative utterance *q* ‘All of the students left’.
- e. *q* is more informative than *p*.
- f. *q* is more relevant than *p* (as it provides a more resolute answer to *Q*).
- g. *q* and *p* are equally easy/costly to express.
- h. By (c–g), *Sp* must have failed to utter *q* as s/he lacks sufficient evidence to attest to *q*’s truth.
- i. By (b) and (h), *Sp* must have failed to utter *q* as s/he believes it to be false.

Key to the analysis is that the alternative utterance *q* is pre-determined by a conventionalized notion of which lexical items compete with which other lexical items. Particular motivation for this kind of analysis comes from what is referred to as the “symmetry problem”. Von Stechow and Heim (2008) and Fox and Katzir (2011) provide useful overviews of this issue. Any theory of pragmatic competition must explain why utterances with WSIs like the *some*-statement in (1.7a) competes with the *all*-statement in (1.7b) generating the upper bound implicature based on the reasoning in (1.6). The Gricean theory takes the *all*-statement to be more informative and more relevant, and thus a viable competitor able to serve as the alternative referenced in (1.6d).

- (1.7) a. Some of the students left.
 b. All of the students left.
 c. Some but not all of the students left.

However, Kroch (1972) notes that this sort of reasoning could just as easily be applied to either the *all*-statement or the *some but not all*-statement. (1.7c), like (1.7b), is strictly stronger than (1.7a). Therefore, the question arises as to why the interlocutors fail to reason about why the speaker chose the *some*-statement over the *some but not all*-statement. Why can't we insert "Some but not all of the students left" into the premise in (1.6d)? If we allow the *some*-statement to pragmatically compete with the *some but not all*-statement, we risk deriving the implicature that the negation of (1.7c) holds, contrary to what is observed.

The assumption of lexical scales gets us around this problem. We understand that *some* competes with *all* simply because the competition has been conventionalized. Interlocutors mutually understand that statements with *all* are natural competitors. (1.6d) can be updated to the statement below, referencing the existence of lexical scales.

- (1.8) d. There is an alternative utterance *q* 'All of the students left', generated with reference to the conventionalized scale $\langle \textit{some}, \textit{all} \rangle$.

1.2.2 Grammatical idiosyncrasies

This view of scales relies on the assumption that pragmatic reasoning can access information about what is conventionalized in the language of the interlocutors, as lexical scales are understood to be conventionalized. This assumption leads to the question of how the idiosyncrasies of the grammar contribute to or interfere with the calculation of implicatures. This is one of the central questions of this dissertation.

Previous approaches to this question have primarily investigated 'lexical gaps' (i.e., cases in which a language lacks a specific term for some conceptual category) and how such gaps play a role in implicature calculation. Horn 2006b points out a number of cases in English in order to make the point that the calculation of scalar implicatures does make reference to some notion of conventionalization. For example, Horn notes that *rectangle* gives rise to to the inference

that the shape in question is not equilateral. This is due to the presence of a viable term in the English lexicon for an equilateral rectangle, i.e., *square*. On the other hand, *triangle* does not give rise to an inference that the shape is not equilateral. This is understandable as there is no equally salient term for *non-equilateral triangle* which can serve as a pragmatic competitor. More cases like this are discussed in chapter 3 of this dissertation. Here we have a clear case of pragmatic reasoning crucially being shaped by the idiosyncrasies of the interlocutors' language, specifically, which terms are lexicalized.

In this dissertation, I expand on this discussion and look at cases which are more morphosyntactically complex. I argue, based on a paradigm from Tagalog, that the idiosyncrasies of a language's morphosyntax can interfere with the calculation of implicatures, just like the language's lexicon. The paradigm builds on the discussion of case and voice outlined above, and is based on the notion that indefinites and definites enter into pragmatic competition. By virtue of competing with a definite alternative, the utterance of an indefinite expression gives rise to pragmatic inferences.

The reasoning by and large follows in the footsteps of the (neo-)Gricean fashion, though with some important additions to incorporate the theory outlined in Heim 1991. Heim proposes that interlocutors mutually assume a preference for definite expressions over indefinite competitors, and so any utterance of an indefinite expression triggers pragmatic reasoning in the style of Grice about why the preferred definite competitor was not chosen. Interlocutors collectively reason that the speaker must believe the uniqueness presupposition of the definite competitor is false, and therefore, the indefinite form gives rise to a *non-uniqueness* implicature. This kind of reasoning is applied to pairs of definite and indefinite expressions in Tagalog, such as (1.1), repeated below. This reasoning is used to explain why the indefinite genitive (1.9b) appears to give rise to an inference that there is more than one author of the play.

- (1.9) a. *Na-kilala=ko* *ang may-akda ng palabas*
 PERF.PV-meet=GEN.1SG NOM author GEN play
 I met the author of the play.
- b. *Naka-kilala=ako* *ng may-akda ng palabas*
 PERF.AV-meet=NOM.1SG GEN author GEN play
 I met an author of the play.

Curiously, if we move away from verb-initial clauses like those in (1.9), and look at clauses in which the actor-denoting noun phrase is in a pre-verbal position like in (1.10), the non-uniqueness implicature of the indefinite genitive patient seems to disappear. This raises the question: why does the position of the actor affect the interpretation of the patient? Examples like (1.10) form a crucial piece of evidence that the calculation of implicatures makes crucial reference to morphosyntactic notions. Theories which do not assume this syntax-pragmatics interplay lack an explanation of why the alternation in word order observed in (1.10) appears to block the emergence of an implicature.

- (1.10) *Ang babae ang naka-kilala ng may-akda ng palabas*
 NOM woman NOM PERF.AV-meet GEN author GEN play
 It is the woman who met the/a author of the play. ↗ *multiple authors*

I propose that the non-uniqueness implicature of the genitive form is tied to whether or not the competing nominative form is well-formed. With actor initial word orders, the definite, nominative variant of (1.10) is ungrammatical or highly marked (1.11). I argue that due to the markedness of the definite, nominative form in (1.11), it does not pragmatically compete with the indefinite, genitive form in (1.10). Thus the implicature fails to arise. The analysis hinges on the assumption of competition between the indefinite and definite forms, which fails to arise if the definite form is unavailable. Alternative analyses which do not assume competition should explain why the presence of the implicature triggered by the indefinite is tied to the grammaticality of the definite.

- (1.11) **Ng/??Ang babae ang na-kilala ang may-akda ng palabas*
 GEN/NOM woman NOM PERF.PV-meet NOM author GEN play

There is a clear analogy to Horn's examples of pragmatic reasoning about lexical domains which contain gaps (e.g., *triangle* does not implicate *non-equilateral triangle*, due to the absence of an equally salient term for equilateral triangles). Here, Tagalog grammar provides a similar kind of gap in that the nominative marking of the patient in an actor-initial clause is blocked. Just as in the English example, this gap prevents the emergence of an implicature.

The analysis assumes that the calculation of implicatures must make reference to grammatical notions like the well-formedness of utterances and their competitors. In undertaking the kind

of collaborative reasoning which gives rise to implicatures, interlocutors must have knowledge of the conventionalized morphosyntactic rules of the language.

How does this conclusion fit with the view of pragmatic reasoning as being primarily concerned with an agent's action choice, which is generalizable to non-linguistic communicative acts? Does this study push us towards a view of treating pragmatics like another 'module' of grammar (like phonology or syntax)? I suggest here that such a move is not necessary. A domain general view of pragmatics does not entail that agents cannot reason about grammar. In fact, depending on our conceptualization of grammar itself, patterns like (1.10) and (1.11) directly follow from an understanding of pragmatics as being based on reasoning about action choice. Under a view of grammar as simply a set of constraints on 'what may be uttered' by interlocutors, we expect interlocutors to make reference to grammar when reasoning about what communicative actions the speaker was or was not expected to take.

In pragmatics stemming from the Gricean tradition, we often talk about reasoning about what the speaker 'could have uttered'. If we consider grammars (like Tagalog and English) to be a set of constraints on what actions the speaker may or may not take, then grammar must enter into collaborative reasoning about what actions (specifically what utterances) the speaker may enact.

1.3 Outline of the dissertation

In what follows, I lay out the central claims of each chapter in succession, to serve as an overview of the dissertation and as a reference guide for the reader. Chapter 2 deals with how expressions (specifically, Tagalog bare NP expressions) are structured and assigned conventional meanings. Chapters 3 and 4 deal with how these expressions enter into pragmatic competition and how pragmatic alternatives are calculated, given the analysis in chapter 2. Finally, chapter 5 examines how interlocutors reason about pragmatic alternatives and derive implicatures.

Chapter 2: Structure sensitive NP interpretation

Chapter 2 provides a theory of compositional semantics which explains how the meaning of a bare NP is determined by its surrounding syntactic context, drawing on the theory of type-shifting proposed by Partee 1986, as described earlier. While Tagalog does employ bare NPs in order to express definite and indefinite expressions, these bare NPs are in certain cases unambiguously definite or indefinite, their definiteness signalled by their morphological case, verbal affixes on the verb, and/or their syntactic position. This chapter explains how a system like Tagalog's can be incorporated into a theory of compositional semantics.

I begin by weighing in on some long-standing issues in the syntactic and semantic analyses of Tagalog bare NPs. In Tagalog, affixes attached to the verb determine the morphological case of the verb's argumental NPs. For example, in (1.12a), the patient voice infix *-in-* determines that the patient NP has nominative case while in (1.12b) the actor voice prefix *nag-* determines that the patient NP has genitive case.

- (1.12) a. *t(in)ago=ko* *ang kompyuter*
 PV.PERF.hide=GEN.1SG NOM computer
 I hid the computer
- b. *nag-tago=ako* *ng kompyuter*
 AV.PERF.hide=NOM.1SG GEN computer
 I hid a computer

The case/voice alternation in (1.12) is accompanied by an interpretational difference. I argue, contra several previous authors (e.g., Rackowski 2002, Aldridge 2004, Rackowski and Richards 2005), that the distinction in interpretation is not one of specificity, but instead should be analyzed as a definiteness alternation: nominative NPs are definite, genitive NPs are (narrow scope) indefinites.

Having established the appropriate way to characterize the semantic effect of the alternation in (1.12), I argue how it can be derived compositionally. Numerous previous theories of this alternation (e.g., Rackowski 2002, Aldridge 2004, Rackowski and Richards 2005) appeal to the theory of Diesing 1992. Under this theory, the interpretation of an NP is determined by its position inside or outside the VP. I provide an account which derives this effect compositionally without resorting to non-compositional filter-type constraints like Diesing's Mapping

Hypothesis.

Primarily, I argue that covert type-shifters can serve to generate the observed readings. Bare NPs are understood as being fundamentally property-denoting. This creates compositional mismatches, as property-denoting constituents are unable to compose with their selecting predicates. For this reason, they must type-shift. In order to compose with their predicate, nominative bare NPs take on an individual denotation, namely, the unique individual instantiating the description. This creates a definite interpretation.

As for genitive bare NPs, I argue that they are existentially quantified over by the transitive verb itself, drawing on the analyses of Van Geenhoven 1998, accounting for their indefinite interpretations. I argue that this approach correctly derives the narrow scope behavior of genitive bare NPs, as well as their non-specific readings when selected by intensional transitive verbs like *naghanap* ‘seek’.

In sum, definiteness and indefiniteness need not be signalled by dedicated articles. Instead, they may emerge from the syntactic position of the NP. This view of semantic composition provides a way of understanding how the interpretation of a bare NP is determined in part by its surrounding syntactic environment.

Chapter 3: Non-uniqueness inferences in an article-free system

In this chapter, I show that Tagalog bare NPs which are interpreted as indefinites implicate nonuniqueness via pragmatic competition with bare NPs which are interpreted as definites. I argue that this effect has several implications for how we should think about pragmatic competition and the nature of pragmatic scales. Specifically, I argue that scales of lexical items, employed for the purpose of calculating implicatures (as in Horn 1972), need not be ordered via semantic strength. Furthermore, when calculating the relative informativity of alternative utterances, interlocutors need to consider the broader grammatical structure of the utterance, and not just the individual lexical items.

When bare NP patients appear with genitive case, they are interpreted as indefinites, as discussed in chapter 2. Furthermore, they give rise to additional pragmatic inferences. For example, they create unexpected implications when their descriptive content is mutually understood by interlocutors to be instantiated by just one individual: (1.13b) is judged as odd (in

contrast to (1.13a)), just like its English translation.

- (1.13) a. *p<in>o-protekta-han=ko ang mundo*
 PROG-protect-PV=GEN.1SG NOM world
 I protect the earth.
- b. *#nag-po-protekta=ako ng mundo*
 AV-PROG-protect=NOM.1SG GEN earth
 #I protect an earth

Many previous studies, starting with Heim 1991, of effects like (1.13b) in English and related languages appeal to a pragmatic principle *Maximize Presupposition* which determines that presuppositionally stronger utterances are to be preferred to presuppositionally weaker competitors. If interlocutors assume that a speaker is obeying *Maximize Presupposition*, they mutually assume that they should disprefer indefinite utterances if the presupposition of the definite is satisfied, accounting for the oddness of (1.13b). I look into the mechanisms behind inferences attributed to *Maximize Presupposition* in chapter 5.

According to accounts employing the principle of *Maximize Presupposition*, nonuniqueness implicatures of English indefinites are analyzed via competition between the articles *the* and *a*. However, this analysis does not extend in any obvious way to Tagalog which lacks a definite article. As discussed in the previous chapter, neither the case marking morphemes, nor the voice marking affixes encode for the definiteness of indefiniteness of the patient NPs in (1.13). (1.14) provides evidence for this claim. In (1.14), all morphemes are compatible with the expression of an indefinite patient, clearly problematic for the hypothesis that any particular morpheme is responsible for the encoding of definiteness.

- (1.14) a. *p<in>o-protekta-han=ko ang isang bata*
 PROG-protect-PV=GEN.1SG NOM one child
 I protect one child.
- b. *nag-poprotekta=ako ng isang bata*
 AV-PROG.protect=NOM.1SG GEN one child
 I protect one child

Based on the discussion in chapter 2, the (in)definiteness alternation exemplified in (1.13) stems from the broader syntactic context of the patient NP, rather from than individual lexical

items/morphemes. As it is the broader syntactic structure which determines the definiteness of the NP, the theory must account for how syntactically complex expressions enter into pragmatic competition, and whether this can be reconciled with the broadly Gricean view of implicatures which is based on the notion of joint reasoning about which expressions the speaker chose.

How do interlocutors reason about the broad syntactic structure of an utterance? Under the neo-Gricean view of pragmatic competition, interlocutors are assumed to reason about choices between individual lexical items. For example, according to the theory of Horn 1972 outlined above, interlocutors reason about scales of lexical items which are ordered by their semantic strength, such as $\langle \textit{some}, \textit{all} \rangle$ or $\langle \textit{can}, \textit{must} \rangle$. If a speaker uses a lexical item ranked low on a scale, interlocutors jointly reason about why the higher ranked, stronger item was not chosen.

How could this view of pragmatic competition apply to pairs of alternative utterances such as (1.13)? I argue that there is no way to choose an analogous scale of lexical items, ordered via semantic strength, which derives the pair in (1.13). In order to bring pairs like (1.13) in line with the neo-Gricean view of pragmatic reasoning, we are forced to posit a lexical scale which is *not* ordered by semantic strength. I argue in this chapter that we can assume a scale consisting of the Tagalog voice morphemes $\langle \textit{AV}, \textit{PV} \rangle$, which is not itself ordered via semantic strength, but can be used to generate utterance pairs like (1.13) which are ordered via semantic strength. To be more precise, the alternative (1.13a) is deemed semantically stronger than its competitor due to the additional presupposition triggered by the definite patient.

Next, I argue that this example bears on how we should assess the relative semantic strength of alternative utterances which enter into pragmatic competition based on their relative informativity. Some theories of pragmatic competition (e.g., Percus 2006) argue that the relative semantic strength of utterances in pragmatic competition (at least for the purposes of calculating presuppositional implicatures) should only be assessed at the level of the lexical item. However, I argue that the Tagalog data suggests we must calculate the relative semantic strength of complex constituents, above the level of the lexical item. In Tagalog, as definiteness is largely determined within the semantic composition via type-shifting, it is only at syntactic complex constituents that the relative semantic strength of definites and indefinites can be distinguished. Therefore, I argue for an intermediary position, relative semantic strength is calculated at the clausal level, not necessarily at the level of the root clause (following Singh 2011).

Chapter 4: Grammar and pragmatic alternatives

This chapter refines the notion of implicature calculation and its interaction with grammar, with reference to the word order paradigm outlined above, i.e., the sensitivity of indefinite interpretations of patients to the linear position of the actor NP relative to the verb. I argue this paradigm provides evidence that grammatical structure must be taken into consideration when calculating implicatures.

As stated above, the non-uniqueness pragmatic inference normally triggered by an indefinite fails to emerge whenever the corresponding definite form is morphosyntactically blocked. This effect is argued to be traced to a lack of pragmatic competition. Interlocutors do not need to reason about why the indefinite expression was chosen over its definite competitor, as the definite competitor is ungrammatical or highly marked. This sort of reasoning follows from a conceptualization of reasoning about pragmatic competitors as amounting to reasoning about reasoning about actions an agent could have taken. Assuming that agents are constrained to not utter ungrammatical structures, ungrammatical structures should not enter into pragmatic competition.

Chapter 5: The interaction of presupposition and implicature

The previous chapters of the dissertation explain how linguistic expressions are structured and assigned conventional meanings, and furthermore, how alternatives for the purposes of pragmatic competition are selected. Chapter 5 addresses the question of how interlocutors reason about these alternatives in order to calculate non-conventionalized inferences. In particular, how do indefinites give rise to an inference of non-uniqueness via competition with definites?

In answering this question, I provide a critical review of previous theories of competition between indefinites and definites. Many of these theories make reference to a interpretive principle referred to as *Maximize Presupposition*, which is specifically designed for competition between presuppositional lexical items, like the definite article, and their non-presuppositional counterparts, like the indefinite article. I suggest that this principle does not need to be independently stipulated, and follows from more general principles of pragmatic reasoning which are independently necessary in order to account for competition between non-presuppositional

lexical items. In short: there is nothing special about presuppositional implicatures motivating pragmatic principles which are distinct from those used in scalar reasoning.

Previous accounts of implicatures involving presupposition triggers which employ *Maximize Presupposition* apply the principle in two distinct domains (see Leahy 2016, Lauer 2016). Firstly, *Maximize Presupposition* is used to account for the emergence of “presuppositional implicatures” (term for Leahy 2015): the indefinite in (1.15a) implicates the uniqueness presupposition of its definite competitor (1.15b) is false, and thus that its description is multiply instantiated (see Percus 2006, Chemla 2008, Schlenker 2012 *a.o.*).

- (1.15) a. I’m fixing a bathroom in my apartment. *More than 1 bathroom...*
 b. I’m fixing the bathroom in my apartment. *Only 1 bathroom...*

Secondly, it is also used to account for the infelicity of examples like (1.16), in which an indefinite’s description is settled to be uniquely instantiated.

- (1.16) # A weight of the tent is 4lbs.

I argue that cases like (1.15) can be reduced to Gricean quantity-based reasoning, so long as we treat the definite expression in (1.15b) as being more informative than the indefinite in (1.15a). Following previous studies like Schlenker 2012 and Leahy 2015, I argue that the definite expression is informative in contexts in which its presupposition would be accommodated. If a speaker utters (1.15a), and the hearer is willing that the speaker is well-informed and sincere about how many bathrooms he has in his apartment, the hearer is likely to accommodate the uniqueness presupposition of the definite. Thus, the definite expression *the bathroom* is strictly more informative than its indefinite alternative *a bathroom*, as it encodes for the additional implication that there is just one bathroom in the relevant domain. As the two expressions differ in terms of informativity, the non-uniqueness implicature emerging from the utterance of an indefinite expression can be attributed to familiar quantity-based reasoning. No new pragmatic principles need to be evoked.

In contexts in which the presuppositionally strong competitor is settled, the weak and strong competitors should have equivalent informative content (e.g., (1.15a) and (1.15b) are equivalent

in contexts in which it is settled that the speaker has one bathroom). In such contexts, the use of the presuppositionally weak item is often judged as infelicitous, as in (1.16).

Theories of this phenomenon (e.g., Heim 1991, Percus 2006, Lauer 2016) cite a general preference for the presuppositionally stronger competitor over its weaker competitor, which results in infelicity if the preference is violated. Lauer's theory crucially states that this preference is not based on the relative informativity of the competing *assertions*. Instead, there is a general preference for using lexical items ranked higher on a pragmatic scale. Thus, *the* is preferred to *a*, accounting for the distinctions below.

- (1.17) a. I found {*an/the} only way out.
 b. We went swimming {*a/the} next day.

I argue that the general preference for strong scalar items should be broadly applied to pragmatic scales which are *not* ordered by presuppositional strength. For example, a general preference for *all* over *some* explains why the use of *some* is infelicitous in contexts in which alternative assertions with *some* and *all* are contextually equivalent (i.e., in contexts which entail that all instantiators of the restriction behave identically with respect to the nuclear scope), as in (1.18a) and (1.18b).

- (1.18) a. #Some even numbers are divisible by two.
 b. All even numbers are divisible by two.

This chapter argues for a principle, informally stated in (1.19), which determines a preference for scalar items ranked higher on conventionalized scales of lexical items ranked by relative informativity. Preferences are spelled out in terms of costs: less-preferred items are more costly (see Frank and Goodman 2012, Bergen et al. 2016, etc.). This principle adjudicates between pairs of contextually equivalent utterances as in (1.17) and (1.18).

- (1.19) Given a pragmatic scale $\langle \alpha, \beta \rangle$, assign a higher cost to α and a lower cost to β .

This preference can be overridden by other factors influencing preferences for particular expressions over others. For example, Lauer cites a general preference for parallelism which can override the infelicity of purported *Maximize Presupposition*-violations.

Chapter 6: Conclusion

The concluding chapter contains a review of the central results of the dissertation, briefly comparing the results with previous theories of (in)definiteness in compositional semantics and the calculation of pragmatic inference. I also discuss directions for future work.

Chapter 2

Structure sensitive NP interpretation

2.1 Introduction

Not every language signals definiteness via articles. Several languages (such as Russian, Kazakh, Korean etc.) lack articles altogether. Ordinarily, bare NPs in such languages are interpreted as either definite or indefinite depending on contextual factors. However, certain languages which lack articles, such as Tagalog, are able to unambiguously signal the definiteness or indefiniteness of an NP via mechanisms besides articles, such as verbal affixes, case marking, and the grammatical relation of the NP (e.g., subject, direct object). The aim of this chapter is to explain how systems such as Tagalog's work and how they may be integrated into our theories of compositional semantics. I show how Tagalog's system informs our understanding of the kinds of interpretations which are available for transitive verbs and their NP arguments.

The data in (2.1) illustrate how the (in)definiteness of patient NPs in Tagalog is signalled. In (2.1a), the choice of the *patient voice* infix *-in-* on the verb and nominative case on the patient NP derives a definite reading of the patient. In contrast, in (2.1b), the choice of the “actor voice” prefix *nag-* as well as genitive case marking on the patient NP results in an indefinite interpretation of the patient. Articles are not employed in either case. Although the case markers *ang* and *ng* superficially have the morphosyntactic appearance of articles, semantic evidence is presented in §3 and §5 that neither *ang* nor *ng* should be classified as articles, concurring with the findings of Paul et al. 2016.

- (2.1) a. *t<in>ago=ko* ang kompyuter
 <PV.PERF>.hide=GEN.1SG NOM computer
 I hid **the** computer.
- b. *nag-tago=ako* ng kompyuter
 AV.PERF-hide=NOM.1SG GEN computer
 I hid **a** computer.

Thus, I will argue Tagalog demonstrates the semantic categories of definiteness and indefiniteness just like English. However, English expresses these categories using the articles *a* and *the* while Tagalog employs alternate morphosyntactic strategies. Does Tagalog require different compositional mechanisms in order to account for the emergence of definiteness in examples like (2.1a), but not in (2.1b)?

Previous accounts of article-free languages have made much use of the type-shifting theory of NP interpretation proposed by Partee 1986. According to this theory, NPs are type-ambiguous. Certain NPs are able to take on *e*-type, and thus referential, denotations provided that certain syntactic and semantic conditions hold. For example, Chierchia 1998 cites Russian as an example of an article-free language which derives definite and indefinite readings of bare NPs by the covert application of Partee’s type-shifters, accounting for examples like the following.

- (2.2) *V komnate byli malčik i devočka*
 in room were boy and girl
 In (the/a) room were (the/a) boy and (the/a) girl. Chierchia 1998:(27d)

According to his proposal, the use of type-shifters in the compositional semantics of these languages means that “bare arguments would occur freely and have a generic, definite, or indefinite meaning, depending, presumably, on the context” (Chierchia 1998:361). Languages like Tagalog appear to work differently. Although Tagalog examples like (2.1) contain (singular, count) bare NPs, just like the Russian example (2.2), the Tagalog bare NPs are *unambiguously* definite or indefinite. How is it that definiteness comes to be signalled in Tagalog, but not by articles?

I argue that the syntactic structure of the clause plays a large role in determining an NP’s interpretation. Several previous analyses of Tagalog clause structure (e.g., Guilfoyle et al. 1992,

Aldridge 2004, Rackowski and Richards 2005 and many others) propose that the alternations in voice and case in (2.1a) and (2.1b) represent underlying differences in the syntactic structure: the nominative case marked patient in (2.1a) *ang kompyuter* occupies a “derived” position (i.e., the NP undergoes movement), while the genitive case marked patient in (2.1b) *ng kompyuter* occupies a position local to its selecting verb. I build on these analyses and propose that this structural difference leads to an interpretive difference: bare NP patients which are syntactically local to their selecting verb are interpreted as narrow scope indefinites, while non-local bare NPs are not subject to such a constraint.

Similar observations about the link between the syntactic position of Tagalog NPs and their interpretations have been made by previous authors, such as Rackowski 2002, Aldridge 2004, Rackowski and Richards 2005, and Sabbagh 2016. In order to account for the interpretive differences between VP-internal NPs and VP-external NPs, these accounts have appealed to a theory of the syntax-semantic interface originating in Diesing 1992. Under these previous approaches, NPs which occupy a VP-internal position are subject to an interpretive constraint which determines that they receive some kind of indefinite or nonspecific interpretation. For example:

- (2.3) a. “everything internal to vP is assigned a nonspecific interpretation” (Rackowski and Richards 2005:568)
- b. “Diesing (1992) and others have shown that shifted objects in Germanic languages must receive presuppositional interpretations. If, however, the object remains inside VP ... they can undergo Existential Closure and receive a nonspecific interpretation.” (Aldridge 2004:232)

In this chapter, I aim to enrich our understanding of the empirical facts concerning Tagalog NP-interpretation and then with reference to these facts, I pose some theoretical challenges for the kinds of approaches exemplified in (2.3). Empirically, previous analyses differ as to whether the interpretive difference between (2.1a) and (2.1b) should be characterized as one of specificity or one of definiteness. I present several empirical arguments that the semantic distinction is best characterized as one of definiteness, and thus I concur with the observations of previous authors such as Foley and Van Valin 1984, Kroeger 1993, and Paul et al. 2016.

On the theoretical side, the goal for this chapter is develop a theory of *why* NPs which are syntactically local to their selecting verb are constrained to be interpreted as indefinites. Accounts such as those quoted in (2.3) appeal to a post-derivational constraint which maps VP-internal NPs to indefinite interpretations. I propose a way that this kind of analysis can be derived compositionally, without appealing to non-compositional interpretive constraints as in (2.3).

I propose that Tagalog transitive verbs translate into quantificational expressions which can existentially quantify over their bare NP complements, following the proposals of Carlson 1977 and Van Geenhoven 1998. I show how this approach provides us with an understanding of how NP interpretation is crucially linked to the NP's syntactic position. NPs which are not complements to their selecting verbs (e.g., NPs which have undergone movement to a subject position) are unable to be quantified by the verb. These NPs are instead interpreted via Partee's type-shifting operators, in order for semantic composition to proceed. I show how these interacting compositional mechanisms derive the observed interpretations of Tagalog NPs.

I begin the discussion in §2 by describing the semantic distinction between nominative patients in patient voice sentences like (2.1a), and genitive patients in actor voice sentences like (2.1b). In §3, I then expand the empirical picture to overtly quantified noun phrases. I show how the presence of a quantificational determiner “overrides” the interpretive constraint outlined in (2.1): nominative patients with quantificational determiners may be interpreted as indefinites. Therefore there is nothing about nominative case marked NPs which is inherently definite, and that definiteness in (2.1a) arises in the course of composition via type-shifting. Once the theory of type-shifting is laid out, I go on to explain the chapter's compositional treatment of Tagalog patient NPs and how this informs our understanding of the link between an NP's syntactic position and its interpretation. I focus on definite nominative patients in §4, indefinite genitive patients in §5, and discuss the complete picture of the syntax-semantic interface in §6. §7 concludes.

2.2 The interpretation of Tagalog patient NPs

In this section, I investigate how bare NP patients of transitive verbs are interpreted. In particular, I focus on the effect of case and voice marking on the interpretation of these expressions. I argue that in Tagalog, the interpretation of a bare NP is in part determined by voice and case marking. The observations in this section serve as an empirical basis for the theory built in the subsequent sections.

Previous accounts differ on the semantic effects of voice and case morphology on bare NP patients. Many previous accounts (e.g., Adams and Manaster-Ramer 1988, Maclachlan and Nakamura 1997, Rackowski 2002, Aldridge 2004, Rackowski and Richards 2005) have characterized the distinction as one of *specificity*. Nominative bare NP patients are specific and genitive bare NP patients are non-specific. However, evidence from this section suggests that this characterization is not sufficiently precise. Nominative bare NPs are not merely specific but definite. Here, I agree with the observations of previous authors, such as Foley and Van Valin 1984, Kroeger 1993, Foley 1998, and Paul et al. 2016.

First, I will lay out the basic morphosyntactic facts relevant to the discussion. Following terminology laid out in Foley 1998 and Himmelmann 2005a, Tagalog is a symmetrical voice language. This entails that Tagalog demonstrates an alternation between at least two voices, neither of which is morphologically unmarked. (2.4) provides an example of how the Tagalog verbal root *bili*, ‘buy’, may take either the infix *-um-* or the infix *-in-*. In finite clauses, roots like *bili* are unable to appear without a voice affix. These features set the system of voice affixation in symmetrical voice languages apart from those in European languages, in which verbs may alternate between a morphologically unmarked voice (like an active) and a morphologically marked voice (like a passive).¹

- (2.4) a. *b(um)ili ng isda sa tindahan ang lalaki*
 <AV.PERF>.buy GEN fish OBL store NOM man
 The man bought (a) fish at the store.
- b. *b(in)ili ng lalaki sa tindahan ang isda*
 <PV.PERF>.buy GEN man OBL store NOM fish
 The man bought the fish at the store.

¹Abbreviations used – AV actor voice; BV benefactive voice; FUT future; GEN genitive case; IV instrumental voice; LV locative voice; NOM nominative case; OBL oblique case; PV patient voice

Like voice systems in other languages, the choice of voice affix is associated with particular case marking configurations of the verb's arguments. Actor voice affixes like *-um-* are associated with nominative case marking on NP denoting the thematic actor. Patient voice affixes like *-in-* are associated with nominative case on the thematic patient.² In (2.4a) and (2.4b), nominative case is signalled by the case marker *ang*.

NPs which are not marked nominative but are nonetheless arguments of the verb are marked with genitive case. For example, the patient NP in the actor voice (2.4a) and the actor NP in the patient voice (2.4b) are marked with the genitive case marker *ng* (pronounced *nang*). The case is referred to as genitive based on its use marking possessors.

- (2.5) a. *...sa pagtatanggol ng bayan*
 ...OBL defense GEN country
 ...in the defense of the country. Schachter and Otanes 1982:p458
- b. *...sa payo ng kaibigan niya*
 ...OBL advice GEN friend GEN.3SG
 ...on the advice of his friend. Schachter and Otanes 1982:p458

By Himmelmann's typological classification, Tagalog belongs to a subset of symmetrical voice languages referred to as "*Philippine-type languages*". Philippine-type languages demonstrate at least two morphologically distinct voices associated with non-actor thematic roles.^{3,4} (2.6) provide examples (from Foley 1998) demonstrating some additional voices available in Tagalog: the locative voice suffix *-an* in (2.6a), the instrumental voice prefix *ipaN-*⁵ in (2.6b), and the benefactive voice prefix *i-* in (2.6c). These are all associated with nominative case marked NPs which are non-actors. In each example below, both NP arguments of the verb are not marked nominative and thus both receive genitive case.

²This morphological analysis is a simplification. Tagalog verbs are marked for aspect. Inchoative aspect is marked by the infix *-in-*, which deletes in the presence of *-um-*, as in (2.4a). For simplicity, I characterize *-um-* as dually marking inchoative and actor voice. Furthermore, patient voice is better characterized as being marked by the suffix *-in*, which deletes in the presence of the inchoative infix *-in-*. Here, I analyze *-in-* as dually marking patient voice and inchoative. Also note that perfect aspect in Tagalog is marked jointly by the inchoative infix and the lack of reduplication, thus *-in-* is glossed as PERF.

³In reference to the thematic role of this non-actor NP, Himmelmann (2005a:p113) uses the term "undergoer" in the sense of Foley and Van Valin 1984.

⁴Besides this feature of voice alternations, Himmelmann also identifies phrase marking clitics like Tagalog case-markers and second position clitics as further features of Philippine-type languages.

⁵The *N* is a homorganic nasal.

- (2.6) a. *bi-bil-han ng lalaki ng isda ang tindahan*
 FUT-buy-LV GEN man GEN fish NOM store
 The man will buy (a) fish at the store. Foley 1998:(1c)
- b. *ipam-bi-bili ng lalaki ng isda ang salapi*
 IV-FUT-buy GEN man GEN fish NOM money
 The man will buy (a) fish with the money. Foley 1998:(1d)
- c. *i-bi-bili ng lalaki ng isda ang bata*
 BV-FUT-buy GEN man GEN fish NOM child
 The man will buy (a) fish for the child. Foley 1998:(1e)

The syntactic and semantic analysis of structures like those in (2.6) is controversial (see Rackowski and Richards 2005, Aldridge 2006, Chen 2017 for some recent perspectives). The focus in this dissertation is on actor voice and patient voice structures, as in (2.4), leaving cases like (2.6) aside for future work.

As illustrated by the English translations in (2.4) and in a similar pair in (2.7), the voice and case alternation corresponds to a change in definiteness of the patient NP.⁶ The genitive patient in (2.7a) is interpreted as an indefinite while the nominative patient in (2.7b) is interpreted as a definite. In the remainder of this section, I discuss the empirical diagnostics leading to this conclusion and why this conclusion should be preferred to alternative semantic analyses, such as those which characterize the distinction as one of specificity (e.g., Rackowski 2002; Aldridge 2004; Rackowski and Richards 2005).

- (2.7) a. *nag-tago=ako ng kompyuter*
 PERF.AV-hide=NOM.1SG GEN computer
 I hid a computer.
- b. *t<in>ago=ko ang kompyuter*
 <PV.PERF>.hide=GEN.1SG NOM computer
 I hid the computer.

2.2.1 Commitments to existence and uniqueness

The definition I adopt for definiteness derives from Frege 1892, Russell 1905, Barwise and Cooper 1981, and many others. The utterance of a sentence with a definite, singular NP gives

⁶Again, the voice affixes interact with the inchoative infix *-in-*. In (2.7a), the actor voice prefix *nag* jointly marks actor voice and inchoativity. The patient voice suffix *-in* deletes in the presence of the inchoative infix *-in-*, as in (2.7b). For simplicity, in cases such as (2.7b), I gloss *-in-* as dually marking inchoative and patient voice. Again, the perfect in Tagalog is signalled by the combination of the inchoative and the lack of reduplication.

rise to the following two speaker commitments.⁷

- i. the *existence* of an individual instantiating the property denoted by the NP's descriptive content
- ii. the *uniqueness* of this individual, i.e., no other (contextually relevant) individuals instantiate this property

Taken together, (i) and (ii) entail that the NP's descriptive content is instantiated by exactly one individual. In this subsection, I show that Tagalog bare nominative patient NPs give rise to the speaker commitments (i) and (ii).

The use of term ‘commitment’ follows Condoravdi and Lauer 2011 (who in turn build on Gunlogson 2008). The minimal effect of the utterance of a declarative sentence is the bringing about of a doxastic commitment on the part of a speaker. Thus, if an utterance gives rise to a commitment p for an agent a , then a is publicly committed to act as though s/he believes p .⁸ I take this notion of commitment to be a useful catch-all term for propositional meanings of utterances including at-issue content, conventional and conversational implicatures, presuppositions, and so on, approximating what Tonhauser et al. (2013) refer to as ‘implications’. Regardless of whether a sentence S presupposes, asserts, or implicates p , an utterance of S engenders its speaker to publicly commit to p and thereby behave in a way consistent with believing p . Likewise, a listener who publicly accepts to adopting the content of S to his/her commitments is similarly engendered to behave in a way consistent with p .

Construing meanings as speaker commitments is helpful in designing stimuli for consultation with native speakers. This generalized characterization of commitments allows us to

⁷The *existence* and *uniqueness* commitments are decoupled in this definition of definiteness. This approach contrasts an alternative approach in which definiteness is defined as *unique instantiation*, i.e., the existence of exactly one individual instantiating the description. The choice to decouple *existence* and *uniqueness* as separate commitments follows Coppock and Beaver's (2012, 2015) who make an argument that a separation is necessary, based on their proposal that the English determiner *the* encodes for *uniqueness* but not *existence* (which emerges in English via the use of covert type-shifters). If *existence* and *uniqueness* are taken to be separable commitments, it follows that various expressions cross-linguistically which have been descriptively labeled as ‘definite’ may encode for both commitments, or only one. In light of this possibility, I reserve the term ‘definite’ in order to label expressions which encode for both commitments in (??) and I will eventually argue that Tagalog bare NP, nominative patients do indeed encode for both commitments and warrant classification as definite. By this definition, English *the*, under Coppock and Beaver's (2012, 2015) analysis would not meet the definitional criteria for definiteness.

⁸If an agent a is publicly committed to believing p , a excludes possible future eventualities in which all of the following hold: (i) s doesn't act according to the commitment, and (ii) the commitment is not voided before any failure to observe the commitment, and (iii) the commitment does not count as violated. In sum, a commitment is a constraint on future (linguistic and non-linguistic) actions (Condoravdi and Lauer 2011:pp154–155).

avoid the circularity of questions of the form ‘does sentence *S* entail/give rise to the proposition *p*?’. Construing commitments as constraints on an agent’s future actions allows us to phrase questions in terms of an agent’s expectations, goals, desires, and so on.

For example, (2.8) diagnoses whether bare nominative patients give rise to an *existence* commitment. If an agent overhears a (reliable) speaker utter a sentence with a bare nominative or genitive patient, is the agent constrained to act as though she believes that there is an individual instantiating the NP’s descriptive content? Consultants were presented with a leading context (in English) setting up the speaker as an authority. From this example, both bare genitive and bare nominative patients give rise to a commitment of *existence*.

(2.8) *Context*: Maria is at the beach, and she wants to find at least one seashell. She overhears Juan and Karlos talking. Juan is an expert on finding seashells. Juan says “(a)/(b)”:

- a. *Doon sa kuweba, nakita ko ang kabibi*
 there OBL cave, PERF.PV.see 1SG.GEN NOM seashell
 In that cave, I saw the seashell.
- b. *Doon sa kuweba, nakakita ako ng kabibi*
 there OBL cave, PERF.AV.see 1SG.NOM GEN seashell
 In that cave, I saw a seashell.

Question: Based on this information, should Maria expect to find a seashell in that cave?

- *Consultant response with (a)*: Yes. Juan said that he found a shell there.
- *Consultant response with (b)*: Yes. Juan is an expert.

(2.9) diagnoses whether bare NP patients give rise to a commitment of *uniqueness*. Again, the leading context sets the speaker as an authority on the number of individuals instantiating the descriptive content. The judgements suggest a distinction between bare nominative patients and bare genitive patients. The utterance of a bare nominative patient (2.9a) gives rise to a *uniqueness* commitment, but a bare genitive patient does not. In fact, the judgement suggests that bare genitive patients may even give rise to the opposite commitment, *anti-uniqueness*, leading to the expectation that the play has multiple authors.⁹

⁹See Collins 2016a and Collins 2016b for more discussion of the *anti-uniqueness* effect of genitive patients.

(2.9) *Context:* Maria is leaving the theatre. She just saw a play. She doesn't know whether the play she saw has multiple authors, or just one author, but she wants to go backstage and meet the author or authors of the play. Juan, who saw the same play, is a theater expert who knows exactly which author or authors wrote the play. Maria overhears Juan talking to Karlos about the play. Juan:

a. *Sa likod ng entablado, nakilala ko ang may-akda ng palabas*
 OBL behind GEN stage, PERF.PV.meet GEN.1SG NOM author
 GEN play
 Backstage, I met the author of the play.

b. *sa likod ng entablado, nakakilala ako ng may-akda ng palabas*
 OBL behind GEN stage, PERF.AV.meet NOM.1SG GEN author
 GEN play
 Backstage, I met an author of the play

Question: Based on this information, should Maria expect to find backstage that the play has one author or multiple authors?

- *Consultant response with (a):* Yes, it definitely means just one author, because Juan said *ang may-akda*.
- *Consultant response with (b):* No, nope, or maybe the one he met is an author, but not an author on that play.

The hypothesis that bare nominative patients give rise to *existence* and *uniqueness* commitments sheds light on the data in (2.10), adapted from Matthewson (1998:106). Two bare nominative patients in the same discourse with the same descriptive content are preferentially interpreted as coreferential. If a bare nominative patient gives rise to a commitment that its descriptive content is uniquely instantiated, then multiple bare nominative patients with the same descriptive content should be unable to refer to distinct individuals, thus forcing the coreferential interpretation observed in (2.10).

(2.10) *Nahuli ni Maria ang mamamatay tao noong Miyerkules at*
 PERF.PV.catch GEN Maria NOM murderer on Wednesday and
nahuli ni Karlos ang mamamatay tao noong Huwebes
 PERF.PV.catch GEN Karlos NOM murderer on Thursday.

Maria caught the murderer on Wednesday and Karlos caught the murderer on Thursday.

- *Comment 1*: It's the same murderer.
- *Comment 2*: Sounds like Maria let him go.

As expected under the current working hypothesis, (2.11), the actor voice variant of (2.10), does not force coreferentiality. If bare genitive patients *do not* give rise to a *uniqueness* commitment, we have no expectation that multiple bare genitive patients with identical descriptive content necessarily refer to the same individual, as observed in (2.11). In fact, judgements suggest the opposite preference, that multiple bare genitive patients are preferentially interpreted as non-coreferential.

(2.11) *Naka-huli* *si* *Maria* *ng* *mamamatay tao* *noong* *Miyerkules* *at*
 PERF.AV-catch NOM Maria GEN murderer on Wednesday and
naka-huli *si* *Karlos* *ng* *mamamatay tao* *noong* *Huwebes*
 PERF.AV-catch NOM Karlos GEN murderer on Thursday
 Maria caught a murderer on Wednesday and Karlos caught a murderer on Thursday.

- *Comment*: Fine, they are different murderers.

This analysis is somewhat simplifying. The *uniqueness* and *existence* are more precisely characterized as being defined over contextually restricted domains. For example, in (2.10), uniqueness holds of salient murderers, rather than all possible murderers. Standardly, the restricted domain can be derived by intersecting the denotation of the descriptive content with a contextually supplied restriction set. Ostensibly, the two nominative patients could be restricted by two distinct sets and thus referring to two distinct individuals. Thus, the judgement in (2.10) may be explained by assuming a pragmatic preference against shifting the evaluation of contextual parameters mid-discourse without any overt signalling.

So far, the data suggests that bare nominative patients give rise to *existence* and *uniqueness* commitments, while bare genitive patients only give rise to an *existence* commitment, at least in declarative sentences without entailment canceling operators. This is summarized in Fig. 2.1.

2.2.2 Contextual felicity constraints

Starting with Frege 1892, the classical analysis of definites assumes that *existence* and *uniqueness* are encoded as semantic presuppositions. Evidence that Tagalog bare nominative patients

	Existence	Uniqueness
Bare nominative patients	Yes	Yes
Bare genitive patients	Yes	No

Figure 2.1: Commitments associated with bare NPs and case-marking

encode *existence* and *uniqueness* as presuppositions would support the view that they should be classified as definites.

Following the characterization of presuppositions in Karttunen 1973, whenever an utterance containing a presupposition trigger is uttered sincerely, the speaker of the utterance assumes the triggered presuppositions hold and assumes his/her audience does also. Ordinarily, utterances of presupposition triggers in contexts which clearly do not support such assumptions are understood to give rise to judgements of infelicity. As Beaver (2001:9) states: “the presuppositions of a sentence are seen as conditions that contexts must obey in order for an utterance of the sentence to be felicitous in that context”. With this intuition in mind, we can diagnose the presence of semantic presuppositions by testing whether the acceptability of the utterance is sensitive to certain contextual assumptions.

Tonhauser et al. 2013 provide a well worked out strategy for diagnosing whether or not an utterance imposes a felicity constraint on an utterance context. This technique is designed for the purposes of consultation with linguistically untrained native speakers and is therefore useful for investigating the presuppositional of definite expressions cross-linguistically.¹⁰

Tonhauser et al. refer to a notion of “strong contextual felicity constraint” (henceforth SCF constraint). SCF constraints are “imposed” by linguistic expressions, or triggers. If a trigger t imposes an SCF constraint p , then p is required to be a mutual assumption of the conversational participants in order for an utterance of t to be felicitous. In setting up the definition of SCF constraint in (2.13), Tonhauser et al. refer to the auxiliary definition of “ m -positive contexts”, contexts which entail a proposition m , as in (2.12).

(2.12) **m -positive and m -neutral contexts:** An m -positive context is an utterance context that entails or implies m . An m -neutral context is an utterance context that entails or

¹⁰For example, see Jasbi 2015 for an example of a careful investigation into definiteness in Persian employing the Tonhauser et al. strategy.

implies neither m nor $\neg m$ (Tonhauser et al. 2013:75).

(2.13) **Strong contextual felicity constraint** (SCF constraint): If an utterance of trigger t of projective content m is acceptable only in an m -positive context, then t imposes a strong contextual felicity constraint with respect to m (Tonhauser et al. 2013:76).

With the above definitions, Tonhauser et al. 2013 provide a diagnostic for strong contextual felicity. The diagnostic relies on native speaker judgements of the felicity of an utterance in given contexts.

(2.14) **Diagnostic for strong contextual felicity**: Let S be an atomic sentence that contains trigger t which gives rise to a commitment m .¹¹

- i. If uttering S is acceptable in an m -neutral context, then trigger t does not impose a strong contextual felicity constraint with respect to m .
- ii. If uttering S is unacceptable in an m -neutral context and acceptable in a minimally different m -positive context, then trigger t imposes a strong contextual felicity constraint with respect to m (cf. Tonhauser et al. 2013:76).

With this definition in mind, we can apply these diagnostics to Tagalog bare NP patients. The empirical question is whether or not the commitments observed in the previous subsection are imposed as SCF constraints, which would in turn support their analysis as presuppositions.

The following examples investigate the existence commitment imposed by nominative patients and genitive patients. Context A in (2.15) is neutral with respect to the *existence* of individuals who are singers, while Context B is positive with respect to this proposition. Following (2.14), if an NP imposes an SCF constraint of *existence* (with respect to its descriptive content), it should be infelicitous in a context like A, but felicitous in a context like B.

(2.15) *Context A*: Maria and Juan approach a closed room. Maria walks in, shuts the door and stays in there for a while. Then, she comes out again and says to Juan:

¹¹I define a trigger as the smallest linguistic expression which gives rise to a commitment in the manner discussed in §2.2.1. Note here that the wording in (2.14) differs from Tonhauser et al. 2013, who label m as projective content. I employ the wording here in order to remain neutral as to whether the commitment m is projective or not. Projection is addressed in §2.2.3.

Context B: Maria and Juan approach a closed room. They hear someone singing on the other side of the door. Maria walks in, shuts the door and stays in there for a while.

Then, she emerges again and says to Juan:

Presented with these contexts, native speakers were asked to judge the felicity of nominative and genitive bare NP patients. The judgements reveal that in the *existence*-neutral context A, nominative patients are judged as infelicitous, but in the *existence*-positive context, nominative patients are felicitous, as in (2.16). According to the diagnostic, this suggests that nominative bare NP patients impose *existence* as an SCF constraint.

(2.16) *Na-kilala=ko* *ang mang-aawit sa kuwarto*
 PERF.PV-meet=GEN.1SG NOM singer OBL room

I met the singer.

Consultant response with Context A: Sounds unnatural

Consultant response with Context B: Sounds natural, maybe she was in the room with the singer.

On the other hand, genitive bare NP patients are felicitous in either context, as in (2.17). This suggests that genitive bare NP patients do not impose an SCF constraint of *existence*.

(2.17) *Naka-kilala=ako* *ng mang-aawit sa kuwarto*
 PERF.AV-meet=NOM.1SG GEN singer OBL room

I met a singer.

Consultant response with Context A: It's correct.

Consultant response with Context B: It's correct, but there's a possibility that the *mang-aawit* is not the one she heard singing.

The next context is designed to test whether nominative bare NP patients impose *uniqueness* as an SCF constraint. Note that we do not need to provide an analogous test for genitive patients as in the previous subsection, I argued they do not give rise to a commitment of *uniqueness*. The test is applied slightly differently here. Here, I give just one context, (2.18), but vary the descriptive content of the nominative patient.

(2.18) *Context:* Maria is calling an insurance agent about her damaged car. The insurance agent asks Maria which part of the car is damaged. Maria says {(2.19a) | (2.19b)}:

The utterances in (2.19) vary as to whether interlocutors are expected to assume *uniqueness*, given usual assumptions about the make up of cars. Given that cars generally have more than

one tire, the context in (2.18) does not entail *uniqueness* with respect to the nominative patient's descriptive content in (2.19a). However, as cars generally just have one steering wheel, the context in (2.18) does entail *uniqueness* with respect to the nominative's descriptive content in (2.19b). The judgements in (2.19) suggest that nominative bare NP patients impose an SCF constraint of *uniqueness*.

- (2.19) a. *Na-sira=ko* ang gulong
 PERF.PV-damage=GEN.1SG NOM tire
 I damaged the tire. (*Comment*: It's unhelpful, she should answer which part.)
- b. *Na-sira=ko* ang manibela
 PERF.PV-damage=GEN.1SG NOM steering.wheel
 I damaged the steering wheel. (*Comment*: That's correct.)

The context in (2.18) is set up in such a way as to avoid prior mention of the nominative patient's descriptive content. This is especially important when investigating definites. As is well known, definites may be used anaphorically, referring to a previously mentioned discourse referent. In such cases, the *uniqueness* commitment is weakened, allowing felicitous use of definites in contexts in which *uniqueness* is quite clearly not entailed. Observe how in the following English example (2.20), the prior mention of a tooth within the preceding discourse licenses the use of the definite in the target sentence, even though the referent of the definite "the tooth" need not be the only tooth in the utterance context, i.e., the dog is not necessarily assumed to just have one tooth.

(2.20) *Context*: Maria is a veterinarian. She is operating on a dog's diseased tooth.

Target: At first, she operated on the tooth.

Examples such as (2.20) are explained by appealing to a theory of contextual domain restriction. The uniqueness requirement of definiteness imposes a pragmatic pressure on interlocutors to restrict the quantificational domain of a definite NP to a singleton set by intersecting the denotation of the descriptive content with a contextually supplied salient set of individuals (e.g., individuals recently mentioned). Hence, the definite article in (2.20) is applied to the (singleton) set of teeth recently mentioned in the discourse.

We find uses of Tagalog nominative patients: licensed in contexts which do not entail unique instantiation, so long as one individual is marked as more highly salient than the others by virtue

of being mentioned in the preceding discourse. In (2.21) the context does not entail *uniqueness*, but the use of the bare nominative patient is licensed by a previous mention.

(2.21) *Context*: Juan is working in his garage. Maria and Carlos don't know how many cars he owns, one, two, or even more. They walk past his garage. Maria says to Carlos:

Naka-kita=ako ng isa-ng kotse sa garahe. In-aayos ni
 PERF.AV-see=NOM.1SG GEN one.LK car OBL garage PV-PROG.fix GEN

Juan ang kotse.

Juan NOM car

I saw a car in the garage. Juan is fixing the car.

Data like (2.21) could suggest that the *uniqueness* constraint should be replaced by something like a *familiarity* constraint: bare nominative patients require their referent to be *discourse old*. In fact, Paul et al. 2016 suggest that Tagalog nominative NPs encode for *familiarity* by default, and lack a *uniqueness* commitment, following Arkoh and Matthewson's (2013) analysis of definites in Akan.

The data presented in this section point towards *uniqueness* being a commitment of at least some nominative NPs: namely bare NP patients. Although *familiarity* appropriately characterizes the interpretation of certain bare nominative patients, we find other examples in which bare nominative patients are able to introduce new discourse referents. For example, definites with descriptive content which is inherently understood as unique.

Several authors (e.g., Löbner 1985; Ludlow and Segal 2004; Horn and Abbott 2013; Beaver and Coppock 2015) note that the supposed familiarity requirement of definite NPs is suspended when the descriptive content of the NP ensures uniqueness. For example, superlatives (“the tallest man in the world”) and definite NPs modified by “only” (“the only way out”), are felicitous when referring to discourse new individuals. This kind of pattern is also observed in Tagalog. In (2.22), the nominative patient introduces a discourse new individual (the “method” the protagonist thought of). As the NP contains the modifier *tangi*, ‘only, unique’, the *uniqueness* constraint is necessarily satisfied and the utterance is felicitous despite the discourse new status of their referent. For this reason, in this dissertation, I take an approach assuming that *uniqueness* is the characteristic commitment of definites, rather than *familiarity*.

	Existence	Uniqueness
Bare nominative patients	Yes	Yes
Bare genitive patients	No	N/A

Figure 2.2: SCF constraints triggered by Tagalog NPs

- (2.22) *g<in>awa=niya ang tangi-ng paraan na na-isip=niya*
 <PV.PERF>.do=GEN.3SG NOM only-LK method LK PV.PERF-think=GEN.3SG
 He did the only thing that he thought of.¹²

The data in this section suggest that the *existence* and *uniqueness* commitments of nominative bare NP patients are imposed as SCF constraints. The *existence* commitment of genitive bare NP patients is not imposed as an SCF constraint. This is summarized in Figure 2.2. Together with the projection data discussed in the following subsection, the findings of this subsection provide evidence that *existence* and *uniqueness* are presuppositions triggered by nominative bare NP patients which therefore should be classified as definites.

2.2.3 Projection

As argued in the previous subsection, if a linguistic expression imposes an SCF constraint, this constitutes evidence that the constraint is a semantic presupposition encoded by the expression. Traditionally, presuppositions are expected to not scopally interact with a certain class of operators (“holes” in the terminology of Karttunen 1973), including factive verbs, aspectual verbs, implicative verbs, negation, interrogative operators, and conditionals. For example, if a sentence S (such that $S \rightsquigarrow \phi$) presupposes p , then the negation of S , S' (such that $S \rightsquigarrow \neg\phi$) also presupposes p , and *mutatis mutandis* for any other hole operator. This property of presuppositions is commonly referred to as “projection”.

For example, Beaver (2001:13) provides the set of examples in (2.23), adapting Frege’s (1892) example. (2.23a) is taken to presuppose (2.23e). Embedding (2.23a) under negation, within a conditional antecedent or under an epistemic modal does not change this property: (2.23b–d) still presuppose (2.23e).

- (2.23) a. [Whoever discovered the elliptic form of the planetary orbits] died in misery.

¹²<http://www.goodreads.com/book/show/25995593-my-love-my-hero>

- b. [Whoever discovered the elliptic form of the planetary orbits] did not die in misery.
- c. If [whoever discovered the elliptic form of the planetary orbits] died in misery, he should have kept his mouth shut.
- d. Perhaps [whoever discovered the elliptic form of the planetary orbits] died in misery.
- e. Somebody discovered the elliptic form of the planetary orbits.

If *existence* and *uniqueness* are presuppositions triggered by bare nominative patients, we should expect them to project through operators such as negation, conditionals, and interrogative operators. Projection is usually diagnosed with so-called “family-of-sentences” (Chierchia and McConnell-Ginet 2000): the test sentence with implication p is embedded under negation, within a conditional antecedent, and within a polar question, and the subsequent complex sentences are tested as to whether there is still an implication of p . Tonhauser et al. (2013:83) define a set of diagnostics for projection employing the family-of-sentences technique. Their diagnostic is itself adapted from Matthewson 2004.

In short, say an expression t imposes an SCF constraint p in a positive, declarative sentence S . If t is embedded in an interrogative/negated/conditionalized variant of S and continues to impose p as an SCF constraint, then p is projective.

Applying this diagnostic to Tagalog, we merely need to adjust previous tests of contextual felicity, using negated and interrogative sentences instead of positive, declaratives. (2.24) repeats the contexts in (2.15). Again, Context A is *existence*-neutral while Context B is *existence*-positive.

(2.24) *Context A*: Maria and Juan approach a closed room. Maria walks in, shuts the door and stays in there for a while. Then, she comes out again:

Context B: Maria and Juan approach a closed room. They hear someone singing on the other side of the door. Maria walks in, shuts the door and stays in there for a while.

Then, she comes out again:

In (2.25a), an interrogative containing a bare nominative patient is infelicitous in the *existence*-neutral Context A, but felicitous in *existence*-positive Context B. Likewise, in (2.25b),

a negative sentence containing a bare nominative patient gives rise to the same kind of judgments. As neither the interrogative operator nor negation cancels the SCF constraint of *existence* imposed by the nominative patient, *existence* is projective.

- (2.25) a. *Na-kilala=mo* *ba ang mang-aawit sa kuwarto?*
 PERF.PV-meet=GEN.2SG Q NOM singer OBL room

Juan says: Did you meet the singer?

- *Context A:* In this case, no one is singing so you can't ask that question, unless you're the only one that hears someone singing.
- *Context B:* Accepted.

- b. *Hindi=ko na-kilala ang mang-aawit sa kuwarto*
 not=GEN.1SG PERF.PV-meet NOM singer OBL room

Maria says: I didn't meet the singer.

- *Context A:* From Juan's perspective, the sentence is strange, because Juan doesn't know about the singer.
- *Context B:* Accepted.

The following examples, variants of (2.18), test whether the *uniqueness* commitment of nominative patients is projective. The use of a nominative patient is still marked in a *uniqueness-neutral* context, even when the patient is embedded in an interrogative (2.26a) or a negative sentence (2.26b).

- (2.26) a. *Context:* Maria is calling an insurance agent about her damaged car. The insurance agent asks Maria which part of the car is damaged. She asks:

Na-sira=mo *ba ang gulong?*
 PERF.PV-damage=GEN.2SG Q NOM tire

Did you damage the tire?

- *Comment:* It's a tiny bit strange because the agent isn't asking about a particular tire, she should use *ng*.

- b. *Context:* Maria is calling an insurance agent about her damaged car. The insurance agent asks Maria which part of the car is *not* damaged. Maria says:

Hindi=ko na-sira ang gulong
 not=GEN.1SG PERF.PV-damage NOM tire

I didn't damage the tire.

- *Comment:* It sounds like the wrong answer, she should say *which* tire is not damaged.

If the descriptive content is understood to be uniquely instantiated in the utterance context, the interrogative and negative examples are acceptable.

- (2.27) a. *Context*: Maria is calling an insurance agent about her damaged car. The insurance agent asks Maria which part of the car is *not* damaged. She asks:

Na-sira=mo *ba ang manibela?*
 PERF.PV-damage=GEN.2SG Q NOM steering.wheel
 Did you damage the steering wheel? (*Accepted*)

- b. *Context*: Maria is calling an insurance agent about her damaged car. The insurance agent asks Maria which part of the car is *not* damaged. Maria says:

Hindi=ko na-sira ang manibela
 not=GEN.1SG PERF.PV-damage NOM steering.wheel
 I didn't damage the steering wheel. (*Accepted*)

Bare nominative patients commit the speaker to the *existence* and *uniqueness* of an individual instantiating the descriptive content. These commitments are imposed as projective, contextual felicity constraints. Therefore, nominative bare NP patients show the hallmarks of Fregean presuppositional definites.

Earlier I argued that the *existence* commitment of bare genitive patients was not imposed as an SCF constraint. This commitment may nevertheless be projective. Potts 2005 describes a class of projective meanings which are not required to be mutually assumed by conversational participants. In order to diagnose whether the *existence* commitment of bare genitive patients fall into this category, we simply need to ask whether the commitment persists when the genitive is embedded beneath entailment canceling operators like interrogative operators, negation, and conditionals.

Modifying (2.8), (2.28) investigates whether the *existence* commitment of bare genitive patients is projective. The judgements suggest that interrogative operators, negation, and conditionals *do* cancel the *existence* commitment otherwise triggered by genitive patients. This suggests that the commitment is not projective.

- (2.28) *Context*: Maria is at the beach, and she wants to find one or more seashells. She overhears Juan and Karlos talking. Juan is an expert on finding seashells. Juan says
 {(a)|(b)|(c)}.

	Commitment	SCF constraint	Projective
Bare nominative patients	Existence	Yes	Yes
	Uniqueness	Yes	Yes
Bare genitive patients	Existence	No	No

Figure 2.3: Commitments of Tagalog patients and their behavior

Question: Based on this information, should Maria expect to find at least one seashell in that cave?

- a. *Nakakita ka ba [ng kabibi] sa kuweba.*
 PERF.PV.see NOM.1SG Q GEN seashell OBL cave
 Did you see a seashell in the cave?

– *Comment:* It depends on the answer of Karlos to Juan, she needs more information.

- b. *Hindi ako nakakita [ng kabibi] sa kuweba.*
 not NOM.1SG PERF.PV.see GEN seashell OBL cave
 I didn't see a seashell in that cave.

– *Comment:* It's clear that she can't find any shells.

- c. *Kung nakakita ka [ng kabibi] sa kuweba, sabihin mo sa akin.*
 if PERF.PV.see NOM.1SG GEN seashell OBL cave, tell.INF.PV
 GEN.2SG OBL.1SG

If you saw a seashell in that cave, let me know.

– *Comment:* There's a possibility that there are shells, but she needs more information.

2.2.4 Summary

The data presented in this and the previous subsections provide evidence that the interpretive effect that voice and case morphology has on patient NPs is best characterized as a shift in definiteness.

Nominative patients which are bare NPs presuppose *existence* and *uniqueness* like typical definites. Bare NP genitive patients, on the other hand, only give rise to an *existence* commitment which is cancelled by operators such as negation, thus behaving like (narrow scope) indefinites. This is summarized in Figure 2.3.

The conclusions here go against previous analyses which characterize nominative case-marked patients as merely “specific”. I argue that these characterizations are not sufficiently precise. The characterization of nominative patients as specific opens up the possibility that they are interpreted as specific indefinites. However, the evidence presented in this section suggests such interpretations are not possible.

Since Russell 1905, many theories of definiteness assume that definites give rise to a *uniqueness* commitment, while indefinites do not. This hypothesis plays a large role in diagnosing NPs as definites or specific indefinites in semantic fieldwork. For example, Matthewson (1998) diagnoses a class of NPs in St’át’imcets as specific indefinites but not definites. Her conclusion is in part based on the observation that the NPs in question do not give rise to a *uniqueness* commitment.

The Tagalog data suggest the opposite conclusion. Bare nominative patients *do* give rise to a *uniqueness* commitment. The coreferentiality of (2.29a), a repeat of example (2.11), follows from the assumption of the nominative patient’s *uniqueness* commitment. Compare (2.29b) to the English example with “a certain murderer” or “a particular murderer”. These English specific indefinites are compatible with non-coreferential readings, unlike the Tagalog nominative patients. These kind of data suggest that a characterization of nominative patients in Tagalog as “specific” is too unrestricted, leaving open the possibility that nominative bare NP patients are interpreted as specific indefinites, which is not borne out by the data.

- (2.29) a. *Nahuli ni Maria ang mamamatay tao noong Miyerkules at*
 PERF.PV.catch GEN Maria NOM murderer on Wednesday and
nahuli ni Karlos ang mamamatay tao noong Huwebes
 PERF.PV.catch GEN Karlos NOM murderer on Thursday.
 Maria caught the murderer on Wednesday and Karlos caught the murderer on Thursday.
- b. Maria caught a certain/particular murderer on Wednesday and Karlos a certain/particular murderer on Thursday.

This dissertation’s characterization of bare genitive patients as narrow scope indefinites is compatible with the observations in Sabbagh 2016 and Paul et al. 2016 that “specific” readings of bare genitive patients are possible. As genitive patients are characterized as indefinites, it is expected that at least in some instances, they take on specific interpretations. Compare English

indefinites with *a(n)* which are able to take on specific or non-specific interpretations depending on structural and pragmatic factors. Tagalog genitive patients are argued in this chapter to be obligatorily narrow scope. This means that specific readings are only possible in structures in which there is no wider scoping operator such as negation. Absent any such operator, nothing rules out specific readings of genitive patients.

Before moving on to non-bare NPs, it should be noted that previous authors (e.g., McFarland 1978) have noted definite readings of bare genitive patients, especially in sentences with an initial actor NP. In general, genitive patients in verb-initial clauses are incompatible with descriptions which are mutually understood by interlocutors to be uniquely instantiated. For example, the uniquely instantiated genitive patient (2.30) is highly marked. Here, the pragmatic infelicity is comparable to the English translation with *a*. However, in clauses with an initial actor NP, such as the cleft in (2.30b), the same genitive patient becomes felicitous.

- (2.30) a. *??s<um>ukat=ako* [ng kabilugan ng ulo ni John]
 <AV.PERF>.measure=NOM.1SG GEN circumference GEN head GEN John
 ??I measured a circumference of John's head.
- b. *ako ang s<um>ukat* [ng kabilugan ng ulo ni John]
 NOM.1SGNOM <AV.PERF>.measure GEN circumference GEN head GEN John
 I'm the one who measured the circumference of John's head.

In the following chapters of this dissertation, I propose that this effect is pragmatic. As in this chapter, genitive patients are analyzed as simple indefinites. Like indefinites in English, genitive patients trigger a pragmatic 'anti-uniqueness' effect (see Heim 1991, Hawkins 1991 for discussion of English indefinites). Collins 2016b argues that cases like (2.30b) are not actually definites, but are indefinites which do not trigger the 'anti-uniqueness' effect. The contrast between the genitive patients in (2.30a) and (2.30b) can therefore be understood as a pragmatic effect, as laid out in the following chapters. Thus the existence of examples like (2.30b) are entirely compatible with the view of compositional semantics presented in this chapter.

2.3 Quantificational NPs

So far in this chapter, I have argued that nominative bare NP patients in Tagalog are interpreted as presuppositional definites. In this section, I argue against the hypothesis that the case marker *ang* has the semantics of a definite determiner like *the*. In doing so, I move beyond bare NPs and take a look at NPs which are modified by a quantificational determiner.

Previous authors (Bell 1978 on Cebuano, Adams and Manaster-Ramer 1988, Kroeger 1993, Paul et al. 2016) have noted that nominative NPs which contain certain indefinite determiners, such as *isang* ‘one’, and *ibang* ‘another’, are interpreted as indefinites, despite the presence of the particle *ang*, ordinarily associated with definite interpretations.

I show here that this pattern is entirely general: nominative NPs inherit the quantificational force of their quantificational determiner, if one is present. This generalization extends to various kinds of quantifiers, including indefinite quantifiers (2.31a), universal quantifiers (2.31b), proportional quantifiers (2.31c), and so on.

- (2.31) a. $t\langle in \rangle ago=ko$ $\frac{ang}{\langle PV.PERF \rangle .hide=GEN.1SG}$ $\frac{ang}{NOM}$ $\frac{isa-ng}{one.LK}$ $\frac{kompyuter}{computer}$
 I hid one computer.
- b. $t\langle in \rangle ago=ko$ $\frac{ang}{\langle PV.PERF \rangle .hide=GEN.1SG}$ $\frac{ang}{NOM}$ $\frac{lahat}{all}$ $\frac{ng}{GEN}$ $\frac{kompyuter}{computer}$
 I hid every computer.
- c. $t\langle in \rangle ago=ko$ $\frac{ang}{\langle PV.PERF \rangle .hide=GEN.1SG}$ $\frac{ang}{NOM}$ $\frac{karamihan}{most}$ $\frac{ng}{GEN}$ $\frac{mga}{PL}$ $\frac{kompyuter}{computer}$
 I hid most computers.

Based on these kinds of data, I reject the hypothesis that *ang* contributes the semantics of a definite determiner. Examples like (2.31a) show that the addition of indefinite determiners can create a quantificational indefinite. As *ang* may appear on both bare nominative patients and quantified nominative patients, and thus, on either indefinite or definite NPs, I conclude that *ang* does not encode for (in)definiteness. In this respect I concur with Paul et al. 2016, but not with Foley 1998, Himmelmann 1998, 2005b, who analyze *ang* as an article/determiner.

2.3.1 Is *ang* a definite article, specific article, or neither?

In this section I present the main arguments against *ang* being analyzed as a definite or specific article. As *ang* is clearly tied to the grammatical relation of the marked NP, its analysis as having a case marking function is uncontroversial. However, does it similarly encode for the definiteness or specificity of the NP?^{13,14}

Evidence against this hypothesis comes from NPs modified by the quantificational expression *isang*. *isang* is itself morphologically complex, composed of the cardinal numeral *isa*, ‘one’, and the “linker”-morpheme *ng*.¹⁵ The following examples show how NPs with *isang* exhibit indefinite interpretations, despite the presence of *ang*, therefore disfavoring the analysis of *ang* as a definite determiner.

The context in (2.32) does not entail the uniqueness of an individual instantiating the NP’s descriptive content and therefore, as expected, a nominative bare NP is infelicitous (2.32a). A nominative NPs with *isang* is, in contrast, felicitous, as in (2.32b).

(2.32) *Context*: The teacher is running a seminar in which six students signed up:

- a. *i-p(in)asa ng guro ang mag-aaral*
 PV-⟨PERF⟩.pass GEN teacher NOM student
 The teacher passed the student.
Consultant response: Not with six students, it sounds wrong.
- b. *i-p(in)asa ng guro ang isa-ng mag-aaral*
 PV-⟨PERF⟩.pass GEN teacher NOM one-LK student
 The teacher passed one student.
Consultant response: Fine, it sounds like five of them failed.

The data in (2.33) provides evidence that two occurrences of nominative NPs with *isang* with identical descriptive content are not required to be coreferential. (2.33a), repeating an earlier example, shows that the use of nominative bare NPs forces coreferentiality, which I argued in the previous section follows from the posited uniqueness commitment. (2.33b) shows that the same effect is not present if the NPs contain *isang*.

¹³A *priori* this hypothesis has cross-linguistic precedence: Kroeger 1988 and Foley 1998 show how pre-nominal particles in Kimaragang, a related Philippine-type language, dually mark case and definiteness.

¹⁴See Paul et al. 2016 and Cortes et al. 2012 for more discussion on whether Tagalog lexicalizes a category of determiners.

¹⁵See Scontras and Nicolae 2014 for discussion of this morpheme.

- (2.33) a. *Na-huli ni Maria ang mamamatay tao noong Miyerkules at*
 PERF.PV-catch GEN Maria NOM murderer on Wednesday and
na-huli ni Karlos ang mamamatay tao noong Huwebes
 PERF.PV-catch GEN Karlos NOM murderer on Thursday.
 Maria caught the murderer on Wednesday and Karlos caught the murderer on
 Thursday. (*Comment: Sounds like Maria let him go.*)
- b. *Na-huli ni Maria ang isa-ng mamamatay tao noong*
 PERF.PV-catch GEN Maria NOM one-LK murderer on
Miyerkules at na-huli ni Karlos ang isa-ng mamamatay tao
 Wednesday and PERF.PV-catch GEN Karlos NOM one-LK murderer
noong Huwebes
 on Thursday.
 Maria caught a murderer on Wednesday and Karlos caught a murderer on
 Thursday. (*Comment: Sounds like two different murderers*)

The following naturally occurring data further show nominative patients with *isang* are felicitous in contexts which do not support *uniqueness*. In (2.34a), the nominative patient's descriptive content is not uniquely instantiated in the contexts of a bookstore. In (2.34b), the bracketed nominative patient's descriptive content *malaking burger chain* 'large burger chain' is not uniquely instantiated relative to American burger chains. In (2.34c), the descriptive content *dahon* 'leaf' is explicitly stated to be non-unique, referencing the spider's choice of a leaf from a plurality of leaves fallen on the ground.

- (2.34) a. *B<in>ili=ko ang isa-ng maliit na aklat sa Biola*
 <PV.PERF>.buy=GEN.1SG NOM one-LK little LK book OBL Biola
Bookworm tungkol sa Una-ng Dakila-ng Paggigising.
 Bookworm about OBL first-LK great-LK awakening
 I bought a little book at the Biola Bookworm about the First Great Awakening.¹⁶
- b. *At naging malaki-ng balita nito-ng nakaraa-ng araw ang*
 and PERF.become big-LK news GEN.this-LK last-LK day NOM
Jollibee dahil b<in>ili nito ang isa-ng malaki-ng burger
 Jollibee because <PV.PERF>.buy GEN.this NOM one-LK large-LK burger
chain sa Amerika.
 chain OBL America
 Jollibee became big news this last week because it bought a big burger chain in
 America.¹⁷

¹⁶http://www.rlhymersjr.com/Online_Sermons_Tagalog/2009/082209PM_ErrorsRevival.htm

¹⁷<http://www.journal.com.ph/editorial/opinion/pinas-most-promising-daw>

- c. *Maingat na p<in>i-pili ng gagamba ang isa-ng dahon, marahil mula sa mga nakalapag sa lupa.*
 careful LK <PERF>.PROG-choose GEN spider NOM one-LK leaf,
 probably from OBL PL fallen OBL ground
 Carefully the (leaf-curling) spider chooses one leaf, probably from ones fallen on the ground.¹⁸

The above data are explained if we take bare nominative patients to impose a commitment of *uniqueness* while nominative patients with *isang* do not.

Like bare nominative patients and bare genitive patients, nominative patient with *isang* appear to commit the speaker to the *existence* of an individual instantiating the descriptive content. Unlike bare nominative patients, nominative patients with *isang* do not impose *existence* as an SCF constraint. They may be used in contexts which have not established the existence of individuals matching the descriptive content. In the following naturally occurring data (2.35), the nominative NPs represent the first mention of the discourse referent in question.

- (2.35) a. *I-s<in>alaysay ni Jesus ang isa-ng talinhaga upang ituro sa kanila na dapat sila-ng laging manalangin*
 PV-<PERF>.recount GEN Jesus NOM one-LK parable in.order.to teach
 OBL them LK must NOM.3SG-LK always.LK AV.pray
 Jesus recounted a parable in order to teach them that they must always pray...
 (Lukas 18:1).
- b. *Sa kanila-ng pamamalagi sa bahay ni Tazuna ay na-kilala=nila ang isa-ng bata na si Inari, apo ni Tazuna.*
 OBL they-LK stay OBL house GEN Tazuna TOP
 PV.PERF-meet=GEN.3PL NOM one-lk child LK NOM Inari, grandson GEN
 Tazuna.
 Tazuna
 During their stay at Tazuna's house, they met a boy, Inari, grandson of Tazuna.¹⁹

So far, nominative NPs with *isang* show characteristic properties of indefinites. They do not commit the speaker to *uniqueness* and do not require individuals instantiating the descriptive content to be established in the discourse.

The evidence in (2.36) shows that nominative NPs with *isang* behave like quantificational indefinites with respect to certain scopal properties. For example, (2.36) suggests that nominative patients with *isang* can scope within conditional clauses. The nominative patient with *isang*

¹⁸<http://wol.jw.org/tl/wol/d/r27/lp-tg/102002528#h=4>

¹⁹tl.wikipedia.org/wiki/Naruto

in (2.36a) is non-referential, the identity of the record being permitted to freely vary without altering the truth of the conditional as a whole. The same is not true of the bare nominative patient in (2.36b), whose referent is consistent across conditional possibilities. (2.36c) is a naturally occurring example of a nominative patient with *isang* scoping within a conditional clause.

- (2.36) a. *Ma-i-inis si Mary kung i-pa-patugtog ni John ang isa-ng rekord*
 AV-FUT-annoyed NOM Mary if PV-FUT-CAUS.play GEN John NOM
 one-LK record

Mary will be annoyed if John plays a record.

– *Comment:* Any record in general.

- b. *Ma-i-inis si Mary kung i-pa-patugtog ni John ang rekord*
 AV-FUT-annoyed NOM Mary if PV-FUT-CAUS.play GEN John NOM
 record

Mary will be annoyed if John plays the record.

– *Comment:* There's a specific record.

- c. *Ano ang dapat ko-ng gaw-in kung naka-ligta-an=ko ang isa-ng dosis?*
 what NOM must GEN.1SG-LK do-PV if PERF-omit-PV=GEN.1SG NOM
 one-LK dose

What do I do if I miss a dose?²⁰

Similarly, the existential force introduced by nominative patients with *isang* can be cancelled by negation. The speaker of (2.37) is not committed to the existence of a mistake, and in fact asserts the non-existence of such a mistake.

- (2.37) *Siguro hindi=mo g(in)awa ang isa-ng tapat "mapanganib" pagkakamali.*
 maybe not=GEN.1SG PERF.PV.make NOM one-LK true dangerous
 mistake

Maybe you didn't make an truly "dangerous" mistake.²¹

The existential commitment imposed by definites, such as nominative bare NPs, is introduced as a semantic presupposition. We therefore expect it is not able to be targeted by operators

²⁰http://www.bccdc.ca/NR/rdonlyres/8EE8C1E4-0227-4CEC-9A45-0C883C1D412E/0/Isoniazid_March2015_TagV04.pdf

²¹<http://nursecode.com/2015/10/top-nurse-interview-questions-and-answers/?lang=tl>

like conditionals and negation. However, the existential commitment introduced by *isang* does appear to be targetable by such operators, suggesting the commitment is non-presuppositional. Therefore, the data presented in this section is problematic for an account which takes *ang* to encode for definiteness. While the nominative case marker *ang* does mark presuppositional definites (namely, bare NP patients), it also marks quantificational indefinites like those presented in this section.

Previous authors (e.g., Himmelmann 2005b, 2008) propose a less restrictive account according to which *ang* is a specific determiner, rather than a definite determiner. In order to evaluate this hypothesis, I appeal to the disjunctive definition of specificity in Farkas 1994. Farkas provides three potential definitions of specificity, informally characterized as in (2.38). NPs fitting any one of these categories could be classified as specific.

- (2.38) a. *Epistemically specific*: An NP is epistemically specific if the NP refers to a uniquely identifiable individual in the mind of the speaker (but not necessarily in all conversational participants).
- b. *Scopally specific*: An NP is scopally specific if its reference is rigid with respect to any quantificational operators.
- c. *Partitively specific*: An NP is partitively specific if it quantifies over a set of individuals given in the discourse.

Examples like (2.36b,c) and (2.37) are particularly problematic for the hypotheses that *ang* marks epistemic specificity or scopal specificity. In these cases the existential commitment introduced by *isang* can be understood as scoping under another operator, ensuring that its reference is non-rigidly determined. Expanding beyond *isang*, we also find problems for the specificity analysis of *ang* when we look at non-interrogative uses of *wh*-items. In Tagalog, *wh*-items may be combined with particles (*man* or *kahit*) to form quantificational expressions. These expressions have several uses, including uses approximating English free relatives with *-ever* (e.g., *whatever Mary wants*), but also uses which approximate English indefinite DPs headed by *any*.

Combined with a negative element as in (2.39), *ang sinuman* is interpreted as a narrow scope indefinite. The NP here is non-referential and therefore cannot be considered either scopally or

epistemically specific.

- (2.39) *Hindi=ko s<in>isi ang sinu-man*
 not=GEN.1SG <PV.PERF>.blame NOM who-even
 I don't blame anyone.²²

Can the above examples with *ang* be considered partitively specific instead? Under this hypothesis, *ang* would signal the discourse given status of the overt descriptive content of the nominative phrase. However, we find data in which the descriptive content of an indefinite *ang* phrase is discourse new. The following example (2.40a) is a news headline, thus necessarily the first mention of the descriptive content. (2.40b) is the first sentence of the same article. Thus the use of the nominative indefinite here is incompatible with an analysis which requires *ang* to signal discourse givenness of the nominative's descriptive content.

- (2.40) a. *Unggoy naka-wala, k<in>agat ang isa-ng bata*
 monkey runaway, <PV.PERF>.bite NOM one-LK child
 Runaway monkey, bites a child.
- b. *In-atake at k<in>agat ng isa-ng nakawala-ng unggoy*
 <PV.PERF>-attack and <PV.PERF>-bite GEN one-LK runaway-LK monkey
ang isa-ng bata sa Batac, Ilocos Norte
 NOM one-LK child OBL Batac, Ilocos Norte
 A runaway monkey attacked and bit a child in Batac, Ilocos Norte.²³

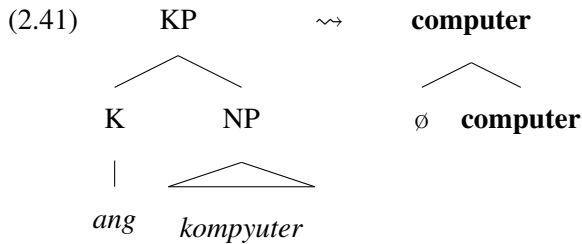
In sum, the data presented in this section provide evidence against any hypothesis which takes *ang*, and by extension nominative case marked NPs, to have a consistent semantics encoding definiteness or specificity.

2.3.2 Quantificational force

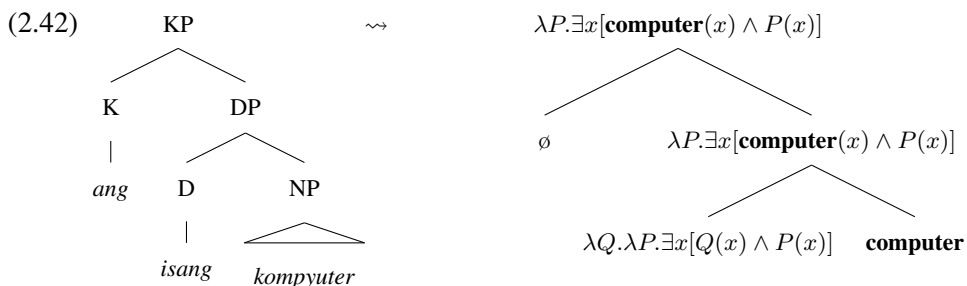
I propose that *ang* is a case marker (with category label K), and is semantically vacuous. It can either combine directly with bare NPs, or combine with DPs including quantificational determiners such as *isang*. NPs denote in the $\langle e, t \rangle$ domain (i.e., they are interpreted as properties). *ang* combines with the NP and the KP inherits the property interpretation of the NP, as in (2.41). The definite semantics which we observe is contributed by type-shifting, to be discussed in §2.4.

²²<https://www.wattpad.com/145721681-upos-na-sigarilyo-simula-at-katapusan>

²³<http://news.abs-cbn.com/video/nation/regions/03/06/15/unggoy-nakawala-kinagat-ang-isang-bata>



Quantificational expressions like *isang*, on the other hand, are analyzed as quantificational determiners – they combine with property-denoting NPs and create generalized quantifiers, as in (2.42). The syntactic category of *isang* in (2.42) is D. However, it is not crucial to the analysis that these expressions are syntactically classified as determiners of category D. In fact, several of the quantificational expressions in this subsection demonstrate quite different morphosyntactic properties, some selecting for a genitive case marker *ng*, some selecting for an oblique case marker *sa*, and some combining with the general purpose linker *-ng/na*. See Paul et al. 2016 and Cortes et al. 2012 for more discussion on whether Tagalog even lexicalizes a category of determiners. What is crucial is that these quantificational expressions labeled D serve to create quantifier-denoting nominal expressions of type $\langle\langle e, t \rangle, t \rangle$.



The semantic contribution of *isang* in (2.42) is somewhat of an oversimplification. *isang* is analyzed as a quantificational indefinite in order to capture data like (2.36) in which *isang* scopes within a conditional. However, Paul et al. 2016 claim that nominative NPs with *isang* allow readings where the indefinite takes wide scope with respect to scope islands such as conditional antecedents and relative clauses. These data suggest that, at least on some readings, *isang* encodes for a different scope-taking mechanism, e.g., Reinhart's (1997) choice functions. I will leave the question of whether *isang* allows exceptional scope readings as a topic for future research. In any case, the compositional treatment in (2.42) is not affected: we can adopt an alternative analysis of *isang* as an indefinite determiner which allows exceptional wide scope,

but retain the key claims in (2.42) that the NP is property-denoting, and that the case marker *ang* is semantically vacuous.

The semantically vacuous analysis of *ang* opens up the possibility that NPs with *ang* can contain all manner of quantificational expressions. Indeed, we find nominative patients appearing with a wide range of quantificational determiners. Below is a representative collection of naturally occurring examples demonstrating a range of different quantificational expressions. These include proportional quantifiers like *karamihan* ‘most’ (2.43a), *ilan* ‘few’ (2.43b), *marami* ‘many’ (2.43c), and universal quantifiers like *lahat* ‘all/every’ (2.43d).

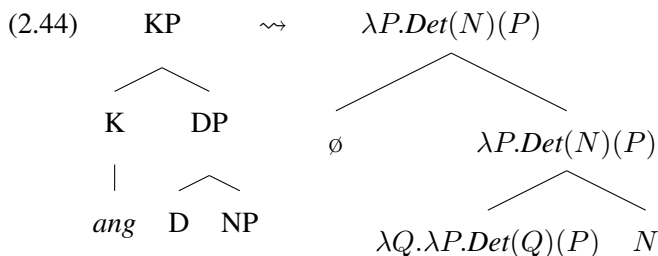
- (2.43) a. *Na-kita=niya* *ang* *karamihan* *ng* *mga* *tao* *sa* *lipunan*
 PERF.PV-see=GEN.3SG NOM most GEN PL person OBL society
bilang mga hangal
 as PL fool
 He saw most people in society as fools.²⁴
- b. *Na-kita=nila* *ang* *ilan* *sa* *mga* *alagad* *ni* *Jesus* *na*
 PERF.PV-see=GEN.3PL NOM few OBL PL disciple GEN Jesus LK
k(um)a-kain ng tinapay
 <AV>.PROG-eat GEN bread
 They saw a few of Jesus’s disciples eating bread. (Mark 7:2)
- c. *Noong 1947, na-kita=ko* *ang* *marami-ng* *bangkay* *sa* *mga*
 in 1947, PERF.PV-see=GEN.1SG NOM many-LK body OBL PL
lansangan ng Taul.
 street GEN Taul.
 In 1947, I saw many bodies in the streets of Taul.²⁵
- d. *Huli-hin at pagmulta-hin* *ang* *lahat* *ng* *jeep* *na* *hi-himpil* *sa*
 catch-PV and fine-PV NOM all GEN jeep LK FUT-stop OBL
kanto para mag-hintay ng pasahero.
 curb for AV-pickup GEN passenger
 Catch and fine all jeeps that park on the curb in order to pick up passengers.²⁶

These data suggest we can generalize the analysis in (2.42) to all quantificational determiners, as in (2.44).

²⁴<http://www.filipinopod101.com/2013/07/11/advanced-audio-blog-s2-13-top-10-filipino-artists-ang-kiukok/>

²⁵<http://wol.jw.org/tl/wol/d/r27/lp-tg/102005287?q=anghel&p=par>

²⁶<http://www.autoindustriya.com/talkboard/shoulder-lane/6/survey-on-traffic/20147>



The analysis I pursue in this chapter can be compared to the proposal of Paul et al. (2016), who characterize definiteness as stemming from lexical features which are specified with binary values, such as $[+/-DEF]$ (see Heim 2011 for a similar system). Under their analysis, *ang* is not specified for definiteness, but adopts either a $[+DEF]$ or $[-DEF]$ feature based on the surrounding syntactic context. If *ang* co-occupies the extended noun phrase with an indefinite determiner like *isang*, it takes on a $[-DEF]$ feature. Otherwise, *ang* takes on a $[+DEF]$ by default.

The analysis in (2.44) provides an explicit characterization of how the indefiniteness of the quantificational determiner *isang* is inherited by the whole nominative noun phrase. As my analysis holds that the meaning of the noun phrase is directly determined by the lexical semantics of the quantificational determiner, there is no need to appeal to any additional features.

Like the analysis in Paul et al. 2016, my analysis takes the definiteness of the nominative bare NP to be determined by the NP's syntactic context. Following this insight, I provide a compositional analysis of how the definite interpretation of the bare NP arises. Using the Tagalog data, the remainder of the chapter builds a theory of how the interpretation of an NP is determined by its syntactic context. I show how the data give us a better understanding of what kinds of constraints are imposed on both verbal and NP interpretations, and how these constraints interact with compositional semantics.

2.4 Composing patient voice

In this section, I provide an analysis of how nominative patients enter into semantic composition in patient voice sentences. I show how this compositional analysis derives the observed interpretations of nominative patients. I focus on definite readings which are generated if the patient is a bare NP. I propose that bare NP patients are property-denoting expressions, and for this reason, they are unable to compose with their immediate syntactic context. This compositional

problem is resolved by type-shifting. The bare NP type-shifts via Partee's *iota*, which induces a definite interpretation of the NP. In this section, I focus on the composition of the nominative patient with the patient voice predicate. I leave the internal composition of the patient voice predicate aside until §6.

This analysis gives us an understanding of the differential behavior of bare NPs versus quantified NPs in languages which lack dedicated definite articles such as Tagalog. Property-denoting bare NPs in argumental positions must be type-shifted in order to compose with their selecting verbs, thereby inducing a definite interpretation. Thus even in languages which do not lexicalize definite articles, definite readings of NPs may be systematically derived, so long as the conditions for type-shifting are met.

2.4.1 Syntactic perspectives on Tagalog

First, I will lay out an account of the syntactic structure. I argue that the clause structure of Tagalog and, in particular, the structural positions of NPs play crucial roles in determining how NPs are interpreted. The syntactic analysis in this section draws on the proposal of Guilfoyle, Hung, and Travis 1992.

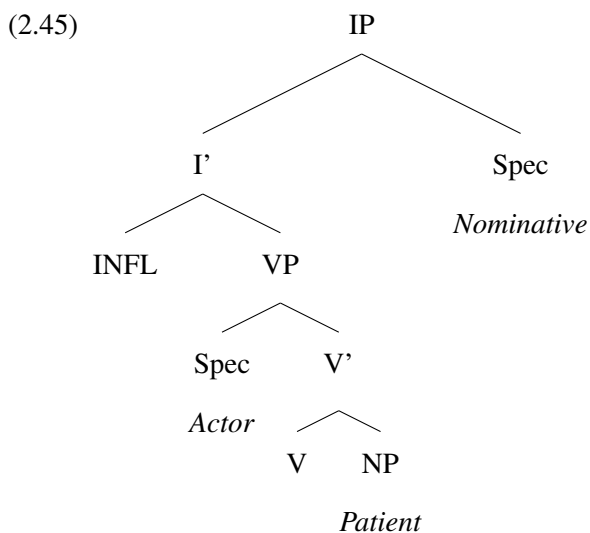
The starting point of the Guilfoyle, Hung, and Travis (henceforth GHT) account is the observation that morphosyntactic properties normally associated with subjecthood appear to be split between two possibly different NPs in Tagalog: the nominative NP (marked with *ang*) and the NP denoting the thematic actor (see Schachter 1976 for an overview of this issue). GHT discuss how the nominative NP may undergo *wh*-extraction (e.g., for topicalization, relativization, *wh*-question and cleft formation) and license floating quantifiers. On the other hand, the actor NP licenses reflexive pronouns, is deleted in control clauses²⁷ and in imperatives.

GHT suggest a structural explanation for the split of subject properties between the nominative NP and the actor NP. They argue that two syntactic positions are associated with different properties ascribed to subjects. In Tagalog, these two positions may be simultaneously occupied by two different NPs: the nominative NP and the actor NP.

²⁷Though see Kroeger 1993 for arguments that the control facts are more complicated and vary depending on the predicate and modality.

Under their account, the actor NP occupies a VP-internal specifier position, a position associated with licensing reflexives, imperative and control deletion. The nominative NP occupies the specifier of IP, the position from which *wh*-extraction and quantifier float is licensed.

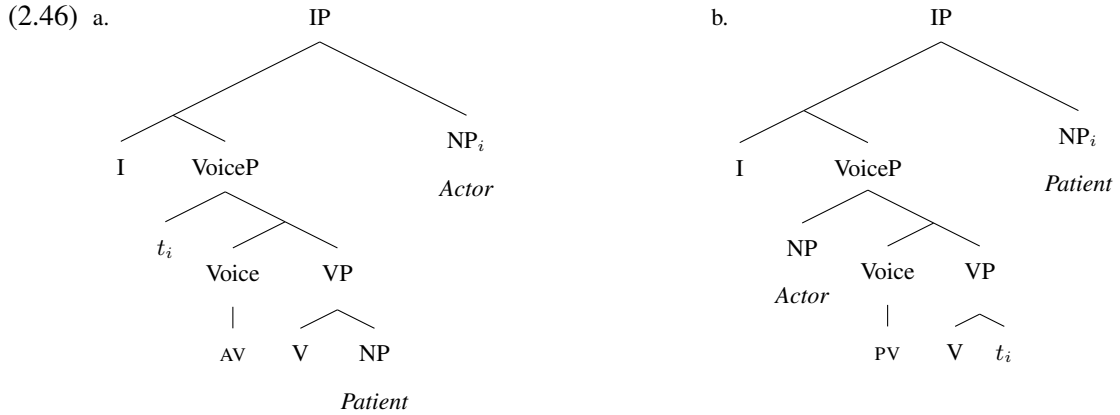
The structure they propose is sketched in (2.45). Spec,VP is associated with the thematic actor. Spec,IP is associated with the *ang*-marked NP. Spec,IP is a derived position: the NP occupying this position binds a trace in its thematic position within the VP. Verb-initial word order is derived via a combination of V-to-I head movement (as proposed in Guilfoyle et al. 1992, Aldridge 2004, Pearson 2005), and a rightward branching Spec,IP.



Starting with Hung 1988b, much work (e.g., Rackowski 2002, Rackowski and Richards 2005, Aldridge 2004, 2006, Travis 2005, and several others) take the voice morpheme in Philippine languages to be instantiated on its own dedicated syntactic node, usually associated with the functional head *v* or Voice (as proposed by Kratzer 1996), the head responsible for selecting the agentive argument. See Travis 2010 for multiple arguments that verbal affixes and the verbal root should occupy distinct syntactic positions. (2.46a) sketches an actor voice structure, incorporating the VoiceP hypothesis. The NP denoting the thematic actor is introduced in Spec,VoiceP, and then moves to the Spec,IP subject position. (2.46b) is a patient voice structure. Here, the NP denoting the thematic patient is introduced in Comp,VP and raises to Spec,IP.^{28,29}

²⁸For simplicity, the trees in (2.46) label arguments as NP, though they should be taken to be KPs, i.e., NPs embedded beneath a case marker.

²⁹These structures predict that the nominative NP is always clause-final. However, Tagalog's word order is to some extent flexible. GHT discuss how variant word orders without clause-final nominatives can be derived. Firstly,



In order to account for the case-marking on Tagalog NPs, GHT adapt the analysis of Malayasy in Hung 1988b. NPs which remain in their thematic positions are case licensed by the voice morpheme. Extending this proposal to Tagalog, the actor voice morpheme licenses genitive case on the patient, while the patient voice morpheme licenses genitive case on the actor. In both cases, the NP which is not licensed (i.e., the NP matching the thematic role picked out by the voice morpheme), moves to Spec,IP. In this position, the NP receives nominative case from Infl.

GHT provide numerous pieces of evidence that the nominative NPs occupy a syntactically higher position than genitive NPs, as predicted by the structures in (2.46). These tests diagnose constituency even in a language like Tagalog which frequently allows postposing of prosodically heavy constituents. Firstly, nominative NPs can serve as the restrictor of the floating universal quantifier *lahat*, while genitive NPs cannot.

- (2.47) a. *B(um)asa-ng lahat ng mga libro ang mga bata*
 <AV.PERF>.read-LK all GEN PL book NOM PL child
 All of the children read books (*not* *The children read all the books.)
 Schachter and Otnes 1982:148
- b. *B(in)asa-ng ng mga bata lahat ang mga libro*
 <PV.PERF>.read-LK all GEN PL child NOM PL book
 The children read all the books (*not* *All the children read books.)
 Schachter and Otnes 1982:148

Under the analysis in GHT, the quantificational adverb *-ng lahat* is adjoined at the INFL pronominal arguments (including nominatives) are always expressed as clitics attached to the leftmost constituent of the clause. Secondly, nominative actors are permitted to remain in their thematic positions (Spec, VoiceP). Finally, Tagalog has pervasive rightward shifting of prosodically prominent NPs and PPs.

layer, and therefore, nominative NPs move into a position which is syntactically local to the floating quantifier. In this position, it can compose with the quantifier, serving as its restriction.

We find other pieces of evidence that nominatives occupy a syntactically higher position than their genitive counterparts. Kroeger 1993 shows that only nominative NPs control number agreement on the verb, only nominative NPs are able to undergo raising from subordinate clauses, and only nominative NPs are able to undergo *wh*-movement.

We also find evidence for the constituency of verbal roots and patient NPs, as predicted by the GHT account above. For example, Tagalog has some idioms consisting of a transitive verbal root and a patient NP, including *magbilang ng poste* ‘to be unemployed (lit. ‘to count posts’), and *nagbukas ng dibdib* ‘to propose marriage, to show compassion’ (lit. ‘to open one’s breast’). As the examples below show, the voice alternations do not prevent an idiomatic meaning from emerging, as predicted if we assume that the root and patient form a constituent at some underlying level of representation.

- (2.48) a. ...*b(in)u-buks-an ang kanyang dibdib sa Islam*
 PROG-open-PV NOM his breast OBL Islam
 (Whoever Allah wills to guide) [he] opens his heart to Islam.³⁰
- b. ...*hilingin-g mag-bukas ng dibdib sa akin.*
 ask.PV-LK AV.open GEN breast OBL me
 (holding his hand ... in the corner of the library,) and [he] asked to marry me.³¹

For the purposes of the analysis in this chapter, I take the following structures in (2.46) to be the relevant inputs for the compositional semantics. Crucially, the NP marked with nominative case sits in a structurally high position, and binds a trace (or copy, depending on the theory of movement) in the NP’s thematic position.

2.4.2 Definiteness via type-lowering

The syntactic analyses in (2.46) give us a more precise understanding of the compositional semantics of Tagalog sentences, and how definite interpretations of NPs arise. The structures in (2.46) divide clauses into subjects (the nominative-case marked constituents in Spec,IP) and predicates (I’ constituents containing the verb), schematized in (2.49)

³⁰Quran 6:125

³¹<https://mifilipino9.wordpress.com/2013/06/13/kuwento-ni-mabuti/>

- (2.49) a. $[k\langle um \rangle ain]_{I'}$ $[si \ Juan]_{NP}$
 $\langle AV.PERF \rangle.eat$ NOM Juan
 Juan ate.
- b. $[na-kita \ ni \ Maria]_{I'}$ $[si \ Juan]_{NP}$
 PERF.PV-see GEN Maria NOM Juan
 Maria saw Juan.

The compositional analysis I provide translates tree structures into expressions of a logical representation language. Following the notation of Beaver and Krahmer 2001, $(.)^\bullet$ is a function from trees to expressions in the representation language. $(si \ Juan)^\bullet$ is an e -type expression \mathbf{j} which denotes the individual Juan. Predicates translate to $\langle e, t \rangle$ -type expressions. Binary branching tree structures are composed via functional application unless otherwise stated.³² A basic example like (2.49b) is analyzed as in (2.50). Similar principles apply for nominative pronouns.³³

- (2.50) a. $[si \ Juan]_{NP}^\bullet = \mathbf{j}$
- b. $[nakita \ ni \ Maria]_{I'}^\bullet = \lambda x.see \ x \ \mathbf{m}$
- c. $([nakita \ ni \ Maria]_{I'} [si \ Juan]_{NP})^\bullet$
 $= \lambda x.see \ x \ \mathbf{m} (\mathbf{j})$
 $= see \ \mathbf{j} \ \mathbf{m}$

The composition of quantificational DPs with predicates follows immediately from this proposal. The subjects in (2.51) translate to $\langle \langle e, t \rangle, t \rangle$ -type expressions denoting generalized quantifiers. They compose directly with the I' -constituent, as in (2.52).

- (2.51) a. $[k\langle um \rangle ain]_{I'}$ $[ang \ lahat \ ng \ babae]_{NP}$
 $\langle AV.PERF \rangle.eat$ NOM all GEN woman
 Every woman ate.
- b. $[na-kita \ ni \ Maria]_{I'}$ $[ang \ lahat \ ng \ babae]_{NP}$
 PERF.PV-see GEN Maria NOM all GEN woman
 Maria saw every woman.

³²Thus, if ξ^\bullet is an expression of type $\langle \sigma, \tau \rangle$ and χ^\bullet is an expression of type σ , then $[\xi \chi]^\bullet = \xi^\bullet(\chi^\bullet)$.

³³Guilfoyle et al. 1992 don't provide an explicit analysis of pronominal clitics. I assume that they undergo cliticization in order to attach to the right edge of the main verb and that this movement is irrelevant for the purposes of semantic composition.

- (2.52) a. $[ang\ lahat\ ng\ babae]_{NP}^\bullet = \lambda P.\forall x[\mathbf{woman}\ x \rightarrow P\ x]$
 b. $([nakita\ ni\ Maria]_{I'} [ang\ lahat\ ng\ babae]_{NP})^\bullet$
 $= \lambda P.\forall x[\mathbf{woman}\ x \rightarrow P\ x] (\lambda y.\mathbf{see}\ y\ \mathbf{m})$
 $= \forall x[\mathbf{woman}\ x \rightarrow \mathbf{see}\ x\ \mathbf{m}]$

As is standard, bare NPs translate to $\langle e, t \rangle$ -type expressions which denote properties.³⁴ As bare NPs are property-denoting, they are the wrong type to compose with the similarly property-denoting I'-constituent, as neither constituent is the right type to serve as the functor.

- (2.53) $[na-kita\ ni\ Maria]_{I'} [ang\ kompyuter]_{NP}$
 PERF.PV-see GEN Maria NOM computer
 Maria saw the computer.

Thus, without additional mechanisms, the IP-constituent has no interpretation.

- (2.54) a. $[ang\ kompyuter]_{NP}^\bullet = \mathbf{computer}$
 b. $[nakita\ ni\ Maria]_{I'}^\bullet = \lambda y.\mathbf{see}\ y\ \mathbf{m}$
 c. $([nakita\ ni\ Maria]_{I'} [ang\ kompyuter]_{NP})^\bullet = \mathit{undefined}$

Following the theories of Partee and Rooth 1983 and Partee 1986, which in turn draw from Dowty's (1979) lexical redundancy rules, I assume a limited set of available type-shifters – operations which alter the semantic type of certain expressions. The shifters defined in Partee 1986 are proposed in order to shift the types of English NPs. The theory is designed to resolve compositional puzzles stemming from the observation that certain NPs in English appear to be argumental in some syntactic functions but predicative in others.

Central to the proposal is the notion that NPs are type-ambiguous: their translation into the representation language is not uniformly determined within the lexicon, but is systematically sensitive to the syntactic context of the NP. According to Partee's proposal, the type-shifters are "implicit" in the sense that they have no phonological reflex, accounting for the systematic ambiguity of NP-interpretation.

³⁴Chierchia 1998 proposes a classification of language determining the basic type-translation of NPs. Under his analysis, languages whose NPs translate to $\langle e, t \rangle$ -type expressions should exhibit mass/count distinctions, overt plural marking, and lack a classifier system (of the kind observed in Mandarin and Japanese). Tagalog does indeed exhibit these properties.

I spell out the proposal in this chapter by positing that tree structures may have multiple translations into the representation language. I take the function $(.)^\bullet$ to represent the “basic” translation of tree structures (i.e., determined by the lexicon if the constituent is a terminal node, and by functional application otherwise). (2.55) states that the basic translation of a tree structure is always a possible translation.

(2.55) $[\xi]$ has an admissible translation $(\xi)^\bullet$.

We can then define inductively a set of possible alternative translations for any structure, given a set of type-shifters. The definition is recursive, allowing for successive applications of type-shifters.

(2.56) $[\xi]$ has an admissible translation $\delta(\alpha)$, if and only if,

- a. $[\xi]$ has an admissible translation α of type σ , and
- b. δ is a type-shifter of type $\langle \sigma, \tau \rangle$,

Partee 1986 defines the type-shifter *IOTA*, which denotes a function mapping a property to the unique individual satisfying the description, as in (2.57). *iota* has the semantics of a presuppositional definite article: *iota* applied to a property-denoting expression denotes the unique individual who instantiates that property. Thus, *iota* encodes for the *uniqueness* and *existence* presuppositions observed in the interpretation of definite NPs.

(2.57) $iota = \lambda P.\iota x[P x]$ ³⁵

Assuming *iota* is available type-shifter in Tagalog, it should be possible to use *iota* in the interpretation of property-denoting bare NPs. Applying this to example (2.53), the basic translation of the bare NP is a property-denoting expression (2.58a). Its shifted translation is the individual who is the unique instantiator of that property (2.58b). This translation is admissible by (2.56) as there exists an available type shifter *iota* of the right type. As the shifted meaning of the NP is an *e*-type expression, composition via functional application proceeds as

³⁵ $\iota x[P x]$ is defined just in case P maps exactly one individual to *True*, and where defined, denotes that individual. This definition only extends to singular, count nouns (i.e., those which denote properties of atomic individuals). The proposal can be extended to nouns which denote properties of non-atomic individuals (plural and mass nouns) if *iota* is defined as picking out the individual who is unique maximal sum of the set P .

normal (2.58d).³⁶ The definite reading of the bare NP is therefore derived without the use of an article.³⁷

- (2.58) a. $[\textit{ang kompyuter}]_{\text{NP}}^{\bullet} = \mathbf{computer}$
 b. $iota([\textit{ang kompyuter}]_{\text{NP}}^{\bullet}) = \iota x[\mathbf{computer } x]$
 c. $[\textit{nakita ni Maria}]_{\text{I}'}^{\bullet} = \lambda y.\mathbf{see } y \mathbf{ m}$
 d. $((\textit{nakita ni Maria})^{\bullet} iota(\textit{ang kompyuter})^{\bullet})^{\bullet}$
 $= \lambda y.\mathbf{see } y \mathbf{ m} (\iota x[\mathbf{computer } x])$
 $= \mathbf{see } \iota x[\mathbf{computer } x] \mathbf{ m}$

2.4.3 Ruling out indefinite readings

As it stands, the theory is too permissive. Partee’s theory also allows for type-shifters which shift properties into indefinite quantifiers. For example, the type-shifter *EX* (termed *A* by Partee) in (2.59) behaves essentially like a covert indefinite determiner. If such a type-shifter is permitted, nothing rules out its application to bare NPs, generating indefinite readings of those NPs.

$$(2.59) \textit{EX} = \lambda Q.\lambda P.\exists x[Q x \wedge P x]$$

As Coppock and Beaver 2015 point out, this component of Partee’s theory is necessary in order to explain how certain languages which lack determiners derive indefinite readings of bare NPs. For example, Russian bare NPs are able to take both indefinite and definite readings (2.60). This can be explained by assuming that both *iota* and *EX* are available type-shifting operations employed to resolve type-mismatches in Russian. Either may apply to the NP *knigu*, accounting for the ambiguous interpretation of (2.60).

³⁶A question arises as to why the property-denoting Γ -constituent cannot be interpreted employing *iota*. This would give rise to an interpretation of (2.53) approximating “The unique thing that Maria saw is a computer.” which is not a possible reading of (2.53). Here, I follow the intuition that Partee’s theory is intended as a theory of NP-interpretation and therefore the application of type-shifters is sensitive to the syntactic category of the tree structure being interpreted. The rule in (2.56) can be made more precise by specifying that δ can apply to NP constituents only.

³⁷How tied is this analysis to GHT’s syntactic structure, i.e., is it crucial that the nominative NP occupy Spec,IP? Aldridge 2004, 2006 and Rackowski and Richards 2005 assume that nominative NPs move to a specifier of νP instead. The analysis presented in this section is compatible with these alternative syntactic analyses, so long as we make the standard assumption that the ν ’-constituent which is sister to the nominative NP under these analyses is specified to compose with individual-denoting expressions. The composition will proceed just like in (2.58), except for the alteration in the syntactic categories of the constituents.

(2.60) *Anna čitaet knigu*
 Anna is.reading book
 Anna is reading a/the book.

Coppock and Beaver 2015:378

Why doesn't an analogous operation not take place in Tagalog, generating an unattested reading of nominative bare NP patients? (2.61) is a derivation of an indefinite reading of a nominative bare NP patient which is incorrectly allowed by the present theory. How do we rule out readings like (2.61)?

(2.61) $(EX(ang\ kompyuter^{\bullet}) (nakita\ ni\ Maria)^{\bullet})^{\bullet}$
 $= \exists x[\mathbf{computer}\ x \wedge \mathbf{see}\ x\ \mathbf{m}]$

Chierchia 1998 proposes a *Blocking Principle* in order to deal with this kind of problem. Chierchia proposes that English NPs denote in the $\langle e, t \rangle$ domain. Chierchia asks why (singular and count) bare NPs cannot appear in argumental positions in English, given the availability of type-shifters like *iota* and *EX*. He suggests that in English, the application of *iota* and *EX* on singular, count NPs is blocked by the presence of the English definite and indefinite articles, *the* and *a/some*. His “Blocking Principle” determines that the application of a type-shifter is blocked in languages which lexicalize an overt manifestation of the type-shifter, as in (2.62). Thus languages which lexicalize a definite determiner do not allow type-shifting via *iota*, while languages which lexicalize an indefinite determiner do not allow type-shifting via *EX*.

(2.62) *Blocking Principle* (‘Type Shifting as Last Resort’)

For any type shifting operation τ and any X :

$*\tau(X)$

if there is a determiner D such that for any set X in its domain,

$D(X) = \tau(X)$

Russian, according to Chierchia’s proposal, lexicalizes neither an overt definite or indefinite article. Thus, by the *Blocking Principle*, either definite or indefinite readings of NPs are derivable via the *iota* or *EX* type-shifters respectively, accounting for the ambiguity of examples like (2.60).

As pointed out by Chierchia, we find languages in which bare NPs are interpreted as indefinites, while definites are expressed with the use of an article. Malagasy, Welsh, Irish, Hebrew,

and Classical Greek meet this description (see, e.g., Lyons 1999:§2.1.1). For example, in Hebrew, the bare noun *iša*, ‘woman’, is interpreted as an indefinite, but as a definite when preceded by the particle *ha-*. This pattern falls out of Chierchia’s Blocking Principle if *ha-* is analyzed as blocking the application of *iota* but not *EX*.

- (2.63) a. *Iša halxa lasuper.*
 woman go.PAST.3F.SG to.the.supermarket
 A woman went to the supermarket.
- b. *Ha-iša halxa lasuper.*
 DEF-woman go.PAST.3F.SG to.the.supermarket
 The woman went to the supermarket.

Tagalog, on the other hand, does not lexicalize a definite article. Therefore, the application of *iota* is not blocked. Tagalog does lexicalize an overt version of *EX* in (2.59), namely *isang*. As *isang* and *EX* encode the same meaning under this chapter’s analysis, as in (2.64), we expect that the covert application of *EX* should be blocked in Tagalog.

- (2.64) a. $EX = \lambda Q. \lambda P. \mathbf{one}(Q)(P)$
- b. $isang^{\bullet} = \lambda Q. \lambda P. \mathbf{one}(Q)(P)$

This would explain why nominative bare NP patients appear to only be interpreted as definites. If Tagalog lacked an indefinite determiner like *isang*, or *isang* was semantically distinct from *EX* in some way, we would predict that indefinite readings of nominative bare NP patients should emerge.

We find this sort of pattern emerging in other languages in which bare NPs have definite interpretations, while indefinite NPs are expressed using a determiner. Farsi (2.65) and Teotitlán del Valle Zapotec (2.66), demonstrate a similar pattern to Tagalog. In these languages, bare singular NPs can express definiteness, while the indefinite variant is expressed using a determiner, *ye* in Farsi and *te* in Zapotec. This pattern is expected given Chierchia’s Blocking Principle, where the overt indefinite determiner blocks the application of *EX*, just like *isang* in Tagalog.

- (2.65) a. *Amir [keik o] xord*
 Amir cake ACC ate.3SG
 Amir ate the cake.

Farsi (Jasbi 2015:p19)

- b. *Amir [ye keik o] xord*
 Amir INDEF cake ACC ate.3SG
 Amir ate a cake. Farsi (Jasbi 2015:p20)

- (2.66) a. *Kedih y-u'u-di [beez] le'n kanast*
 NEG NEUT-be-NEG frog in basket
 The frog isn't in the basket. Zapotec (Deal and Nee 2017:(38))
- b. *Kedih y-u'u-di [te beez] le'n kanast*
 NEG NEUT-be-NEG INDEF frog in basket
 A frog isn't in the basket. Zapotec (Deal and Nee 2017:(38))

Although Chierchia's Blocking Principle is sufficiently explanatory for data concerning bare singular NPs, Chierchia (1998:374) and Dayal (2004) claim that the system must be enriched in order to handle the interpretation of bare plural NPs. Chierchia and Dayal claim that type-shifters must be ranked. Lower ranking type-shifters may only apply if higher ranking type-shifters are blocked or otherwise unavailable. Dayal claims that *iota* must be ranked above *EX*, essentially hard coding the observed preference for definite and kind interpretations of bare plurals over indefinite interpretations. Deal and Nee 2017 adopt Dayal's proposal in order to handle the interpretation of Zapotec bare plural NPs (as opposed to the bare singular NPs in (2.66)). As this chapter exclusively deals with singular count bare NPs, Chierchia's Blocking Principle is sufficiently explanatory without the enrichment via ranking of type-shifters.

There is another hypothetical path to indefinite readings of nominative bare NPs that should be ruled out. The above discussion assumes that functional application is the only mode of composition. However, many theories of semantics make use of alternative modes of composition. In particular, Heim and Kratzer 1998 propose that two property-denoting (type $\langle e, t \rangle$) constituents can compose via 'Predicate Modification'. Under this mode of composition, the two constituents compose by intersecting as in (2.68). This compositional rule is regularly invoked for composing nouns with adjectival and relative clause modifiers.

$$(2.67) \quad \begin{array}{c} \llbracket P \rrbracket \cap \llbracket Q \rrbracket : \langle e, t \rangle \\ \wedge \\ P : \langle e, t \rangle \quad Q : \langle e, t \rangle \end{array}$$

If such an operation is available for the composition of nominals with their modifiers, it would be reasonable to assume that such an operation is available to compose ($\langle e, t \rangle$ -type)

bare NP, nominative subjects with the $\langle\langle e, t \rangle, t\rangle$ -type predicate. This of course merely generates a new property-denoting constituent (as in (2.67)), denoting the intersection of the bare NP's denotation and the predicate's denotation. In order for a sentential constituent to have a truth-conditional denotation, a further operation must be applied, such as existential closure, as in (2.68). Such existential closure operators have been proposed (in various forms) in previous studies of the composition of indefinites, see Reinhart 1982, Diesing 1992, and Chung and Ladusaw 2004 for examples.

$$(2.68) \quad \begin{array}{c} \llbracket P \rrbracket \cap \llbracket Q \rrbracket \neq \emptyset : t \\ \swarrow \quad \searrow \\ \exists : \langle\langle e, t \rangle, t\rangle \quad \llbracket P \rrbracket \cap \llbracket Q \rrbracket : \langle e, t \rangle \\ \quad \quad \quad \swarrow \quad \searrow \\ \quad \quad \quad P : \langle e, t \rangle \quad Q : \langle e, t \rangle \end{array}$$

The compositional system in this chapter does not assume the existence of any $\langle\langle e, t \rangle, t\rangle$ -type existential closure operator exemplified in (2.68). Assuming such an operator would lead us to expect the existence of indefinite readings of bare nominative subjects. Thus, no evidence for the existence of such a covert operator emerges. The absence of an existential closure operator leads us to the crucial question addressed in the next section: how are indefinite readings of genitive bare NPs derived? The analysis of Diesing 1992, adopted in the subsequent analyses of Tagalog in Rackowski 2002, Aldridge 2004, Rackowski and Richards 2005, assumes that an existential closure operator exists at the VP-level. If the present system does not assume the availability of covert existential closure operators at all, alternative mechanisms must be employed in order to derive indefinite readings of bare NPs. These alternative mechanisms are outlined in the next section.

2.5 Composing actor voice

While nominative bare NP patients are interpreted as definites, genitive bare NP patients are interpreted as narrow scope indefinites. It has been argued that nominative bare NPs obtain a definite interpretation via the type-shifter *iota*. But this raises a question: why don't we see the same operation occur with genitive bare NPs? In this section, I provide an analysis of how

actor voice sentences are composed semantically and how bare NP patients of actor voice verbs obtain an indefinite interpretation, despite their lack of an indefinite article.

To start, we can easily discount the hypothesis that *ng* is an indefinite article. The data in (2.69) shows that *ng* does not always admit indefinite interpretations. In patient position, with an actor voice verb, the genitive patient is interpreted as a narrow scope indefinite, taking narrow scope with respect to negation (2.69a). However, when marking the actor NP in a patient voice sentence, as in (2.69b), the genitive NP is compatible with a definite interpretation, and thus the existential commitment of the actor NP outscopes negation.

- (2.69) a. *Hindi naka-panood ang babae ng interesante-ng pelikula*
 NEG PERF.AV-watch NOM woman GEN interesting-LK film
 The woman didn't watch any interesting film. (*but not*: There is an interesting film that the woman didn't watch.)
- b. *Hindi na-panood ng babae ang interesante-ng pelikula*
 NEG PERF.AV-watch NOM woman GEN interesting-LK film
 The woman didn't watch the interesting film. (*but not*: No woman watched the interesting film.)

We also find that the genitive case marker is able to mark NPs modified by a wide range of quantificational determiners. Based on these kinds of data, I take *ng* to be a simple case marker with a vacuous semantics, just as was proposed for *ang* in previous sections.

- (2.70) a. *B(in)ili ng isa-ng hari ang larawang ipininta na t(in)a-tawag*
 PV.buy GEN one.LK king NOM painting LK <PV>.PROG-call
na Mona Lisa
 LK Mona Lisa
 The painting, called the Mona Lisa, was bought by a king.³⁸
- b. *Dahil dito, madalas na b(in)i-bili ng karamihan ang mga*
 consequently, often LK <PV>.PROG-buy GEN most NOM PL
generic na gamot.
 generic LK drug
 Consequently, most often bought the generic drugs.³⁹
- c. *na-kita ng bawa't isa sa kanila ang bagay na ito.*
 PERF.PV-see GEN all one OBL them NOM thing LK this

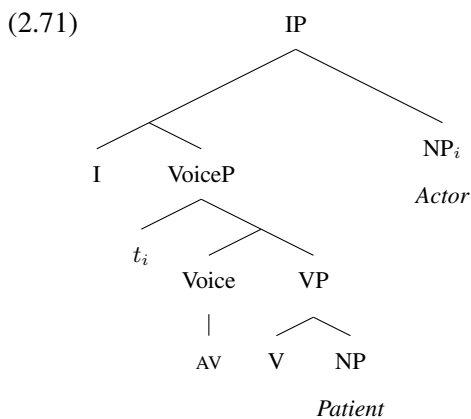
³⁸https://tl.wikipedia.org/wiki/Mona_Lisa

³⁹<http://www.buhayofw.com/medical-advice/other-diseases-of-ofws/generic-versus-branded-medicines-benefits-disadvantages-gamot-553edf8cc719e#.V3WbcZMrKRr>

Everyone of them saw this thing.⁴⁰

As genitive case is semantically vacuous, we must ascribe the narrow scope indefinite semantics observed in examples like (2.69a) as being derived from additional factors, such as the NP's patient thematic role and/or its syntactic position.

Under the approach I take in this chapter, the crucial factor determining the interpretation of a patient NPs is its syntactic position. Recall in §3, I offered a syntactic analysis in which genitive and nominative patients occupied different syntactic positions. Genitive patients remain in their VP-internal positions and compose directly with transitive verbal roots in V, as in (2.71).



Previous accounts (e.g., Rackowski 2002, Aldridge 2004, Rackowski and Richards 2005, Sabbagh 2016, Paul et al. 2016) have shared the syntactic assumption that genitive patients occupy a VP-internal position. All these accounts appeal to a theory of NP-interpretation according to which, the VP-internal syntactic position of the NP determines the NP's interpretation as narrow scope and/or nonspecific: “everything internal to vP is assigned a nonspecific interpretation” (Rackowski and Richards 2005:568). This kind of approach has origins in Diesing 1992, and is also pursued in Chomsky 2001 in an analysis of object shift.

In Diesing's view, NPs are assigned property-denotations which are existentially closed in a narrow scope position relative to VP-external scope-taking operators. This component of Diesing's theory is spelled out via a filter on tree structures which is referred to as the Mapping Hypothesis. Structures in which VP-internal NPs are existentially closed in a wide scope position are ruled ungrammatical.

⁴⁰spiritualbuildingstones.info/190-tagalog.html

The analysis I pursue here shares the intuition that bare genitive patients are VP-internal, property denoting, and are existentially closed at some point in the compositional semantics. However, I pursue an analysis which does not appeal to surface filters like the Mapping Hypothesis. Rather, the narrow scope interpretation of VP-internal NPs is derived by the lexical semantics of the NP itself and its selecting verb. The theory presented here provides an explanation of why bare NPs which are local to the selecting verb are interpreted as indefinites, while non-local NPs are not subject to this constraint, thus deriving some of the observations made in the original Diesing work compositionally.

Besides the syntactic assumptions discussed in the previous section, the analysis assumes the following semantic premises.

- (2.72) A. Bare NP systematically denote properties.
 B. The type-shifters *ident* and *iota* are available.
 C. Transitive verbs existentially quantify over their patient arguments.

I justify each of these premises in turn and how they play a role in deriving the observed facts. I take A and B to be relatively uncontroversial given the basic approach taken in this chapter. C is an approach originating in Carlson 1977, later adapted by Van Geenhoven 1998. In §2.5.1, I justify the assumption of C and I discuss how A and C jointly derive the indefinite interpretation of genitive bare NP patients.

2.5.1 Transitive verbs as existential quantifiers

To start, I will focus on simple examples like (2.73), explaining why the genitive patient must take narrow scope with respect to operators like negation in (2.73b).

- (2.73) a. *k<um>ain ng pizza si Juan*
 <AV.PERF>.eat GEN pizza NOM Juan
 Juan ate a pizza.
- b. *hindi k<um>ain ng pizza si Juan*
 not <AV.PERF>.eat GEN pizza NOM Juan
 Juan didn't eat any pizza.

Standardly, transitive verbal roots like *kain*⁴¹ translate into $\langle e, \langle e, t \rangle \rangle$ -type relation-denoting expressions. Adopting this assumption for Tagalog, attempting to compose a transitive verb root with its property denoting bare NP object results in a type-mismatch.

- (2.74) a. $kain^\bullet = \lambda x.\lambda y.eat\ x\ y$
 b. $(ng\ pizza)^\bullet = \mathbf{pizza}$
 c. $(kain^\bullet (ng\ pizza)^\bullet)^\bullet = \mathit{undefined}$

Following the analysis in §4, *ng pizza* has an admissible, definite interpretation, via the type-shifter *iota*. Thus, nothing prevents the type-mismatch in (2.74) being resolved by *iota*, generating an unattested definite reading of the genitive patient. Thus, (2.75) is incorrectly generated.

- (2.75) $(kain^\bullet\ iota(ng\ pizza)^\bullet)^\bullet$
 $= \lambda x.\lambda y.eat\ x\ y\ (\iota z[\mathbf{pizza}\ z])$
 $= \lambda y.eat\ \iota z[\mathbf{pizza}\ z]\ y$

I propose that we should revise the original assumption that transitive verbs denote relations, as in (2.74a). Under the revised proposal, Tagalog verbal roots themselves introduce the observed existential quantificational force, translating into expressions which include an existential quantifier, as in (2.76a). (2.76a) is a relation between an individual y and a property P which holds just in case x eats something that instantiates property P . Thus it is the verbal root itself which quantifies over the property-denoting NP. (2.76) provides a revised analysis of how transitive verbs compose directly with their bare NP patients, deriving an existentially quantified reading of the patient in (2.76c).

- (2.76) a. $kain^\bullet = \lambda P.\lambda y.\exists x[P\ x \wedge \mathbf{eat}\ x\ y]$
 b. $(ng\ pizza)^\bullet = \mathbf{pizza}$

⁴¹In derivations like (2.74), we are dealing with the composition of the verbal root in V with its NP-arguments. Here, *kain* ‘eat’ lacks its actor voice infix *-um-*. V is represented as an uninflected verbal root in order to maintain consistency with the syntactic analysis assumed in this dissertation. The verbal root is category V, which concatenates with voice and aspect morphemes via head movement, which is irrelevant for the purposes of semantic composition (see Aldridge 2004).

$$\begin{aligned} \text{c. } (kain^\bullet (ng\ pizza)^\bullet)^\bullet &= \lambda P.\lambda y.\exists x[P\ x \wedge \mathbf{eat}\ x\ y] (\mathbf{pizza}) \\ &= \lambda y.\exists x[\mathbf{pizza}\ x \wedge \mathbf{eat}\ x\ y] \end{aligned}$$

The analysis in (2.76c) explains why genitive bare NP objects are obligatorily narrow scope. As the existential quantification is introduced in the meaning of the verb itself, it necessarily scopes below operators such as conditionals and negation, which combine above the level of the VP. For example, if we combine the VP-meaning in (2.76c) with negation, as in (2.77a), we see how the negation introduced by the particle *hindi* necessarily scopes above the existential quantifier introduced by the verb, and a narrow scope interpretation of the indefinite patient is derived as in (2.77b).

$$\begin{aligned} (2.77) \quad \text{a. } hindi^\bullet &= \lambda P.\neg P \\ \text{b. } (hindi^\bullet (kain\ ng\ pizza)^\bullet)^\bullet &= \lambda y.\neg\exists x[\mathbf{pizza}\ x \wedge \mathbf{eat}\ x\ y] \end{aligned}$$

The analysis provided here shares much with Van Geenhoven's (1998) account of how verbs in West Greenlandic compose with incorporated nouns, which in turn builds on a proposal from Carlson 1977. These incorporated nouns, like the Tagalog genitive patients discussed in this section, are bare NPs which are interpreted as obligatorily narrow scope indefinites. Like the present account, Van Geenhoven has bare NP patients denoting properties. Furthermore, transitive verbs in Van Geenhoven's account can have denotations like (2.76a), existentially quantifying over property-denoting bare NPs.

However, Van Geenhoven proposes that transitive verbs are systematically ambiguous. Transitive verbs may take on quantificational $\langle et, et \rangle$ -type interpretations, as in (2.78a), or ordinary relational $\langle e, et \rangle$ -type interpretations, as in (2.78b).

$$\begin{aligned} (2.78) \quad \text{a. } (eat_1)^\bullet &= \lambda P.\lambda y.\exists x[P\ x \wedge \mathbf{eat}\ x\ y] \\ \text{b. } (eat_2)^\bullet &= \lambda x.\lambda y.\mathbf{eat}\ x\ y \end{aligned}$$

This is how Van Geenhoven accounts for the observation that transitive verbs may combine with object NPs of distinct types. Under her account, bare NPs like *apples* in (2.79a) are property-denoting. In (2.79a), the verb takes on its quantificational meaning in (2.78a) and may quantify over the property-denoting object. Otherwise, the verb can be interpreted as the two-place relation in (2.78b) and combine with quantificational objects as in (2.79b).

- (2.79) a. Tim ate apples. *quantificational verb*
 b. Tim ate every apple. *relational verb*

Should we then take this approach for Tagalog, taking transitive verbs to be systematically ambiguous in the same way? Here, I depart from Van Geenhoven's analysis, taking the quantificational interpretation for transitive verbs to be basic, and other interpretations to be derived. This departure is necessary as the compositional system argued for in this dissertation crucially makes use of the type-shifter *iota*. Van Geenhoven's system, on the other hand, does not make use of *iota*.

If we assume that (a) relational meanings of transitive verbs are possible and (b) *iota* is available, then nothing rules out the parse in (2.80). This generates a *definite* reading of the genitive patient, predicting that it will be a referential expression, exhibiting scopelessness, rather than the observed narrow scope behavior.

- (2.80) a. $kain_{rel}^{\bullet} = \lambda x. \lambda y. \mathbf{eat} \ x \ y$
 b. $(ng \ pizza)^{\bullet} = \mathbf{pizza}$
 c. $(kain_{rel}^{\bullet} \ \mathit{iota}((ng \ pizza)^{\bullet}))^{\bullet}$
 $= \lambda x. \lambda y. \mathbf{eat} \ x \ y \ (\iota z [\mathbf{pizza} \ z])$
 $= \lambda y. \mathbf{eat}(\iota z [\mathbf{pizza} \ z])(y)$

Given that we have good reasons to incorporate *iota* into the compositional system (as per §4), avoiding the parse in (2.80c) is difficult if relational meanings for transitive verbs are permitted. I propose to avoid this problem by not allowing the relational meaning for verbs in (2.80a). Instead, Tagalog transitive verbs are uniformly of the quantificational type in (2.78a), and thus always have the potential to existentially quantify over their complement. Cases analogous to (2.79b), with quantificational objects, will be handled in the next section using the type-shifter *ident*.

While this analysis is defended here for Tagalog, it extends nicely to some other languages. In many languages we find bare singular NP patients which are syntactically local to the verb, and are interpreted as indefinites. These are often referred to as pseudo incorporated objects: examples from three genetically unrelated languages follow in (2.81). These examples find

an explanation if we assign the transitive verb a quantificational meaning as in (2.78a), which combines directly with and quantifies over its property-denoting bare NP complement. Besides the examples below, we also find similar patterns in Tongan (Ball 2008), Samoan (Collins 2017), Cantonese (Cheng and Sybesma 1999), Norwegian (Pereltsvaig 2006), Zapotec (Deal and Nee 2017), Spanish and Catalan (Espinal and McNally 2011), amongst others.

- (2.81) a. *Kimea aqlab barā mā [še'r mi-xun-e]*
 Kimea often for us poem ASP-read-3SG
 Kream often reads poetry for us. Farsi (Karimi 2003:p91)
- b. *ke [kumi mena ke nonofo ai] a lautolu*
 SBJNCTV seek thing SBJNCTV settle there ABS they
 ... they would seek a place to settle. Niuean (Massam 2001:p160)
- c. *Ben [kitap oku-du-m]*
 I book read-PST-1SG
 I was book-reading. Turkish (Von Heusinger and Kornfilt 2005:p5)

This is not to say that the quantificational analysis of transitive verbs should hold universally. We expect parametric variation cross-linguistically. As we have seen, Van Geenhoven 1998 argues that transitive verbs alternate between the quantificational and relational meanings. We also find cases in which transitive verbs combine with property-denoting complements, and then go on to combine with another (non-bare) NP, filling the same thematic role. Chung and Ladusaw 2004 observe this phenomenon in Chamorro.

- (2.82) *Gäi-[ga'] un ga'lagu ennao na patgun*
 AGR.have-pet a dog that LK child
 That child has a pet dog (lit. pet-has a dog).

This could be incorporated into the present framework by taking Chamorro incorporating verbs to (a) combine with property-denoting arguments just like Tagalog, but (b) fail to existentially close the individual argument instantiating the property. Compare the lexical entry for a transitive verb in (2.83) to the entry for Tagalog in (2.78a).^{42,43}

⁴²Burnett 2011 makes a related set of observations about French bare NP objects. She argues that these objects can be quantified over by adverbials and therefore the individual argument should be left open, motivating an analysis similar to Chung and Ladusaw's for Chamorro. The present account could extend to the French data using a lexical entry like (2.83) for French transitive verbs.

⁴³Another point of variation is the anaphoric potential of the indefinite object. In Tagalog, bare NP genitive

$$(2.83) \text{ g\u00e4i}^\bullet = \lambda P.\lambda x.\lambda y.P(x) \wedge \mathbf{eat}(x)(y)$$

Returning to Tagalog, one outstanding issue stems from data presented by Paul et al. 2016 which suggest that genitive indefinite patients are able to take exceptional scope. Paul et al. claim that some speakers allow a reading of (2.84) where the bare genitive patient has a specific referent. They analyze this reading as one where the genitive patient has taken exceptional scope out of the relative clause, a scope island.

(2.84) *Alam ng lahat ang dahilan kung bakit t<um>utulong ng bata si*
 know GEN all NOM reason Q why <AV.PERF>.help GEN child NOM
Juan
 Juan
 Everyone knows the reason that Juan helps a child.

The present analysis maintains that the genitive patient is quantified over by the verb, thus necessarily scopes within the relative clause. These kinds of exceptional scope data can be reconciled with the present analysis using pragmatic mechanisms. Schwarzschild 2002 shows how wide scope readings of indefinites can be derived simply by assuming a contextual premise that the descriptive content (here, **child**) is instantiated by just one individual. If interlocutors assume that, within the conversational context, reference is restricted to just one salient child, then the appearance of the NP's scopelessness is explained. Under this kind of account, the semantic analysis in (2.76) is maintained, however, in contexts in which the speaker implicitly restricts the domain of quantification to a set containing exactly one pizza, the appearance of scopelessness emerges.

2.5.2 Comparing accounts: non-specific readings of intensional objects

The previous section proposes a simple answer to the question of why genitive bare NP patients are interpreted as indefinites: they are existentially quantified by the verb itself by virtue of

patients are able to license cross-sentential pronominal anaphora, so long as the existential commitment of the genitive patient is not outscoped by some other operator which blocks its anaphoric potential (like negation for instance). This is expected given the analysis in this section. However other languages with similar patterns do not allow bare NP objects to license cross-sentential anaphora. See Farkas and De Swart 2003 on Hungarian, Espinal and McNally 2011 on Catalan, Collins to appear on Samoan.

Collins (to appear) suggests a way these patterns could be brought into the present framework: in languages which block the anaphoric licensing potential of the bare NP object, the existential quantifier introduced by the transitive verb is embedded beneath the dynamic closure operator of Groenendijk and Stokhof 1991:p62–63.

being the verb's syntactic sister. Here, I will compare this approach with the approach taken by several previous authors on the topic of Tagalog NP-interpretation. As stated earlier, several authors (Rackowski 2002, Aldridge 2004, Rackowski and Richards 2005, Sabbagh 2016, Paul et al. 2016) assign an indefinite (or nonspecific) interpretation to genitive patients by appealing to Diesing's Mapping Hypothesis: NPs which are syntactically internal to the VP are assigned a narrow scope interpretation.

The account I have presented in the previous subsection is fully compositional, in that the interpretations are derived by the lexical semantics of the constituent expressions alongside a small set of type-shifting operators. The Mapping Hypothesis relies on non-compositional interpretive principles like (2.85). This principle assumes, like the present account, that indefinites do not introduce any quantificational force of their own.

(2.85) Material from VP (such as a property-denoting indefinite) is mapped into the nuclear scope (of some quantifier)

For example, Diesing derives (2.86a) with a narrow scope reading of *some variations* according to the principle in (2.85). This reading of (2.86a) has a syntactic parse as in (2.86b), with the indefinite remaining internal to the VP at LF. The structure is interpreted according to the principle in (2.85). This ensures that the variable introduced by the indefinite is existentially closed *at the VP level*. This generates the narrow scope reading of *some variations*, as in (2.86c).

- (2.86) a. Every cellist played some variations.
 b. $[IP \text{ every cellist}_x [VP t_x \text{ played some variations}_y]]$
 c. $[IP \text{ every cellist}_x \exists y [\text{variations } y \wedge \text{play } y x]]$

Van Geenhoven (1998:§2.3) points out some problems for this kind of approach. One issue that Van Geenhoven points out is that the Mapping Hypothesis does not explain why bare NPs such as English bare plurals (and by extension, Tagalog genitive bare NPs) obligatorily receive narrow scope interpretations, as originally observed by Carlson 1977. The observation here is a clear parallel to the observation that Tagalog genitive bare NPs similarly receive narrow scope.

(2.87) John didn't play [variations].

He didn't play any variations but not *There are variations he didn't play*.

Diesing's analysis of the syntax-semantics interface allows for the possibility of quantifier raising, whereby NPs may covertly move out of their VP-internal positions and escape the interpretational constraints exemplified in (2.86). Therefore, the basic system does not prevent the NP *variations* in (2.87) from covertly raising out of the VP, escaping existential closure. The account, directly ported over to the Tagalog data, therefore does not explain why genitive bare NPs obligatorily take narrow scope with respect to negation, without additional stipulation.

A second issue concerns the interpretation of objects of intensional transitive verbs such as *search for*, *need*, and *want*. As presented in (2.86), the account employing the Mapping Hypothesis does not derive nonspecific readings of intensional objects. Consider the nonspecific reading of (2.88a). How should this reading be derived? If we covertly move *a purpose in life* via quantifier raising, we will generate a specific reading, as the indefinite will take scope over the intensional verb *need*.

However, leaving the indefinite in-situ fares no better. Directly porting the analysis of the extensional verb *play* (2.86) over to the intensional verb *need* derives the wrong result. As the system existentially quantifies the object *at the VP level*, the existential quantifier outscopes the verb itself. This generates a specific reading of the object, as in (2.88c), approximating "there is a purpose that John needs".

- (2.88) a. John needs [a purpose in life].
 b. $[IP \text{ John}_x [VP t_x \text{ needs a purpose}_y]]$
 c. $[IP \text{ John}_x \exists y [\mathbf{purpose} y \wedge \mathbf{need} y x]]$

Thus, an account employing the Mapping Hypothesis is left to explain how indefinite objects of intensional transitive verbs like *need* receive nonspecific readings. This point becomes crucial in the analysis of Tagalog genitive patients. As I outline below, Tagalog genitive bare NP patients appear to obligatorily receive nonspecific readings with intensional transitive verbs (ITVs). Here, I show how this chapter's account can derive this observation.

Bare NP genitive patients with intensional verbs like *hanap* 'search' give rise to a nonspecific reading. In (2.89), the speaker does not express an intention to find any particular belt.

(2.89) *naghahanap=ako ng sinturon*
 AV.PROG.search=NOM.1SG GEN belt

I am looking for a belt.

- *Comment:* No particular belt, any belt will do.

Non-specific patients of ITVs do not commit the speaker to the existence of an individual instantiating the description. For example, “*John is looking for a purpose in life*” does not entail the existence of such a purpose. (2.90) suggests that the existential commitment ordinarily introduced by genitive patients in extensional contexts is suspended when the genitive is the patient of an ITV.

(2.90) *naghahanap si Juan ng unicorn*
 AV.PROG.search NOM Juan GEN unicorn

Juan is looking for a unicorn.

- *Comment:* The speaker doesn’t necessarily believe in unicorns, Juan doesn’t necessarily think they’re real but he’s looking for one.

Furthermore, non-specific patients of ITVs are unable to swap out their descriptive content for a co-extensional description. Say that two distinct descriptions are determined by the context to be instantiated by the same set of individuals, as in (2.91). Swapping out one description for the other changes the truth conditions of the sentence as a whole. This constitutes evidence that genitive bare NP patients are interpreted as non-specific when selected by ITVs like *hanap*.

(2.91) Context: *a small company’s only electrical engineer is also the only female employee*

a. *naghahanap ang mananaliksik ng babaeng kawani*
 AV.PROG.search NOM researcher GEN female.LK employee

The researcher is looking for a female employee

b. *naghahanap ang mananaliksik ng inhinyerong eletriko*
 AV.PROG.search NOM researcher GEN engineer.LK electrical

The researcher is looking for an electrical engineer

- (2.91a) $\not\equiv$ (2.91b)
 - *Comment:* it’s the same subset and if they’re looking for the female employees, they’re not necessarily looking for the electrical engineer.

These tests point towards genitive bare NPs having a nonspecific interpretation when they are patients of intensional transitive verbs. Note that this does not mean that genitive patients are always nonspecific (as claimed by previous authors such as Rackowski 2002), but simply that they take narrow scope with respect to other scope-taking operators in the sentence, including intensional transitive verbs.

Here I show how these facts are derived in the present system. In order to do this, we need to move to an intensional semantics. This is achieved in (2.92) simply by relativizing the existing interpretations to a world argument. (2.92) demonstrate some basic $\langle e, \langle s, t \rangle \rangle$ -type interpretations for NPs.

$$(2.92) \quad \begin{aligned} \text{a. } \mathit{inhinyero}^\bullet &= \lambda x. \lambda w. \mathbf{engineer}_w x \\ \text{b. } \mathit{babae}^\bullet &= \lambda x. \lambda w. \mathbf{woman}_w x \end{aligned}$$

Transitive verbs, extensional or intensional, are interpreted as relations between individuals and properties, existentially quantifying over property-denoting arguments. In the previous subsection, I proposed that extensional transitive verbs like *tago*, ‘hide’, are interpreted as in (2.93a). Can we propose a totally analogous semantics for intensional transitive verbs like *hanap*, ‘search’, as in (2.93)? This lexical entry combines with property-denoting objects as in (2.94).

$$(2.93) \quad \begin{aligned} \text{a. } \mathit{tago}^\bullet &= \lambda P. \lambda y. \lambda w. \exists x [P_w x \wedge \mathbf{hide}_w x y] \\ \text{b. } \mathit{hanap}^\bullet &= \lambda P. \lambda y. \lambda w. \exists x [P_w x \wedge \mathbf{search}_w x y] \end{aligned}$$

$$(2.94) \quad \begin{aligned} \text{a. } (\mathit{hanap}_2^\bullet \mathit{inhinyero}^\bullet)^\bullet &= \lambda x. \lambda w. \exists y [\mathbf{engineer}_w y \wedge \mathbf{search}_w y x] \\ \text{b. } (\mathit{hanap}_2^\bullet \mathit{babae}^\bullet)^\bullet &= \lambda x. \lambda w. \exists y [\mathbf{woman}_w y \wedge \mathbf{search}_w y x] \end{aligned}$$

This is the wrong result, incorrectly excluding non-specific readings of the patient NPs. The derived reading approximates “there is an engineer that *x* is searching for”. Nothing predicts that the existential force should be cancelled by the intensional transitive verb, contra (2.90). Furthermore, if the contexts provides that the sets denoted by $\mathbf{engineer}_w$ and \mathbf{woman}_w are identical, as in (2.91), (2.94b) and (2.94c) should be semantically equivalent, contra (2.91).

In order to fix this problem, I propose the semantics in (2.95). Here, I follow Zimmermann (1993, 2006) in taking ITVs to basically denote relations between individuals and properties. Adapting Quine’s (1960) classic proposal, ITVs decompose into a modal operator, and an embedded relational predicate. *search* decomposes into something approximating *try to find*, such that a proposition that *Juan is searching for a belt* can be roughly paraphrased as *Juan is trying to find a belt*. In (2.95), *hanap* is a relation between an individual x and a property P such that (roughly) x tries to find some individual who instantiates P .⁴⁴

$$(2.95) \text{ hanap}^\bullet = \lambda P.\lambda x.\lambda w.\mathbf{try}_w(x) (\lambda v.\exists y[P_v y \wedge \mathbf{find}_v y x])$$

(2.96) illustrates how this meaning of *hanap* composes with its bare NP argument.

$$(2.96) \quad \begin{aligned} \text{a. } (\text{hanap}^\bullet \text{ inhinyero}^\bullet)^\bullet &= \lambda x.\lambda w.\mathbf{try}_w(x) (\lambda v.\exists y[\mathbf{engineer}_v y \wedge \mathbf{find}_v y x]) \\ \text{b. } (\text{hanap}^\bullet \text{ babae}^\bullet)^\bullet &= \lambda x.\lambda w.\mathbf{try}_w(x) (\lambda v.\exists y[\mathbf{woman}_v y \wedge \mathbf{find}_v y x]) \end{aligned}$$

The existential quantifier scopes below the modal operator **try**. Therefore, engineers in (2.96a) are only claimed to exist in worlds in which the agent’s goals are realized, and not necessarily in the actual world. Thus, we correctly predict that ITVs have the potential to cancel the existential commitment otherwise conveyed by bare NP patients, as in (2.90). Furthermore, the representations in (2.96) derive the right results for the substitution data in (2.91). The agent may be trying to find individuals who instantiate the property **engineer** without any consideration of whether they instantiate **woman** in the actual world. Thus, the representation in (2.95) is successful in deriving representations which match native speaker judgements.

The approach of this chapter is to provide quantificational meanings for transitive verbs, regardless of whether the verbs are extensional or intensional. Comparing the representations in (2.97), we see that the analysis formally encodes for a distinction between intensional and extensional transitive roots: intensional if the existential quantifier is lexically specified to scope below a modal operator, as in (2.97a), and extensional if not, as in (2.97b).

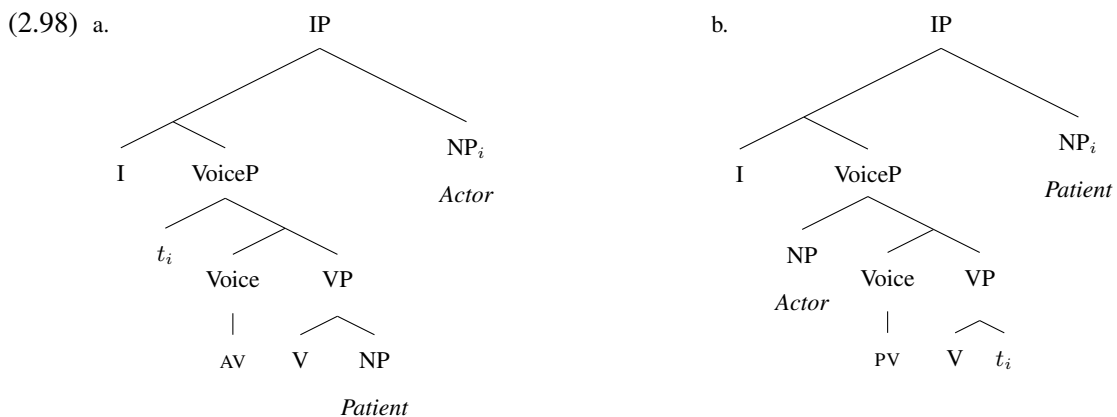
$$(2.97) \quad \begin{aligned} \text{a. } \text{hanap}^\bullet &= \lambda P.\lambda y.\lambda w.\mathbf{try}_w(y) (\lambda v.\exists x[P_v x \wedge \mathbf{find}_v x y]) \\ \text{b. } \text{tago}^\bullet &= \lambda P.\lambda y.\lambda w.\exists x[P_w x \wedge \mathbf{hide}_w x y] \end{aligned}$$

⁴⁴To be precise, **try** is a universal quantifier over worlds, such that its prejacent is true in all worlds compatible with x ’s goals. $\lambda w.\mathbf{try}_w(x) (\lambda v.\exists y[P_v y \wedge \mathbf{find}_v y x]) = \lambda w.\forall v[\mathbf{goals}_w v x \rightarrow \exists y[P_v y \wedge \mathbf{find}_v y x]]$, where $(\mathbf{goals}_w v x)$ means that v is compatible with x ’s goals in w .

2.6 Syntax-sensitive NP interpretation

The account in this chapter ties the interpretation of an NP to its syntactic position. The previous section argued that genitive bare NP patients compose directly with the selecting verbal root. This is expected if we assume the clause structure introduced in §4. This structure places genitive patients in the complement of VP, as in (2.98a). However, the account so far is left to explain the internal composition of patient voice sentences.

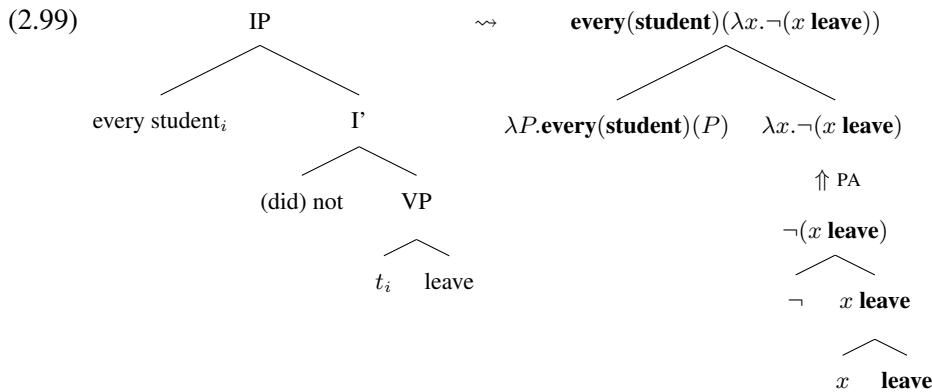
According to the syntactic analysis in (2.98b), the nominative patient moves to the high position Spec,IP, binding a trace in its thematic position. How does this trace compose with the verbal root? Given the analysis in the previous section, Tagalog verbal roots compose with property-denoting expressions. Thus, in order to provide a comprehensive view of the composition of the Tagalog clause, we require an explanation of how verbal roots semantically combine with the patient's trace.



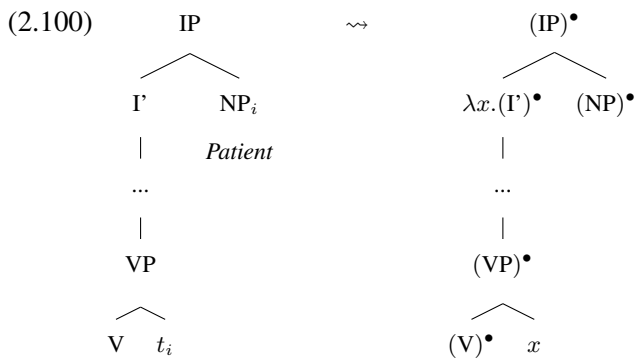
2.6.1 Interpreting moved NPs

Interpreting the structures in (2.98) requires a semantics for NP-movement. I appeal to the theory of quantifier raising as proposed by Heim and Kratzer 1998. This theory is designed to assign interpretations to syntactic structures which include moved NPs. While their theory is most commonly employed in order to account for the scope taking properties of quantificational NPs, their account of NP movement is intended to incorporate both overt and covert movement (see Heim and Kratzer 1998:§8). Most pertinent to the present discussion, their proposal specifically deals with cases in which NPs raise from their VP-internal thematic positions to derived subject positions.

For example, Heim and Kratzer (1998:§8.4) provide a syntactic structure for a basic English sentence with negation similar to the structure in (2.99). The subject DP binds a co-indexed trace in a VP-internal position. The trace is interpreted as an individual variable combining with its selecting verb. Composition proceeds generating a type-*t* interpretation for the I'-constituent (i.e., $\neg(x \text{ leave})$). In order for this constituent to compose with the quantificational subject, a principle termed *predicate abstraction* is employed. *Predicate abstraction* ensures that the individual variable denoted by the trace is λ -bound. Thus the I'-constituent comes to denote the set of individuals which did not leave. This meaning can be composed with the subject quantifier, generating a coherent interpretation for the entire sentence.



This is the approach I will take in accounting for the interpretation of NP-movement in Tagalog. Moving back to the Tagalog patient voice structures, here the patient NP moves from Comp,VP to Spec,IP, binding a trace in its original VP-internal position. The trace is interpreted as an individual variable, which is λ -bound at the I'-level, i.e., the point at which the moved NP composes with the rest of the sentence.



As the trace of the patient NP is an individual variable, it is the wrong type to compose with the verbal root, which composes with property-denoting expressions. For example, the

root *tago*, ‘hide’ cannot compose with the *e*-type trace left by the moved patient NP in a patient voice sentence, as in (2.101). Note that *tago* is simply represented as an unaffixed root. This is because we are dealing with the composition of the V with its arguments, and based on the syntactic analyses presented in §4, voice and aspectual affixes are introduced into the structure above VP.

$$(2.101) \quad \text{a. } tago^\bullet = \lambda P.\lambda y.\exists x[P \ x \ \mathbf{hide} \ x \ y]$$

$$\text{b. } t_i^\bullet = z$$

$$\text{c. } (tago^\bullet \ t_i^\bullet)^\bullet = \mathit{undefined}$$

Again we can appeal to the type-shifting theory of Partee (1986). Partee provides a means by which individual denoting expressions may take on property denoting expressions, using the type-shifter *ident*. *ident* is the inverse of *iota*.⁴⁵ Where *iota* maps properties onto their unique instantiators, *ident* maps individuals onto their uniquely characterizing properties, as in (2.102).

$$(2.102) \quad \mathit{ident} = \lambda x.\lambda y.y = x$$

There’s independent empirical evidence that the type-shifter *ident* is warranted. Expressions which have a basic *e*-type interpretation, such as pronouns and proper names, can constitute predicates in Tagalog, as in (2.103a). Partee’s type-shifting system is intended to provide a unify argumental uses of NPs with apparently predicative uses. For example, the nominative pronoun *ako* serves as the predicate of the equational clause (2.103). Here, *ident* can be applied to the pronoun, shifting its denotation from the speaker to the property which uniquely instantiates the speaker.

$$(2.103) \quad \text{a. } [Ako] \quad [si \ Juan]$$

NOM.1SG NOM Juan

I’m Juan.

$$\text{b. } \mathit{ident}(ako^\bullet) \ si \ Juan^\bullet = (\lambda y.y = Sp \ (\mathbf{j}))$$

$$= (\mathbf{j} = Sp)$$

⁴⁵As *iota* and *ident* are one another’s inverse, the following equivalences hold: for all individuals *d*, *iota(ident(d)) = d*, and where *P* denotes a singleton set, *ident(iota(P)) = P*.

Cases like (2.103) independently justify the use of *ident* within the compositional system. As *ident* is available for shifting *e*-type expressions to $\langle e, t \rangle$ -type expressions, we can use it in order to shift the *e*-type trace in (2.101b) (introduced by the movement of the patient) into an $\langle e, t \rangle$ -type expression, as in (2.104a). Thus, the transitive verbal root can combine with a property-denoting expression, as usual (2.104b). The resulting meaning in (2.104b) is the relational meaning ordinarily ascribed to transitive verbs. Thus, using Partee's *ident* type-shifter on the patient's trace, we can derive basic relational meaning for transitive verbs from the higher type quantificational meaning.

$$\begin{aligned}
 (2.104) \quad a. \textit{ident}(t_i^\bullet) &= \lambda x'.x' = z \\
 b. (\textit{tago}^\bullet \textit{ident}(t_i^\bullet))^\bullet &= \lambda P.\lambda y.\exists x[P x \wedge \mathbf{hide} x y] (\lambda x'.x' = z) \\
 &= \lambda y.\exists x[\lambda x'.x' = z (x) \wedge \mathbf{hide} x y] \\
 &= \lambda y.\exists x[x = z \wedge \mathbf{hide} x y] \\
 &= \lambda y.\mathbf{hide} z y^{46}
 \end{aligned}$$

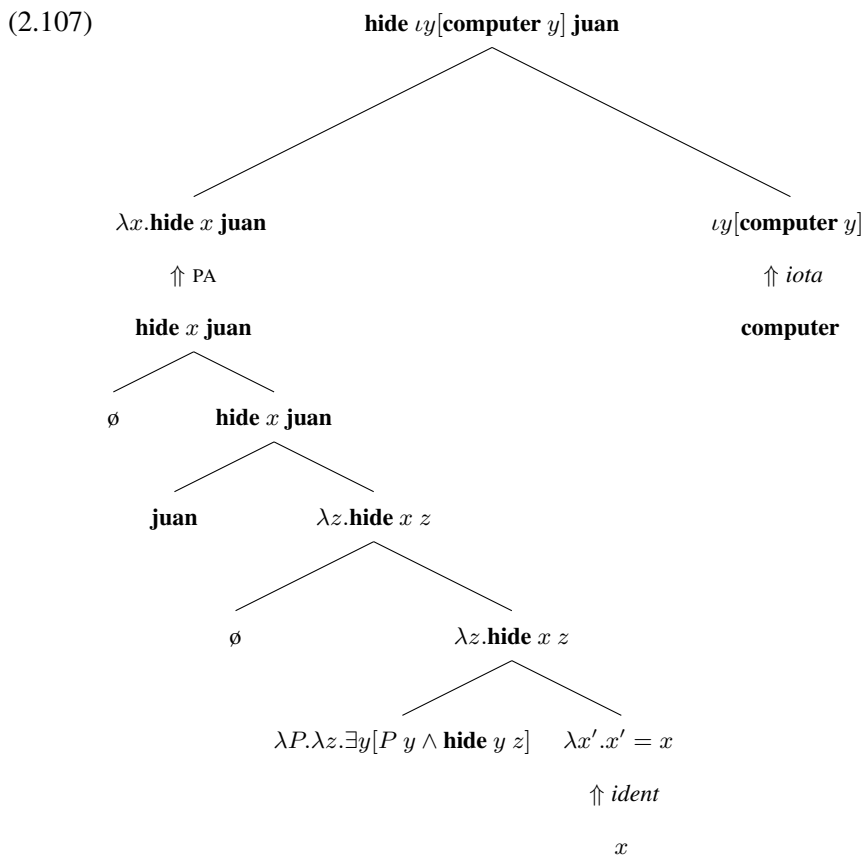
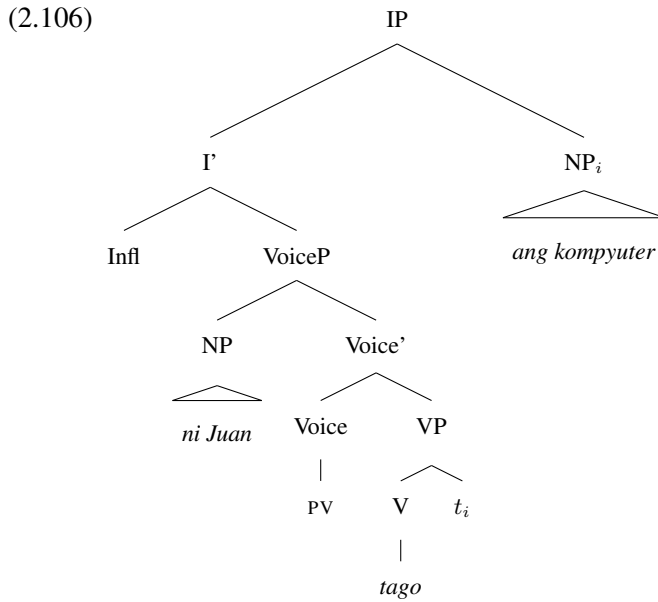
We can now construct the compositional semantics for a basic patient voice sentence as in (2.98b). The syntax of the basic patient voice sentence in (2.105) is sketched in (2.106).

$$\begin{aligned}
 (2.105) \quad t\langle in \rangle ago \quad ni \quad Juan \quad ang \quad kompyuter \\
 \langle PV.PERF \rangle.\mathbf{hide} \quad GEN \quad Juan \quad NOM \quad computer \\
 Juan \quad hid \quad the \quad computer
 \end{aligned}$$

Recall that the syntactic analysis assumes that the transitive verbal root is a lexical item of category V which composes with voice and aspectual affixes via head movement. I take the head movement operation involved to be irrelevant for the purposes of semantic composition. The syntactic structure in (2.106) is interpreted as in (2.107).⁴⁷

⁴⁶The equivalence between the expressions $\lambda y.\exists x[x = z \wedge \mathbf{hide} x y]$ and $\lambda y.\mathbf{hide} z y$ is perhaps easier to see if we consider the set theoretic denotations. The statement $\exists x[x = z \wedge \mathbf{hide} x y]$ is true iff the singleton set containing the variable z , $\{z\}$, has one member in common with the set of individuals hidden by y , $\{x : \mathbf{hide} x y\}$. The only way for this statement to be true is if z is hidden by y , i.e., $\mathbf{hide} z y$.

⁴⁷Although the voice morpheme is often semantically contentful (depending on the identity of the root), encoding information relating to the lexical aspect/aktionsart, I have not represented this information within the semantics of the voice morpheme or Infl within this representation for reasons of simplicity.

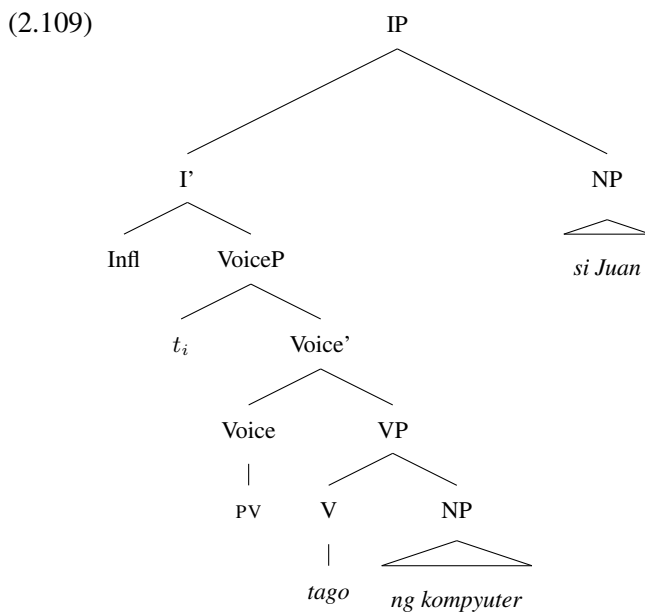


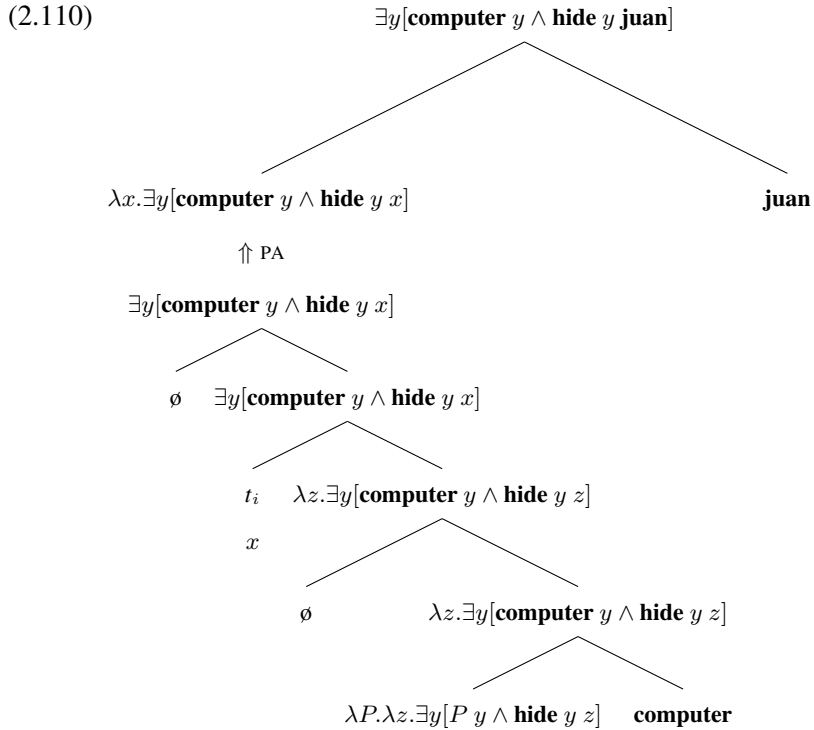
The analysis in (2.107) provides an explanation of why nominative bare NPs in patient voice sentences are interpreted as definites, without the use of a definite article. As the bare NP moves to a higher position, it is no longer able to be existentially quantified over by the meaning of the verbal root. Instead it is forced to type-shift via *iota* in order to compose with the rest of the

sentence, generating a definite reading.

We can compare the patient voice structure to an analogous actor voice structure. (2.109) sketches the syntactic structure of the basic actor voice sentence (2.108). Here the actor NP moves to the subject position and the patient NP is VP-internal. The structure is interpreted as in (2.110).

(2.108) *nag-tago ng kompyuter si Juan*
 <AV.PERF>.hide GEN computer NOM Juan
 Juan hid a computer





This structure explains why genitive bare NPs are interpreted as indefinites. As they are syntactically local to the verb, not moving to the higher position, they are existentially quantified by the verb.

As this dissertation focuses on the interpretational distinction between nominative and genitive patients, it leaves aside a full treatment of the interpretation of agents. In brief, the analysis in (2.107) suggests that the agent position in patient voice sentence is occupied by an individual-denoting expression. As expected, this position can be filled by individual-denoting expressions like proper names and pronouns (see (2.105) above for a basic example). However, there is also a prediction that genitive bare NP agents in patient voice sentences must be definites. As the position is occupied by individual-denoting expressions, bare NPs must type-shift via *iota* in this position, generating a definite interpretation. We do indeed find genitive bare NP agents with definite interpretations, (2.111) provides a basic example.

- (2.111) *i-d<in>eklara ng presidente ng Pilipinas na iyon ang wika-ng pambansa.*
 PV-⟨PERF⟩.declare GEN president GEN Philippines LK that NOM language-LK national
 The president of the Philippines declared that it was the national language.

However, Paul et al. 2016 provide examples like (2.112) which suggest genitive bare NP agents do allow indefinite interpretations – (2.112) is cited as allowing a non-specific reading of the genitive agent. Data like these suggest other compositional principles are at play in the composition of agents, and that the analysis in (2.107) may be too restrictive as far as the agent position is concerned – a complete analysis must account for why we are able to obtain both definite and indefinite interpretations of genitive agents. One option is to allow the agent argument of the transitive verb to optionally lift to combine with property-denoting expressions, just like we have seen for the patient position.

(2.112) *Maari-ng kun-in ng magnanakaw ang pera=mo*
 can-LK take-PV GEN thief NOM money=GEN.2SG
 It might be the case that a thief takes your money. ($\exists > \diamond, \diamond > \exists$)

Paul et al. 2016:(38)

2.6.2 What does and doesn't shift via *ident*?

An outstanding question is why genitive bare NPs do not shift via *iota*, generating a definite reading. Recall that one of the reasons we rejected the relational analysis of transitive verbs in §5 was that it was compatible with definite interpretations of genitive patients, which should be ruled out. But under the present analysis, with both *iota* and *ident* available, what rules out the parse in (2.113)? Here, the bare NP shifts to an *e*-type interpretation via *iota*, and then back to a property interpretation via *ident*. The result is an incorrect definite reading of the patient. So far, nothing in the present analysis rules this out.

(2.113) $(tago \bullet ident(iota(ng\ kompyuter \bullet))) \bullet$
 $= \lambda P. \lambda y. \exists x [P(x) \wedge \mathbf{hide}(x)(y)] \left(\lambda x'. x' = \iota z [\mathbf{computer}(z)] \right)$
 $= \lambda y. \mathbf{hide}(\iota z [\mathbf{computer}(z)])(y)$ *unattested reading*

Throughout this chapter, type-shifting (via *ident* and *iota*) has been employed in order to resolve type-mismatches in the compositional semantics. For example, moving a bare NP to the subject position creates a type-mismatch which can be resolved by lowering the bare NP's type via *iota*.

In (2.113), the property-denoting bare NP patient *ng kompyuter* is the *correct* type to compose with its selecting verb, which is looking for a property-type argument. Therefore, why is

type-shifting employed here? The type-shifting in (2.113) does *not* resolve a type-mismatch.

In order to rule out derivations like (2.113), I appeal to a type-shifting principle which can be roughly stated as “don’t type-shift where no type-shifting is necessary” or “only type-shift if there is a type-mismatch”. I spell this principle out in (2.114), a revision of the earlier type-shifting rule proposed in §4.

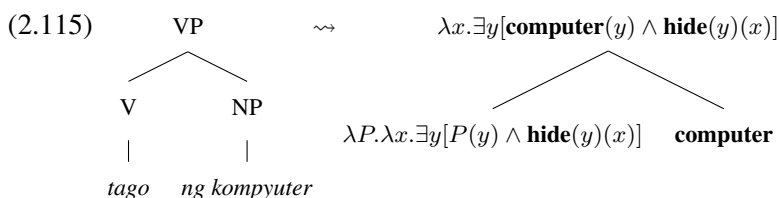
Now the type-shifting rule directly references the immediate syntactic context of the expression which undergoes type-shifting. The rule states that a type-shifter may only be applied to an expression X if X is unable to compose with (the translation of) its syntactic sister. Intuitively, type-shifters can only be applied in order to mend a type-mismatch.

(2.114) For all tree structures Z, with daughters X and Y, such that Y has an admissible translation α ,

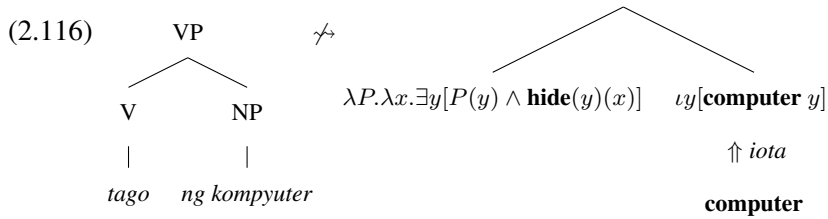
X has an admissible translation $\delta(\beta)$, if and only if,

- a. X has an admissible translation β of type σ , and
- b. δ is a type-shifter of type $\langle \sigma, \tau \rangle$, and
- c. neither $\alpha(\beta)$ nor $\beta(\alpha)$ are defined.

(2.115–2.117) illustrate how this principle blocks the application of type-shifting in structures with genitive bare NPs. In (2.115), we have a well-formed tree structure in which no type-shifting is employed. Here, the observed indefinite reading of the genitive is derived.

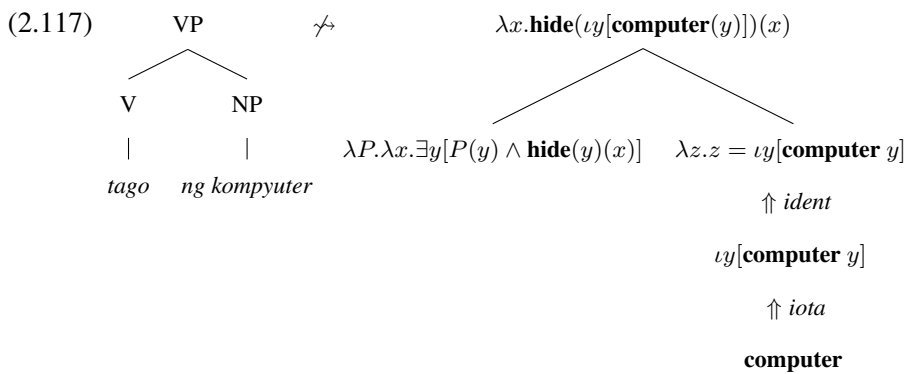


The rule in (2.114) blocks the NP from shifting via *iota*, as in (2.116). Here a type shifter has applied to the NP in violation of the clause (c) in (2.114): the non-type-shifted, $\langle e, t \rangle$ -type meaning of the NP is already able to compose with its sister, as in (2.115). The type-shifter is not mending any type-mismatch here so it is not licensed.



Structure blocked by clause (2.114c)

By (2.114), shifting the NP by *iota* (or any type-shifter) is blocked when the property-denoting NP occupies this Comp,VP syntactic position. As *iota*(**computer**) is not an admissible translation for the NP, the structure in (2.117) is also blocked. In this structure, the NP is shifted a second time by *ident*. Even though the application of *ident* does “mend” a type-mismatch, the structure is nevertheless ruled out by clause (a) of (2.114): the type-shifter is applying to an inadmissible translation of the NP.



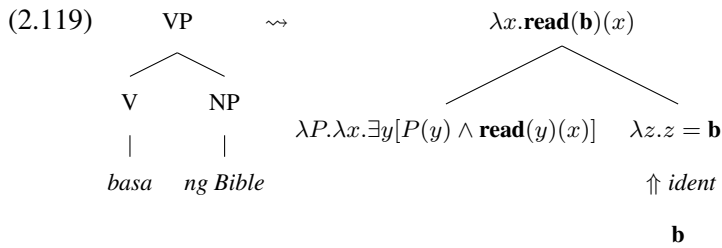
Structure blocked by clause (2.114a)

The general aim here is to avoid a proliferation of type-shifters. Type-shifters are blocked in syntactic environments where their application does not mend a type-mismatch in the compositional semantics, as in (2.116). If the application of a type-shifter is blocked by this principle, it is not possible to amend the structure with successive applications of further type-shifters, as in (2.117).

This is not to say that patients of actor voice verbs are never interpreted as definites. In fact, actor voice verbs permit proper name patients marked with genitive case, so long as the proper name has an inanimate referent. The possibility of such cases is expected under the present analysis which allows the shifting of individual-denoting expressions to property-denoting expressions via *ident*.

- (2.118) a. *Na-nood si Alex ng Extra Challenge*
 AV.PERF-watch NOM Alex GEN Extra Challenge
 Alex watched Extra Challenge. Latrouite 2011:39c
- b. *Nag-ba-basa si Alex sa kanila ng Bible*
 AV-PROG-read NOM Alex OBL them GEN Bible
 Alex is reading the bible to them. Latrouite 2011:39d

Given the availability of *ident* in the compositional system, such examples can be handled as in (2.119). The proper name is interpreted as an individual-denoting expression. Thus, it is unable to compose with the verbal root which only combines with property-denoting expressions. Therefore, the proper name must shift via *ident*, allowing composition to proceed. As the type-shifter repairs a mismatch, it does not violate the definition in (2.114).



Before moving on to other sorts of genitive case-marked patients, I will briefly discuss oblique case-marked patients of actor voice verbs. The factors governing alternations between genitive and oblique case on the patient argument are somewhat complex and worthy of their own paper, and so I will be unable to discuss oblique case-marked patients in full here. A future extension of this project is to reconcile these alternative realizations of actor voice patients with the present analysis.

Although genitive inanimate proper names are permitted, actor voice verbs do not allow genitive case-marked personal names or pronouns to surface in the patient position. These sorts of patients must appear with oblique case marking, as in the examples below.

- (2.120) a. *Kinailangan ko pang [tumawag kay Dr. Dave]*
 must.LK GEN.1SG still AV.INF.call OBL Dr Dave
 I need to call Dr. Dave. Sabbagh 2016:20
- b. *gaano karaming mga tao ay [nagdagdag sa akin] bilang isang*
 how much.LK PL person TOP AV.add OBL 1SG as one.LK
kaibigan
 friend

[I was surprised at] how many people added me as a friend.

Sabbagh 2016:19

Bare NP patients of actor voice verbs may also appear with this oblique case, though this is more prevalent in nominalizations and structures in which the thematic actor has been extracted to a pre-verbal position. Patients marked with the oblique case marker are generally interpreted as definites.

(2.121) a. *pag-patay sa pusa ng aso*
 NOMZ-kill OBL cat GEN dog

The dog's killing of the cat.

Shibatani 1988:(15a)

b. *Sino ang b(um)aril sa ibon?*
 NOM.who NOM <AV.PERF>.shoot OBL bird

Who shot the bird?

McFarland 1978:p149

A possible analytical path follows from Sabbagh 2016, who argues that oblique case-marked patients, like the underlined expressions in (2.121), are syntactically distinct from genitive case-marked patients. Under Sabbagh's account, oblique case-marked patients must move to a position which is structurally higher than their underlying VP-position, therefore binding a VP-internal trace. Under this account, the morphosyntactic features determining a nominal's status as a proper name or pronoun would be forced to undertake this movement obligatorily, assuring their oblique case-marking.

Following the general approach of this chapter, the effect of this syntactic movement would be to ensure that bare NP oblique patients are interpreted like bare NP nominative patients. As they move to a higher position, they no longer can directly compose with the verbal root. Thus, they must type-shift via *iota*, generating a definite interpretation. I leave a fuller version of this analysis aside as a goal for future work.

2.6.3 Composing quantificational patients

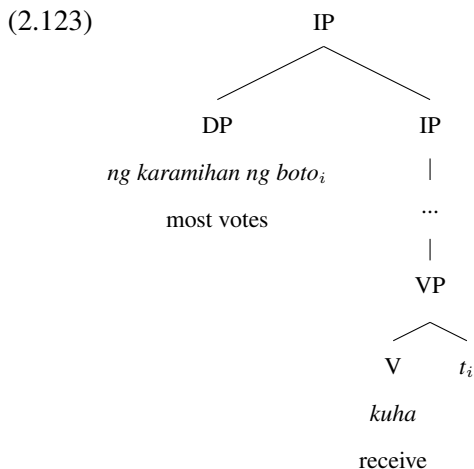
We also find quantificational expressions as genitive patients of actor voice verbs. In general, Tagalog speakers most readily accept quantificational genitive patients only if the quantificational expression is "weak", i.e., those quantifiers which can serve as existential pivots, including *isang* and the cardinal numerals, *marami* 'many' and *ilan* 'some, a few', and so on.

However, Sabbagh 2016 demonstrates that at least some speakers accept a range of quantifiers as genitive patients, including “strong” quantifiers like *lahat* ‘all’ and *karamihan* ‘most’. Sabbagh backs this observation up with naturally occurring examples, including the following. A promising topic for future work is a thorough investigation into what determines speakers’ variable acceptance of such sentences.

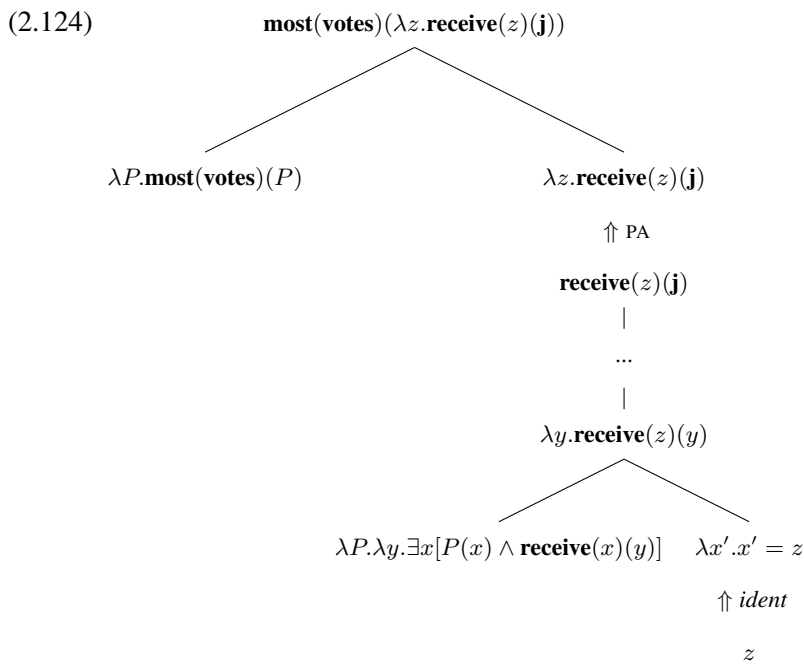
- (2.122) a. *Puwede ka-ng k(um)ain ng lahat ng mga gusto mo*
 Can you-LK <AV.PERF>.eat GEN all GEN PL like 2SG.GEN
kapag nagda-diet ka, di ba?
 when AV.PROG-diet 2SG.NOM not Q
 You can eat everything you want when you are dieting, can’t you?
 Sabbagh 2016:35c

- b. *Siya ang na-nalo sa poll kung saan naka-kuha*
 NOM.3SG NOM PERF.AV-win OBL poll COMP where PERF.AV-receive
siya ng karamihan ng boto.
 NOM.3SG GEN most GEN vote
 He won in the poll by receiving most of the votes.
 Sabbagh 2016:35e

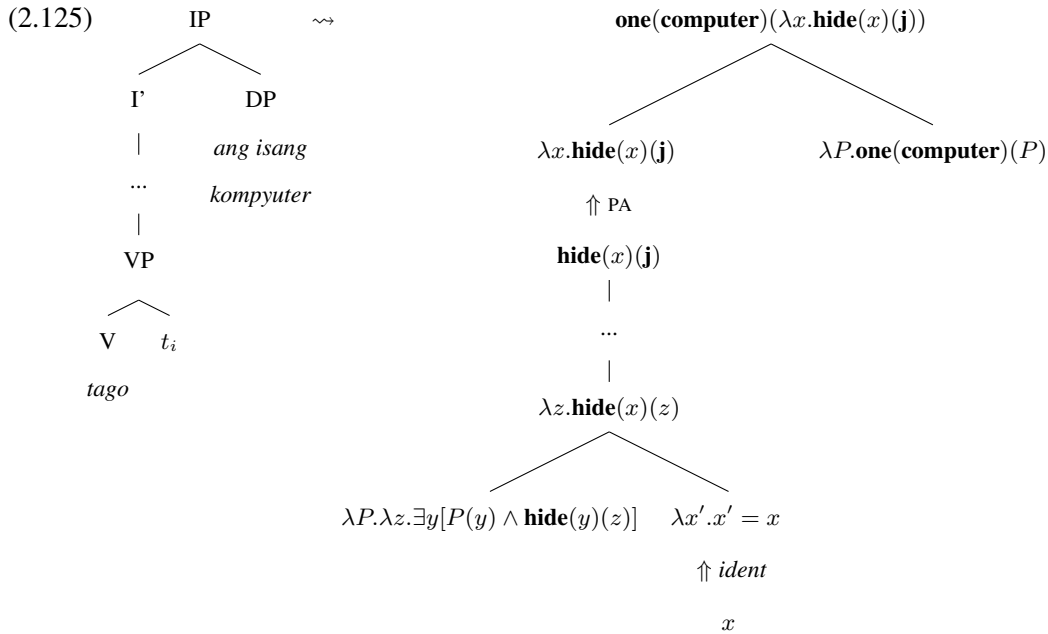
Whether or not the quantifiers are strong or weak, the present account is able to handle such examples. In order to incorporate these cases, we need a mechanism for interpreting quantificational expressions in object position. Many mechanisms would suffice, such as Montague’s (1973) ‘quantifying in’, or Cooper Storage (Cooper 1983). In (2.123), Heim and Kratzer’s (1998) version of quantifier raising (QR) is employed. Here, the syntactic tree is amended at an abstract level by moving the quantificational expression from the object position to adjoin to a sentential node, binding a trace in its original position.



When this syntactic structure is interpreted, as in (2.124), the trace of the quantifier is interpreted as an individual variable, just like any trace of a moved nominal expression in the present system. As the trace is the wrong type to compose with the verbal root, it must shift via *ident*. The operation proceeds much like the proper name in (2.119). In order to compose with the raised quantifier, the trace must be λ -bound via Predicate Abstraction as discussed in §6.1. Note that for simplicity, the agent is identified as some arbitrary individual **j**. Thus, armed with (a) shifting via *ident*, as well as (b) a means of interpreting quantificational expressions such as QR, clauses with genitive quantificational patients pose no problem.



The mechanism of interpretation sketched in (2.124) provides a way of accounting for quantificational patients with genitive case. The mechanism shares many similarities with how quantificational patients with nominative case are interpreted. Recall (from §4.2) that quantificational patients with nominative case are analyzed as moving from their thematic positions in the overt syntax to the Spec,IP position (the position reserved for nominative case-marked nominal expressions). From this position they can compose with the I'-predicate without type-shifting.



Both nominative and genitive quantificational patients are interpreted as binding a trace in the VP-internal position. The nominative patient binds the trace in the overt syntax, and the genitive patient binds it covertly. In both cases, the trace must shift via *ident* in order to compose with the verbal root. The two structures generate similar interpretations. This is reflected in native speaker intuitions. Consultants report that quantificational patients which are able to take either case have similar interpretations, such as in (2.126).

- (2.126) a. *nag-hanap si Juan ng isang kompyuter*
 PERF.AV-hide NOM Juan GEN one computer
 Juan hid one computer
- b. *h(in)anap ni Juan ang isang kompyuter*
 PERF.PV-hide GEN Juan NOM one computer
 Juan hid one computer

The investigation of quantificational patients becomes more complicated as we start looking at intensional predicates like *hanap*. Consultants report that actor voice predicates with genitive patients modified by cardinal numerals, as in (2.127), do permit non-specific readings. This is unexpected if the quantificational expression *ng tatlong sinturon* is analyzed as taking wide scope via QR, which will generate a specific interpretation.

- (2.127) *nag-hanap si Juan ng tatlong sinturon*
 PERF.AV-search NOM Juan GEN three belt

Juan searched for (any) three belts.

I propose to complicate the analysis of cardinal numerals. Under this new approach, cardinal numerals have two senses, a quantificational sense in (2.128a) and a predicative sense in (2.128b). Note that in (2.128), # is a function which determines the number of atomic sub-parts of an individual.

(2.128) a. $tatlo_1 \rightsquigarrow \lambda P.\lambda Q.\exists x[\#(x) = 3 \wedge P(x) \wedge Q(x)]$

b. $tatlo_2 \rightsquigarrow \lambda x.\#(x) = 3$

The predicative sense of cardinal numerals is evidenced by their usage as predicates in the morphosyntactic sense, as in (2.129). We find similar uses of other weak quantifiers like *marami* ‘many’ and *ilan* ‘few’. See Geurts 2006 for extensive discussion of the notion of predicative and quantificational senses of cardinal numerals, and how the multiple sense of numerals can be understood according to the type-shifting framework developed by Partee 1986.

(2.129) *Tatlo [ang kahon-g kahoy]*
 three NOM box-LK wood

The wooden boxes are three.

Schachter and Otones 1982:p130

Given the availability of a predicative sense for cardinal numerals, it is no surprise that genitive patients containing cardinal numerals permit a non-specific reading with intensional predicates, as in (2.127). A rough sketch follows in (2.130). The meanings of the cardinal numeral and the head noun are intersected, using Heim and Kratzer’s (1998:63–66) rule of Predicate Modification. This yields a property-denoting expression. The patient is thus able to directly compose with the intensional predicate. The patient is existentially quantified by the transitive verbal root, and thus a non-specific reading is generated.

(2.130)

$\rightsquigarrow \lambda y.\text{try}(y)(\exists z[\#(z) = 3 \wedge \mathbf{box}(z) \wedge \mathbf{find}(z)(y)])$

VP

V DP

hanap D NP

search tatlong kahon

three box

$\lambda P.\lambda y.\text{try}(y)(\exists z[P(z) \wedge \mathbf{find}(z)(y)])$ $\lambda x.\#(x) = 3 \wedge \mathbf{box}(x)$

$\lambda x.\#(x) = 3$ \mathbf{box}

A final point about cardinal numerals: (2.130) predicts that expressions with cardinal numerals like *tatlong N* have property-denoting readings. Given this prediction, how do we account for patients with cardinal numerals that have raised to the Spec,IP position, as in (2.131). Recall that nominative case-marked generalized quantifier-denoting expressions in this position compose with the predicate without type-shifting (see §4.2 and §6.2). However, property-denoting expressions in this position must shift via *iota*, generating a definite interpretation. Thus we predict that nominative patients with cardinal numerals should allow definite interpretations.

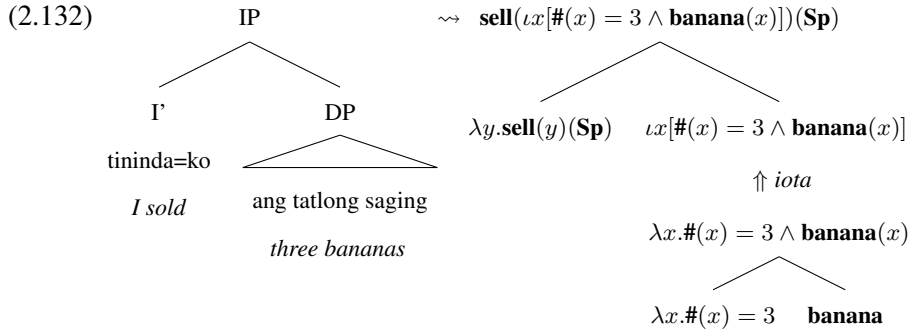
Native speaker judgements demonstrate that such definite readings of nominative patients are possible, and for some speakers even preferred. In this following context which disfavors *uniqueness*, the speaker reported infelicity with the use of a nominative patient containing a cardinal numeral. The comment included in (2.131) suggests the presupposition failure can be resolved by imagining the three bananas singled out by the definite reading of *ang tatlong saging* are in some way discourse familiar.

(2.131) *Context*: Carlos works in a fruit store. Carlos:

t<in>inda=ko *ang tatlo-ng saging*
 <PV.PERF>.sell=GEN.1SG NOM three-LK banana
 I sold the three bananas.

Comment: It's so weird, he sold the three bananas that you wanted me to sell, like he's holding three bananas, I sold *these three*.

This definite reading of the quantified patient in (2.131) is unproblematic given the property-denoting sense of cardinal numerals proposed in (2.128). The property-denoting sense of the numeral combines with the head noun via Predicate Modification, yielding a property type for the entire nominal (i.e., the property of being three bananas). As usual, property-denoting nominals in the Spec,IP position shift via *iota*, yielding the observed definite reading.



More detailed investigation is necessary in order to tease apart the definite and indefinite readings of cardinal numerals, and under which conditions each reading is available, as well as the precise nature of the predicative and quantificational senses of cardinal numerals and other weak quantifiers. However, the framework developed in this chapter, following Partee 1986 provides some headway in accounting for a range of readings involving quantified patient expressions in both genitive and nominative case.

2.7 Conclusion

This chapter has used Tagalog as a case study in order to build a theory of the interpretation of an NP and how it is linked to the NP's syntactic position. In the article-free language Tagalog, the definiteness and indefiniteness of an NP is signalled by a number of morphosyntactic factors including voice and case morphology. I argued, following previous syntactic work, that voice and case morphology in Tagalog signal underlying differences in syntactic structure. Following this intuition, I argue that differences in syntactic structure have concomitant effects on the compositional semantics which can determine whether or not a given NP should be interpreted as definite or indefinite.

The following tables give a summary of the key components of the proposal for reference. In (2.133) I have listed the various types of nominative patients. All of these patients were analyzed as occupying Spec,IP (the "subject" position) following the syntactic analysis of Guilfoyle et al. 1992. As the various types of nominatives have different semantic types, they must compose with the property-denoting predicate (the I'-constituent) via different means. These different means give rise to the observed variety of interpretations.

Nominatives which are individual-denoting or quantifier-denoting can directly compose

with the predicate, and thus their quantificational force is determined purely by the lexically encoded meanings of their constituent parts. Property-denoting nominatives, on the other hand, including bare NPs, must type-shift via *iota*, generating their observed definite readings.⁴⁸

(2.133) Nominative patients (in Spec,IP)

	Type	Mode of composition	Quantificational source
Bare NPs	$\langle e, t \rangle$	via <i>iota</i>	<i>iota</i>
Quantificational NPs w/ predicative dets.	$\langle e, t \rangle$	via <i>iota</i>	<i>iota</i>
Other quantificational NPs	$\langle \langle e, t \rangle, t \rangle$	direct composition	the determiner
Pronouns/Proper names	e	direct composition	N/A

Genitive patients are analyzed as occupying a VP-internal position. In this position, I proposed that they directly compose with the verbal root, which is specified to combine with property-denoting complements. Thus property-denoting genitive patients, including bare NPs, directly compose with the verbal root, generating indefinite interpretations. In these cases, the verbal root itself serves to quantify over its property-denoting complements.

e -type complements, such as impersonal proper names, and traces, must combine with the verbal root via the use of the type-shifter *ident*, which has the effect of neutralizing the existential quantifier encoded by the verb. Finally, quantifier-denoting genitive patients were analyzed as being interpreted via QR, binding a trace in the VP-internal position, which like any other trace, must shift via *ident* in order to compose with the verbal root. Note that personal proper names and pronouns are excluded from this list as they are banned from appearing as genitive patients in Tagalog.

(2.134) Genitive patients (in Comp,VP)

	Type	Mode of composition	Quantificational source
Bare NPs	$\langle e, t \rangle$	direct composition	the verb root
Quantificational NPs w/ predicative dets.	$\langle e, t \rangle$	direct composition	the verb root
Other quantificational NPs	$\langle \langle e, t \rangle, t \rangle$	QR	the determiner
(Impersonal) proper names	e	via <i>ident</i>	N/A

⁴⁸It's somewhat unexpected to refer to *iota* as a 'quantificational source', as *iota* shifts expressions to an e -type interpretation. By quantificational source here, I am referring to the *uniqueness* and *existence* commitments introduced by the *iota* type-shifter, which 'quantifies' the bare NP in the sense that it determines the cardinality of the description, i.e., that it has exactly one instantiator.

Zooming out, this chapter sheds light on a cross-linguistically common pattern, namely, the link between the VP-internal position of an NP and the NP's interpretation as an indefinite. Much previous research has yielded similar observations in a variety of languages (e.g., Medeiros 2013 on Hawaiian, Jasbi 2015 on Farsi, Cheng and Sybesma 1999 on Chinese, Collins and Thráinsson 1996 on Icelandic, to name a few). One goal for this chapter is to contribute to developing a comprehensive theory of this phenomenon with a view to extending the analysis cross-linguistically. The general view of this analysis is that the interpretation of an NP in an article-free language emerges from two interacting factors: the set of type-shifting operators which determines the set of possible interpretations for any NP, and the NP's syntactic context which determines an appropriate semantic type for the NP.

Chapter 3

Non-uniqueness inferences in an article-free system

3.1 Introduction

Indefinites give rise to implications which are conventionalized, as well as implications which are not. This chapter explores the question of which implications of indefinite expressions should be analyzed as pragmatic enrichments. The discussion of Tagalog's compositional semantics in the previous chapter provides us with a foundation in order to investigate how the indefinite and definite interpretations of bare NPs in Tagalog can be integrated into a theory of pragmatic inference.

The notion of *alternative* is central to all theories of pragmatic inference. According to Gricean theory, interlocutors engage in rich reasoning processes involving the speaker's actual utterance as well as alternatives that the speaker *could have* uttered. Despite the centrality of alternatives, their precise nature has been hard to pin down – should they be thought of purely in terms of their meanings, or do they demonstrate linguistic properties such as syntactic structure?

In its discussion of the pragmatics of indefinites, this chapter discusses a particular property of many theories of pragmatic inference. Many theories (e.g., Horn 1972, Gazdar 1979, Hirschberg 1985, Percus 2006, Schlenker 2012, amongst others) appeal to conventionalized scales of lexical items. Such scales are used to generate alternative utterances, normally by

swapping one lexical item for its scale-mate. The result is a set of alternative utterances which differ only by one lexical item. For example, the pair in (3.1) differ only by the choice of a weak or strong modal adverb.

- (3.1) a. He is possibly involved in the investigation.
 b. He is certainly involved in the investigation.

Beaver 2001 provides a characterization of these scales: “Such a scale is found whenever two expressions have similar distributional properties, but a simple sentence involving the first is logically stronger than the sentence with the second expression substituted for the first.” Beaver’s statement references the notion that the items comprising these scales should be ordered by semantic strength, following the original proposal in Horn 1972.

In this chapter, I present a theory of pragmatic competition which challenges the necessity of this assumption. I argue that the assumption that scales are ordered by strength stems from a particular class of cases emerging from the study of pragmatic inferences in English, in which quantificational determiners are classed as lexical alternatives. These English scales of determiners like $\langle a, the \rangle$, $\langle some, all \rangle$ and $\langle few, no \rangle$ can be ordered by strength without difficulty.

When we look at the broader cross-linguistic picture, this ordering restriction on scales becomes harder to maintain. Tagalog serves as a particularly informative case study in order to test the predictions of a theory of pragmatics which employs lexical scales. In order to maintain the assumption that implicatures triggered by bare NP indefinites in Tagalog are derived via competition with definites, we must ask exactly which lexical items enter into competition. Tagalog lacks articles, so we cannot posit a lexical scale analogous to the English scale $\langle a, the \rangle$. If Tagalog expresses definites and indefinites without the use of articles, which expressions are entering into pragmatic competition for the purposes of implicature calculation?

The account outlined here provides a way to account for cases involving absence of articles, where complex syntactic structures enter into pragmatic competition. In order to account for such cases, I suggest that the requirement that lexical scales are ordered by semantic strength must be weakened, in order to allow lexical scales to be ranked by various metrics including but not limited to semantic strength. The Tagalog data explored in this chapter shows that it

is possible for only the relative semantic strengths of syntactically complex constituents to be considered.

In §2, I provide evidence for a pragmatic meaning component of Tagalog indefinite NPs. In §3, I assess these data with reference to previous theories about scales of lexical items, discussing how these sorts of scales enter into pragmatic reasoning. In §4, I propose how meanings are compared, assessing only the relative strength of syntactically complex expressions and not the relative strength of lexical items.

3.2 Evidence for a non-uniqueness implicature in Tagalog

As discussed in chapter 2, definiteness is morphosyntactically signalled in Tagalog via a combination of voice and case marking. In this section I show how bare NP indefinites, signalled by genitive case, can trigger non-uniqueness inferences, just like indefinites with “a” in English. How can a unified theory of pragmatics account for the emergence of implicatures from the use of bare NPs in Tagalog but full DPs in English?

3.2.1 The non-uniqueness inference

In certain contexts, a bare NP genitive patient gives rise to a *non-uniqueness* inference: an inference that its description is instantiated by at least two individuals. Consultants provide the following inferential judgements for examples like (3.2). The use of the bare nominative patient in (3.2a) gives rise to an inference that its descriptive content (here, **moon**) is instantiated by just one individual, i.e., there is just one moon in the relevant context. This is expected given that bare nominative patients are analyzed as definites which presuppose unique instantiation.

The bare genitive patient in (3.2b), on the other hand, is associated with the opposite inference: the descriptive content of the genitive NP is instantiated by more than one individual. Consultants judge (3.2b) as something that might be said in an astronomy class or some kind of context in which it is expected that multiple moons are available for reference.

- (3.2) a. *Na-diskubre ni Karlos ang buwan*
 PERF.PV-discover GEN Karlos NOM moon
 Karlos discovered the moon. ↔ *There is only one moon*

- b. *Naka-diskubre si Karlos ng buwan*
 PERF.AV-discover NOM Karlos GEN moon
 Karlos discovered a moon. ~~ There is more than one moon

We also find that the use of the bare genitive patient in certain discourse contexts creates unexpected inferences conflicting with world knowledge. For example, in (3.3a), the use of the bare nominative patient *ang mundo* ‘the earth’ is felicitous, as the definite refers to the sole instantiator of the descriptive content **earth**, that is, the third planet from the sun. In (3.3b), the use of the bare genitive patient *ng mundo* ‘an earth’ creates an unexpected, science fiction-like context in which there are multiple earths.

- (3.3) a. *p<in>o-protekta-han=ko ang mundo*
 <PERF>.PROG-protect-PV=GEN.1SG NOM earth
 I protect the earth.
- b. *nag-po-protekta=ako ng mundo*
 AV-PROG-protect=NOM.1SG GEN earth
 I protect an earth. (*Comment*: Sounds like a galactic being or something.)

Here, the non-uniqueness inference triggered by the indefinite conflicts with pragmatic pre-suppositions which are somehow expected or natural for real world interlocutors to maintain, such as the uniqueness of the earth. Given a shared background of facts, triggering an inference which conflicts with these facts creates unexpected inferences such as the one suggested by the consultant in (3.3b).

We also find evidence that the non-uniqueness inference is not triggered simply by the presence of genitive case. Compare (3.3b), which creates unexpected inferences, with (3.4), which does not. Morphosyntactically, both sentences contain bare NPs marked with genitive case, and both NPs are naturally interpreted as uniquely instantiated descriptions, given usual assumptions of real world interlocutors. However, only when genitive bare NPs are transitive patients do we find these sorts of non-uniqueness inferences, even when they contradict world knowledge, as in (3.3b). Genitive bare NPs which are not patient, like *ng presidente* in (3.4) do not create such inferences.

- (3.4) *i-d<in>eklara ng presidente ng Pilipinas na iyon ang*
 PV-<PERF>.declare GEN president GEN Philippines LK that NOM
wika-ng pambansa.
 language-LK national

The president of the Philippines declared that it was the national language.

(3.5) repeats an example from chapter 2. In (3.5a), we find that in small discourses with two nominative patients with identical descriptive content, the two NPs are interpreted as *co-referential*. This is expected if the use of a definite forces an inference that the property denoted by the NP is uniquely instantiated.

In (3.5b), the opposite observation holds. The genitive NPs are preferentially interpreted as not being co-referential. We find that this data point is part of a larger pattern: after introducing a discourse referent, it is unnatural to refer to that referent with a bare genitive patient, as in (3.5b). Again, we observe that the use of a genitive patient gives rise to an inference that the descriptive content is instantiated by multiple individuals. In order to avoid the unlikely interpretation that the murderer mentioned in (3.5b) was let go, the interlocutors can reason that the two genitive patients refer to different murderers. The same strategy is not available for the definite variant (3.5a), as definites enforce unique instantiation. Further discussion of this example is in chapter 2.

- (3.5) a. *Nahuli ni Maria ang mamamatay tao noong Miyerkules at*
 PERF.PV.catch GEN Maria NOM murderer on Wednesday and
nahuli ni Karlos ang mamamatay tao noong Huwebes
 PERF.PV.catch GEN Karlos NOM murderer on Thursday.
 Maria caught the murderer on Wednesday and Karlos caught the murderer on Thursday.

- *Comment 1*: It's the same murderer.
- *Comment 2*: Sounds like Maria let him go.

- b. *Naka-huli si Maria ng mamamatay tao noong Miyerkules at*
 PERF.AV-catch NOM Maria GEN murderer on Wednesday and
naka-huli si Karlos ng mamamatay tao noong Huwebes
 PERF.AV-catch NOM Karlos GEN murderer on Thursday
 Maria caught a murderer on Wednesday and Karlos caught a murderer on Thursday.

- *Comment*: They are different murderers.

In sum, we find that genitive bare NPs give rise to a non-uniqueness inference, but only in cases in which they are the patient argument of a transitive verb. This non-uniqueness inference can create unexpected or even revisionary inferences, specifically in discourse contexts in

which the descriptive content of the NP is reasonably assumed by interlocutors to be uniquely instantiated, as in (3.3b).

3.2.2 Evidence for non-conventionality

The *non-uniqueness* inference triggered by bare genitive patients should be understood as a conversational implicature and not part of the conventional meaning of the patient NP. Evidence for this conclusion comes from observations that the non-uniqueness inference is cancellable, re-enforceable, and context dependent, therefore showing the prototypical behavioral properties of a conversational implicature.

The Gricean perspective on pragmatic inference takes *cancelability* of a meaning p to be a necessary condition for p to be classed as a conversational implicature.¹ We can understand a meaning p to be cancelable if the speaker can go on to suspend or deny p without seeming to contradict herself, equivocate, or engage in some kind of perspective shift. If we understand implicatures as being derived with reference to volatile properties of the utterance context, we must allow for the possibility that there is considerable uncertainty about whether p is just one of many premises which can be assumed in order to preserve speaker cooperativity. Based on this notion, it is conceivable that a speaker may wish to prevent interlocutors from assuming p .

In (3.6a), the use of a bare genitive patient has the potential to trigger a non-uniqueness inference, which can felicitously be followed up by a direct denial of this implication, without a judgement of contradiction.

- (3.6) a. *naka-kilala=ako* ng may-akda ng aklat na iyon
 AV.PERF.meet=NOM.1SG GEN author GEN book LK that
 I met an author of that book
- b. *at, siya* *lang ang* *nag-iisang* *may-akda*
 and NOM.3SG only NOM only author
 in fact, he was the only author.

The uncertainty arising from Gricean reasoning also predicts the possibility that a speaker may explicitly confirm the assumption of p , i.e., she may *re-enforce* the implicature. As the

¹Though Hirschberg 1985 points out that despite Grice's claim, cancelability is not a consequence of his account. Authors such as Lauer (2013) have advocated for the existence of non-cancelable implicatures.

emergence of an implicature is subject to such variability, such reinforcement should not give rise to redundancy in the same way that re-iteration of conventional meanings does.

The non-uniqueness inference in (3.7a) can be explicitly confirmed by following up with something like (3.7b) without a sense of redundancy.

- (3.7) a. *naka-kilala=ako* *ng* *may-akda* *ng* *aklat* *na* *iyon*
 AV.PERF.meet=NOM.1SG GEN author GEN book LK that
 I met an author of that book
- b. *at* *meron* *iba-ng* *mga* *may-akda* *bukod* *sa* *kanya*
 and exist other-LK PL author besides OBL 3SG
 and there were other authors besides him.

Compare this with the *uniqueness* inference triggered by nominative patients. In (3.8a), a speaker uses a nominative patient signalling uniqueness. Following up with a reinforcement of uniqueness creates a sense of redundancy.

- (3.8) a. *t<in>ayo* *ni* *Karlos* *ang* *unibersidad* *na* *nasa* *Antarctica...*
 <PERF>.found GEN Karlos NOM university LK OBL Antarctica
 ‘Carlos founded the university in Antarctica...’
- b. *...(?)sa totoo, yaon lang ang nag-iisang unibersidad sa Antarctica*
 OBL truth, that only NOM only university OBL
 ‘...in fact, that is the only university in Antarctica.’ (*Comment*: Sounds redundant)

We also find evidence that the non-uniqueness inference is context dependent of the kind that Heim 1991 has observed about indefinites in English. She cites examples such as the one in (3.9), stating that it does not intuitively give rise to the implication that there are multiple very large catfish. Heim argues that such inferences fail to arise in some contexts but not others, providing strong evidence that the implication should not be conventionally encoded in the meaning of “a”. The reasoning behind the failure of the non-uniqueness inference to emerge is discussed in greater detail in chapter 5.

- (3.9) Robert caught a 20 ft. catfish.

This kind of context dependence is also observed with the non-uniqueness inferences triggered by Tagalog genitive patients. The following examples are judged as *not* giving rise to a

	Patient case	Patient interpretation	Inferences
Patient voice	<i>nominative</i>	<i>definite</i>	<i>uniqueness (presupposition)</i>
Actor voice	<i>genitive</i>	<i>indefinite</i>	<i>non-uniqueness (implicature)</i>

Figure 3.1: Case, voice, and implications of bare NP patients

non-uniqueness implication, despite the presence of actor voice morphology and genitive case-marked patients. In a context in which, prior to the utterance, the existence of blood stains is not expected, (3.10a) does not give rise to the inference that there are multiple blood stains. The same principle applies to (3.10b), a similar example to Heim's.

- (3.10) a. *nakakita ako [ng mantsa ng dugo]*
 PERF.AV.see NOM.1SG GEN stain GEN blood
 I saw a blood stain.² (\nrightarrow *there are multiple stains*)
- b. *Isang araw, nakahuli si Hangdangaw [ng malaking isda]*
 one.LK day, PERF.AV.catch NOM Hangdangaw GEN large.LK fish
 One day, Hangdangaw caught a large fish.³ (\nrightarrow *there are multiple large fish*)

Figure 3.1 summarizes the empirical observations defended in this and the previous chapter about the interpretive differences between bare nominative and genitive patients, including the inferences that each form triggers with respect to the cardinality of the descriptive content.

Like English, Tagalog grammar provides for definite and indefinite interpretations of NPs. However, Tagalog employs voice affixes and case markers instead of articles. Despite the morphosyntactic differences, definites and indefinites give rise to the same kinds of implications in both languages. In the remaining sections, I discuss what this observation entails for our theories of pragmatic competition and how we should calculate alternatives.

3.3 Alternatives and scales without articles

The calculation of implicatures involves the consideration of alternative utterances: what the speaker “could have” said. Implicatures emerge as interlocutors draw inferences about why the speaker chose not to utter one utterance over another. Previous work (e.g., Horn 1972, Gazdar

²www.wattpad.com/176142735-minsan-may-isang-tanga-one-shot-minsan-may-isang

³pinoyfolktales.blogspot.com/2013/01/panitikan-ng-armm.html

1979, Hirschberg 1985) takes alternative expressions to be generated using scales of lexical items. Alternatives are derived from the actual utterance by swapping one member of a given scale for one of its “scale-mates”, for example, swapping one instance of the article *a* for the article *the*. The simplicity of this process is somewhat due to grammatical particularities of English: definiteness and indefiniteness are signalled by designated lexical items, namely, the definite and indefinite articles. When we turn to Tagalog, however, the central grammatical property most pertinent to the discussion is Tagalog’s lack of a definite article. Can there be a unified system which correctly generates definite and indefinite alternatives for both languages, despite their grammatical differences?

This section provides an answer to this question in light of the observations from the previous section. Clearly, a theory of Tagalog indefiniteness implicatures cannot be analyzed as derived via pragmatic competition between articles, as Tagalog lacks articles. I will argue against a traditional understanding of lexical competition and how lexical competitors are linked to alternative utterances. The Tagalog facts motivate an analysis of pragmatic competition which assumes that while alternative utterances may be ordered via semantic strength, lexical competitors do not need to be. This proposal provides us with a unified understanding of cases like Tagalog in which syntactically complex structures appear to trigger pragmatic competition, and cases like English in which simple lexical items trigger competition.

3.3.1 Alternatives and entailment

In extending the scale-based approach to conversational implicature to Tagalog, we must determine which lexical items are in competition in order to generate the alternatives (3.11a) and (3.11b) for the purposes of generating the non-uniqueness implicature arising from the use of (3.11a).

- (3.11) a. *nag-tago=ako* *ng kompyuter*
 PERF.AV-hide=NOM.1SG GEN computer
 I hid a computer. \rightsquigarrow *there is more than one computer*
- b. *t<in>ago=ko* *ang kompyuter*
 ⟨PV.PERF⟩.hide=GEN.1SG NOM computer
 I hid the computer. \rightsquigarrow *there is just one computer*

According to the analysis outlined in chapter 2, no single morpheme is responsible for encoding definite or indefinite semantics, discussed in more detail below. As Tagalog lacks articles, NP-interpretation is derived via other kinds of mechanisms, such as semantic incorporation of the patient by the transitive verb (*à la* Van Geenhoven 1998), or via type-shifting. So what exactly is in semantic competition and can the assumption of lexical competitors being ranked by semantic strength be preserved?

3.3.2 Semantic strength

Hirschberg 1985 provides the characterization in (3.12) of Horn's theory of lexical scales.

(3.12) If j entails i , then j can be seen as a higher value on Sc than i .

The same requirement is imposed by Gazdar 1979. For Gazdar, scales demonstrate the properties in (3.13), including being ranked by entailment (3.13c).

(3.13) For any scale Sc , Sc is

- a. an n -tuple,
- b. comprised of values drawn from a single sortal domain,
- c. and ranked by entailment.

In order to discuss what it means for lexical items to be ranked via semantic strength (or entailment), it is helpful to fix such a notion. This generalized notion of semantic strength which holds between denotations is symbolized by \sqsubseteq . \sqsubseteq can be used to rank the denotations of sub-sentential constituents. Two expressions can be said to be ranked by semantic strength just in case their denotations are.

In (3.14), \sqsubseteq is a relation which holds between any two denotations of the same type (compare Gazdar's (3.13c)). α and β are variables for expressions in a three-valued intensional logic. Expressions are assigned interpretations relative to a model by a function $[[\cdot]]$.

(3.14) **Semantic strength (generalized)**

For all domains D and all meanings $\alpha, \beta \in D$

- a. If $\llbracket \alpha \rrbracket, \llbracket \beta \rrbracket \in D_e$ or D_s , then $\llbracket \alpha \rrbracket \sqsubseteq \llbracket \beta \rrbracket$ iff $\llbracket \alpha \rrbracket = \llbracket \beta \rrbracket$.
- b. If $\llbracket \alpha \rrbracket, \llbracket \beta \rrbracket \in D_t$, then $\llbracket \alpha \rrbracket \sqsubseteq \llbracket \beta \rrbracket$ iff $\llbracket \alpha \rrbracket = F$ or $\llbracket \beta \rrbracket = T$.
- c. If $\llbracket \alpha \rrbracket, \llbracket \beta \rrbracket \in D_{\langle \sigma, \tau \rangle}$, then $\llbracket \alpha \rrbracket \sqsubseteq \llbracket \beta \rrbracket$ iff for any $\llbracket \gamma \rrbracket \in D_\sigma$, $\llbracket \alpha(\gamma) \rrbracket \sqsubseteq \llbracket \beta(\gamma) \rrbracket$.

Where $A \sqsubseteq B$ is read “ A is semantically at least as strong as B ”.

As the topic of the chapter is the relative strengths of indefinite and definite expressions, we need to also define some generalized notion of semantic strength which takes presuppositional content into account. I use \sqsubseteq_π to stand for presuppositional strength ordering between denotations, defined in (3.15).

As we are working in a three-valued logic, there are three possible truth values, T , F , and $\#$, in D_t . Additionally, I take the domain of individuals to contain an “undefined individual” notated as $\#_e$ (this type e individual is not to be confused with the truth value $\#$ with no subscript). The undefined individual is denoted by the representation language expression \bullet . For any predicate P in the representation language, $\llbracket P(\bullet) \rrbracket = \#$. $\#_s$ stands for the “undefined world”. This is included for completeness, but no use is made of it.

(3.15) Presuppositional strength (generalized):

For all domains D and all meanings $\alpha, \beta \in D$

- a. If $\llbracket \alpha \rrbracket, \llbracket \beta \rrbracket \in D_e$, then $\llbracket \alpha \rrbracket \sqsubseteq_\pi \llbracket \beta \rrbracket$ iff $\llbracket \alpha \rrbracket = \#_e$ or $\llbracket \beta \rrbracket \neq \#_e$.
- b. If $\llbracket \alpha \rrbracket, \llbracket \beta \rrbracket \in D_s$, then $\llbracket \alpha \rrbracket \sqsubseteq_\pi \llbracket \beta \rrbracket$ iff $\llbracket \alpha \rrbracket = \#_s$ or $\llbracket \beta \rrbracket \neq \#_s$.
- c. If $\llbracket \alpha \rrbracket, \llbracket \beta \rrbracket \in D_t$, then $\llbracket \alpha \rrbracket \sqsubseteq_\pi \llbracket \beta \rrbracket$ iff $\llbracket \alpha \rrbracket = \#$ or $\llbracket \beta \rrbracket \neq \#$.
- d. If $\llbracket \alpha \rrbracket, \llbracket \beta \rrbracket \in D_{\langle \sigma, \tau \rangle}$, then $\llbracket \alpha \rrbracket \sqsubseteq_\pi \llbracket \beta \rrbracket$ iff for any $\llbracket \gamma \rrbracket \in D_\sigma$, $\llbracket \alpha(\gamma) \rrbracket \sqsubseteq_\pi \llbracket \beta(\gamma) \rrbracket$.

Where $A \sqsubseteq_\pi B$ is read “ A is presuppositionally stronger than B ”.

If A is presuppositionally stronger than B , A ’s definedness is a sufficient condition for B ’s definedness. When \sqsubseteq_π expresses a relation between formulas, it can be stated as the truth table in (3.16).

		B		
		T	F	#
(3.16)	T	T	T	F
	A F	T	T	F
	#	T	T	T

Intuitively, the proposition expressed by (3.17a) is presuppositionally stronger than (3.17b), as it encodes for an additional presupposition, i.e., that it's Wednesday.

- (3.17) a. John knows that it's Wednesday.
 b. John believes that it's Wednesday.

Taking a and b to be abbreviations for metalanguage translations of (3.17a) and (3.17b), (3.15) correctly captures that the proposition expressed by a is presuppositionally stronger than the proposition expressed by b ($\llbracket a \rrbracket \sqsubseteq_{\pi} \llbracket b \rrbracket$). For any world w , regardless of whether it is Wednesday or not, b is defined at that world ($\llbracket b(w) \rrbracket \neq \#$), satisfying the right disjunct in (3.15c). The reverse relationship doesn't hold ($\llbracket b \rrbracket \not\sqsubseteq_{\pi} \llbracket a \rrbracket$). This is because there are worlds in which b has a classical truth value, but a does not, contradicting the disjunction in (3.15c).

We can also use these definitions to capture a relation of presuppositional strength between individual descriptions of type $\langle s, e \rangle$. Intuitively, the expression *the king of France's stationary bike* is presuppositionally stronger than *the king of France*. The expression *the king of France's stationary bike* only refers to an individual if *the king of France* refers to an individual. $\llbracket \mathbf{KoF'sB} \rrbracket \sqsubseteq_{\pi} \llbracket \mathbf{KoF} \rrbracket$, as in every world in which $\llbracket \mathbf{KoF'sB} \rrbracket$ refers to a defined individual, $\llbracket \mathbf{KoF} \rrbracket$ must also, following (3.15a).

With these definitions set up, we can see how we can assign interpretations for the English determiners a and *the* which allow them to be ranked by presuppositional strength, as in (3.18). The interpretations have equivalent asserted content, however *the* encodes for a uniqueness presupposition that a does not. This means that for any world such that $a(P)(Q)$ is undefined, then $the(P)(Q)$ is also undefined. Therefore, *the* is presuppositionally stronger than a , as per the definition in (3.15). Moreover, their at-issue content is equivalent. Thus, $the(P)(Q)$ is true in a subset of worlds in which $a(P)(Q)$ is true.

- (3.18) a. $a \rightsquigarrow \lambda P.\lambda Q.\lambda w.\exists x[P_w(x) \wedge Q_w(x)]$
 b. $the \rightsquigarrow \lambda P.\lambda Q.\lambda w.\exists!y[P_w(y)] : \exists x[P_w(x) \wedge Q_w(x)]$

As a consequence of the definition in (3.15), we cannot compare the definition for a in (3.18a) with the definition for the familiar from works such as Partee 1987, Heim and Kratzer 1998, and others as in (3.19a), using the ι operator. This operator is defined such that $[\iota x[P(x)]]$ is the unique individual instantiating property P , and if P is not true of exactly one individual, $[\iota x[P(x)]] = \#_e$. a and the (according to the definition in (3.19a)) are incomparable as they are expressions of different types. The definition in (3.15) only applies to expressions of the same type, thus forcing us to use a definition for the which is a quantificational determiner.

A potential resolution of this issue is to use the definition for the in (3.19b), which is the same type as the definition for a in (3.18a). In this case, the same result will hold: the is presuppositionally stronger than a . This is because the as in (3.19b) is undefined in precisely the same worlds that the as in (3.18b) is undefined.⁴

- (3.19) a. $the \rightsquigarrow \lambda P.\lambda w.\iota x[P_w(x)]$ $\langle\langle e, \langle s, t \rangle \rangle, \langle s, e \rangle\rangle$
 b. $the \rightsquigarrow \lambda P.\lambda Q.\lambda w.Q_w(\iota x[P_w(x)])$ $\langle\langle e, \langle s, t \rangle \rangle, \langle\langle e, \langle s, t \rangle \rangle, \langle s, e \rangle \rangle\rangle$

Given that we have conventionalized scales of lexical items, ranked by semantic strength, what do we do with them? Hirschberg 1985 provides the following characterization of the theory proposed by Horn 1972. According to Horn, when a speaker uses a scalar lexical item, she signals that the lexical item is the strongest usable scalar value that the speaker may justifiably use, considering the maxim of quantity. As a scale Sc is a set of lexical items (linguistic expressions), in (3.20), I take “refer to a value j ” to mean that the speaker uses an utterance containing the expression j . Linguistic expressions are ordered by semantic entailment just in case their denotations are.

- (3.20) When a cooperative speaker S refers to a value j on some scale Sc , where Sc is defined by semantic entailment, that j will represent the highest value on Sc that S can affirm while observing the Maxims of Quantity and Quality.

⁴Let (3.18b) be abbreviated the_1 and (3.19b) be abbreviated the_2 . In any world in which $|P| \neq 1$, both $the_1(P)(Q)$ and $the_2(P)(Q)$ are undefined (denote $\#$). For the_1 this is encoded as a definedness condition. In the_2 , by the definition of the ι operator, $[\iota x[P(x)]] = \#_e$ in any such world. Both expressions have classical truth values in worlds in which $|P| = 1$.

Thus, according to Horn 1972, it is not only the case that lexical alternatives must be ranked by semantic strength. This ranking links to a notion of semantic strength at the level of the *utterance*. The Gricean maxims require a speaker to use the semantically strongest utterance (given quantity). In doing so, the speaker will implicate the negation of alternative utterances which are semantically stronger. Thus Horn's theory appeals to the ranking of expressions by semantic strength at two distinct junctions. Firstly, lexical scales are ranked by semantic strength. Secondly, speakers are required to use the semantically strongest utterance (justifiable by evidence). This raises the question of whether comparing relative semantic strength is necessary at both levels.

3.3.3 Lexical competition in Tagalog

How well does this view of lexical competition extend to the Tagalog data? We can make a direct comparison with English examples of non-uniqueness implicatures by stating that the indefinite (3.21a) competes with its definite alternative (3.21b), with a nominative case-marked bare NP.

- (3.21) a. *nag-tago=ako* *ng kompyuter*
 PERF.AV-hide=NOM.1SG GEN computer
 I hid a computer. \rightsquigarrow *there is more than one computer*
- b. *t<in>ago=ko* *ang kompyuter*
 <PV.PERF>.hide=GEN.1SG NOM computer
 I hid the computer. \rightsquigarrow *there is just one computer*

Preserving the approach to implicatures using lexical scales as closely as possible, the question here is what alternative lexical scales can be proposed in order to generate the alternatives in (3.21). Looking at the overt morphemes in (3.21), the possible candidates are <AV, PV>, the voice affixes attached to the verb, <ako, ko>, the first person pronouns, and <ng, ang>, the case markers on the patient NP.

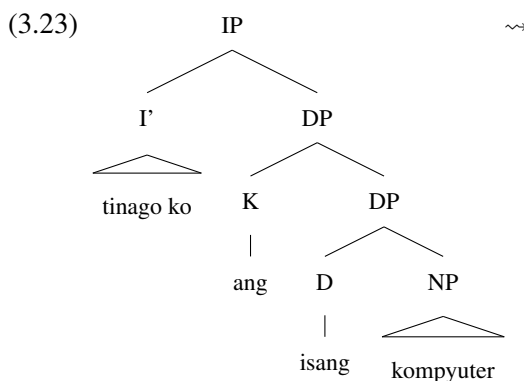
It turns out that whichever option we pick from these three candidates, none are compatible with the notion that scales must be ordered via presuppositional strength. This is because no item on any of the scales can be definitively associated with the uniqueness presupposition of (3.21b). The key piece of evidence for this conclusion comes from examples like those in (3.22),

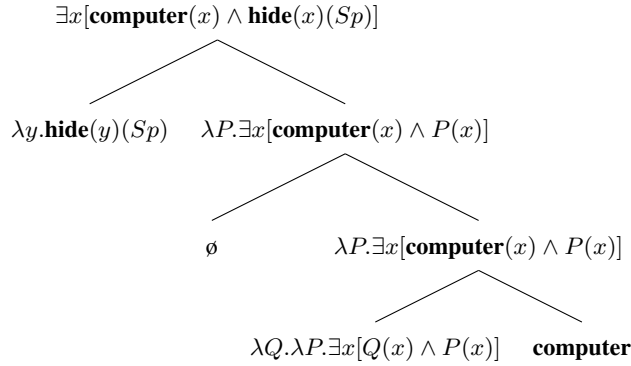
discussed in §2. Here we have a patient voice sentence identical to the definite (3.21b) except for the presence of the quantificational determiner *isang* marking the nominative patient. The presence of this expression leads to an indefinite interpretation of the patient.

(3.22) *t<in>ago=ko ang isa-ng kompyuter*
 ⟨PV.PERF⟩.hide=GEN.1SG NOM one-LK computer
 I hid a computer.

Every morpheme in the definite (3.21b) is present in the (3.22). This is problematic for any analysis of (3.21b) which attributes its uniqueness presupposition to a particular morpheme. Any such analysis would be left to explain why the presence of the quantificational determiner *isang* removes the uniqueness presupposition encoded in (3.21b).

In chapter 2, I outlined a compositional semantic theory of how (3.22) gets an indefinite interpretation. According to the analysis presented there, nominative bare NPs like *ang kompyuter* are property denoting expressions. When they compose with the rest of the sentence, a type-mismatch is created. This type-mismatch is resolved via the type-shifter *iota*, following Partee 1986. *isang*, on the other hand, is interpreted as an (indefinite) quantificational determiner, quantifying over the patient NP, as sketched in (3.23). This means that no type-mismatch occurs in the compositional semantics. As such, no type-shifting is licensed and a definite reading of the NP does not emerge. Following the analysis in chapter 2, (3.23) assigns no semantics to the nominative case marker *ang*. According to the analysis, the presupposition associated with the definite arises via type-shifting in the compositional semantics, not introduced by any particular lexical item.





As it is not possible to hold any single morpheme responsible for the definite interpretation, we cannot propose a pragmatic scale analogous to $\langle a, the \rangle$, consisting of a presuppositional lexical item and its non-presuppositional counterpart. Nevertheless, I do not suggest that the neo-Gricean analysis needs to be upended. I suggest that we can propose a lexical scale which is used to generate pragmatic alternative utterances. Under the analysis defended in this chapter, the scale of lexical items are *not* required to be ordered by semantic strength. However, pragmatic alternatives above the level of the lexical item, at either the clausal or sentential level, *are* compared in terms of their semantic strength.

I propose that the verbal affixes form a pragmatic scale: $\langle AV, PV \rangle$. Pragmatic alternative expressions like (3.21) are generated by (a) swapping the voice affix out for its scale-mate, and (b) making the concomitant morphosyntactic edits, such as case-marked. This latter step is not trivial. I discuss in the next chapter how this kind of generation of pragmatic alternatives can be given a principled treatment which is sensitive to morphosyntactic structure.

Given that the members of the pair in (3.21) are pragmatic alternatives, generated by swapping one voice affix out for the other, they enter into pragmatic competition. (3.24) compares their respective interpretations. Under the analysis in (3.24), we can see that (3.24b) is presuppositionally stronger than (3.24a), encoding for an additional uniqueness presupposition associated with definiteness (emerging from type-shifting in the compositional semantics). See §3.2 for why (3.24b) is taken to be presuppositionally stronger than (3.24a).

- (3.24) a. (3.21a) $\rightsquigarrow \lambda w.\exists x[\mathbf{computer}_w(x) \wedge \mathbf{hid}_w(x)(Sp)]$
 b. (3.21b) $\rightsquigarrow \lambda w.\mathbf{hid}_w(\iota x[\mathbf{computer}_w(x)])(Sp)$

There is no evidence that the lexical items forming the scale $\langle AV, PV \rangle$ are asymmetrically

ordered by semantic strength. In fact, under the analysis in chapter 2, the voice affixes are not assigned any semantic content at all, at least as far as the quantification of the patient NP is concerned. Therefore, this analysis is inconsistent with any theory of lexical scales which requires the individual lexical items to be asymmetrically ordered by semantic strength. Importantly, however, swapping one voice morpheme out for another does generate more complex expressions which *are* ordered by semantic strength (e.g., (3.24a) and (3.24b)). Therefore, I argue that the relative semantic strength of alternatives is calculated at a syntactically complex level such as at the level of the utterance or at the clause, and not at the level of the lexical item.

Suspending this requirement does not mean any revision needs to be made with respect to the hypothesis that in English *a* and *the* enter into pragmatic competition. The analysis I am proposing is compatible with the notion that lexical alternatives are ordered by semantic strength, such as the English scales $\langle a, the \rangle$, but just that it is not a necessary condition. The analysis defended here suggests a unified account of the English and Tagalog competition between definites and indefinites. In both cases, we swap one morpheme out for its scale-mate and generate complex expressions.

The notion of scales pursued here follows the discussion in Hirschberg 1985. Hirschberg provides a wealth of examples in order to argue that the requirement that lexical scales are ordered via entailment is too strict. She cites multiple examples of lexical items which trigger scalar implicatures, but are not related to scalar alternatives via entailment. For example, in (3.25), the use of the modals *able to p* or *intend to p* gives rise to the implicature $\neg p$. However, in terms of their lexical semantics, absent any contextual premises, *able to p* does not stand in an entailment relationship with either *p* or $\neg p$, likewise for *intend p*.

(3.25) A: Have you made dinner?

B: I was able to/I intended to (and in fact I did).

Horn 1972 also notes that adjectival scales like $\langle cold, cool, tepid, warm \rangle$ and $\langle ugly, plain, pretty, beautiful \rangle$ are questionably ordered via strength. Although weaker scalar items like *plain* appear to implicate the negation of higher values like *beautiful*, there is no sense in which *beautiful* entails *plain*. We see similar kinds of properties with scales containing ranked categories like $\langle misdemeanor, tort, felony \rangle$ or $\langle private, lieutenant, captain \rangle$, and so on.

Ordinal numerals give rise to scalar implicatures in certain contexts (Hirschberg 1985:95–96). For example, in (3.26a) and (3.26b), the ordinal *second* appears to implicate the negation of any higher ordinal. Via the conventional understanding of scales as being ordered via entailment, this suggests ordinals are thus ranked by entailment. However, this does not explain uses of ordinals which fail to give rise to implicatures, such as (3.26c). As a rough generalization, an ordinal implicates the negation of all higher ordinals only if the ordinal quantifies over events which take place along some linear process like classes or grades in school. However, if the ordinal quantifies over exclusive rankings, such as placement in a race, no implicature arises. This example shows that scalar items need not be ranked in terms of entailment based on their conventional lexical content, lacking contextual information. Instead, entailment between ordinal numerals arises within contexts, given certain contextual premises (e.g., that readers read chapter two before chapter three).

- (3.26) a. I finished the second grade (and in fact, I finished the third as well).
 b. I finished the second chapter (and in fact, I finished the third as well).
 c. I finished in second place in the race (and in fact, I finished in third place as well).

Hirschberg’s theory entails that various kinds of orderings of linguistic expressions can give rise to implicatures. These orderings can include the entailment-based linear orderings of quantifiers and connectives familiar from foundational works on scalar implicatures. But orderings which are weaker than non-linear orderings can give rise to implicatures also: “scalar implicature may also be licensed by mention of values ranked in orderings such as set/proper subset, whole/part, type/subtype, generalization/specialization, instance-of, and entity/attribute relationships” (Hirschberg 1985:114). Consider (3.27) in which B’s response implicates that he has not yet taken the next step in the process. Let’s assume we are in a context in which B is expected to either mail a thank you note, or send one via email. The response implicates the negation of the disjunction $\neg(\textit{email} \vee \textit{mail})$. This is expected if the scalar item *write* is weaker than either *email* or *mail*, but the latter two are unranked with respect to each other.

(3.27) A: Did he get a thank you note from you?

B: I wrote one.

In order to allow such structures, and many other kinds of examples, Hirschberg classes pragmatic scales as being partially ordered sets. Pragmatic orderings can be ranked by any metric σ which defines a partial order over expressions that denote “entities, actions, attributes, times, places, or concepts, including concepts ordered in Horn’s canonical quantifier, modal, and number scales – or any other items” (Hirschberg 1985:125). Thus, the requirements on what can constitute a scale are very lax, so long as it is the interlocutors’ belief that some partial ordering is mutually believed to be *salient*.

I propose here that in the case of Tagalog, the voice morphemes themselves can be understood as being ranked in a scale $\langle AV, PV \rangle$, despite not being ranked in terms of entailment. In some sense, their ranking is not arbitrary: bare NP patients differing only by the case marking induced by the choice of actor voice or patient voice *are* ranked by presuppositional strength. If we maintain the assumption that conventionalized scales are relevant for the purposes of calculating scalar implicatures, then it should not be required that they are ranked by a linear order defined by semantic strength.

3.3.4 Deriving the implicature

Researchers investigating the non-uniqueness implicatures of indefinite expressions often make reference to a pragmatic principle known as *Maximize Presupposition* (the name originating from Sauerland 2003, 2008, originally proposed in Heim 1991). Under this theory, definite and indefinite expressions pragmatically compete. The principle of *Maximize Presupposition* demands that speakers prefer alternatives with stronger presuppositions. Thus, all else being equal, the speaker should prefer the definite alternative so long as its uniqueness presupposition is satisfied. If the speaker uses the indefinite version, she may implicate that she believes the uniqueness presupposition of the definite to be false, thereby giving rise to a non-uniqueness implicature.

I discuss the principle of *Maximize Presupposition* in greater detail in chapter 5 and raise the question whether it needs to be stated as a distinct principle of pragmatics or whether it reduces to other principles of rational communication. In this section, I appeal to previous definitions of *Maximize Presupposition* and show how it can be used to derive the non-uniqueness implicature emerging from the use of Tagalog indefinites. Below is a definition adapted from Schlenker

2012, which will be used to make the general point, though other statements are discussed as well in chapter 5. In (3.28), S is an alternative to S' just in case one lexical item in S is swapped for its scale-mate, deriving S' .

(3.28) *Maximize Presupposition* (adapted from Schlenker 2012)

If a sentence S is an alternative of sentence S' and the context C is such that:

- i. the presuppositions of S and S' are satisfied within C ;
- ii. S and S' have the same assertive component relative to C ;
- iii. S carries a stronger presupposition than S' ($[[S]] \sqsubset_{\pi} [[S']]$),

then S should be preferred to S' .

For example, let's consider how the non-uniqueness inference observed in (3.29a) is derived via competition with its definite alternative (3.29b). As stated above, the alternative (3.29b) is calculated by swapping out one morpheme for another. Here we swap the AV morpheme *naka-* for its scalemate, the PV morpheme *na-*. Additionally, we must make the concomitant morphosyntactic edits entailed by the swap, such as the change in case marking on the NP arguments. This is discussed in the next chapter.

- (3.29) a. *naka-kilala=ako* *ng* *may-akda* *ng* *aklat* *na* *iyon*
 AV.PERF.meet=NOM.1SG GEN author GEN book LK that
 I met an author of that book. \rightsquigarrow *There are multiple authors.*
- b. *na-kilala=ko* *ang* *may-akda* *ng* *aklat* *na* *iyon*
 PV.PERF.meet=GEN.1SG NOM author GEN book LK that
 I met the author of that book. \rightsquigarrow *There is just one author.*

According to the definition in (3.28), the patient voice variant in (b) should be preferred. The two utterances are alternatives, derived by swapping out one voice morpheme for its scale mate. According to our semantic analysis developed in chapter 2, the two utterances have equivalent at-issue content and the patient voice variant carries a stronger presupposition, namely the uniqueness presupposition of the nominative patient. So long as the uniqueness presupposition is satisfied in the utterance context, it should be preferred.

The utterance of the presuppositionally weaker actor voice alternative should generate an implicature. (5.85) is one way of deriving this implicature. See chapter 5 for a deeper investigation of how these implicatures are calculated. In brief: interlocutors collectively reason about why the speaker opted for the weaker alternative and conclude that the speaker must not believe that the presupposition of the stronger alternative is satisfied.⁵

(3.30) *Sp*: ‘*Nakakilala ako ng may-akda ng aklat na iyon*’ (= utterance *u*).

- *At-issue content*: **one(author)(met)**

- *Implicature*: \neg **unique(author)**

- a. *Contextual premise*: *Sp* is an authority relative to the number of authors.
- b. *Contextual premise*: *Sp* is obeying the Cooperative Principle, the Gricean maxims, and *Maximize Presupposition*.
- c. There is an alternative utterance *u'* (the patient voice (3.29b)).
- d. The interpretation of *u'* should be preferred to *u* by *Maximize Presupposition* (3.28).
- e. The interpretation of *u'* is just as relevant as the interpretation of *u*.
- f. *u'* is at most as costly as *u*.
- g. By (c–f), *Sp* neglected to utter *u'* as s/he lacks sufficient evidence to attest to the truth of the content of *u'*.
- h. By (a) and (g), *Sp* did not utter *u'* as s/he believes its presuppositions to be false.

The listener concludes that the speaker believes the presupposition of the patient voice alternative to be false and infers that the description of the definite is non-uniquely instantiated, i.e., that there are multiple authors.

⁵Below, **one** abbreviates $\lambda P.\lambda Q.\exists x[P(x) \wedge Q(x)]$, while **unique** abbreviates $\lambda P.\exists x[P(x) \wedge \forall y[y \neq x \rightarrow \neg P(y)]]$.

3.4 How do we compare meanings?

The basic Gricean story holds that interlocutors choose amongst a set of alternative utterances. The choice is made according to some optimization procedure: choose the best alternative in accordance with some set of principles of cooperativity. In this chapter, I have discussed the factors underlying the preference of interlocutors to choose the alternative which is presuppositionally strongest. In this section, I wish to ask at what level of complexity alternatives are compared with respect to their presuppositional strength. I demonstrate how the Tagalog data bears on this issue, providing evidence that the presuppositional strength of alternatives should be assessed at a level above the lexical item, contra previous theories of presuppositional implicature, such as Percus 2006.

3.4.1 Assessing the relative strength of syntactically complex expressions

According to Gricean theory, alternatives are utterances that the speaker *could have* chosen. When interlocutors compare alternative utterances (for example, to compare their relative informativity), a natural assumption is that they compare the meanings of the alternative utterances *as a whole*. But this basic assumption finds empirical problems when we look at cases of scalar items in embedded contexts.

Percus 2006 and Singh 2011 address this issue directly in their discussions of presuppositional implicatures. Both authors assume an independent pragmatic principle, *Maximize Presupposition*. Their central goal is to provide a construal of *Maximize Presupposition* which extends to cases in which presuppositional scalar items like *a* and *the* occur in embedded environments. To that end, they contest the following construal of *Maximize Presupposition* which examines the semantic strength of alternative sentences relative to the global context.

(3.31) MP as Global Competition:

If ϕ, ψ are contextually equivalent alternatives, and the presuppositions of ψ are stronger than those of ϕ and are met in the context of utterance c , then one must use ψ .

Percus 2006 provides evidence against the formulation in (3.31). He examines cases of presupposition ‘filtering’ in universally quantified sentences (following Karttunen and Peters

1979, Heim 1983, etc.). In (3.32), we have a pair of universally quantified sentences, differing as to whether they contain the presuppositional *both* in the restrictor of (3.32a) or the non-presuppositional *all* in (3.32b). The assigned judgement suggests that the use of *all* is odd. The oddness of (3.32b) is not a falsification of the formulation in (3.31) (as the antecedent of the conditional statement in (3.31) is false), still nothing in the global construal of *Maximize Presupposition* predicts this contrast.

- (3.32) a. Everyone with exactly two students passed **both** of his students.
 b. #Everyone with exactly two students passed **all** of his students.

Under most theories of presupposition filtering, presuppositions introduced in the nuclear scope of a universal quantifier (like *both* in (3.32a)) may simply be satisfied by the restrictor of the universal and not by the utterance context. According to Percus, it is for this reason that the pair in (3.32) raises problems for the theory of Global Competition. Neither example in (3.32) imposes a presupposition on the utterance context. (3.32a) fails to impose a presupposition as the presupposition of *both* is satisfied locally, while (3.32b) fails to impose a presupposition as *all* is non-presuppositional. Therefore, if we compare the presuppositional strength of (3.32a) and (3.32b) at the global level, it is simply false that (3.32a) is presuppositionally stronger than (3.32b). Therefore, if *Maximize Presupposition* is construed as a preference for utterances which are semantically stronger relative to the utterance context, *Maximize Presupposition* should not assign a preference to either sentence in (3.32).

Based on this kind of data, Percus 2006 proposes a revision of the theory of how utterances are compared in terms of presuppositional strength. Percus proposes that the relevant level of comparison is at the level of the lexical item. According to Percus, lexical alternatives are necessarily ordered by semantic strength, following neo-Gricean theories such as Gazdar 1979. (3.33) is the statement of this principle from Singh 2011.

- (3.33) **Lexical Alternatives:** The lexical alternatives of a lexical item α are all presuppositionally stronger lexical items β of the same category. (Singh 2011:155)

Alternatives are generated by swapping out a lexical item for its lexical alternatives. The set of alternatives generated by this replacement method is referred to as the **Alternative Family**.

Percus then gives the following revision of *Maximize Presupposition*. The phrasing comes from Singh 2011.

(3.34) **Revised MP:** Let ψ be a member of the Alternative-Family of ϕ , and suppose ϕ and ψ to be contextually equivalent. Then one must not use ϕ if the use of ψ would be felicitous in c .

The theory now has the potential to account for the pair in (3.32). Assuming the existence of a scale $\langle all, both \rangle$, the alternative family of (3.32b) with *all* contains (3.32a), derived by swapping out *all* for *both*. The use of the *all*-sentence (3.32b) is blocked as a member of its alternative family is felicitous in that context. Note that at no point in the process did we assess the presuppositional strength of (3.32a) relative to its utterance context. The only comparison of semantic strength occurred at the level of the lexical item, between *all* and *both*.

Grammatical systems like Tagalog's, which do not express definiteness via lexical items like articles, but instead by the broader syntactic structure, pose problems for Percus' account. In order to incorporate the Tagalog system, exemplified by pairs like (3.35), into Percus' theory of presuppositional implicature, we must choose a scale of lexical items ordered by presuppositional strength, as stated in (3.33). This scale will generate the alternative pair in (3.35), which enter into pragmatic competition generating the perceived non-uniqueness inference of the indefinite bare NP in (3.35b).

- (3.35) a. *t(in)ago=ko* ang *kompyuter*
 <PV.PERF>.hide=GEN.1SG NOM computer
 I hid the computer.
- b. *nag-tago=ako* ng *kompyuter*
 PERF.AV-hide=NOM.1SG GEN computer
 I hid a computer.

As argued earlier, picking a morpheme responsible for the presuppositional strength of (3.35a) is not possible. This is because every morpheme contained in the definite (3.35a) is contained within the indefinite (3.35b) and thus no particular morpheme in (3.35a) can be said to encode for its definiteness.

(3.36) *t(in)ago=ko* *ang isang kompyuter*
 ⟨PV.PERF⟩.hide=GEN.1SG NOM one computer
 I hid a computer.

This observation creates problems for any theory, such as Percus', which requires that relative presuppositional strength is checked at the level of lexical items.

Under the account pursued in this dissertation, the definiteness and indefiniteness of the bare NP patients in the examples above are derived in the semantic composition, via type-shifting and semantic incorporation, operations which necessarily take place at levels more syntactically complex than the individual lexical item. Given a proposal where definiteness arises via type-shifting, the pragmatic competitors are not isolatable morphemes (such as “a” vs. “the”), but rather entire fully composed syntactically complex constituents.

Under the present account, the constraint on lexical alternatives in (3.33) does not hold. Lexical scales are partial orders of linguistic expressions which are conventionalized. They may or may not be ordered via entailment. In the case of the scale consisting of the Tagalog voice affixes ⟨AV, PV⟩, they are not ordered via entailment.

3.4.2 Informativity and local contexts

The account proposed by Percus generates the right results with respect to filtering cases such as (3.32). However, Singh 2011 argues against this approach of comparing only the relative semantics of lexical items on conceptual grounds.

(3.37) “I know of no other principles of semantics/pragmatics that display preferences among LFs that are sensitive not to their semantic or contextual meanings but rather solely to the lexical items contained within them.” (Singh 2011:156).

Manner implicatures of the sort discussed in Horn 1984 are evident counterexamples to Singh's statement in (3.37). Horn proposes that the use of a marked expression (such as ‘cause to stop’) as opposed to an unmarked expression (such as ‘stop (tr.)’ invites an inference that the speaker intended to convey a marked message – the stopping even proceeded in an unusual or unexpected way, thus this could be construed as an example of a preference for one expression over another purely based on the lexical items contained within them, rather than their global

meanings. Bergen et al. 2016 provide a formal account of how semantically equivalent messages which differ solely in terms of utterance cost, but do not differ in terms of meaning, can reproduce the kinds of implicatures Horn describes, thus the account proposed by Bergen et al. serves as a clear counterexample to (3.37).

Singh proposes an alternative construal of *Maximize Presupposition* which resolves his conceptual issues with Percus' theory, but also accounts for Percus' problematic filtering cases such as (3.32). Singh proposes that presuppositional strength is checked above the level of a lexical item, at a sentential level, but it is checked relative to a sentence's *local context*. Therefore, a presupposition trigger's context of evaluation may change depending on where the trigger is located within a complex sentence.

Singh provides the following statement of *Maximize Presupposition*. A variant of this construal is also adopted by Schlenker 2012.

(3.38) **Local Maximize Presupposition:** *Maximize Presupposition* is checked locally. Check that *Maximize Presupposition* is satisfied for each S embedded in ϕ in S 's local context c' .

We can now analyse Percus' examples in (3.32) according to this approach. Adopting the CCP framework of Heim 1983, Singh analyzes the quantified sentences in (3.32) as in (3.39).

- (3.39) a. Every x , x has exactly two students, [x passed both of x 's students]
 b. Every x , x has exactly two student, [x passed all of x 's students]

Under the local version of *Maximize Presupposition*, the bracketed constituents are compared relative to their local contexts. According to the CCP framework, in order to check whether the presuppositions of the bracketed constituents hold, we check them relative to a context which entails the restrictor of *every*, i.e., a context which ensures that the individual mapped to x has exactly two students (see Heim 1983:Section 3.2 for technical details).⁶ In this local context, the presuppositions of the bracketed constituent in (3.39a) with *both* are satisfied. Furthermore the presuppositions of the bracketed constituent in (3.39a) are stronger than the

⁶In brief, taking contexts to be sets of world-assignment pairs, the CCP of sentences with *every* can be defined as follows: $c + \text{every } x_i, A, B = \{ \langle g, w \rangle \in c : \text{for every } a, \text{ if } \langle g^{[i \rightarrow a]}, w \rangle \in c + A, \text{ then } \langle g^{[i \rightarrow a]}, w \rangle \in c + A + B \}$ (Heim 1983).

presuppositions of the bracketed constituent in (3.39b). Therefore, it should be preferred via *Maximize Presupposition*, as defined in (3.38).

The Tagalog examples in (3.40) and (3.41) demonstrate that we do see local occurrences of presuppositional implicatures. In both cases, the version containing the presuppositionally weak scalar item (i.e., the actor voice version) gives rise to a non-uniqueness implicature, as expected. However, in these cases, non-uniqueness is defined relative to a local context. In both cases, we have a wide scoping universal quantifier. Non-uniqueness is defined relative to each member of the universal quantifier's restriction set. This creates an unexpected inference clashing with world knowledge in (3.40b), and a paradigm case of a non-uniqueness implicature in (3.41b).

- (3.40) a. *B(in)isita ng bawa't estudyante ang lungsod na kinaroroonan*
 <PV.PERF>.visit GEN all student NOM city LK hometown
niya
 GEN.3SG
 Every student visited his hometown.
Comment: Every student went to his own hometown, John went to Manila, Bill went to Paris, and so on.
- b. *B(um)isita ang bawat estudyante ng lungsod na kinaroroonan*
 <AV.PERF>.visit NOM all student GEN city LK hometown
niya
 GEN.3SG
 Every student visited a hometown of his.
Comment: It sounds weird because it sounds like every student has more than one hometown.
- (3.41) a. *M(in)a-maneho ng bawat estudyante ang kotse niya sa*
 <PV>.PROG-drive GEN all student NOM car GEN.3SG OBL
unibersidad
 university
 Every student drives his car to university.
Comment: Every student drives his own car, it means the same thing as *ang sarili niyang kotse* ("his own car").
- b. *Nagma-maneho ang bawat estudyante ng kotse niya sa*
 AV.PROG-drive NOM all student GEN car GEN.3SG OBL
unibersidad
 university
 Every student drives a car of his to university.
Comment: It implies that he drives other cars too.

Thus, we do find cases suggesting that we want to adopt Singh's proposal that presuppositional implicatures are sensitive to local contexts, for example, the local context created by updating the utterance context with the content encoded by the restriction of the universal quantifier. In that context, we could consider, looking at (3.41) for example, the cardinality of the number of cars owned by each individual student in the restriction set. In this local context, accommodating the presupposition of the definite causes us to eliminate indices in which the individual student doesn't have just one car. Thus, relative to the local context, the definite is more informative, reducing the context to a more specific state. According to Singh's account, this should be sufficient to derive a local occurrence of a non-uniqueness inference given an utterance of an embedded indefinite, as observed in (3.40b) and (3.41b).

3.5 Conclusion

The calculation of the non-uniqueness implicatures of indefinites involves several interacting principles. Central to the implicature is a preference for presuppositionally stronger utterances. In cases in which a presuppositionally weaker utterance is used, interlocutors must reason why it was chosen over the stronger utterance, which gives rise to certain implicatures. The question I posed in this chapter was how this implicature is calculated.

I argue that Tagalog data helps us answer this question. In Tagalog, definiteness and indefiniteness may be expressed without the use of articles. Instead, definiteness is signalled by the broader syntactic structure. Despite the lack of articles, Tagalog indefinite structures give rise to non-uniqueness inferences, just like English indefinites with "a". This suggests that indefinite structures pragmatically compete with definite structures in Tagalog. Thus, we require a theory of pragmatic competition which is flexible enough to allow syntactically complex structures to pragmatically compete.

I propose that this goal can be met if we suspend the requirement that lexical scales consist only of items which are ranked by semantic strength. Suspending this requirement allows us to include the proposed scale of Tagalog voice affixes, which can be used to generate the observed indefinite and definite alternative structures. After having generated these structures, interlocutors assess their relative semantic strength at a level more syntactically complex than the lexical

item. This model of implicature calculation therefore allows syntactically complex structures to enter into pragmatic competition.

Chapter 4

Grammar and pragmatic alternatives

4.1 Introduction

What is the role of grammar in the generation of conversational implicatures? The Gricean conceptualization of implicature crucially relies on interlocutors reasoning about utterance choice, but does this reasoning involve information relating to the shape of the utterance itself? In this chapter, I focus on the issue of how pragmatic alternatives are calculated and argue that this process crucially involves grammatical information such as conventionalization and morphosyntactic well-formedness. In short: pragmatic alternatives must be expressible given the lexical and morphosyntactic constraints of the interlocutors' language.

In order to make this argument, I focus on cases in which implicatures only arise when speakers are able to choose between two morphosyntactically well-formed structures. However, when speakers are forced to use just one structure, due to particularized grammatical constraints of the language, conversational implicatures are prevented from emerging. Cases such as these provide evidence for the view that the derivation of conversational implicatures crucially refers to grammatical rules of the interlocutors' language. Implicatures crucially rely on the existence of a non-trivial choice amongst actions an agent may take. If the grammar supplies multiple options in terms of how to structure an utterance, implicatures may emerge. If the grammar does not supply a choice, implicatures are blocked.

In this chapter, I continue the discussion of Tagalog indefinite and definite interpretations of patients. As argued in the previous chapter, the non-uniqueness implicature associated with

genitive patients emerges via pragmatic competition with nominative patients. In the previous chapter, I argued that this can be analyzed via conventionalized, lexical competition between the actor voice and patient voice forms of the verb.

- (4.1) a. *Naka-diskubre si Karlos ng buwan.*
 AV.PERF-discover NOM Karlos GEN moon
 Karlos discovered a moon. \rightsquigarrow *There is more than one moon.*
- b. *Na-diskubre ni Karlos ang buwan.*
 PV.PERF-discover GEN Karlos NOM moon
 Karlos discovered the moon. \rightsquigarrow *There is just one moon.*

However, it has been frequently observed in the literature on Tagalog (see e.g., McFarland 1978, Schachter and Otones 1982, Himmelmann 2005a, Gärtner 2004, Rackowski and Richards 2005, etc.), that indefinite interpretations of genitive patients as in (4.1a) need not emerge in clauses with an initial actor. For example, in (4.2), with a *wh*-extracted actor, the genitive patient is compatible with a definite reading.

- (4.2) *Sino ang naka-diskubre ng buwan.*
 NOM.who NOM AV.PERF-discover GEN moon
 Who discovered a/the moon? \nrightarrow *There is more than one moon.*

I argue that the interpretation of the patient in (4.2) can be understood as the *absence* of a non-uniqueness implicature. The non-uniqueness implicature is prevented from arising because (4.2) does not enter into pragmatic competition with an alternative structure involving a definite patient. This is so because the alternative structure to (4.2), constructed by swapping the actor voice morpheme for its patient voice scalemate, is morphosyntactically blocked in Tagalog, as seen in (4.3).

- (4.3) **Nino ang na-diskubre ang buwan.*
 GEN.who NOM PV.PERF-discover NOM moon

As the alternative structure is ungrammatical, it does not enter into pragmatic competition with the structure in (4.2), and no implicature is derived.

The central insight of this chapter is that alternatives must be grammatically well-formed according to the rules of the language. Building on this insight, I propose a way that alternatives

are calculated. I propose that pragmatic alternatives can be defined as a relation which holds between (potentially syntactically complex) expressions. In order for two expressions to count as alternatives, they must be grammatically well-formed, and must differ minimally with respect to some pair of lexical items (e.g., a conventionalized scale, following neo-Gricean theories of pragmatics (Horn 1972, Gazdar 1979, etc.). I also explore some morphosyntactic complexities which arise in the definition of “minimal difference” with respect to lexical alternatives. I consider cases in which the lexical alternatives have differing morphosyntactic properties, such as different properties with respect to selection, number agreement, and syntactic movement. The result is a theory of pragmatic alternatives which is restricted by the grammar of the interlocutors’ language.

4.2 A structure-sensitive implicature

As discussed earlier in this dissertation, genitive bare NP patients of transitives in Tagalog are interpreted as indefinites. However, previous literature (e.g., Schachter and Otnes 1982, McFarland 1978, Himmelmann 2005a,c) has noted that this restriction on NP-interpretation is only true of verb-initial sentences. In structures in which the NP denoting the thematic actor precedes the verb, the genitive patient may take on definite interpretations. For example, Schachter and Otnes 1982 provide the following examples of clefts formed by the extraction of the actor to a pre-verbal position. In these structures, the genitive patient is able to be understood as a definite.

- (4.4) a. *Siya ang nag-pa-punta ng bata sa tindahan*
 NOM.3SG NOM PERF.AV-CAUS-go GEN child OBL store
 He’s the one who had a/the child go to the store. SO:323
- b. *Siya ang naka-kita ng aksidente*
 NOM.3SG NOM PERF.AV-see GEN accident
 He’s the one that saw a/the accident. SO:383

Why should the relative linear positions of the verb and thematic actor affect the possible interpretations of the patient? I propose a pragmatic solution to this problem. In verb-initial sentences, given certain contextual assumptions (discussed in detail in the next chapter), the

genitive patient gives rise to a non-uniqueness implicature. In actor-initial sentences, the genitive patient does not give rise to such an implicature and is therefore compatible with a uniquely instantiated restriction.

What triggers the presence of an implicature in one structure, but the absence in the other? The fundamental difference, I argue, is the morphosyntactic options available to the speaker. In Tagalog, the relative positions of the verb and its arguments constrains the voice affixes which may appear on the verb, and thus, the case marking on the verb's arguments. In verb-initial structures, the speaker is able to choose the form associated with indefinite patients (i.e., actor voice) as well as the form associated with definite patients (i.e., patient voice). This choice gives rise to the sort of pragmatic reasoning about alternatives familiar from Gricean theories of pragmatics and its descendants, as discussed in chapter 3.

In actor-initial structures, only the actor voice form is possible. As the actor voice does not compete with a patient voice alternative, no implicature arises, and the genitive patient is compatible with both indefinite and definite interpretations. Recall that in chapter 2, the genitive patient is interpreted by simple existential quantification. Thus, semantically speaking, nothing rules out the presence or absence of a pragmatic presupposition associated with definiteness, i.e., that the description is uniquely instantiated.

The proposed associations of forms with interpretations is illustrated in (4.5).

	Verb-initial	Actor-initial
(4.5) Actor voice (GEN patient)	Indefinite	Indefinite/definite
Patient voice (NOM patient)	Definite	<i>*ungrammatical/marked</i>

I argue that this observation provides key evidence for the assumption that ungrammatical utterances do not enter into pragmatic competition. In what follows, I refine the empirical generalizations and propose a constraint on pragmatic alternatives, requiring them to be generated by the grammatical rules of the language.

4.2.1 Refining the generalization

Previous work has noted the expanded interpretational possibilities of genitive patients in certain syntactic structures. McFarland 1978 observes the possibility of definite genitive patients in

clefts and relative clauses in which the actor NP is extracted.¹

McFarland gives the minimal pair in (4.6). In the verb-initial sentence (4.6a), the genitive patient is interpreted as an indefinite. In a cleft structure, with an extracted actor, as in (4.6b), the genitive may take on a referential interpretation. Note that the relevant Tagalog construction, referred to as a cleft by McFarland, has the general shape [NP *ang* IP], in which the IP contains a gap corresponding to the extracted NP.

- (4.6) a. *naka-kita=siya ng Amerikano*
 AV.PERF-see=NOM.3SG GEN American
 He saw an American. McFarland 1978:139
- b. *Siya ang naka-kita ng Amerikano*
 NOM.3SG NOM AV.PERF-see GEN American
 He is the one that saw a/the American. McFarland 1978:139

McFarland also extends this generalization to relative clauses. As above, in a regular verb-initial clause, the genitive patient is interpreted as an indefinite in (4.7a). In the corresponding relative clause with an extracted agent, the genitive may take on a referential interpretation. In Tagalog, the relevant type of relative clause has the shape [NP-*ng/na* IP], where IP contains a gap corresponding to the extracted NP.²

- (4.7) a. *k⟨um⟩a-kain ng daga' ang pusa*
 ⟨AV⟩.PROG-eat GEN rat NOM cat
 The cat is eating a rat. McFarland 1978:157
- b. *ito ang pusa-ng k⟨um⟩ain ng daga'*
 NOM.this NOM cat-LK ⟨AV.PERF⟩.eat GEN rat
 This is the cat that ate a/the rat. McFarland 1978:157

I will pursue a pragmatic analysis which the key difference between the genitive NP interpretations in verb-initial and actor-initial structures to be the presence or absence of a non-uniqueness implicature.

The use of genitive patients can create inferences which are informative. For example, (4.8a) gives rise to an inference that the utterance context contains multiple moons (e.g., in an

¹His observations hold for both Tagalog, and the closely related language Bikol. Throughout, I focus only on his observations about Tagalog.

²The choice of the linker *-ng* (not to be confused with genitive *ng*) or *na* depends on phonological factors.

astronomy class). This effect dissipates in (4.8b–c), where the actor is extracted pre-verbally, in a wh-question (4.8b) and a cleft (4.8c). These utterances are judged as being compatible with the speaker’s intended reference being the Earth’s moon.

- (4.8) a. *Naka-diskubre si Karlos ng buwan.*
 AV.PERF-discover NOM Karlos GEN moon
 Karlos discovered a moon. \rightsquigarrow *There are more than one moons.*
- b. *Sino ang naka-diskubre ng buwan.*
 NOM.who NOM AV.PERF-discover GEN moon
 Who discovered a/the moon? \nrightarrow *There are more than one moons.*
- c. *Si Karlos ang naka-diskubre ng buwan.*
 NOM Karlos NOM AV.PERF-discover GEN moon
 Karlos discovered a/the moon. \nrightarrow *There are more than one moons.*

Recall that in the previous chapter, I discussed NPs with descriptions standardly understood as being uniquely instantiated, for example, *ng kabilugan ng ulo ni Juan* ‘GEN circumference of John’s head’ in (4.9a). World knowledge determines that Juan’s head has just one circumference. I also showed that genitive bare NP patients with such descriptions give rise to unexpected inferences which conflict with standard common ground assumptions. Speakers judge (4.9a) as either infelicitous or suggesting that Juan’s head has multiple circumferences. In the previous chapter, I argued that this is a prediction of an account which assumes that genitive patients give rise to non-uniqueness inferences. It has frequently been observed that indefinites giving rise to such implicatures create unexpected inferences with such descriptions. Compare Heim’s (1991) example ‘a weight of the tent is 4lbs.’.

However, when we compare (4.9a) with a cleft formed by extracting the actor NP, we note that the unexpected inferences no longer arise. The cleft variant, (4.9b) does not have any unnatural interpretation (i.e., it is interpreted as simply a claim about the speaker measuring Juan’s head). We can understand this pattern under the generalization that bare genitive patients give rise to non-uniqueness implicatures in verb-initial structures, but not in actor-initial structures.

- (4.9) a. *#S⟨um⟩ukat=ako ng kabilugan ng ulo ni Juan*
 ⟨AV.PERF⟩.measure=NOM.ISG GEN circumference GEN head GEN Juan
 #I measured the circumference of Juan’s head.

- b. *Ako ang s(um)ukat ng kabilugan ng ulo ni Juan*
 NOM.1SG NOM <AV.PERF>.measure GEN circumference GEN head GEN
Juan
 Juan
 I'm the one who measured the circumference of Juan's head.

4.2.2 The link to the extraction restriction

Why does the implicature not arise in actor-initial structures? I propose that the implicature does not arise due to the ungrammaticality of the corresponding patient voice structure. In the actor-initial structures under discussion, the verb must bear actor voice morphology. This is a well-described morphosyntactic generalization in Tagalog (see Schachter and Otnes 1982, McFarland 1978, Schachter 1977, Kroeger 1993, Aldridge 2004), but extends broadly throughout western Austronesian.³ Following Erlewine et al. 2017, I will use the term ‘extraction restriction’. The statement in (4.10) is a paraphrase of their definition.

(4.10) Extraction restriction:

A'-extraction (*wh*-movement, relativization, topicalization, etc.) is limited to the “pivot” argument.

By “pivot” argument, Erlewine et al. 2017 are referring to the NP which ordinarily receives nominative case marking absent any A'-extraction, analyzed as the subject by Kroeger 1993, Guilfoyle et al. 1992, and others. As discussed in chapter 2, the thematic role of the nominative NP is matched by the voice marking on the verb. Thus, the voice marking on the verb in a clause with A'-extraction is subject to the rule in (4.10).

(4.11) provides examples from McFarland 1978 which exemplify this restriction. If the actor NP is relativized, the voice marking on the verb within the relative clause must be actor voice. If the theme NP is relativized, the voice marking must be patient voice. If the recipient NP is relativized, the voice marking must be locative voice.

- (4.11) a. *ang lalaki-ng nag-bigay ng pera sa babae*
 NOM man-LK PERF.AV-give GEN money OBL woman
 The man who gave money to the woman.

³For example, see Donohue and Maclachlan 1999 on Chamorro and *Tukang Besi*, Rowsell 1983 on *Kapampangan*, Georgopoulos 1985 on Palauan, Erlewine 2016 on *Toba Batak*, Erlewine et al. 2017 on *Squliq Atayal*.

- b. *ang pera-ng i-b<in>igay=niya sa babae*
 NOM money-LK PV-⟨PERF⟩.give=GEN.3SG OBL woman
 The money he gave to the woman.
- c. *ang babae-ng b<in>igy-an=niya ng pera*
 NOM woman-LK ⟨PERF⟩.give-LV=GEN.3SG GEN money
 The woman who he gave money to.

Corresponding relative clauses in which the extracted NP and the voice marking on the verb do not match in terms of thematic roles are highly marked if not ungrammatical, as in (4.12a,b) in which the actor NP is extracted, but the voice marking on the verb is patient voice or locative voice. Similar generalizations apply to clefts, *wh*-questions, topicalization, and so on.

- (4.12) a. **ang lalaki-ng i-b<in>igay ng/ang pera sa babae*
 NOM man-LK PV-⟨PERF⟩.give GEN/NOM money OBL woman
 The man who gave money to the woman.
- b. **ang lalaki-ng b<in>igy-an ng pera sa/ang babae*
 NOM man-LK ⟨PERF⟩.give-LV GEN money OBL/NOM woman
 The man who gave money to the woman.

I propose that pragmatic inferences are crucially sensitive to the (un)grammaticality of alternative utterances. The root of this proposal lies in the central Gricean notion of pragmatic alternatives. When we reason about why the speaker chose his or her utterance over its pragmatic competitors, we reason about what the speaker “could have uttered”. It is therefore a natural assumption that we do not reason about utterances of ungrammatical structures, like those in (4.12). (4.13) is an informal statement of this principle: all pragmatic alternatives are grammatical.

(4.13) If *S* and *S'* are pragmatic alternatives, then *S* and *S'* are grammatically well-formed.

Below, in (4.15), I have sketched the pragmatic reasoning about the actor initial cleft structure in (4.8c), repeated in (4.14a). According to the current hypothesis, this structure fails to give rise to a non-uniqueness inference, as it does not compete with a corresponding patient voice sentence. This is because the corresponding patient voice sentence in (4.14b) is not grammatically well-formed.

- (4.14) a. *Si Karlos ang naka-diskubre ng buwan.*
 NOM Karlos NOM AV.PERF-discover GEN moon
 Karlos is the one who discovered a/the moon. ↗ *There are more than one moons.*
- b. **Ni Karlos ang na-diskubre ang buwan.*
 GEN Karlos NOM PV.PERF-discover NOM moon

(4.15) *Sp utters u: (Si Karlos ang naka-diskubre ng buwan – “Karlos discovered a/the moon.”)*
u fails to implicate: There are multiple moons.

- a. *Assumption: Sp is cooperative.*
- b. By (a), *Sp* will choose the utterance (from a set of alternative utterances) which is optimal with respect to the maxims.
- c. It is false that *Sp* could have uttered *u*'s scalar alternative: *Ni Karlos ang na-disukbre ang buwan*, as it is ungrammatical.
- d. By (c), *Sp* has a reason for not uttering *u*'s scalar alternative besides believing that its presuppositions are false.
- e. By (d), we do not infer that *Sp* does not believe that there is just one moon (i.e., interlocutors remain compatible with the possibility that there is just one moon).

One of the core principles of the Gricean program of pragmatics is that interlocutors reason about what the speaker “could have” said. For example, reasoning about whether the speaker is obeying the maxim of quantity entails reasoning about whether the speaker chose the most informative utterance. This notion of choosing “the most” informative utterance implies the existence of un-uttered expressions which are potentially more or less informative. The question which I wish to raise is what it means when we say that the speaker “could have uttered” some given alternative.

4.2.3 Alternatives are assertable

The following discussion from Horn 2006b appears to assume some refined notion of effability: alternatives must be in some way constructed with reference to the grammatical conditions of language of the of the interlocutors.

(4.16) ...while the use of *finger* typically conveys “non-thumb,” it does not convey “non-pinky (finger),” nor does the use of *toe* convey “non-big toe,” although the big toe is an analogue of the thumb. Crucial here is the status of thumb (as opposed to pinky) as a lexicalized alternative to *finger*. In the same way, *rectangle* conveys “non-square” (i.e. “non-equilateral rectangle”) given the availability of the lexicalized alternative *square*, while *triangle* does not convey “non-equilateral triangle” – indeed, the prototype triangle IS equilateral – because of the non-existence of a lexicalized counterpart.

(Horn 2006b:16)

As English does not lexicalize a simple term for “equilateral triangle” on a par with its lexicalized term for equilateral rectangle (i.e., “square”), the term “triangle” does not tend to strengthen to non-equilateral triangle. Presumably the prediction here is that if interlocutors are using a language which lexicalizes a (sufficiently salient, frequent, or natural) term for equilateral triangle, the general term for three-sided shape will pragmatically strengthen to mean non-equilateral triangle. Thus, it is a central assumption of Horn’s discussion that alternative utterances must be licensed by the grammatical particulars of the language.

This underlying assumption holds in alternative theories of pragmatics. For example, Bowler 2014 observes that the Pama-Nyngan language Warlpiri only lexicalizes one connective, *manu*, which Bowler analyzes as encoding disjunction. As Warlpiri lacks a conjunctive connective, the disjunctive operator *manu* is not pragmatically strengthened to convey exclusive disjunction like English *or*. Bowler provides an analysis within the grammaticalist framework of implicature calculation, sharing a central premise with Horn: that operations of implicature calculation refer to some notion of effability so that only alternatives which can be expressed using the grammatical toolbox of the interlocutors’ language will enter into pragmatic competition. Along these same lines, see Deal 2011, Bar-Lev and Margulis 2013 and Meyer 2015, who similarly make similar assumptions about cases in which disjunctive operators do not compete with a lexicalized conjunctive alternative.

The assumption that pragmatic alternatives are subject to an effability requirement substantively restricts the kinds of alternatives which can be postulated. In contrast, other analyses of

pragmatic phenomena have made reference to utterance alternatives which are either not lexicalized or in some way unnatural to express. For example, Sauerland 2004 provides an analysis of the “ignorance inference” of disjunction. Why does “John is in Paris or in London” implicate the speaker’s ignorance about the truth of either disjunction? Sauerland gives an account using pragmatic competition. Under his analysis, *or* competes with two abstract sentential connectives L and R , explicitly stated to be ineffable in spoken language. The truth of $\phi L\psi$ reduces to the truth of the left conjunct ϕ , and $\phi R\psi$ reduces to the right conjunct. Clearly the analysis does not assume that alternative utterances must be “utterable”.

A similar example comes from Romoli 2013, in his analysis of neg-raising predicates like *believe* and *want*. Romoli assumes that each predicate competes with an “excluded middle” operator: **believe**(ϕ) competes with **believe**(ϕ) \vee **believe**($\neg\phi$). Although this pragmatic competitor is in some sense effable (corresponding to something like the English expression “has an opinion as to whether”), the alternative is not equally salient when compared to something like “believe”. Thus the analysis seems at odds with Horn’s analysis of the lack of competition between “triangle” and the less salient “equilateral triangle”. Romoli implicitly denies the premise that pragmatic competitors are required to be equally “economical” (using Horn’s term).

Beaver 2008 explicitly addresses the issue of whether un-uttered alternatives need to be grammatical. Beaver’s point is situated within a response to Schlenker 2008a theory of presupposition projection. Schlenker proposes that presupposition triggers enter into pragmatic competition with explicit statements of the encoded presupposition. For example, an expression containing a factive like (4.17a) competes with the fully articulated (4.17b). The longer alternative is preferable in terms of a proposed preference for speakers to be ‘articulate’, obliging speakers to explicitly state underlying presuppositions. However, the longer alternative is also blocked by a general preference against longer utterances: the maxim of manner.

- (4.17) a. John knows that it’s raining.
 b. It’s raining and John knows it.

This theory raises various issues about how exactly presuppositions are articulated and thereby enter into pragmatic competition. One issue, raised in Schlenker 2008b, attributed

to Christopher Potts and Louise McNally, is how this theory handles cases in which the presupposition encoded by the trigger is difficult to articulate. Schlenker himself gives the example of discourse particles: see, for example, Eckardt 2007 and Rojas-Esponda 2013 for discussions of how certain discourse particles impose felicity conditions which are sensitive to abstract properties of the surrounding discourse, such as the nature of the implicit question-under-discussion. It is hard to see how these kinds of meaning components, if they are to be analyzed as presuppositions, should be articulated in a manner analogous to (4.17b). A similar point can be made about implicative verbs like *manage* and *fail*. Karttunen 1971 claims these predicates presuppose the existence of a necessary and sufficient condition for the event described by the infinitival clause (see also Karttunen 2016 and Baglini and Francez 2016). Abstract presuppositions like those encoded by implicatives are likewise difficult to articulate.

Beaver 2008 engages with this point in his critique of Schlenker's proposal. He points out a case in which Schlenker's proposal leads us to assume that in some cases utterances pragmatically compete with alternatives that are ungrammatical. He gives the example of comparative clauses like (4.18a) which contain a presupposition trigger (a definite description). The version with an articulated presupposition (4.18b) is ill formed. Schlenker's theory would predict (4.18b) is a valid pragmatic competitor.

- (4.18) a. Mary is thinner than the King of France is fat.
 b. ?Mary is thinner than there is a King of France and he is fat.

In response to the above criticisms, Schlenker denies the premise that pragmatic alternatives need to be expressible. He suggests a way that the above concerns can be integrated into his theory.

- (4.19) One way to do so is to take the pragmatic principles to be encapsulated, in the sense that they don't have access to all the syntactic or morphological facts that rule out some articulated conjuncts (note that a similar move was already made in the theory when we took the algorithm to work as if any meaning whatsoever could be expressed).

(Schlenker (2008b))

Schlenker endorses a theory in which alternatives are not constrained by the grammatical

constraints of the language. This could be interpreted as an endorsement of the view of pragmatic alternatives which maintains that alternatives come from the space of meanings rather than linguistic expressions. In support of this view, Schlenker gives the example in (4.20a). He claims that a bare NP as an existential pivot gives rise to an upper bound implicature, i.e., the negation of (4.20b). This can be derived by assuming that the expressions in (a) and (b) enter into pragmatic competition, despite the observation that (4.20b) is ungrammatical or at least highly marked.

- (4.20) a. There were delegates from New York at the meeting.
 b. ?There were all delegates from New York at the meeting.

However it is unclear to what extent (4.20a) really gives rise to a ‘not all’ implicature, as opposed to being merely compatible with a pragmatic presupposition of non-universality. In a discourse context in which all of a salient set of delegates came to the meeting, is the speaker of (4.20a) really being dishonest or misleading? I would say no, especially when compared with the near paraphrase “Some of the delegates from New York were at the meeting”. Here the speaker in the same context would be accused of being misleading by virtue of implicating that not all the delegates came. Furthermore, it’s similarly uncertain as to whether (4.20a) should really be blocked by morphosyntactic constraints. One line of work (e.g., Mikkelsen 2002, Beaver et al. 2005) suggests that structures like (4.20b) do not need to be ruled out by the grammar, but are blocked from emerging via competition with structures in which the proportional quantifier is placed in the clause-initial subject position. Therefore, the status of (4.20a) as a counterexample to a hypothesis that pragmatic alternatives must be well-formed is questionable. In order to make such a claim, we need to find greater assurance that the existential really does give rise to an upper bound implicature, and that its competitor with a universal quantifier is truly ungrammatical.

The discussion in this section gives an informal overview of the idea presented in this chapter: based on the absence of non-uniqueness implicatures in actor-initial structures in Tagalog, we can infer that the emergence of implicatures is sensitive to the grammaticality of alternative expressions. Specifically, ungrammatical utterances do not enter into pragmatic competition, deriving what we observe as the absence of an implicature. This hypothesis crucially relies

on very particular assumptions about how alternatives are calculated. Specifically, the theory assumes that pragmatic alternatives are best represented as linguistic objects, i.e., with grammatical structure appropriately generated by the morphosyntactic rules of the language.

One outstanding question is why Tagalog actor-initial structures do not compete with verb-initial structures. For example, why does the cleft structure in (4.21a), with a genitive patient, not compete with the verb-initial structure in (4.21b), with a nominative patient? As the genitive patient is indefinite, competing with the definite patient would trigger a non-uniqueness implicature, contrary to what we observe.

- (4.21) a. *Si Karlos ang naka-diskubre ng buwan.*
 NOM Karlos NOM AV.PERF-discover GEN moon
 Karlos is the one who discovered a/the moon. ↗ *There are more than one moons.*
- b. *Na-diskubre ni Karlos ang buwan.*
 PV.PERF-discover GEN Karlos NOM moon
 Karlos discovered a moon. ↗ *There is just one moon.*

Structurally, verb initial structures like (4.21) enter into pragmatic competition with their alternatives simply by swapping out the voice morpheme its scalemate (assuming a scale $\langle AV, PV \rangle$). Furthermore, swapping the voice morpheme also entails making the concomitant morphosyntactic edits associated with this swap, such as the case marking on the NP arguments. However, swapping out the voice morpheme for its scalemate does not result in a cleft structure, which necessarily involves additional, more complex syntactic structure. Changing from a non-cleft structure to a cleft structure is too complex a change, given the “swapping” mechanism of alternative generation, employing the $\langle AV, PV \rangle$ scale.

There is a pragmatic motivation for this structural explanation. The swapping method of alternative generation is intended to model the constrained number of options that the speaker can choose from: the $\langle AV, PV \rangle$ scale represents the choice between the two voice morphemes. We would not want to rule out the possibility that interlocutors could also reason about a speaker’s choice between a cleft and a non-cleft structure, though this reasoning is predicted to be about the meaning differences between clefts and non-clefts (i.e., implications involving information structural prominence of the clefted constituent). In this chapter and the previous chapter, we are pursuing an analysis which states that the non-uniqueness implicature of genitive patients is

triggered by the speaker's choice between one of two voice morphemes.

The two structures in (4.21) fail to enter into pragmatic competition due to the additional information structural prominence provided by the cleft structure. A speaker of (4.21a) chooses the cleft structure in order to assign discourse prominence to the actor NP. Interlocutors can reason that the speaker chose the structure in (4.21a) partly in order to convey this prominence. Thus, the interlocutors do not need to reason about why (4.21a) was chosen over (4.21b). (4.21b) is eliminated as a competitor as it fails to attribute the same discourse status to the sub-expressions.

In the appendix to this chapter, I spell out a precise way that alternative structures can be compared in order to check whether they differ at most by a pair of lexical items, such as $\langle AV, PV \rangle$. The approach taken in the appendix follows from the general approach assumed by Gazdar 1979, in that it is assumed that the general constraints on the forms of pragmatic alternatives and the extent to which they are permitted to differ can be stated in structural terms. The approach taken in the appendix can be extended to related approaches, such as the one in Katzir 2011, which like the Gazdarian approach assumes the pragmatic alternatives of one expression can be calculated in structural terms by replacing one sub-expression (e.g., a lexical item) with another. The appendix works through the example in (4.21), demonstrating why the cleft structure in (4.21a) should *not* compete with the non-cleft structure in (4.21b).

Whichever way the structural aspects of the proposal are spelled out, the underlying intuition is that the lack of competition between (4.21a) and (4.21b) has pragmatic motivation. The speaker of (4.21a) employs additional structure forced by the use of a cleft construction. In order to maintain the assumption that the speaker employed this additional structure for communicative effect (i.e., the information structural import of a cleft structure), interlocutors reason only about alternatives which maintain this additional structure. This intuition could be spelled out in ways besides the approach taken in the appendix, such as employing a cost function on utterances, and stipulating that cleft structures are more costly than non-cleft structures.

4.3 Previous accounts

The effect of word order on the interpretation of the patient NP in Tagalog has been previously noted by many previous studies. Previous accounts, like the present account, have associated this phenomenon with Tagalog's extraction restriction: the constraint determining that the voice affix on the verb must "match" the thematic role of any extracted NP. In this section, I will discuss two such accounts, those in Gärtner 2004 and Rackowski and Richards 2005.⁴ Neither account characterizes the empirical phenomenon as I do in this chapter, i.e., the presence or absence of a non-uniqueness implicature. Furthermore, both accounts hard code the dual interpretations into the conventional meaning of the patient NP. The present account, on the other hand, assigns an existential meaning to the patient, which may be pragmatically enriched given certain structural and contextual conditions.

4.3.1 Gärtner

Gärtner (2004) provides an analysis of the Tagalog phenomenon which is situated in a broader discussion of cases in which morphosyntactic constraints of a language override violable semantic constraints. Given that the account makes crucial use of violable constraints, it is formalized using Optimality Theory.

Gärtner proposes a set of morphosyntactic constraints encoded by individual languages which he collectively refers to as *Unambiguous Encoding*. As a general principle, these constraints determine that different morphosyntactic forms are associated with distinct interpretations. Like the present account, Gärtner's notion of *Unambiguous Encoding* links to Gricean reasoning: the constraint is intended to be a consequence of interlocutors' obeying the maxim of manner (avoiding ambiguity and prolixity).

The Tagalog version of this constraint is represented in (4.22). It stipulates interpretations for NPs bearing genitive and nominative case.

(4.22) UNAMBIGUOUS ENCODING (Tagalog):

- a. Indefinite patients have genitive case.

⁴See also Rackowski 2002 and Aldridge 2005 for alternative accounts.

- b. Definite patients have nominative case.

Under Gärtner's account, *Unambiguous Encoding* can be overridden by particular syntactic constraints of Tagalog, which he refers to as SYN1 and SYN2, paraphrased below (using the terminology from this paper). SYN1 links the thematic role of the nominative case-marked NP to the voice affix on the verb. SYN2 is Gärtner's version of the extraction restriction. Here it is assumed that silent *wh*-traces are covertly marked with the nominative case marker *ang*. This is to ensure that the voice marking always matches the thematic role of the *wh*-extracted element, as per SYN1.

- (4.23) a. SYN1: The NP marked with *ang* has the θ -role picked out by the voice affix.
 b. SYN2: *wh*-traces are marked with *ang*.

These constraints are ranked. The two syntactic constraints are unranked with respect to each other, but both outrank *Unambiguous Encoding*.

- (4.24) {SYN1, SYN2} \gg UE

The system derives the interpretive effect of actor-extraction on patients. Genitive case-marked patients will be interpreted as indefinites, so long as this interpretation doesn't conflict with the higher ranked syntactic constraints.

The system provides an analysis of the link between case and voice marking and the interpretation of the patient NP. (4.25) demonstrates how definite interpretations of nominative patients and indefinite interpretations of genitive patients emerge. Regardless of the definiteness of the patient, SYN1 will eliminate structures in which the nominative case marker does not mark the NP picked out by the voice affix (e.g., a nominative actor with patient voice). If the patient is indefinite, the version with actor voice and genitive case on the patient will be chosen. If the patient is definite, the version with patient voice and nominative case on the patient will be chosen.

- (4.25) a. Indefinite patient:

	SYN1	UE
☞ a. AV.verb NOM.actor GEN.patient		
b. AV.verb GEN.actor NOM.patient	*!	*
c. PV.verb NOM.actor GEN.patient	*!	
d. PV.verb GEN.actor NOM.patient		*!

b. Definite patient:

	SYN1	UE
AV.verb NOM.actor GEN.patient		*!
AV.verb GEN.actor NOM.patient	*!	
PV.verb NOM.actor GEN.patient	*!	*
☞ PV.verb GEN.actor NOM.patient		

The system also derives the multiple interpretations of genitive patients in structures with extracted actors. In (4.26) we again compare all combinations of voice and case markings with indefinite patients and definite patients. Now the actor is instantiated by a *wh*-trace, signalling that the actor has been *wh*-extracted. By SYN2 this means that the actor must receive nominative case. Again, SYN1 determines that the voice marking matches the thematic role of the nominative. Jointly, SYN1 and SYN2 leave as the only possible structure actor voice marking with genitive case on the patient, for both definite and indefinite patients.

(4.26) a. Indefinite patient:

	SYN1	SYN2	UE
☞ a. AV.verb NOM. <i>t</i> _{actor} GEN.patient			
b. AV.verb GEN. <i>t</i> _{actor} NOM.patient	*!	*	*
c. PV.verb NOM. <i>t</i> _{actor} GEN.patient	*!		
d. PV.verb GEN. <i>t</i> _{actor} NOM.patient		*!	*

b. Definite patient:

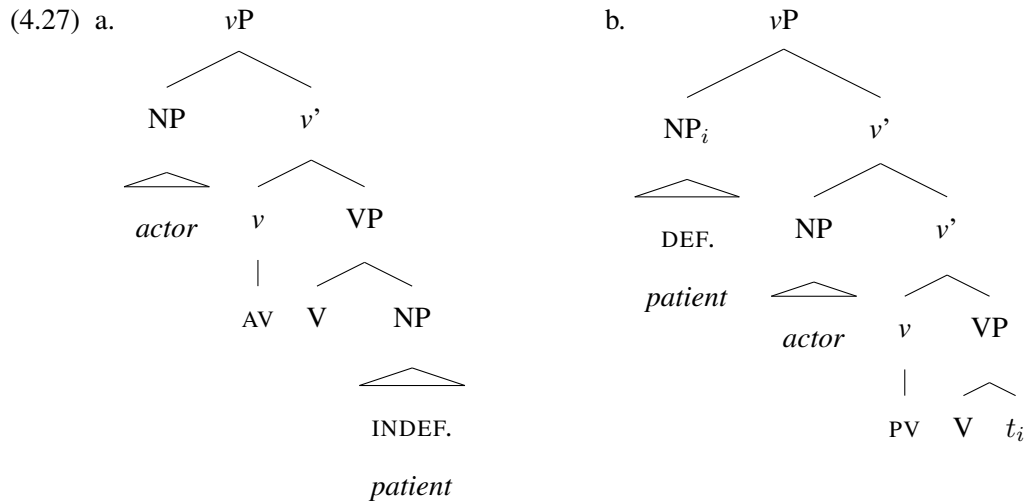
	SYN1	SYN2	UE
☞ a. AV. <i>verb</i> NOM. <i>t_{actor}</i> GEN. <i>patient</i>			*
b. AV. <i>verb</i> GEN. <i>t_{actor}</i> NOM. <i>patient</i>	*!	*	
c. PV. <i>verb</i> NOM. <i>t_{actor}</i> GEN. <i>patient</i>	*!		*
d. PV. <i>verb</i> GEN. <i>t_{actor}</i> NOM. <i>patient</i>		*!	

This account explains why definite readings of genitive case only emerge in structures in which the actor has been extracted. This is because higher ranked morphosyntactic constraints demand that both definite and indefinite patients must be expressed with genitive case, even though an expression of a definite with genitive case violates *Unambiguous Encoding*.

4.3.2 Rackowski and Richards

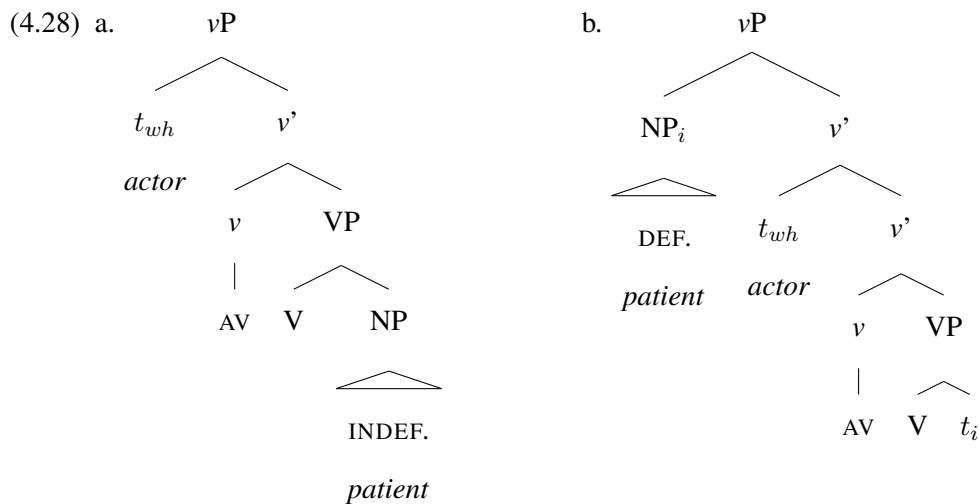
Rackowski and Richards 2005 also provide an account of the link between actor extraction and patient interpretation in Tagalog. The analysis is situated in a broader discussion of how agreement and extraction interact within minimalist syntax. Under their analysis, the interpretation of a genitive patient is hard coded into its syntactic position. Genitive patients which are verbal complements are indefinites, while patients which have moved to a higher position are definites. As Tagalog word order is very permissive, the movement of the patient is not reflected in the ordering of constituents.

This movement is represented in the structures below. The choice of a definite or indefinite interpretation of the patient NP determines its syntactic position. This choice, in turn, feeds the morphosyntactic operations which determine voice and case marking. The voice affix, instantiating the head *v*, reflects the thematic role of the syntactically highest NP, i.e., it is actor voice in (a) and patient voice in (b). This operation is referred to by Rackowski and Richards as “agreement”. The voice affix inherits the thematic role from the syntactically highest NP and in exchange, the syntactically highest NP receives nominative case. These operations derive the link between voice and the definiteness of the patient and correspond to Gärtner’s SYN1. Note that in (4.27), I have used the labels “DEF.” and “INDEF.” to mark the interpretations of the patient. However, Rackowski and Richards uses the labels “specific” and “nonspecific”. The labelling in (4.27) reflects the semantic analysis provided in chapter 3.



In cases with a *wh*-extracted actor, Rackowski and Richards propose that the syntactic generalizations outlined above are suspended. Under their account, *v* will always reflect the thematic role of the NP undergoing *wh*-movement, regardless of whether it is the syntactically highest NP or not. Although Rackowski and Richards do not spell out this analysis in terms of Optimality Theory, their prose formulation suggests the assumption of ranked, violable constraints: “The difference receives a natural account if we assume that Tagalog verbs agree preferentially with *wh*-phrases” (p. 590). This corresponds to Gärtner’s SYN2.

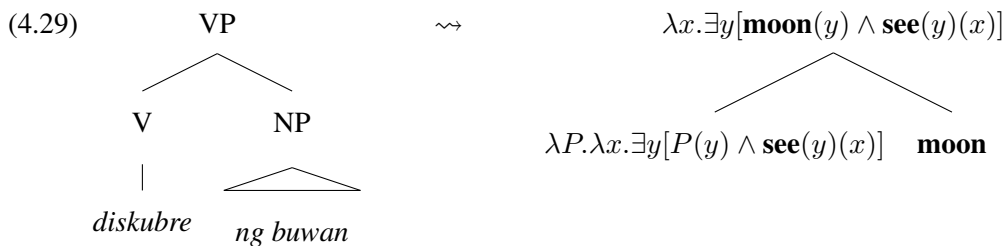
What is crucial here is that, in these structures, the voice affix *never* reflects the thematic role of the patient argument and thus the patient argument is marked with genitive case in both structures, regardless of whether it is definite or indefinite.



In both the accounts proposed by Gärtner and Rackowski and Richards, if the actor is *wh*-extracted, it preferentially determines the voice marking on the verb, overriding other morphosyntactic operations which determine the identity of the voice marking. In both account, patients are identified as definite or indefinite at an underlying level of representation. The morphosyntactic particulars of Tagalog determine that definite and indefinite patients in Tagalog are both marked with genitive case despite being underlyingly distinct categories.

4.3.3 Underspecification vs. ambiguity

The account pursued in this chapter, and in the dissertation more generally, maintains that genitive patients are existentially quantified by their selecting verb. The analysis presented in chapter 3 assigned the following compositional structure for verbs and genitive case marked patients.



According to the analysis presented here, nothing about the above compositional structure is different in clauses with *wh*-extracted actors versus clauses with in-situ actors. Under the present account, the conventional, existential semantics of the genitive patient is *underspecified*: it is compatible with both definite and indefinite readings. The underspecified meaning of genitive patients is represented in (4.30). Definite readings emerge if there is an additional contextual entailment of uniqueness with respect to the patient description (i.e., (4.30b) below). Such a contextual assumption is excluded if a non-uniqueness inference (the negation of (4.30b)) emerges as a conversational implicature, but not if the implicature is blocked.

- (4.30) a. $\exists x [\mathbf{moon}(x) \wedge \mathbf{discover}(x)(\mathbf{k})]$
 b. $\exists! y [\mathbf{moon}(y)]$

Do we have evidence which favors the ambiguity accounts of Gärtner or Rackowski and Richards, or the underspecification account of this chapter? Definite and indefinite NPs show

distinct sensitivity to negation. If genitive patients are ambiguous between definite and indefinite readings, the two possible readings should show a similar kind of distinction in behavior under negation.

In (4.31) we have a verb initial structure embedded under negation. The infelicity of the continuation suggests that the genitive patient obligatorily takes narrow scope under negation.

- (4.31) *Hindi naka-panood si Karlos [ng pelikula], #pero napanood=niya*
 not PERF.AV.see NOM Karlos GEN film but PERF.PV.see=GEN.3SG
ang Star Wars
 NOM Star Wars
 Karlos didn't see a film, but he saw Star Wars. (*Comment: You have to put ibang*
 ['other'], *Hindi nakapanuod si Karlos ng ibang pelikula* [Karlos didn't see any other
 films].)

However, if we switch the voice in the initial clause, giving a definite reading to the (now nominative) patient, the continuation is felicitous. The two sentences are non-contradictory so long as we understand *ang pelikula* to refer to a film which is not Star Wars (i.e., one supplied from the previous linguistic context). The option is not available with an indefinite, genitive case marked patient.⁵

- (4.32) *Hindi na-panood ni Karlos [ang pelikula], pero na-panood=niya*
 not PERF.PV.see GEN Karlos NOM film but PERF.PV.see=GEN.3SG
ang Star Wars
 NOM Star Wars
 Karlos didn't see the film, but he saw Star Wars.

In (4.33) we have a variation on (4.31) except using a cleft structure with an extracted actor. Under Gärtner's account, as well as Richards and Rackowski's account, (4.33) is underlyingly ambiguous. For example, under Richards and Rackowski's account, the genitive patient should be able to occupy Comp,VP (where it is interpreted as indefinite), or Spec,vP (where it is interpreted as definite). However, in (4.33), we see that the existential quantification introduced by

⁵One question that arises is why the mention of *Star Wars* in the second clause does not cause a violation of the uniqueness presupposition of the definite in the first clause, giving rise to a presupposition failure. The same issue arises in both the Tagalog as well as the English translation (which is similarly felicitous). One option is to appeal to a theory of quantifier domain restriction. The use of the definite allows interlocutors to reconstruct a premise that a film (not Star Wars) was being discussed or is otherwise highly salient in the discourse context. The description of the definite is implicitly restricted to the domain consisting of just that film. Thus even though the set **[film]** is not necessarily a singleton, it may turn out to be a singleton when intersected with an appropriate domain restriction.

the genitive patient scopes beneath negation. This is evidenced by the observed inference that the continuation is contradictory.

- (4.33) *Si Karlos ang hindi naka-panood [ng pelikula], #pero*
 NOM Karlos NOM not PERF.AV-watch GEN film, but
na-panood=niya ang Star Wars
 PERF.AV-watch=GEN.3SG NOM Star Wars
 It's Karlos who didn't see any film, but he saw Star Wars.

This data point is expected under an account which takes genitive patients to have an underspecified, existential semantics. If the existential scopes beneath negation, we expect the continuation in (4.33) to be contradictory, as observed. However, under the account of Richards and Rackowski, the genitive patient in (4.33) should be analyzed just like the nominative patient in (4.32), i.e., as occupying a syntactic position associated with a definite semantics. Under this account, we expect that (4.33) should be interpreted just like (4.32) contra what is observed.

These two alternative accounts make a strong link between case marking and the interpretation of the patient. Both accounts stand in opposition to the analysis pursued in chapter 2. In both accounts, the morphological case of the patient is the factor which determines the interpretation of the patient. However, in chapter 2, I showed that it is not merely the case of the patient, but also its status as a bare or as a quantified NP.

Rackowski and Richards analyze the “specific” interpretation of nominative patients as being linked to the outer specifier position of vP, the position also responsible for (what I refer to as) nominative case. In chapter 2, I argued that nominative patients which are bare NPs are interpreted as *definite*, and not merely specific (see chapter 2 for the arguments for this conclusion). Additionally, in chapters 2 and 3, I also showed that nominative patients need not be definite, or even specific, when they are overtly quantificational. In both cases below, the nominative patient does not receive a definite interpretation. In both examples, the nominative patient is non-referential, realized as an indefinite scoping underneath a conditional (4.34a) and negation (4.34b).

- (4.34) a. *Ano ang dapat ko-ng gaw-in kung naka-ligta-an=ko*
 what NOM must GEN.1SG-LK do-PV if PERF-omit-PV=GEN.1SG
ang isang dosis
 NOM one-LK dose

What do I do if I miss a dose?

- b. *Hindi=ko s(in)isi ang sinuman*
 not=GEN.1SG PV.PERF.blame NOM anyone
 I don't blame anyone.

These data (and others in chapter 2) argue against morphological case being the determining factor in signalling a patient as (in)definite or (non)specific. If nominative case and the definiteness of the patient have to be attributed to two independent operations, a key motivation for the accounts outlined above is lost. The account pursued in this dissertation makes a crucial distinction between bare NPs and quantified NPs and therefore does not overgeneralize the link between morphological case and patient interpretation.

4.4 A generalized notion of implicature blocking

Following the discussion of this chapter, we can define a class of phenomena which I will refer to as “implicature blocking”. Tagalog represents a paradigm case. The table from section 2 is adapted below, explaining the Tagalog interpretational difference between actor-initial and verb-initial structures using the analysis of this chapter. In (4.35) D stands for the denotation of the patient’s descriptive content. In verb-initial structures with actor-voice, given the contextual conditions which license a non-uniqueness inference, the cardinality of the description is understood to be greater than 0. The definite nominative patient in a verb-initial structure, on the other hand, triggers a presupposition that the description is uniquely instantiated. In structures without pragmatic competition, i.e., actor-initial structures, the meaning of the actor voice patient can be understood as the disjunction of the two patient meanings in verb-initial structures: compatible with a uniquely or non-uniquely instantiated description.

		Verb-initial	Actor-initial	
(4.35)	Actor voice (GEN patient)	$ D > 1$	$ D \geq 1$	<i>Tagalog</i>
	Patient voice (NOM patient)	$ D = 1$	<i>*ungrammatical</i>	

We can provide a general schema for cases like Tagalog patient interpretations, sketched in (4.36). We can assume two expressions, A and B , which are ordered by semantic strength (by their lexical content or the content of their containing syntactic structure). In syntactic contexts

in which pragmatic competition emerges (i.e., syntactic context 1), the weaker meaning A is enriched with the negation of B . In contexts without competition, the weak meaning A is un-enriched, compatible with the truth of either B or its negation.

	Syntactic context 1	Syntactic context 2
(4.36) Weaker expression	$A \wedge \neg B$	A
Stronger expression	B	<i>*ungrammatical</i>

With a generalized notion of implicature blocking defined, we can identify cases of this kind of pattern cross-linguistically. Below are some potential case studies in languages other than Tagalog which warrant further investigation. I sketch preliminary analyses using the framework in (4.36), suggesting that these phenomena could prove to be illuminating case studies of the interaction of pragmatic reasoning and morphosyntax, provided further investigation.

4.4.1 Finnish case and definiteness

Kiparsky (2001:18–19) observes that in Finnish, intransitive subjects can systematically vary between having nominative case (and triggering agreement with the verb), and having partitive case (4.37). Nominative subjects receive a definite interpretation (4.37a), partitive subjects are indefinite (4.37b).

- (4.37) a. *Sotilaat tul-i-vat*
 solider.NOM.PL come-PAST-3PL
 The soldiers came.
- b. *Sotilaita tul-i*
 solider.PART.PL come-PAST
 Soldiers came.

In transitive sentences, on the other hand, the partitive realization of the subject is morphosyntactically blocked, as in (4.38b). In such cases, where the alternative is blocked, the nominative subject may be interpreted as indefinite, as in (4.38a). This stands in direct contrast with nominative subjects in intransitive structures like (4.37a) which are obligatorily definite.

- (4.38) a. *Sotilaat tuhos-i-vat tämä-n kylä-n*
 solider.NOM.PL destroy-PAST-3PL this-GEN village-GEN
 (The) soldiers destroyed this village.

- b. **Sotilaita* *tuhos-i* *tämä-n* *kylä-n*
 solider.PART.PL destroy-PAST this-GEN village-GEN

The account given by Kiparsky, like this chapter, suggests competition between syntactically complex forms: “an external subject cannot be indefinite if ... the sentence can neither be paraphrased as a passive nor as an existential sentence. In other words, external subjects are indefinite only when there is no alternative” (Kiparsky 2001:19). Structures with partitive forms are analyzed by Kiparsky as existential-like structures. They are blocked by the transitivity of the verb in (4.38).

These patterns could be given a pragmatic analysis. Under this analysis, the nominative subject, *sotilaat*, would be semantically compatible with either definite or indefinite interpretations, while the partitive subject is *sotilaita* is semantically indefinite. In cases where both alternatives are available, i.e., in intransitive structures like (4.37), the nominative subject *sotilaat* is pragmatically strengthened to a definite interpretation. The hearer reasons that if the speaker intended an indefinite reading, s/he would have used the partitive form. When a transitive structure is used, morphosyntactically blocking the emergence of partitive case, the nominative subject remains compatible with either definite or indefinite readings.

Although the morphosyntactic blocking of an implicature is familiar from the Tagalog case study, the observations here are quite distinct. In Finnish, the above observations suggest that a semantically weak expression (the nominative) is strengthened to a *definite* reading via competition with an *indefinite* (the partitive). In Tagalog, the semantically weak expression is strengthened with a non-uniqueness implication via competition with a *definite*.

In order to account for the Finnish data under the analysis pursued in this chapter, we need to analyze the nominative as semantically compatible with either a definite or indefinite reading. The partitive on the other hand is compatible only with an indefinite reading. Via competition with the partitive, the nominative is strengthened with an “anti-indefinite” implicature. In (4.39), I suggest an analysis for Finnish which could account for the observations under the present chapter’s analysis.

Here, the partitive bears a semantic feature [$-uniq$] which ensures that it is unambiguously specified to be indefinite. [$-uniq$] is intended to convey that the partitive signals the description

is non-uniquely instantiated. This is assuming a hypothesis that Finnish definite and indefinite expressions should be characterized in terms of uniqueness and non-uniqueness. This hypothesis may of course turn out to be false, e.g., Finnish definiteness alternations may be better analyzed as an alternation of familiarity or some other property associated with definiteness. The nominative is semantically underspecified as $[\pm\textit{uniq}]$ but ends up being strengthened to $[\textit{+uniq}]$ via competition with the indefinite partitive.

	Intransitives	Transitives
(4.39) Nominative case	$[\textit{+uniq}]$	$[\pm\textit{uniq}]$
Partitive case	$[\textit{-uniq}]$	* <i>ungrammatical</i>

4.4.2 Icelandic scope of objects

Icelandic demonstrates an alternation in the linear position of transitive object, referred to as object shift (OS). This is often syntactically analyzed as the movement of a transitive object from its thematic, VP-internal position, to a VP-external position (e.g., see Vikner 1997, Holmberg 1999, Thráinsson 2001). In Icelandic, OS of (non-pronominal) DPs has a semantic effect. This is often characterized in terms of scope: non-shifted DPs take narrow scope under VP-adjoined adverbs while shifted DPs take wide scope (Vikner 1997).

The following examples come from Vikner 1997. In (4.40a), the direct object *erfiðustu spurningunni* remains VP-in-situ, appearing to the right of VP-adjoined adverbs. In (4.40b), the direct object raises out of the VP appearing to the left of VP-adjoined adverbs. One potential analysis states the semantic effect of this movement in terms of binding. When the object appears within the syntactic scope of the adverb *sjaldan* ‘rarely’ as in (a), the descriptive content (the most difficult question) is evaluated relative to times quantified over by the adverb. When the object appears outside of the syntactic scope of the adverb, as in (b), its descriptive content is evaluated with respect to an unbound temporal variable, i.e., the time of utterance. See Vikner 1997, Thráinsson 2001, and Gärtner 2004 for further discussion of the semantic import of OS.

- (4.40) a. *Í prófunum svarar hann sjaldan [erfiðustu spurningunni]_O*
 in exams-the answers he rarely most-difficult question-the
rarely_t(he answers the(most-difficult-question_t))

- b. *Í prófunum svarar hann [erfiðustu spurningunni]_O sjaldan*
 in exams-the answers he most-difficult question-the rarely
 rarely_t(he answers the(most-difficult-question_{now}))

Icelandic object shift is blocked in cases where the verb is “periphrastic” (i.e., the verbal complex consists of an auxiliary and a participle). This generalization is often referred to as “Holmberg’s generalization” (see Vikner 1997, Holmberg 1999, Thráinsson 2001), which can be roughly characterized by the requirement that *an object must be c-commanded by a main verb or its trace*. In structures with periphrastic verbs, the nonfinite verb remains inside the VP and thus the object is unable to move to a syntactically higher position.

Vikner (Vikner 1997) observes that the scopal distinction in (4.40) is neutralized in constructions where OS may not apply. In constructions with participial main verbs (4.41a), the main verb remains in VP, thus via the licensing condition, objects may not shift to ex-situ positions (4.41b). In non-shifting constructions like (4.41a), the object may or may not be bound by the temporal adverb.

- (4.41) a. *Í prófunum hefur hann sjaldan svarað [erfiðustu spurningunni]_O*
 in exams-the has he rarely answered most-difficult question-the
 rarely_t(he answers the(most-difficult-question_{t/@}))
- b. **Í prófunum hefur hann [erfiðustu spurningunni]_O sjaldan svarað*
 in exams-the has he most-difficult question-the rarely answered

Following the framework of analysis developed in this chapter, we can understand this pattern pragmatically. The VP-internal position of the object is conventionally associated with either narrow or wide scope (e.g., Diesing and Jelinek 1993 propose that the in-situ object can covertly undergo quantifier raising), while the VP-external position is just conventionally associated with wide scope. For example, in (4.40a), the object is able to be bound by the higher adverb, or unbound. If the speaker had intended an unbound reading, she could have used the version with object shift (4.40b) which unambiguously conveys the unbound reading. The in-situ object is therefore pragmatically strengthened as in (4.42).

	Simplex verb	Complex verb
(4.42) VP-in-situ	[+bound]	[±bound]
VP-ex-situ	[−bound]	*ungrammatical

These discussions of both Finnish and Icelandic are cursory, intended to motivate future investigations into the cross-linguistic applicability of the framework of “implicature blocking” developed in this chapter. More empirical work is necessary in order to test the predictions of these suggested analyses. Cross-linguistic evidence is important in order to support the hypothesis pursued in this chapter, that a language’s morphosyntax is a crucial factor in determining the emergence or suppression of an implicature.

4.5 Conclusion

This paper examines a class of conversational implicatures which are derived via joint reasoning about syntactically complex expressions. This case study of the interpretation of Tagalog patients and voice marking is illuminating for theories of pragmatic competition. I argue the data suggest that grammar plays a large role in the calculation of implicatures. In particular, where the grammar prevents particular structures from competing, by ruling out one alternative structure as ungrammatical, particular implicatures are prevented from arising.

In light of this observation, I propose a definition of pragmatic alternatives which is sensitive to the grammatical properties of the interlocutors’ language. I argue that it is not enough to calculate alternatives by simply taking the utterance and swapping one lexical item for its scale-mate. We need to rule out cases in which the resulting structure is ungrammatical. The theory proposed here takes a strong stance on the question of whether the notion of pragmatic alternative is highly particularized. I argue that the range of alternatives needs to be carefully circumscribed, referencing grammatical information such as the lexicon and well-formedness rules. More generally, this implies that pragmatic alternatives should not be understood as purely from the domain of meaning, but should also have grammatical properties, like morphosyntactic well-formedness.

4.6 Appendix: Comparing the syntactic structure of alternatives

In this appendix, I will lay out a more precise theory of pragmatic competition which predicts the present of a non-uniqueness implicature in Tagalog verb-initial sentences as well as the absence of the implicature in actor-initial sentences. The strategy I take is to provide a precise statement of what it means to be a “pragmatic alternative”. The key insight is that pragmatic alternatives, although un-uttered, are linguistic expressions, with all the properties of linguistic expressions, including syntactic structure, compositional semantics, and so on. The precise set of expressions which can serve as pragmatic alternatives for any given utterance is highly constrained. This section provides some discussion about the kinds of constraints which could be imposed on pragmatic alternatives.

4.6.1 A basic set up

Gazdar (1979) defines a rule for determining whether or not two sentences are pragmatic alternatives. Hirschberg (1985) gives the following construal of Gazdar’s theory. We can take e and e' to be members of a lexical scale like $\langle a, the \rangle$ or $\langle some, all \rangle$.

(4.43) Sentences i and j are expression alternatives with respect to e and e' if i is identical to j except that in one place where i has e , j has e' .

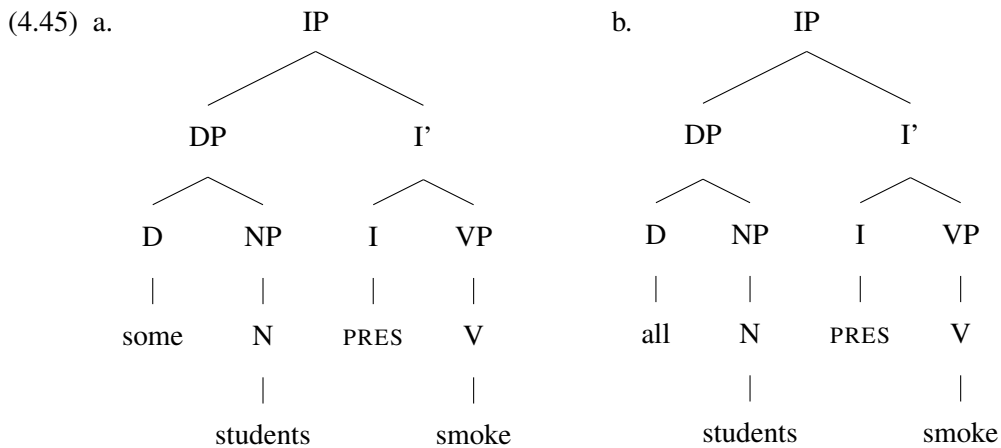
There are numerous complexities which arise from this kind of method of alternative generation which involves ‘morpheme swapping’. Canonical cases of alternative generation, e.g., replacing *some* with *all*, do not create morphosyntactic complexities. This is because the change in determiner does not have morphosyntactic “side effects”. Swapping other types of morphemes do have morphosyntactic side effects. The Tagalog pair of voice morphemes under investigation in this dissertation provide a particularly complex case study. Swapping one voice morpheme for another has several morphosyntactic side effects: under most theories of Tagalog syntax, they alter the syntactic position and morphological case of the verb’s arguments. Thus one goal is to reformulate the statement (4.43) so there is sensitivity to the morphosyntactic side effects resulting from swapping out one morpheme for another.

(4.44) is a maximally simple case, morphosyntactically speaking. The pair of expressions

can be assigned parse trees like those in (4.45). Crucially, I assume here, following Gazdar's definition above, that 'pragmatic alternatives' is a relation which holds between parse trees. The goal is to ensure that the parse trees in (4.45) are correctly recognized as pragmatic alternatives. I should stress at this point that the theory of pragmatic alternatives is not linked to any particular syntactic analysis. Alternative analyses of the expressions in (4.44) could serve just as well as (4.45).

(4.44) a. Some students smoke.

b. All students smoke.



Gazdar's statement in (4.43) is somewhat vague about what type of objects i , j , e , and e' are. Furthermore, it leaves some notions defined at the intuitive level. In what follows, I provide a re-statement of Gazdar's condition on pragmatic alternatives which makes a few things more explicit.

Tree shapes

Firstly, the larger expressions i and j are taken to be parsed trees, while the smaller lexical alternatives e and e' are lexical items. Below, I discuss parse trees as if they are sets of atomic points referred to as "nodes", ordered via the (vertical) domination relation and the (horizontal) precedence relation, with appropriate conditions on these relations, such as bans on ternary branching, bans on multiple parents for one node, the presence of a unique root node, and so on.

Pullum and Tiede (2010:279) give the following definition for a set of nodes (represented by strings over $\{0,1\}$) which comprise a binary branching tree. The constraint in (a) demands that all of a nodes ancestors are also nodes, and constraint (b) demands that if a node has a second child, then it also has a first child.

(4.46) A set of nodes $N \subseteq \{0, 1\}^*$ is such that,

- a. if xy is in N , then so is x , and
- b. if $x1$ is in N , then so is $x0$,

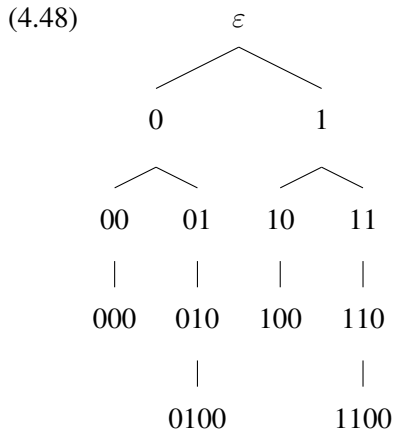
where x and y are strings over $\{0, 1\}$.

Now we can define what I will refer to as the “shape” of a tree, which can be characterized as the arrangement of nodes, represented by the set of node “addresses” (defined in (4.46)) as well as two ordering relations between nodes, ∇ and \triangleright , which define parenthood and sibling relations respectively. Bare tree structures do not have any category labels, like (4.48).

(4.47) A bare tree \mathbb{T} is a structure $\langle N, \nabla, \triangleleft \rangle$, such that:

- a. N is a set of nodes as in (4.46).
- b. ∇ is the ‘parent-child’ relation, such that $\nabla = \{ \langle p, c \rangle : c = p0 \text{ or } c = p1 \}$
- c. \triangleright is the ‘sibling’ relation, such that
 $\triangleright = \{ \langle s_1, s_2 \rangle : s_1 = x0 \text{ and } s_2 = x1, \text{ for some } x \}$.

This tree structure has some properties which are associated with the kinds of trees used in theories of natural language syntax. For example, trees contain a unique root node ϵ , which has no parent. Next, the tree is binary branching, each node has at most two children, though may have fewer. Finally, each node has just one mother, ruling out “multi-domination”. For this reason, any tree as defined in (4.47) can be represented using a binary branching structure as in (4.48) without any loss of information.



We can define a fully labelled tree \mathcal{T} as a pair, $\langle \mathbb{T}, \text{Label} \rangle$. \mathbb{T} is a bare tree structure, defined as in the above subsection. **Label** is a way of labelling the nodes in \mathbb{T} . Formally, **Label** is a function which takes category labels **NP** and **V**, or lexical labels like *some* or *angry* and maps them to nodes in \mathbb{T} . For example, the desired behavior of the system will ensure that given the tree (4.45a), $\text{Label}(\mathbf{NP}) = \{01\}$ and $\text{Label}(\textit{some}) = \{000\}$. Formally, labels like **NP**, **V**, *some* or *angry* are formulas in a modal logic such as the one defined in Pullum and Tiede (2008), who in turn adapt Gazdar et al. 1985, Blackburn and Spaan 1993, and Moss and Tiede 2007. Labels can be mapped to multiple nodes (i.e., a set containing more than one node), and nodes can have more than one label (e.g., a node may be labelled as **N**, [SG], and [GEN], for example).

Comparing trees

(4.49) is a preliminary statement of what it means for two trees to differ by a pair of lexical items. Note that this definition is neutral with respect to whether the pair is supplied by a conventionalized scale (i.e., following the theory of Horn 1972, Gazdar 1979, and so on), or whether any pair of lexical items may do, so long as the result is syntactically well-formed (e.g., Katzir 2007, Fox and Katzir 2011).

(4.49) Two trees \mathcal{T}_1 and \mathcal{T}_2 differ at most by a pair $\langle \textit{Lex}_1, \textit{Lex}_2 \rangle$ iff:

- a. The two trees have the same shape (i.e., $\mathbb{T}_1 = \mathbb{T}_2$).
- b. At one point where \mathcal{T}_1 has \textit{Lex}_2 , \mathcal{T}_2 has \textit{Lex}_1 at the same point.
- c. Map all labels to the same nodes in both trees, *except* the labels \textit{Lex}_1 and \textit{Lex}_2 .

Given this kind of structure, there is a clear intuition about how the definition above can be spelled out, particularly with respect to what is meant for a tree to “have” a word like *some*, and what is meant for a lexical item to occupy “the same syntactic position” as another lexical item in another tree. (4.45a) and (4.45b) differ only with respect to the pair $\langle \textit{some}, \textit{all} \rangle$. In order to construct (4.45b) from (4.45a), we simply take out *some* at position 000 and put in *all* at the same position. The way that trees are constructed in the previous subsection make it simple to take two trees and check whether they differ at most by a pair of lexical items like $\langle \textit{some}, \textit{all} \rangle$.

We can check condition (b) in (4.49) by checking whether the labelling convention of tree (a) maps *some* to the same node as the node which the labelling convention of tree (b) maps *all* to. In (4.45a), *some* occupies node 000 in tree (4.48) and *all* in (4.45b) also occupies this node. (4.50) is a restatement of condition (b) according to this principle.

$$(4.50) \text{Label}_1(\textit{Item}_1) \cap \text{Label}_2(\textit{Item}_2) \neq \emptyset$$

Condition (c) ensures that every label (e.g., **NP**, **VP**, *students*, *smoke*) is mapped to the same set of nodes in each tree, except the labels *some* and *all*. These can be mapped to different sets of nodes in each tree. This has the effect of fixing the labels for every other node, besides the nodes occupied by the lexical alternatives themselves. This has some important effects. Firstly, this ensures that the two lexical items are the same syntactic category, as the immediately dominating node (determining the category of the lexical item, D in both trees in (4.45)) must remain the same across the pair of trees.

Next, the definition states that the node labelled *some* is able to bear a new label in the alternative structure. This definition is permissive about *which* instance of *some* is able to vary. In structures with multiple instances of *some*, each instance may vary, thus the pairs in (4.51) all count. Any pair of sentences will differ at most by the scale $\langle \textit{some}, \textit{all} \rangle$ so long as there is one point which is *some* in one tree and *all* in the other. The other instances of *some* and *all* are free to alternate in any possible permutation.

(4.51) a. Some students smoke.

All students smoke

Pragmatic alternatives

b. Some students smoke all cigars.

All students smoke all cigars. *Pragmatic alternatives*

c. Some students smoke all cigars.

All students smoke some cigars. *Pragmatic alternatives*

The pairs in (4.52) don't count. (4.52a) fails as the two trees don't have the same unlabelled structures, via condition (a).⁶ (4.52b) also fails. Even though there is a node which is *some* in one tree and *all* in the other, the labelling systems aren't otherwise identical: the label for *no* will be mapped to different sets of nodes in each tree, thus violating condition (c).

(4.52) a. Some students smoke.

Students smoke. *Not pragmatic alternatives*

b. Some students smoke all cigars.

No students smoke some cigars. *Not pragmatic alternatives*

(4.53) is a restatement of the prose formulation of condition (c) in (4.49). In (4.53), *Cat* stands for the set of category labels such as **VP**, **V**, **CP**, and so on, while *Lex* stands for lexical labels like *some*, *Diet Coke*, and *devour*.

(4.53) For every $p \in \text{Cat} \cup (\text{Lex} - \{\text{Item}_1, \text{Item}_2\})$, $\text{Label}_1(p) = \text{Label}_2(p)$

4.6.2 Incorporating features

Given an underlying framework for checking whether two trees are pragmatic alternatives, *à la* Gazdar 1979, we can now build more complexity into the theory. In particular, I want to examine cases in which swapping one lexical item for its alternative has what I call “morphosyntactic side effects”.

For example, the pair in (4.54a) is derived by swapping a singular noun for its plural counterpart. This has the side effect of triggering number agreement on the finite verb. So far, this change in the finite verb not taken into consideration by standard theories of alternative calculation, and furthermore, not by the definition in (4.49) either. The existence of a node which is labelled *are* in one tree but *is* in the other will cause the pair to fail condition (c) in (4.49).

⁶Katzir 2007 makes several strong arguments that pairs like (4.52) *should* count as pragmatic alternatives, i.e., alternatives derived by deleting branches from one structure. The definition in (4.49) just delineates a class of alternatives derived by swapping lexical items. Thus, nothing rules out pairs like (4.52) being defined as alternative pairs by a different principle.

The pair in (4.54b) is derived by swapping *few* for its competitor *no*. This alteration has the effect of changing the number of the selected NP: *few* selects for a plural NP complement while *no* may select for a singular NP. Not only does (4.54b) exhibit an issue with selection, but the agreement issue is present in this pair also. This subsection will be devoted to incorporating pairs like those in (4.54) into the definition of pragmatic alternatives.

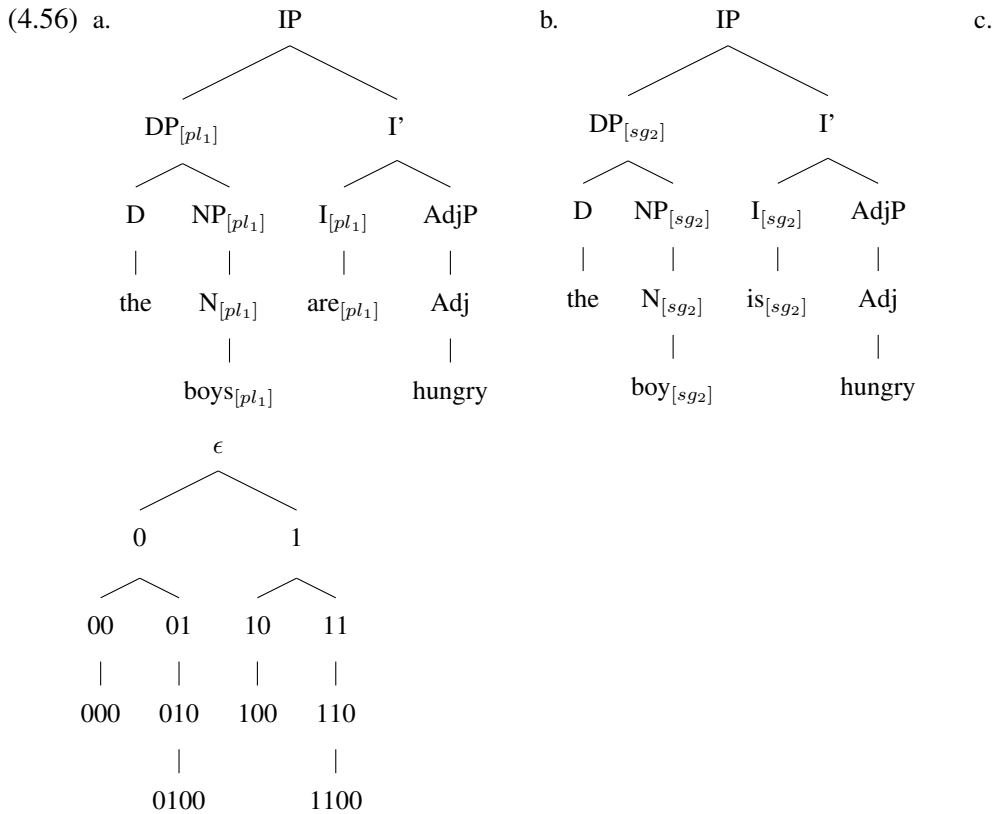
- (4.54) a. The boys are hungry.
 The boy is hungry.
- b. Few students smoke.
 No student smokes.

Agreement, selection, and other properties like morphological case are handled by morphosyntactic features. Thus, in (4.55) I propose an update to the basic measure of similarity of pragmatic alternatives, incorporating some notion of morphosyntactic features designed to handle cases like (4.54).

- (4.55) Two trees \mathcal{T}_1 and \mathcal{T}_2 differ at most by a pair $\langle Lex_1, Lex_2 \rangle$ iff:
- a. The two trees have the same shape.
 - b. At one point where \mathcal{T}_1 has Lex_1 , \mathcal{T}_2 has Lex_2 at the same point.
 - c. Map all labels to the same nodes in both trees, *except*:
 - i. the labels Lex_1 and Lex_2 , and
 - ii. the label of any feature f , such that f is co-indexed with Lex_1 or Lex_2 .

The proposal above can be illustrated with respect to the trees in (4.56a) and (4.56b) which sketch the structures for the sentences in (4.54a). Crucially, the head nouns are marked with morphosyntactic features representing grammatical number $[pl_n]$ and $[sg_m]$ where m and n represent arbitrary indices used for keeping track of which feature is triggered by which lexical item. In these trees, the number features $[pl_n]$ and $[sg_m]$ mark the lexical N head, percolate to every dominating node in the DP constituent, and copy over to the I head in which we find the inflected copula which overtly marks the grammatical number of the subject. A more formal treatment of this distribution of features is given in the appendix.

I will stress that the theory pursued here does not crucially rely on any particular theory of how grammatical number features are distributed around the parse tree. The goal is a theory which is flexible enough to incorporate many different theories of agreement.



The trees (a) and (b) satisfy condition (a) in (4.55) by virtue of having an identical unlabelled form as in (4.56c). Likewise, condition (b) is satisfied as there is a node which is labelled *boys* in one tree and *boy* in the other (the node indexed 0100).

In condition (c), the notion of features is introduced. Formally, I take features to be labels for nodes, just like lexical items and syntactic categories. Formally, there is no difference between any of the three categories, which is an assumption familiar from frameworks like Distributed Morphology (e.g., Halle and Marantz 1993). In (4.56a), for example, the label $[pl_1]$ is mapped to the nodes $\{0100, 010, 01, 0, 100, 10\}$.

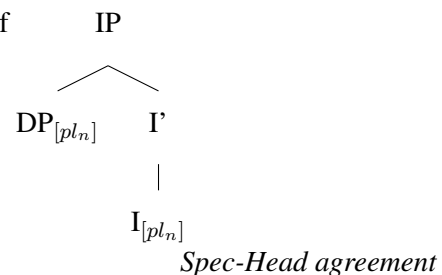
Features bear indices in order to identify the origin point of the feature. We can say that *boys* is a morphologically plural noun, and therefore must bear a $[pl]$ feature, arbitrarily indexed 1. The distribution of all of the other $[pl_1]$ features is determined by well-formedness constraints on subtrees. The particular theory of agreement I will employ here does this in three steps.

Note that “nominal nodes” constitute the *extended projection* of a noun (N, N', NP, D' DP). These rules are intended to derive the distribution of features in (4.56a) and also (4.56b) by straightforward analogy.

- (4.57) a. If *boys* has the $[pl_n]$ feature, then all dominating nominal nodes have the $[pl_n]$ feature.

Percolation

- b. **I** has the $[pl_n]$ feature, only if **I** is a sub-tree of



- c. If **I** has the $[pl_n]$ feature, then $I_{[pl_n]}$ is well a formed tree.



Number inflection

Condition (c) of the definition of pragmatic alternatives in (4.55) states that the label of any feature co-indexed with the scalar item in question is able to vary across trees. Here, for example, $[pl_1]$ is co-indexed with the scalar item *boys*, and so is able to vary across trees. Likewise, $[sg_2]$ is able to vary across trees as it is co-indexed with *boy*. As stated earlier, the label $[pl_1]$ is mapped to the nodes {0100, 010, 01, 0, 100, 10} in tree (a), but mapped to the empty set in tree (b). $[sg_2]$ has precisely the reverse distribution.

Does condition (c.ii) in (4.55) provide morphosyntactic features with too much freedom? As stated, condition (c.ii) seemingly lets $[pl_1]$ and $[sg_2]$ to be mapped to any node in the tree. Here, I appeal to well-formedness rules like those in (4.57) in order to constrain the possible distributions of features. As *boys* will be eliminated from the tree in (4.56b) in order to satisfy condition (a) of (4.55) (i.e., because it is replaced with *boy*), this will effectively eliminate the possibility of $[pl_1]$ appearing anywhere in the tree (due to the absence of any plural N).

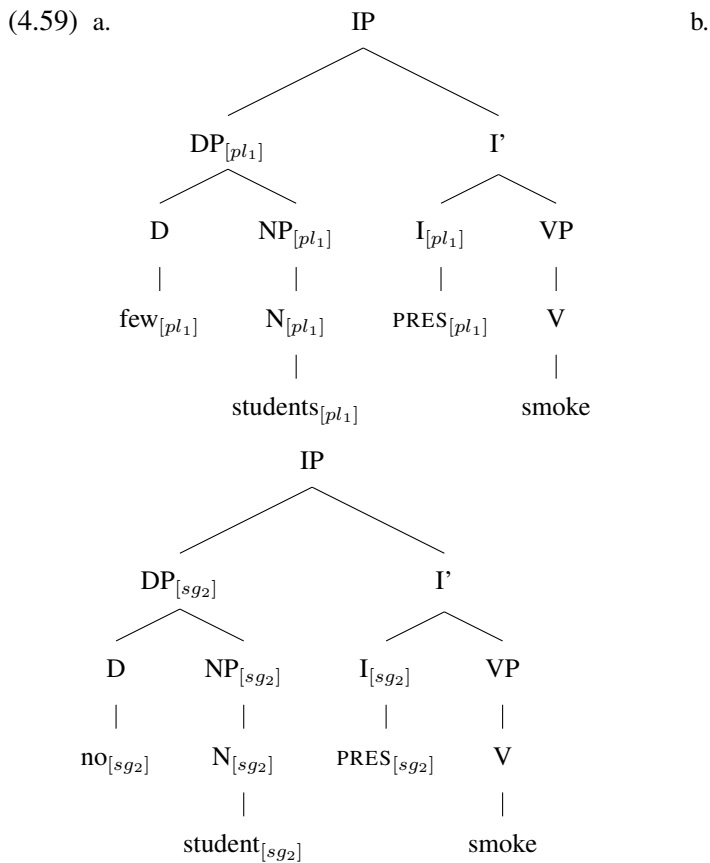
The pair in (4.58) is a slightly trickier case. Here the scalar pair is *(few, no)*. These lexical items do not directly encode grammatical number, but swapping one item for the other has

the effect of changing the grammatical number of the head noun, as well as the grammatical agreement.

(4.58) a. Few students smoke.

b. No student smokes.

These trees are sketched in (4.59). Again, it is easy to see these trees satisfy conditions (a) and (b) in the definition of pragmatic alternatives in (4.55): they have the same syntactic shape, and at one point, one tree has *few* while the other has *many*.



In order to get the distribution of number features right, we again appeal to all of the rules in (4.57), ensuring that the number features are inherited by the full DP phrase, and copied onto the finite tense head. We need an extra rule to ensure that these features are triggered by the scalar items themselves – the determiners *few* and *no*. In (4.59), I propose that these determiners bear the grammatical number features as well, though this does not end up having any perceptible morphological reflex. (4.60) is a well-formedness rule which handles the distribution of features

via a head's selection of its complement. In conjunction with the agreement rules in (4.57), the selection rule below ensures the distribution of features in (4.59).

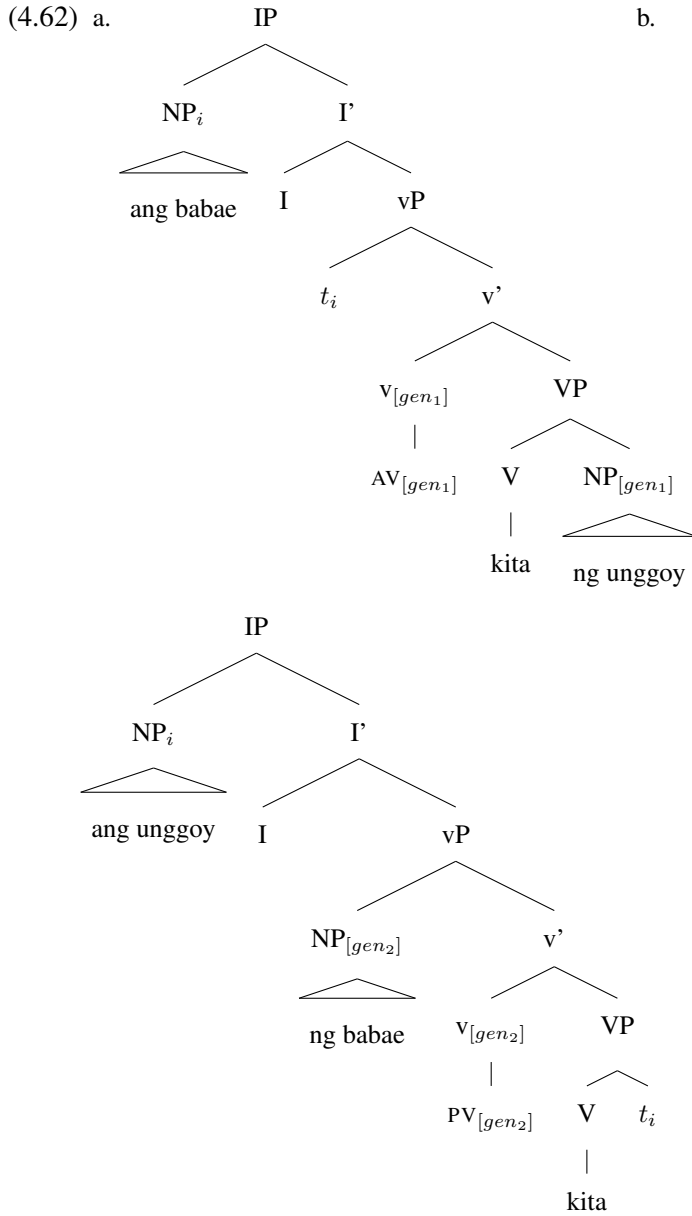
(4.60) If *few* has the $[pl_n]$ feature, then DP is well a formed tree.



This approach can be extended to Tagalog in order to handle genitive case assignment. Consider the basic pair in (4.61). Under the account pursued in this chapter, this pair of sentences differs by the pair of voice morphemes $\langle naka-, na- \rangle$, or $\langle AV, PV \rangle$, to abstract away from their precise morphological realization in these structures.

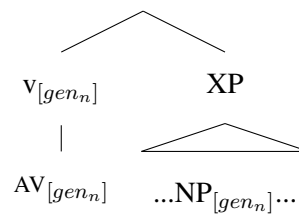
- (4.61) a. *Naka-kita ng unggoy ang babae*
 PERF.AV-see GEN monkey NOM woman
 The woman saw a monkey.
- b. *Na-kita ng babae ang unggoy*
 PERF.PV-see GEN woman NOM monkey
 The woman saw the monkey.

These structures can be sketched in (4.62), following the syntactic analysis defended in chapter 3, largely based on Guilfoyle et al. 1992. The linear order is not represented for simplicity. These structures should be defined as pragmatic alternatives. There are multiple complexities in these structures which conflict with our definition in (4.55), some of which I address in the next subsection. For now, we can focus on the assignment of morphological genitive case. Following Hung 1988a, Guilfoyle et al. 1992, and others, the case features on argumental NPs which are morphologically realized as genitive case are assigned by the voice affixes. The actor voice affix AV assigns a genitive case feature to the patient NP, while the patient voice affix PV assigns a genitive case feature to the actor NP. These case assignment operations are given one particular characterization in (4.62).



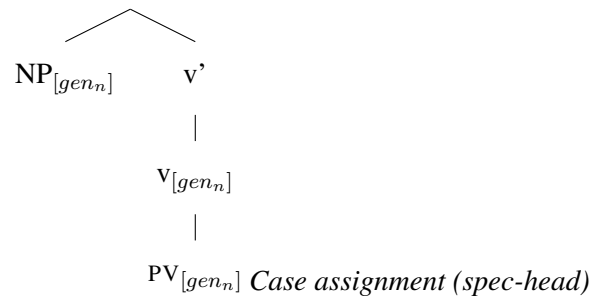
Leaving aside the issue of moving NPs for the moment, the definition of pragmatic alternatives in (4.55) will handle the assignment of genitive case sketched above. The genitive case features are introduced by the AV and PV heads, and their distribution is governed by well-formedness rules defined below. AV assigns genitive case to an NP in its (sufficiently local) c-command domain to the patient, while PV assigns it to the actor occupying its specifier. See, for example, Aldridge 2004, 2006, who provides a similar analysis, though analyzes the two cases as distinct categories. This assumption can be adopted without any difficulty into (4.63)).

(4.63) a. If AV has the $[gen_n]$ feature, then v' is a well-formed tree



(i.e., v c-commands a (local) NP with the $[gen_n]$ feature). *Case assignment*
(*c-command*)

b. If PV has the $[gen_n]$ feature, then vP is a well-formed tree



So, according to our theory, the variance in genitive case distribution in the pair of sentences in (4.61) does not rule out the pair from pragmatically competing as alternatives. The trees in (4.62) count as pragmatic alternatives according to our definition in (4.55), abstracting away from the movement at this point. In accordance with condition (a) of (4.55) the trees have similar structures. Next, in accordance with condition (b), there is a node at which the actor voice tree has the AV affix, where the patient voice tree has the PV affix. Finally, each of these affixes are associated with genitive case features. According to condition (c) of (4.55), the two trees are able to compete as we ignore morphosyntactic features, such as genitive case, which are co-indexed with the lexical items entering into pragmatic competition.

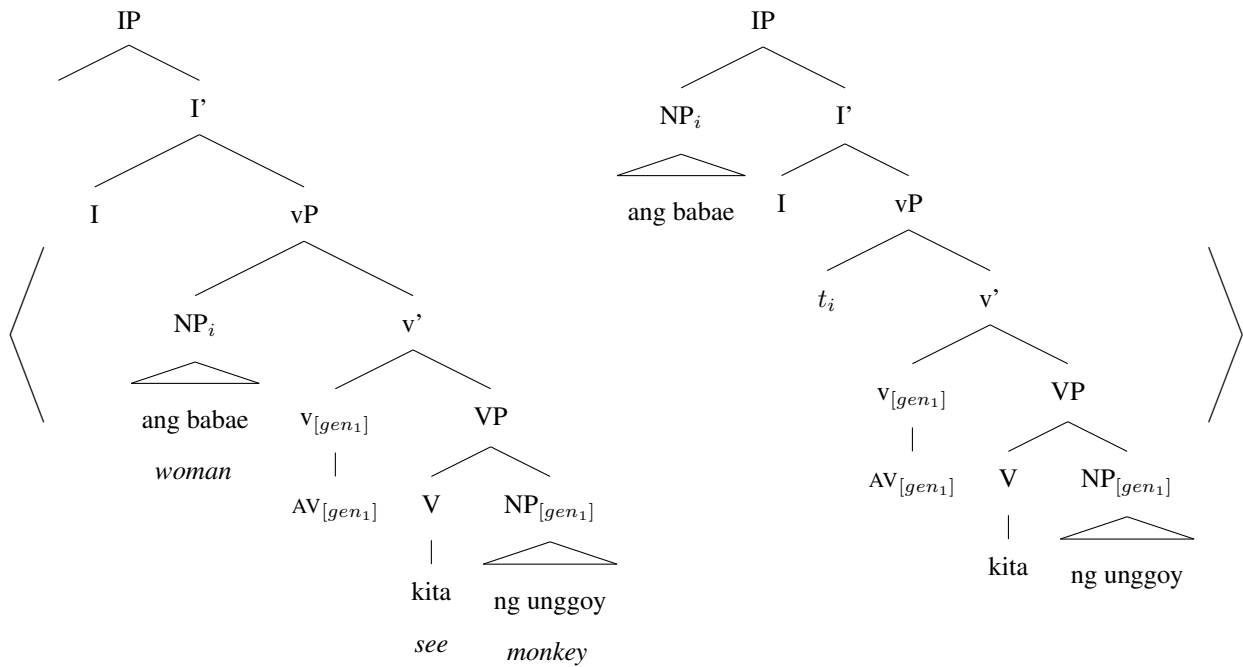
4.6.3 Incorporating movement

Pragmatic alternatives can sometimes involve movement. Constituents move in one alternative but not in the other. The Tagalog pair in (4.62) provide an example of this. According to the Guilfoyle et al. analysis, in the actor voice structure, the actor NP moves to the subject position while in the patient voice structure, the patient NP moves to the subject position. This gives the two trees different structures and ensures that the labelling systems for each tree diverge at

several distinct points. How then do we ensure that structures with movement are still able to count as pragmatic alternatives?

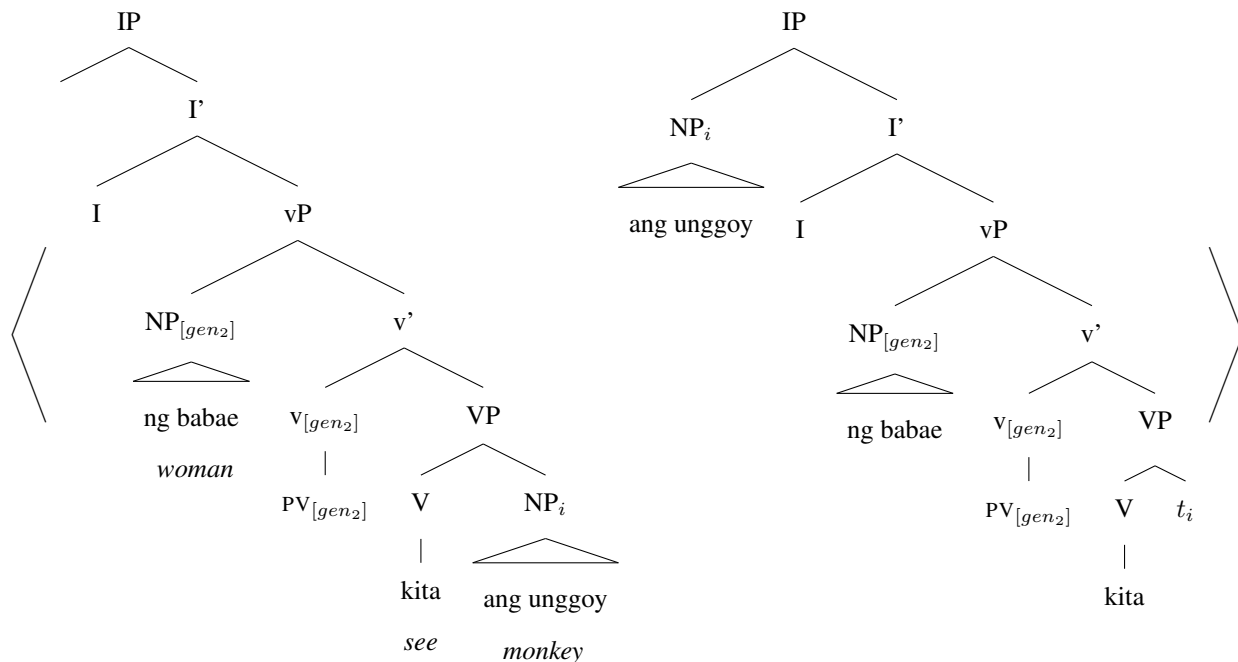
The proposal I make here is quite simple: structures enter into pragmatic competition at a level of representation without movement. Formally, we can represent syntactic movement using ordered sets of trees (see Potts 2002), as in (4.64). The left member of the pair has a structure without movement, containing an empty Spec,IP. This is paired with a structure incorporating movement: the actor NP moves to the subject position, binding a trace in its original position.

(4.64)



The patient voice structure is very similar. In fact, the left member of the pair is almost identical to the left member of the pair in the actor voice structure (4.64), except for the distribution of case features. In the right structure, the patient moves to the subject position.

(4.65)



For the purposes of pragmatic competition, I propose that we determine whether two syntactic structures are pragmatic alternatives by comparing them at a level of representation without movement. Given the construal of movement outlined above, this is achieved very simply. We simply check the similarity of structures which are the first members of each ordered set (i.e., “before” movement has taken place).

With this in mind, below is a final revision of our notion of how pragmatic alternatives are calculated. For any two structures, we can check if they are sufficiently similar in order to pragmatically compete. To do this, we check if they minimally differ with respect to some set of lexical alternatives, such as $\langle \textit{some}, \textit{all} \rangle$, $\langle \textit{few}, \textit{no} \rangle$, $\langle \textit{SG}, \textit{PL} \rangle$, or $\langle \textit{AV}, \textit{PV} \rangle$. The definition of minimal difference with respect to a scale is below. Now, in order to incorporate movement, syntactic structures are represented as sets of trees like (4.64) and (4.65).

Again, we check structural similarity in condition (a), but we only look at the level of representation without movement. At this level, we check there is a node in which is occupied by a different lexical alternative in each tree. Finally, we check the distribution of morphosyntactic labels such as lexical items, syntactic categories, and grammatical features, making sure they are maximally consistent between each of the trees while still allowing the key lexical alternatives

to vary between structures.

(4.66) *Minimal difference with respect to a scale:*

Two ordered sets of trees \mathcal{O}_1 and \mathcal{O}_2 differ at most by a pair $\langle Lex_1, Lex_2 \rangle$ iff:

- a. The first members (\mathcal{T}_1 and \mathcal{T}_2) of the tree-sets have the same shape.
- b. At one point where \mathcal{T}_1 has Lex_1 , \mathcal{T}_2 has Lex_2 at the same point.
- c. Map all labels to the same nodes in \mathcal{T}_1 and \mathcal{T}_2 , *except*:
 - i. the labels Lex_1 and Lex_2 , and
 - ii. the label of any feature f , such that f is co-indexed with Lex_1 or Lex_2 .

The definition in (4.66) has some success in predicting that the two key Tagalog voice affixes pragmatically compete, despite several morphosyntactic complexities which arise in swapping one voice morpheme out for the other. These kinds of morphosyntactic complexities are not considered by many previous “morpheme swapping” accounts of calculating pragmatic alternatives. (4.66) is intended as a revision which is sensitive to these sorts of morphosyntactic which has broad application to a wide range of grammatical phenomena cross-linguistically.

4.6.4 Assertable alternatives

At this point, we can link up the theory of pragmatic alternatives built in this section with the empirical observations of the previous section involving the assertability of alternatives. How do we capture the central insight that pragmatic alternatives, even though they are “un-uttered”, they are grammatical? This will be implemented here by specifying that any two trees only enter into pragmatic competition if they are appropriately generated by the particular grammatical conditions of the language

For example, we derive the observations in (4.67). According to Horn 2006b, the expression “rectangle” implicates non-equilateral rectangle, by virtue of entering into pragmatic competition with the term “square”, a highly salient term for equilateral rectangle. “triangle” on the other hand does not pragmatically compete with any equally salient term for equilateral triangle and so does not trigger any analogous implicature.

(4.67) a. I painted a rectangle. \rightsquigarrow I painted a non-equilateral rectangle.

- b. I painted a square.
- c. I painted a triangle. ↗ I painted a non-equilateral triangle.
- d. I painted an equilateral triangle.

In order to account for these observations, we can take the pair in (4.67a–b) to count as pragmatic competitors. The weaker “rectangle” is strengthened by conjoining (a) with the negation of (b). No analogous strengthening takes place with (c) due to the absence of an analogous competitor, which we can understand if there is no equally (4.67c–d) do not count as pragmatic competitors.

Below is a statement which defines the notion of pragmatic alternative. It is a relation between two linguistic forms, requiring well-formedness and minimal difference with respect to some scale, as in (4.66).

(4.68) Pragmatic alternatives:

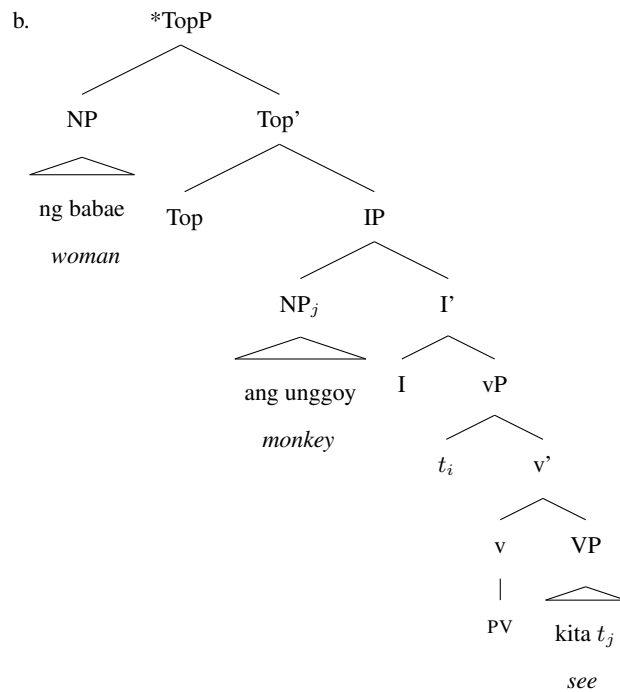
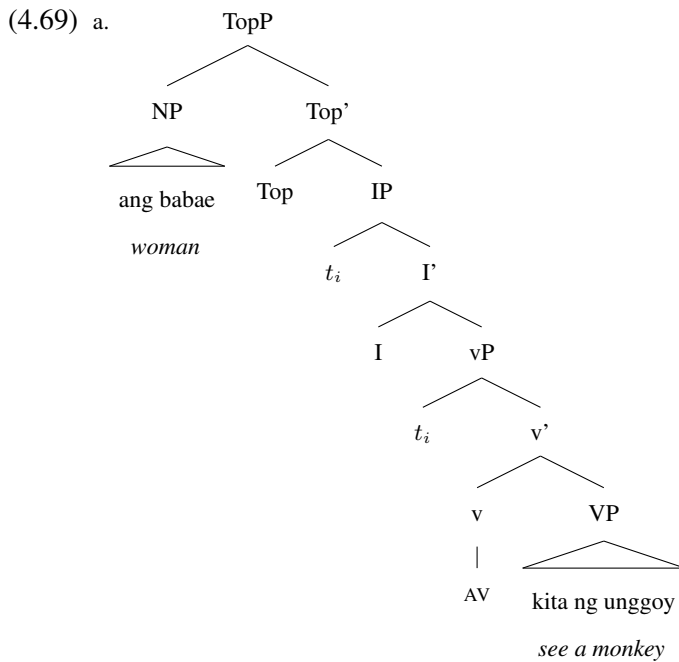
Two expressions S and S' are pragmatic alternatives only if:

- a. They are grammatically well formed, and,
- b. They are minimally different with respect to some pair (see (4.66)).

The pair in (4.67a) and (4.67b) pass this requirement, they are minimally different with respect to the scale $\langle \text{rectangle}, \text{square} \rangle$, so long as such as scale is conventionalized. The pair in (4.67c) and (4.67d) fail this requirement. Although they are both grammatically well-formed, they are not minimally different. One reason for this is that “equilateral triangle” is more syntactically complex than “triangle”, causing the pair to fail the structural similarity condition in (4.66a). Furthermore, (4.67c) fails to pragmatically compete with any expression which is grammatically well-formed and as equally complex due to the lack of any English term for equilateral triangle.

Moving to the Tagalog structures under discussion, we saw how basic verb-initial clauses enter into pragmatic competition in the previous subsection. In (4.69a), I have sketched a basic analysis for an actor-initial structure, using a functional projection arbitrarily labelled TopP (which houses a fronted topic). What follows is one particular syntactic characterization of

topicalization and the extraction restriction. As before, the pragmatic theory should be flexible enough to incorporate differing syntactic theories.

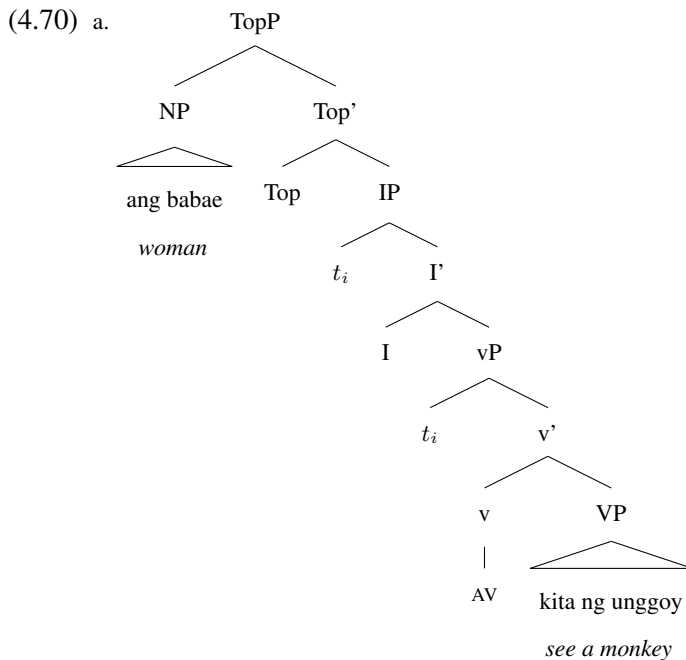


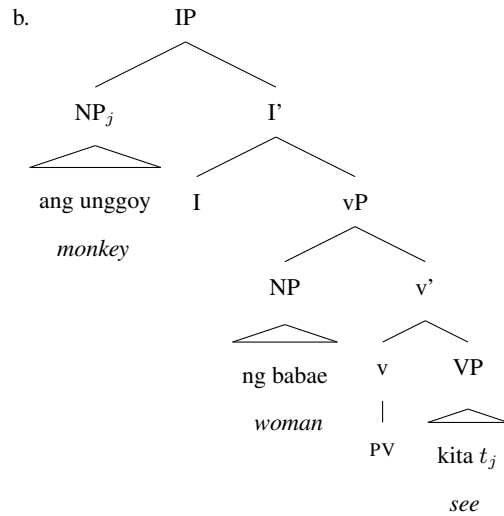
By the extraction restriction, only the nominative subject is able to front to the higher topic position, as in (4.69a), in which the topicalized actor *ang babae*, ‘woman’, binds a trace in both the subject position and its lower thematic position. (4.69b) is an ungrammatical structure. Here we have a patient voice structure in which the patient NP, *ang unggoy*, ‘monkey’, occupies the

subject position. The topicalized NP therefore fails to bind a trace in the subject position in violation of the extraction restriction, ruling out (4.69b).

As (4.69b) is ungrammatical, the two structures in (4.69) fail to enter into pragmatic competition, failing the grammatical well-formedness pre-condition for pragmatic alternatives. This explains why we fail to observe non-uniqueness implicatures emerging from actor-initial structures like (4.69a).

We also find an explanation of why the structure with a topicalized actor does not pragmatically compete with a structure without topicalization. For example, the pair in (4.70) are ineligible for pragmatic competition. Both structures are grammatical, so they pass pre-condition (a) in our definition of pragmatic alternatives. However, structure (a) has a topicalized actor while structure (b) does not. They therefore are not minimally different in terms of syntactic complexity. Thus, even though (a) has an indefinite patient while (b) has a definite patient, no pragmatic enrichment of (a) takes place.





There is a pragmatic intuition behind the lack of competition between the above structures. A speaker chooses to use the topicalization structure in (a) for a particular reason, to assign particular discourse prominence to the actor NP, for example, for contrastive effect. Interlocutors can reason that the speaker chose the the structure in (a) partly in order to convey the topicalization of the actor. Although the potential alternative (b) alters the definiteness of the patient, it also eliminates the topic status of the actor. Thus, the interlocutors do not need to collectively reason about why (a) was chosen over (b). (b) is eliminated as a competitor because it fails to attribute the same information structural status to the sub-expressions.

Chapter 5

The interaction of presupposition and implicature

5.1 Introduction

The previous two chapters presented evidence for a non-uniqueness implicature emerging from the use of genitive case-marked indefinites in Tagalog. According to the analysis, indefinite expressions in Tagalog enter into pragmatic competition with un-uttered, definite alternatives. In chapter 3, I discussed how the relative semantic strength of alternative expressions should be assessed, and in chapter 4, I discussed how these alternative expressions are derived, proposing a manner of alternative calculation which is sensitive to the syntactic structure of the utterance. With this discussion as a foundation, in this chapter, I discuss how these alternatives enter into pragmatic reasoning and how associated implicatures are calculated.

In chapter 3, I suggested that implicatures arising from indefinite expressions are calculated with reference to a principle *Maximize Presupposition*, which demands that speakers use the presuppositionally strongest expression amongst a set of alternatives. In this chapter, I critically assess various construals of this principle. I propose that such an independent principle is unwarranted, and implicatures associated with *Maximize Presupposition* can be derived by appealing to independently motivated pragmatic principles such as preferences for more informative expressions.

The principle Maximize Presupposition, first invoked by Heim 1991, demands that speakers opt for presuppositional lexical items over non-presuppositional competitors. In the words of Heim (1991): “presuppose as much as possible”. This principle, termed “*Maximize Presupposition*” by Sauerland (2003, 2008), has been proposed as the root cause behind a particular kind of pragmatic inference emerging from the use of non-presuppositional lexical items.

According to previous theories of *Maximize Presupposition*, interlocutors reason about the speaker’s choice between conventionalized pairs of lexical items, such as $\langle a, the \rangle$, $\langle believe, know \rangle$, and $\langle all, both \rangle$. In each case, the paired lexical items are understood to differ only by the presence of a presupposition encoded by the latter member. Thus, the former member can be understood to be semantically “weaker”, and the latter to be semantically “stronger”, in a sense to be made more precise later on. The following table, adapted from Lauer 2016, outlines the presuppositional differences between these paired lexical items. In every case, the stronger item of the pair is analyzed as encoding a presupposition (listed in the final column) which the weaker item does not.

(5.1)

<i>weak item</i>	<i>strong item</i>	<i>differential presupposition</i>
a	the	domain contains exactly one element
all	both	domain contains exactly two elements
none	neither	domain contains exactly two elements
believe	know	prejacent is true
if (<i>subjunctive</i>)	if (<i>indicative</i>)	antecedent consistent with present beliefs (see Ippolito 2003)

Maximize Presupposition demands that the speaker use the stronger alternative (i.e., *the* over *a*), provided its presupposition is satisfied. The mutual assumption that interlocutors abide by this rule may then give rise to pragmatic inferences. Specifically, the use of the weak item is understood to give rise to the inference that the “differential presupposition” is false. For example, an utterance of (5.2a) gives rise to the inference that there are multiple authors of Waverley. This can be understood as the negation of the presupposition triggered by (5.2a)’s alternative, (5.2b), i.e., that it is not the case that there is just one author of Waverley.

(5.2) a. Scott is an author of Waverley. \rightsquigarrow *there is more than one author*

b. Scott is the author of Waverley. \rightsquigarrow *there is just one author*

I will argue in this chapter that the reasoning underlying the pragmatic inference in (5.2a) can be derived like a scalar implicature of the non-presuppositional variety, such as the upper bound implicature triggered by weak scalar items like “some” (i.e., “not all” implicature). If we take the presuppositions of lexical items like “the” to be accommodated in particular utterance contexts, following Chemla 2008, Schlenker 2012, Leahy 2016, etc., we can understand presuppositionally stronger utterances like (5.2b) to be more informative than their weaker counterparts like (5.2a). The utterance of the weaker version therefore gives rise to quantity-based inferences, such as the non-uniqueness inference.

Besides such implicatures, the central motivation for *Maximize Presupposition* in previous work has been the infelicity of presuppositionally weak lexical items in contexts in which the presupposition of their competitor is known to be true. If it is common knowledge that tents have just one weight, an utterance of (5.3) should be infelicitous.

(5.3) A weight of the tent is 4lbs. Heim 1991

These kinds of data can fall out of basic communicative principles also if we assume that lexical items like “a” are *a priori* less preferable to “the”, independently of their meanings, following Percus 2006 and Lauer 2016. I argue, moreover, that the infelicity of (5.3) is not due to mechanisms unique to presuppositional scalar items like “a” and “the”, but similar phenomena are observed in the non-presuppositional domain of lexical competitors, such as “some” and “all”. Magri 2009, 2011 similarly identifies examples in which the implicature triggered by (non-presuppositional) weak scalar items conflicts with common knowledge and creates infelicity, as in (5.4).

(5.4) Some even numbers are divisible by two.

After raising some theoretical issues with Magri’s account, I suggest a unification of the phenomena in (5.3) and (5.4). I propose a regularized bias against weak scalar items: utterances of weak scalar items are more costly than their stronger competitors. Under this analysis, there is nothing special about examples like (5.3) which motivate the stipulation of an independent pragmatic principle *Maximize Presupposition*. Finally, I demonstrate how these kinds of

inferences can be incorporated in an interactional model of conversational implicature, such as the Rational Speech Act model of Frank and Goodman 2012 *et seq.*

5.2 Motivating competition

The eventual goal of this chapter is to motivate an account of implicatures such as the non-uniqueness implicature of indefinites with *a* which capitalizes on the speaker's choice between using the indefinite article *a* or the definite article *the*. In many ways, the choice between *a* and *the* recalls the choice between weak and strong scalar items like those in the table in (5.5), repeated from chapter 1. In each case, we have a weak scalar item (WSI) encoding for a conventional meaning, and additionally giving rise to a non-conventional pragmatic inference via competition with its associated strong scalar item (SSI).

(5.5)	weak item	conventional meaning	non-conventional meaning	strong item
	some	<i>at least some</i>	<i>some but not all</i>	all
	possible	<i>at least possible</i>	<i>possible but not certain</i>	certain
	three	<i>at least three</i>	<i>three but not more than three</i>	<i>larger numerals</i>
	or	<i>or and perhaps both</i>	<i>or but not both</i>	and
	warm	<i>at least warm</i>	<i>warm but not hot</i>	hot

The eventual goal of the chapter will be to explain the non-uniqueness inference triggered by indefinites via the same kind of reasoning generating the table (5.5). Thus the table can be extended with the row in (5.6).

(5.6)	weak item	conventional meaning	non-conventional meaning	strong item
	a	<i>domain contains ≥ 1 element</i>	<i>domain contains > 1 element</i>	the

There is a clear way in which the row in (5.6) differs from those in (5.5), namely that in (5.6), the non-conventional meaning is calculated by conjoining the asserted meaning of the weak scalar item with the negation of the presupposition encoded by the strong item. The cases in (5.5), on the other hand, are calculated by conjoining the meaning of the weak scalar item with the negation of the asserted content of the strong scalar item. Following Leahy 2016, I

label cases like the non-conventionalized inference in (5.6), involving the negation of a strong scalar item's presupposition, as a *presuppositional implicature*. The scheme in (5.6) can be extended to the other examples of presuppositional implicatures in (5.1).

We can establish that the non-uniqueness implicature triggered by *a* is non-conventionalized via standard tests for implicature: it can be cancelled, reinforced, or suspended. These tests were similarly employed in chapter 3 in order to diagnose the non-uniqueness implication of Tagalog genitive patients as an implicature.

The examples in (5.7) show that we can felicitously cancel, reinforce, and suspend (by signalling epistemic uncertainty) the non-uniqueness implication of indefinites, but not the uniqueness implication of definites. In this respect, the distinction between English indefinites and definites closely matches the patterns observed in previous chapters about Tagalog indefinites and definites.

- (5.7) a. Scott is an author of Waverley, in fact he is the only author of Waverley.
 a'. #Scott is an author of Waverley, in fact there are no authors of Waverley.
 b. Scott is an author of Waverley, and there are others of Waverley besides him.
 b'. #Scott is an author of Waverley, and there is an author of Waverley.
 c. Scott is an author of Waverley, and for all I know he is the only author of Waverley.
 c'. #Scott is an author of Waverley, and for all I know there are no authors of Waverley.

Next we can examine the behavior of *a* with respect to negation. As expected, the conventional existence inference is able to be negated via regular negation. The non-uniqueness inference is not negated, absent any marked intonation. Negating an expression with *a* does not give rise to the inference that its description is uniquely instantiated.

(5.8) I didn't provide a satisfactory answer.

(\sim) *it's not the case that there was a satisfactory answer I provided*

($\not\sim$) *it's not the case that there's not exactly one satisfactory answer.*

= *there's exactly one satisfactory answer*

As expected, the non-uniqueness inference can be negated given marked intonation associated with metalinguistic negation. Compare (5.9a) with the regular negation (5.8). Here, there is

an implication that the non-uniqueness inference is negated, giving rise to the opposite inference of uniqueness: there is exactly one satisfactory answer. (5.9b) provides a naturally occurring example which can be understood as metalinguistic negation of the non-uniqueness inference associated with *a*.

- (5.9) a. I didn't provide A satisfactory answer (I provided THE satisfactory answer).
 b. Ultimately, for all of this to work, the entire company, starting from senior management, needs to commit to building a data-driven culture, where Big Data is not "a" thing, but "the" thing.

How do we know that a set of lexical items comprise a conventionalized scale? Following on from Horn 1972, 1989, Horn and Abbott (2013) provide the frames in (5.10) by which scalar alternatives can be contrasted, and by which implicatures can be cancelled, reinforced, and suspended. The felicitous placement of lexical pairs in these frames provides evidence that they are "paradigmatic alternatives". For each frame, *X* stands for an item on a scale which is ranked lower than *Y*.

- (5.10) a. *not only X but Y*
 b. *X and for all I know Y*
 c. *X if not Y*
 d. *X or even Y*
 e. *X, indeed/in fact Y*
 f. *not even X, let alone Y*
 g. *Y, or at least X*

In their investigation of *a* vs. *the*, Horn and Abbott (2013) make the argument that the two articles comprise a scale, based on a collection of naturally occurring examples fitting the frames in (5.10). We can find similar naturally occurring examples using scalar items. The following examples are pulled from Google after searching for strings using *some* as the weak scalar item, and *all* as the strong scalar item.

- (5.11)
- a. As the physicists of our time have tried to elaborate an integrated single theory, capable of explaining not only some but all phenomena of the physical universe.
 - b. Of course, I know that some, and for all I know, all are not true, but they were recited to me as a sort of entertainment
 - c. I heard that some if not all of your products are made by Duracap
 - d. It may happen that some (or even all) players have no gold at the end of the game.
 - e. First, I am open to the possibility that some, indeed all, conscious states may be essentially representational
 - f. ...some- in fact, all 92 minutes of The Book of Souls stands as a perfect justification for not just their existence in the 2010s
 - g. I don't have all, not even some of my ducks in a row.
 - h. Is it possible that all or at least some of the realms of oblivion are Nirms from previous cycles?

Below, I list some examples pulled from Google which suggest the conventionalization of a scale consisting of a weaker member, *a*, and a stronger member, *the*. These examples, building on those listed in Horn and Abbott 2013, provide further evidence that speakers consider the choice between *a* and *the* to be salient.

- (5.12)
- a. For language – language as the transformation of thought into written words in any language – is not only 'a' but the corpus common to all writers in our period.
 - b. For the last two seasons, Boston has been touted as a, and maybe the, NBA team of the future.
 - c. The subjectivities of each individual become a, if not the, unique source of significance, meaning and authority.
 - d. Globalization is increasingly omnipresent. We are living in a – or even the – “global age”.
 - e. This is a indeed the bare minimum set of dressings that you could find in any decent American restaurant: ketchup, tabasco, bbq etc.

- f. That the experts in the relevant fields fail to see atheism as not even a, let alone the, driving factor is telling.
- g. The (or at Least “A”) Reason We Are Not Hiring Trainees.

The diagnostics laid out in the previous subsection provide us with evidence that certain inferences are non-conventional, and further, that they arise via paradigmatic competition between semantically weak and strong lexical competitors. Scalar inferences arising from weak scalar items like *some* and *possible* fall into this category, but also so-called presuppositional implicatures, such as the non-uniqueness implicature triggered by *a*. For this reason, we can appeal to a conventionalized scale of lexical items like $\langle a, the \rangle$ in order to derive the observed implicatures. Throughout, I will refer to the scalar distinction between members of such pairs as “presuppositional strength”, and to weaker members of such scales “presuppositionally weak scalar items (PWSIs)”.

Given their empirical similarities, should scalar implicatures and presuppositional implicatures reduce to the same analysis? In the following sections, I outline some previous theories of presuppositional implicatures and the arguments that these theories have put forward against simply reducing them to quantity-based implicatures.

5.3 Preferences between forms and domain restriction

Presuppositional implicatures, such as the non-uniqueness implicatures of indefinites with *a*, are commonly handled by positing a principle like *Maximize Presupposition* which demands that speakers choose presuppositionally stronger items like *the* over their presuppositionally weaker competitors like *a*. But what kind of principle is *Maximize Presupposition*? Is it a maxim in the sense of Grice? Does it reduce to one of Grice’s originally proposed maxims such as quantity? If *Maximize Presupposition* were to be classified as a Gricean maxim, then we expect it to be rooted in rational behavior. Grice (1975) says the following about why interlocutors are constrained to behave in a way proscribed by the Cooperative Principle and its associated maxims:

(5.13) “A dull but, no doubt at a certain level, adequate answer is that it is just a

well-recognized empirical fact that people DO behave in these ways; they have learned to do so in childhood and not lost the habit of doing so; and, indeed, it would involve a good deal of effort to make a radical departure from the habit. It is much easier, for example, to tell the truth than to invent lies.

I am, however, enough of a rationalist to want to find a basis that underlies these facts, undeniable though they may be; I would like to be able to think of the standard type of conversational practice not merely as something that all or most do IN FACT follow but as something that it is REASONABLE for us to follow, that we SHOULD NOT abandon.”
(Grice 1975:48)

Thus, any attempt to reduce *Maximize Presupposition* to being a general component of communicative cooperativity in the sense of Grice must in some sense root *Maximize Presupposition* as a principle of rational behavior. But in its most general and by now familiar form, “prefer presuppositionally stronger expressions”, the way in which it should ground out in general principles of communicative behavior is not obvious.

Heim (1991) deals explicitly with the question of whether *Maximize Presupposition* reduces to existing maxims and determines that it does not. In what follows, I outline her account of pragmatic competition between *a* and *the*.

5.3.1 Deriving infelicity by blocking

Theories of pragmatic competition between PWSIs and their alternatives, including Heim’s, navigate between two interrelated goals. The first goal of Heim’s proposal is the familiar presuppositional implicatures arising from the use of PWSIs. Examples such as (5.14) give rise to an implicature that the victim had multiple fathers.

(5.14) I interviewed a father of the victim.

Heim especially focuses on cases in which the implicature arising from the use of *a* is not necessarily best described as one of non-uniqueness, but instead, non-familiarity. According to Heim’s judgement, the indefinite in (5.15) implicates that the pianist mentioned is not the pianist member of the Beaux Arts Trio.

(5.15) Richard went to hear the Beaux Arts Trio last night, and afterwards he had a beer with a pianist.

A key issue to be considered is whether the non-uniqueness implicature of (5.14) and the non-familiarity implicature of (5.15) are able to be unified under the same analysis. In either case, the implicature triggered by the indefinite NP is understood under Heim's proposal to arise via competition with the corresponding definite NP.

The second goal of Heim's proposal is to account for the pragmatic oddness of examples like (5.16). In these kinds of examples, the use of the weak item is marked as odd in contexts in which the presupposition of its stronger competitor is understood to be satisfied. Throughout, I will refer to such examples as "PWSI blocking".

(5.16) A weight of our tent is under 4 lbs. (Heim 1991:117)

A key question of the ongoing discussion about examples of PWSI blocking is whether they are infelicitous *per se* (or even ungrammatical), or whether they simply create inferences which are at odds with world knowledge. In order to account for both presuppositional implicatures and PWSI blocking, Heim appeals to the principle in (5.17).

(5.17) In utterance situations where the presupposition for [*the* ζ] ξ is already known to be satisfied, it is not permitted to utter [*a* ζ] ξ. (Heim 1991:123)

While the principle in (5.17) shares some similarity with lexical competition familiar from studies of scalar implicatures, the principle is phrased more like a morphosyntactic blocking principle than a principle of rational communication. See for example, the use of the phrase "it is not permitted to utter...". Under this construal of *Maximize Presupposition*, PWSI blocking cases like (5.16) could be understood to be ruled out as ungrammatical, rather than in violation of some notion of cooperativity.

According to this perspective, (5.16) competes with a corresponding definite expression (5.18). Assuming that interlocutors mutually take for granted the assumption that tents have just one weight, the uniqueness presupposition of the definite alternative (5.18) is satisfied. Therefore, by (5.17) the use of 'a' in (5.16) is "not permitted".

(5.18) The weight of our tent is under 4 lbs.

Heim considers whether her construal of *Maximize Presupposition* reduces to Gricean notions of cooperativity. She notes the similarities with scalar implicatures: in both cases, we have competition between lexical items ordered via some notion of semantic strength. This raises the question of whether *Maximize Presupposition* as stated in (5.17) can reduce to the Gricean maxim of quantity. Heim explicitly denies this possibility. In considering the relative informativity of the presuppositionally weak (5.16) and the presuppositionally strong (5.18), there is no sense in which (5.18) is *informationally stronger*.

According to the analysis, it is a common ground assumption between interlocutors that the tent has just one weight. Therefore, the presupposition triggered by (5.18) that the tent has just one weight is not *informative*. No interlocutor adds this presupposition to his or her store of information gained from the utterance of (5.18), obviating a quantity-based account.

Heim instead suggests construing the blocking principle in (5.17) as a new maxim “Make your contribution presuppose as much as possible”, thereby assigning a stronger preference for the presuppositionally stronger independently of context, but no more informative, (5.18).

5.3.2 Presuppositions

At this point, it is helpful to make precise certain notions which are employed in order to derive PWSI blocking via Heim’s construal of *Maximize Presupposition* in (5.17). These include the notions of presupposition and presupposition satisfaction.

To represent presuppositions in a logical representation language, we can add a binary propositional operator $:$. Its definition follows Beaver and Krahmer 2001, though the notation is from Heim and Kratzer 1998. $[\phi : \psi]$ should be read as ‘ ψ presupposes ϕ ’, or ‘ ϕ is a definedness condition for ψ ’. In short, in order to check the truth of $[\phi : \psi]$, we first check whether ϕ is true. If it is not true, the entire $[\phi : \psi]$ is neither true nor false (symbolized as $\#$). If ϕ is true, then $[\phi : \psi]$ may have a classical truth value.¹

Armed with this definition, we can write down the conventional meanings of (5.16) and

¹The truth table for the binary propositional operator $:$ is as follows (the possible truth values for the left argument, the definedness condition, are listed horizontally):

(5.18), as in (5.19), differing only by a presupposition triggered by the definite alternative, that the description is instantiated by just one individual.²

- (5.19) a. A weight of the tent is 4lbs $\rightsquigarrow \lambda w. \exists x[\mathbf{w.o.t.t}_w(x) \wedge \mathbf{4lbs}_w(x)]$
 b. The weight of the tent is 4lbs $\rightsquigarrow \lambda w. \exists! y[\mathbf{w.o.t.t}_w(y)] : \exists x[\mathbf{w.o.t.t}_w(x) \wedge \mathbf{4lbs}_w(x)]$

Now we can consider how propositions like those in (5.19) update the common ground. As is standard, a common ground C is taken to be (the characteristic function of) a set of possible worlds, representing the worlds which are compatible with the mutual, public beliefs of the interlocutors. Updating a common ground with a proposition means incorporating the informational content of that proposition into the common ground, i.e., by eliminating worlds incompatible with the proposition. A context C updated with a proposition ϕ is notated as $C[\phi]$ and defined in (5.20):

(5.20) **Context update:** $C[\phi] = \lambda w. C(w) \wedge \phi(w)$

(5.20) suffices for updating the common ground with propositions that don't encode presuppositions. The definition needs to be updated to take presupposition satisfaction into account. In prose, in order to update the common ground with a proposition, we first check whether the presupposition holds with respect to the common ground. If this condition isn't satisfied, the update yields absurdity (the empty set of worlds). If the condition is satisfied, the context is reduced to the set of worlds in which the proposition is true.

In order to formalize this, I use Beaver and Krahmer's presupposition operator P which picks out the presuppositions of a proposition, i.e., the worlds in which a proposition's presuppositions are satisfied.

(5.21) **Presupposition operator:** $P\phi = \lambda w. \phi(w) \neq \#$

:	T	F	N
T	T	N	N
F	F	N	N
N	N	N	N

²These interpretations assume the following conventional meanings for the articles *a* and *the*.

- a. $a \rightsquigarrow \lambda w. \lambda P. \lambda Q. \exists x[P_w(x) \wedge Q_w(x)]$
 b. $the \rightsquigarrow \lambda w. \lambda P. \lambda Q. \exists! y[P_w(y)] : \exists x[P_w(x) \wedge Q_w(x)]$

With these operators, we can define context update in a way which is sensitive to presuppositions as in (5.22). Updating the common ground with a proposition, we first check whether the presupposition holds with respect to the common ground. If not, we return the absurd state, the empty set of worlds. If the presupposition does hold throughout the common ground, we update the common ground with the proposition's at-issue content.³

(5.22) **Context update:** (with definedness conditions)

$$C[\phi] = \lambda w. (\forall w' [C(w') \rightarrow P\phi(w')]) \wedge C[\phi](w)$$

With a precise understanding of how common grounds are updated with propositions that include presuppositional content, we can examine the differing predictions of various theories of *Maximize Presupposition* and how presuppositional implicatures are derived.

5.3.3 Deriving presuppositional implicatures using domain restriction

Recall that Heim's theory is designed to capture two interrelated phenomena, PWSI blocking and presuppositional implicatures. Her example of the latter phenomenon is repeated below in (5.23a). The analysis holds that (5.23a), using the indefinite article, pragmatically competes with (5.23b), using the definite article.

- (5.23) a. Richard went to hear the Beaux Arts Trio last night, and afterwards he had a beer with a pianist.
- b. Richard went to hear the Beaux Arts Trio last night, and afterwards he had a beer with the pianist.

Again, we appeal to the principle of *Maximize Presupposition* as construed in (5.17). In any discourse context in which the presupposition of the definite (5.23b) is satisfied, i.e., a discourse context in which there is just one pianist, an utterance of the corresponding indefinite alternative, (5.23a), should be blocked.

There is a somewhat subtle underlying assumption about the nature of discourse and presupposition satisfaction at play here. *Maximize Presupposition* should only be considered when

³ $P \sqsubseteq Q$ is an abbreviation of $\forall w [P(w) \rightarrow Q(w)]$

the common ground entails the presupposition of the definite, i.e., uniqueness. In any common ground compatible with there being multiple pianists, the uniqueness presupposition of the definite is not satisfied. In such contexts, *Maximize Presupposition* should not apply and should not block the use of the indefinite. But by definition, any utterance context in which the non-uniqueness implicature of an indefinite could sensibly emerge must have a common ground compatible with there being multiple pianists. So, absent any further assumptions, how could *Maximize Presupposition* ever give rise to a non-uniqueness implicature? Leahy (2016) makes this point in some detail in a critique of Schlenker's (2012) analysis of *Maximize Presupposition*-based implicatures.

Let C_0 in (5.24) be a context with only one pianist, which is unsettled as to whether Richard had a beer with the unique pianist or not. PB is the world (or equivalence class of worlds) in which there is one pianist and Richard had a beer with him, and $P\neg B$ is the world in which there is one pianist and Richard did not have a beer with him. The presupposition of the definite *the pianist* (abbreviated as **unique(pianist)**) is satisfied in this context. An update with the at-issue content (abbreviated as **one(pianist)(beer)**) yields a new context in which it is settled that Richard had a beer with the unique pianist. If C_0 is our utterance context, the indefinite *a pianist* should be blocked by *Maximize Presupposition*.

- (5.24) a. $C_0 = \{PB, P\neg B\}$
 b. $C_0[\mathbf{unique(pianist)} : \mathbf{one(pianist)(beer)}] = \{PB\}$

Now we can try to derive the non-uniqueness implicature of the indefinite expression *a pianist*. The non-conventional meaning of this expression should serve to reduce an input context to the set of worlds in which there are multiple pianists. We can consider an alternative context, C_1 , in which it is unsettled as to whether Richard had a beer with a pianist, and furthermore, the number of pianists is unsettled (either there is one, symbolized as P , or there are two, symbolized as PP). The context must be *a priori* compatible with there being multiple pianists in order for any non-uniqueness implicature to arise, assuming implicatures update contexts monotonically just like any other kind of proposition.

However, in a context open to the possibility of multiple pianists, the presupposition of the

corresponding definite expression, *the pianist*, is not satisfied. Thus, according to Heim's construal of *Maximize Presupposition*, C_1 is not an utterance situation in which the presupposition of *the* is known to be satisfied, thus an utterance of *a* should not be blocked. Asserting the indefinite expression has the effect of settling the matter as to whether Richard had a beer with any pianist, but does not settle the matter of how many pianists there are. (5.25) demonstrates how no non-uniqueness implicature is triggered by "a" given these assumptions.

- (5.25) a. $C_1 = \{PB, P\neg B, PPB, PP\neg B\}$
 b. $C_1[\mathbf{one(pianist)}(\mathbf{beer})] = \{PB, PPB\}$

At best, we have predicted that the common ground, after an utterance of *a pianist*, is merely compatible with there being multiple pianists. Without any further adjustments to the theory, it seems that the uses of *the* and *a* are mutually exclusive. In contexts like C_0 , indefinite *a* is blocked by *Maximize Presupposition*, while in contexts like C_1 , definite *the* is blocked by presupposition failure. How then does the choice of determiner have any communicative effect?

Heim incorporates another component into the theory: quantifier domain restriction. It is well known that quantificational determiners regularly quantify over domains which are implicitly restricted by properties of the utterance context. For example, in (5.26a), the quantificational determiners are understood as quantifying over just Swedish individuals, and in (5.26b), the determiner *most* quantifies over just English individuals.

- (5.26) a. Swedes are funny. All tennis players look like Björn Borg, and more men than women watch tennis on TV. But most non-Swedish tennis players are disliked by many.
 b. The English love to write letters. Most children have several pen pals in many countries.

Westerstahl 1985:49

These examples demonstrate the relatively flexibility of quantifier domain restriction. It is not true that all quantificational NPs in (5.26a) are restricted to just Swedish individuals: restricting *most non-Swedish tennis players* to Swedish individuals means that *most* quantifies

over the empty set. Similarly, *several pen pals* in (5.26b) cannot be restricted to English individuals, given the most accessible understanding of the sentence. Examples like those in (5.26) suggest that the domain of quantification must be individually determined for each quantificational NP, and not for the discourse or even sentence as a whole.

We can restrict a quantificational determiner by imposing an additional condition on its first argument. So an unrestricted quantificational determiner can be represented as in (5.27a), while a restricted determiner is represented in (5.27b). The restricted determiner makes use of a free variable f , which represents an additional restriction on the determiner's first argument. The value of f is determined within the utterance context.

$$(5.27) \quad \text{a. } Det \rightsquigarrow \lambda w. \mathbf{D}(A_w)(B_w)$$

$$\text{b. } Det \rightsquigarrow \lambda w. \mathbf{D}(\lambda x. A_w(x) \wedge f_w(x))(B_w)$$

We can consider a discourse context in which there are multiple individuals who fit the description **pianist**. The speaker can felicitously use the definite NP *the pianist*, so long as the determiner is restricted in such a way that its presupposition is satisfied. For example, let's assume that the Beaux Arts Trio has just one pianist, and the interlocutors know this. However, let's also assume that the interlocutors are collectively unsure about whether or not there's an additional pianist individual in the relevant discourse context. We can label any world in which the Beaux Arts Trio has just one pianist with A, an additional pianist as P, and again, B represents Richard's getting a beer. C_2 represents this discourse context before any utterance.

$$(5.28) \quad C_2 = \{AB, A\neg B, APB, AP\neg B\}$$

(5.29a) is a semantics for the unrestricted reading of the definite alternative of the second conjunct in (5.23a) "Richard had a beer with the pianist". Here there is a presupposition that there is just one pianist. This presupposition is not satisfied in C_2 . In (5.29b), on the other hand, the definite is implicitly restricted to just those pianists who are in the Beaux Arts Trio. The prior mention of the Beaux Arts Trio in the preceding conjunct makes restricting the domain to just the members of the trio a natural choice. In (5.29b), the definite's presupposition is satisfied in C_2 : in each world, only one individual meets this description.⁴

⁴ $P \sqcap Q$ abbreviates $\lambda x. P(x) \wedge Q(x)$

- (5.29) a. $\lambda w.\mathbf{the}(\mathbf{pianist}_w)(\mathbf{beer}_w)$
 b. $\lambda w.\mathbf{the}(\mathbf{pianist}_w \sqcap \mathbf{trio}_w)(\mathbf{beer}_w)$

When is the indefinite variant, “Richard had a beer with a pianist”, blocked? Heim proposes that *Maximize Presupposition* constrains the choice of the implicit domain restriction of *a pianist*. According to Heim’s definition of *Maximize Presupposition*, interlocutors cannot jointly reason that the speaker intended to communicate (5.30a) using the domain restriction \mathbf{trio}_w . As restricting the domain of quantification just to the pianists who are members of the Beaux Arts Trio entails that there is just one pianist, the speaker is compelled to use *the* instead of *a* in order to satisfy *Maximize Presupposition*. The unrestricted version in (5.30b) does not encounter this problem.

- (5.30) a. $\lambda w.\mathbf{a}(\mathbf{pianist}_w \sqcap \mathbf{trio}_w)(\mathbf{beer}_w)$
 b. $\lambda w.\mathbf{a}(\mathbf{pianist}_w)(\mathbf{beer}_w)$

Interlocutors must reason that the domain of *a pianist* is restricted in such a way that the presupposition of *the* is not satisfied. This will ensure that the use of the indefinite *a pianist* will not be blocked by *Maximize Presupposition*. Heim gives an informal statement of how this is achieved:

- (5.31) “the domain spontaneously widens until it also includes all pianists on the next level of salience (perhaps all pianists that there are, if there are no gradations of saliency outside the Beaux Arts Trio)”. (Heim 1991:34)

As Heim is working in a purely extensional setting for this portion of her discussion, synchronizing the domain expansion to our model of presupposition and presupposition satisfaction could be handled in a number of ways. (5.32) lists two ways that we can replace the domain restriction \mathbf{trio} in (5.30a) with a value that leads to a larger set.

- (5.32) a. Choose a restriction f , such that for every
 $w \in C, \llbracket \mathbf{trio}_w \sqcap \mathbf{pianist}_w \rrbracket \subset \llbracket f_w \sqcap \mathbf{pianist}_w \rrbracket$
 b. Choose a restriction f , such that for some
 $w \in C, \llbracket \mathbf{trio}_w \sqcap \mathbf{pianist}_w \rrbracket \subset \llbracket f_w \sqcap \mathbf{pianist}_w \rrbracket$

(5.32a) states that we have to pick an f that ensures that *a pianist* is quantifying over a set of pianists that (i) has multiple members, and (ii) contains the Beaux Arts Trio pianist. The context is therefore settled with respect to there being multiple pianists. (5.32b) is a weaker condition. Here, there is at least one world which contains multiple pianists (including the Beaux Arts Trio pianist). But any other world may contain one or more pianists. Here, interlocutors have not resolved the issue of how many pianists there are.

Ostensibly, either kind of f is available to be chosen. But which one does Heim's construal of *Maximize Presupposition* force? If either strategy is used, the uniqueness presupposition triggered by *the pianist* will not be satisfied, and therefore the use of *a pianist* should be licensed.

Choosing (5.32a) single-handedly derives the observed inference of non-uniqueness emerging from the use of indefinites. In brief, the use of *a pianist* forces us to restrict the domain of pianists in such a way that there are multiple individuals meeting that description in every world in the context set. Thus by virtue of choosing this restriction, it is the mutual belief of the interlocutors that there are multiple pianists.

But this solution is somewhat unsatisfactory. While it does derive the observed inference, the domain expansion as stated in (5.32a) is unmotivated. If the interlocutors are collectively able to determine *any* value for f , so long as it falsifies the presupposition triggered by the definite *the pianist*, then why should they be required to choose an f with such a strong condition as (5.32a)?

The weaker condition in (5.32b) also suffices, falsifying the presupposition of the definite *the pianist*. In fact, any restriction of *a pianist* which ensures that the common ground is compatible with there being multiple pianists suffices (whether or not one of those pianists is a member of the Beaux Arts Trio). However, as the condition in (5.32b) is satisfied if merely one world in the context set has multiple pianists, we no longer automatically derive the non-uniqueness implicature. The common ground is compatible with there being one or multiple pianists, just as we saw in (5.28).

Another weakness of this analysis is pointed out by Heim herself in her original discussion. Heim observes that the use of the indefinite in the utterance "Richard had a beer with a pianist" in (5.23a) intuitively creates an inference that the pianist Richard met was *not* the pianist member of the Beaux Arts Trio. Under Heim's hypothesis about quantifier domain restriction, the

indefinite *a pianist* in (5.23a) is restricted by a property in such a way that the Beaux Arts Trio pianist remains in the domain of quantification (see the quote in (5.31)). So, according to this theory, there is no way to rule out the possibility that Richard had a beer with the Beaux Arts Trio pianist, contrary to Heim's intuition.

Her suggested solution to this worry suggests that quantity-based scalar reasoning is at play after all: "If the speaker knew enough to assert the [definite] proposition he should therefore have done so, especially since he could have done it without additional effort, viz. by uttering [(5.23a)] instead of [(5.23b)]. The fact that the speaker asserted the weaker proposition instead thus licenses the inference that he either considers the stronger one false or doesn't know whether it is true." The language here is strongly reminiscent of standard informativity-based reasoning for scalar implicatures sketched in the previous section, again raising the question of whether presuppositional implicatures should be classified as a separate phenomenon from quantity-based implicatures.

Although domain restriction must be a component of any theory of interpreting quantificational expressions, the discussion here leaves us with the impression that quantifier domain restriction is not enough to derive the observed non-uniqueness implicature of indefinites. In order to derive the full set of observed inferences, we need to enrich the picture with some notion of the relative informativity of definites and indefinites. I will discuss some other versions to this approach, in particular Schlenker's (2012), in the next section.

5.4 Informativity and accommodation

Although Heim denies that *Maximize Presupposition* falls out of the existing Gricean maxims, some subsequent authors have claimed that *Maximize Presupposition*-based implicatures can be calculated in the same way as quantity-based implicatures. For example, Schlenker (2012) and Leahy (2016) claim that *Maximize Presupposition* and the maxim of quantity are not independent, and can be treated as components of a single principle which demands that speakers choose the most informative utterance from a set of alternatives. Clearly, what is crucial is the way in which informativity is defined. Here, I will outline these informativity-based construals of *Maximize Presupposition* and discuss some counterpoints.

A preliminary but crucial step that subsequent authors take is to expand the empirical domain of *Maximize Presupposition* from definite and indefinite articles, to the range of pairs discussed in §1 of this chapter, including $\langle all, both \rangle$, $\langle none, neither \rangle$, $\langle believe, know \rangle$, and so on. In all cases, we have pairs of lexical items which differ only by the presence of a presupposition encoded by the “strong” member of the pair.

Given this generalization, we need a more precise way of specifying which utterances are pragmatic alternatives. Here, the approach follows Gazdar (1979) in his discussion of scalar alternatives in the calculation of quantity-based implicatures, as pursued in chapters 3 and 4. Given a lexicalized scale, alternative utterances can be constructed simply by replacing one instance of a lexical item in an utterance, and replacing it with a scale-mate, leaving the rest of the utterance intact as much as possible.

(5.33) **Pragmatic alternatives** (preliminary):

Given a conventionalized scale of expressions $\langle e, e' \rangle$, and two sentences S and S' :

S and S' are pragmatic alternatives iff S and S' are structurally identical except that in at least one place where S contains e , S' contains e' .

The two sentences in (5.34) are pragmatic alternatives as they differ only by the choice of *a* or *the*, two members of a conventionalized scale of lexical alternatives.

(5.34) a. I'm renovating a bathroom in my house.

b. I'm renovating the bathroom in my house.

Schlenker (2012) gives the following version of *Maximize Presupposition*. This version is intended to compare the relative strength of expressions at the level of the entire sentence. Schlenker later revises this to compare expressions at local levels. This is an alteration which I will discuss later on. For now, we will restrict attention to global cases.

(5.35) *Maximize Presupposition* (global version) (adapted from Schlenker 2012:393):

If a sentence S is a presuppositional alternative of a sentence S' , and the context C is such that:

i. the presuppositions of S and S' are satisfied within C ;

- ii. S and S' have the same assertive component relative to C ;
- iii. S carries a stronger presupposition than S' ,

then S should be preferred to S' .

Some auxiliary definitions are required in order to fully unpack (5.35).

By *presuppositional alternative*, Schlenker means a pragmatic alternative in the sense of (5.33), with the proviso that the scalar items used to generate the alternative utterances are ranked by presuppositional strength. For example, the scale $\langle a, the \rangle$ is ordered due to *the*'s uniqueness presupposition. This means that, according to Schlenker's definition, alternative sentences, compared for the purposes of *Maximize Presupposition*, are ordered via presuppositional strength in two different respects. Firstly, the lexical items used to calculate the alternatives as in (5.33) are ordered by presuppositional strength. Secondly, the definition in (5.35iii) demands that they are ordered via presuppositional strength at the level of the entire sentence. I will explicitly address the question of whether lexical items need to be ordered via semantic strength for the purposes of implicature calculation.

(5.36) defines ordering by presuppositional strength for two propositional expressions (of type $\langle s, t \rangle$). The definition comes from Schlenker (2012) who intends the definition to be “context independent”: if α is presuppositionally stronger than expression β , then this relation holds regardless of whether or not the presuppositions of either expression are satisfied in the utterance context.

(5.36) **Presuppositional Strength** (for propositions):

A proposition α is presuppositionally stronger than a proposition β just in case the presuppositions of α are strictly stronger than the presuppositions of β (Schlenker 2012).⁵

Two expressions compete via *Maximize Presupposition* only if they are ordered via presuppositional strength, but crucially have equivalent at-issue content. This latter condition is

⁵More precisely, given an intensional, three-valued logic, two type $\langle s, t \rangle$ expressions α, β can be compared with respect to presuppositional strength via (5.37) (W is the set of all possible worlds).

(5.37) $\{w \in W : \llbracket \beta(w) \rrbracket = \#\} \subset \{w' \in W : \llbracket \alpha(w') \rrbracket = \#\}$

defined in (5.38).⁶

(5.38) **Assertive equivalence** relative to C : (Schlenker 2012:392)

If ϕ and ψ are two propositions whose presuppositions are defined in C ,
 ϕ and ψ have equivalent assertive content relative to a context C iff $C[\phi] = C[\psi]$.

In summary, according to Schlenker's analysis, two alternative utterances compete only if their presuppositions are satisfied and they have equivalent at-issue content. If these conditions are met, the interlocutors reason that the speaker is obligated to choose the presuppositionally stronger alternative.

We can test the predictions of the proposal with some key examples. Assume (5.39a), an example from Heim 1991, is uttered in a context where the interlocutors assume no prior expectation that the nearby lake contains any large catfish. Intuitively, in such a context, (5.39a) does not give rise to a non-uniqueness implicature (i.e., that there are multiple 20 ft. catfish).

- (5.39) a. Robert caught a 20 ft. catfish. $\not\rightarrow$ *There are multiple 20ft. catfish.*
 b. Robert caught the 20 ft. catfish.

Under Schlenker's account, the two sentences in (5.39) are presuppositional alternatives. However, they do not compete via *Maximize Presupposition* as (5.39b) fails the condition in (5.35i), as its existence presupposition in this context is not satisfied: the interlocutors have no mutual beliefs about the existence of a unique catfish. We therefore correctly predict the absence of an implicature.

Consider a context in which the speaker utters (5.40a). A crucial assumption here is that the speaker is referring to the upstairs of his own house. In such a context, (5.40a) intuitively does give rise to a non-uniqueness inference.

- (5.40) a. A cat upstairs is hungry. \rightsquigarrow *There are multiple cats upstairs.*
 b. The cat upstairs is hungry.

⁶Like (5.36), (5.38) is defined with respect to metalanguage translations of utterances, rather than utterances themselves. When I talk of two utterances having equivalent assertive content, I mean that their semantic contents do.

In order to generate this inference, we run into the same issue, discussed in the previous section with respect to Heim's analysis. The interlocutor's common ground prior to the utterance must have been compatible with there being multiple cats. For example, let C be a common ground, a world is labelled 1 if there is just one cat, and 2 if there are 2. A world is labelled H if a cat is hungry. Prior to the utterance of either sentence in (5.40), the common ground is unsettled with respect to the number of cats upstairs. In this utterance context, the uniqueness presupposition of (5.40b) is undefined due to the uniqueness of cats not being a settled matter in the common ground.

$$(5.41) C = \{1H, 1\neg H, 2H, 2\neg H, \}$$

Unless something is added to the theory, (5.40a) and (5.40b) should not compete via *Maximize Presupposition* in this discourse context, predicting the absence of an implicature (analogous to the case in (5.39)).

Where Heim used quantifier domain restriction to get at this issue, Schlenker uses presupposition accommodation. His model of accommodation follows Stalnaker 2002, though for simplicity, I will leave out elements of the formal analysis. The utterance of a presuppositional sentence like (5.40b), containing a definite, can be permitted in a context which does not entail the definite's presupposition, provided certain contextual premises hold.

There are two crucial premises which lead to the presupposition being adopted, despite not being an entailment of the pre-utterance common ground. The first premise is the speaker's *sincerity*. If the speaker is not being deliberately misleading (i.e., obeying the maxim of quality), uttering the definite "the cat" signals that he believes there is just one cat.⁷ The second premise is the speaker's *authority*. The interlocutors believe the speaker is an authority with respect to the number of cats. For example, maybe in this context the speaker is talking about his own pets and thus is highly likely to be aware of how many cats he owns. Thus, if the speaker signals he believes that there is just one cat then the interlocutors will subsequently adopt that belief.

These two assumptions lead to the definite's presupposition being adopted into the common ground, despite its not being a prior belief of every interlocutor. The reasoning is sketched in (5.42).

⁷More specifically, the speaker will signal that he believes it is a common ground belief that there is just one cat, and thus, will in turn signal that he believes there is just one cat. I am skipping this step for simplicity.

(5.42) Speaker utters u (= ‘the cat upstairs is hungry’) with:

- at issue content p : **one(cat)(hungry)**
 - presupposition q : **unique(cat)**
- a. *Premise*: The speaker believes q .
 - b. *Premise*: The hearer does not have the belief that q .
 - c. By (a–b), the common ground C does not entail q .
 - d. *Premise*: The hearer believes that the speaker is an authority on q .⁸
 - e. *Premise*: The hearer believes that the speaker communicates only things that he believes.⁹
 - f. By (d–e), The speaker’s communication of q and p implies that the hearer believes p and q .
 - g. By (a–f), post-utterance, the common ground is $C[q][p]$ (i.e., both q and p are adopted)

The key point here is that presuppositions can be *informative*, provided certain contextual assumptions, like the speaker’s authority, hold. Given the reasoning in (5.42), we can see how the two utterances in (5.40) differ in terms of informativity. Updating the context with the indefinite (5.40a) merely eliminates worlds in which no cat was hungry (as in (5.43a)).

Provided the contextual assumptions outlined in (5.42) hold, updating with the definite means that interlocutors will adopt the presupposition of the definite, as well as the at-issue content, as in (5.43b).

- (5.43) a. $C[“a cat is hungry”] = \{1H, 2H\}$
 b. $C[“the cat is hungry”] = \{1H\}$

For this reason, in this context, the definite expression is strictly more informative than the indefinite. Thus, the non-uniqueness implicature emerging from the use of the indefinite can

⁸The hearer’s belief can be construed as **believe**(Sp, q) $\rightarrow q$

⁹This of course follows from the assumption that the speaker is cooperative and thus follows the maxim of quality. We can assume that if an agent believes a proposition [$\phi : \psi$], then he believes both the presupposition and at-issue content.

be spelled out in terms of quantity-based reasoning, sketched as in (5.44). A sentence “does better” in terms of the maxim of quantity if it reduces the common ground to a more specific state than its alternatives.

(5.44) a. **Informativity-based reasoning:**

Given a pair of alternative sentences, ϕ and ψ in context C ,
 ϕ is more informative than ψ iff $C[\phi] \subset C[\psi]$.

b. **Maxim of quantity:** Prefer more informative alternatives.

(5.45) sketches out the quantity-based reasoning which derives the non-uniqueness implicature of indefinites. Compare this to the scalar reasoning outlined in chapter 1; the format here is similar, making the parallel explicit. In both cases, the speaker opts for a less informative alternative, and assuming he is obeying the maxim of quality, he must have chosen the most informative expression which is true and supported by evidence. This of course implies that the more informative expression fails this requirement.

(5.45) *Sp*: ‘A cat upstairs is hungry’ (= utterance *p*).

Implicature: There is more than one cat.

- a. *Contextual premise*: *Sp* is an authority relative to the number of cats.
- b. *Contextual premise*: *Sp* is obeying the Cooperative Principle and Gricean maxims.
- c. There is an alternative utterance *q* ‘The cat upstairs is hungry’.
- d. *q* is more informative than *p* (by (5.42–5.44)).
- e. *q* is just as relevant as *p*.
- f. *q* and *p* are equally easy/costly to express.
- g. By (c–f), *Sp* did not utter *q* as s/he lacks sufficient evidence to attest to *q*’s truth.
- h. By (a) and (g), *Sp* did not utter *q* as s/he believes its presuppositions to be false.¹⁰

The definition of *Maximize Presupposition* in (5.35), proposed by Schlenker 2012, does not have to be a primitive principle. At least some cases of implicatures attributed to a principle

¹⁰The meaning of *q* includes two components: its uniqueness presupposition, and its at-issue content, which is identical to *p*. As *Sp* asserted *p*, *Sp* must believe *p* is true. Therefore, (g) leads us to conclude that *Sp* must not believe the uniqueness presupposition holds.

like *Maximize Presupposition* can be reduced to ordinary quantity based reasoning. (5.35) can be taken to be a description of circumstances in which quantity-based reasoning gives rise to a presuppositional implicature, but not a pragmatic principle in its own right.

As a descriptive principle, something needs to be said about (5.35i), repeated below. According to Schlenker's theory, (i) is a condition which must be satisfied in order for the alternative sentences to be compared.

(5.46) i. the presuppositions of S and S' are satisfied in C .

This condition fails to hold relative to a context like C in (5.41), in which the presupposition of the definite is not satisfied. It is precisely these kinds of contexts which allow the non-uniqueness implicature to emerge. Schlenker argues that for the purposes of (i), presupposition satisfaction is checked *after* accommodation takes place.

Leahy (2016) proposes a more comprehensive revision, weakening the requirement that *Maximize Presupposition* adjudicate between sentences with equivalent assertive content. For Leahy, *Maximize Presupposition* adjudicates between sentences that have *potentially* equivalent assertive content. This means that their assertive content is equivalent relative only to contexts in which their presuppositions have been accommodated.

5.5 Blocking and blindness

Can all proposed functions of *Maximize Presupposition* be subsumed by the maxim of quantity? If so, can we do away with *Maximize Presupposition* as a distinct pragmatic principle altogether? Heim (1991) cites examples such as (5.47a) as the key argument against making such a move. What is crucial here is that the maxim of quantity, as it is ordinarily construed, does not succeed in assigning a preference to (5.47a) over its definite competitor (5.47b).

- (5.47) a. A weight of the tent is 4lbs.
 b. The weight of the tent is 4lbs.

Recall that the maxim of quantity as defined in (5.44) is the assumption that interlocutors will choose alternative expressions which reduce the common ground to a more specific state.

Assume that the common ground is settled with respect to there being just one weight of the tent. We can label worlds in which there is just one weight with w and worlds in which the weight is 4lbs with 4, as in (5.48a). As the common ground is incompatible with the premise that there are multiple tent weights (i.e., contains no worlds in which this is true), updating the common ground with the alternative utterances in (5.47) have exactly the same effect, eliminating the possibility that the unique tent's weight is not 4lbs. Thus, according to the definition in (5.44) the alternative utterances are equally informative.

- (5.48) a. $C = \{w4, w\neg 4\}$
 b. $C[\text{"a weight is 4lbs"}] = \{w4\}$
 b. $C[\text{"the weight is 4lbs"}] = \{w4\}$

Thus, Heim claims, we need a principle separate from the maxim of quantity, i.e., *Maximize Presupposition*, in order for the definite expression (5.47b) to be chosen over the indefinite (5.47a).

Below, I review some attempts to incorporate these kinds of cases into a theory of presuppositional implicatures which does not assume *Maximize Presupposition* to be an independent principle. Schlenker 2012 proposes that we can maintain the quantity-based view of presuppositional implicatures outlined in the previous section for cases like (5.47a), if we assume that presuppositions are “fallible” in the sense that re-confirming a presupposition is never redundant. Potts 2013 and Lauer 2016, on the other hand, suggest that semantically weaker expressions can be analyzed as more costly, thus deriving the preference for the definite over the indefinite.

Both Schlenker 2012 and Potts 2013 observe similarities between cases like (5.47a) and cases like (5.49), raised by Magri 2009. Here, a weak scalar item “some” is used in a context in which the expected scalar implicature (i.e., “some but not all”) is known to be false. Magri observes that such sentences, like (5.49), give rise to unexpected inferences, conflicting with world knowledge.

- (5.49) Some Italians come from a warm country.

I suggest these cases are crucial in determining whether we need an independent principle of

Maximize Presupposition. If mechanisms underlying the infelicity of non-presuppositional examples like (5.49) can extend to presuppositional cases like (5.47a), then there is less motivation for a dedicated pragmatic principle for presuppositional cases.

5.5.1 Revising the common ground

Schlenker aims to incorporate the infelicity of (5.47a) under his general theory of *Maximize Presupposition* as a special case of the maxim of quantity. He introduces the notion of *fallibility*:

(5.50) **Fallibility**: (Schlenker 2012:405)

“At any point t in a conversation, for any proposition p which was believed by the addressee at $t-1$, there is a small chance that an error will make the addressee forget p .”

This can be spelled out in the following way: interlocutors have access to weakened versions of the common ground, in which facts which have been rejected are reincorporated. Thus when faced with a common ground which entails a presupposition p , we can in some sense consider an alternative common ground in which p is not entailed.

(5.51) incorporates this notion of context revision into our discussion of the tent example. As before, the uniqueness of the tent’s weight is settled in the common ground C , as in (5.51a). However, we can also consider common grounds in which the presupposition is not settled, due to the principle of *Fallibility*: there is always a small chance we are in C' in (5.51b) instead of C (here ww represents worlds in which there are multiple tent weights). Following the reasoning outlined at length in the previous section, the indefinite expression is less informative than the definite expression in this revised common ground. Compare (5.51c) and (5.51d).

- (5.51) a. $C = \{w_4, w_{\neg 4}\}$
 b. $C' = \{w_4, w_{\neg 4}, ww_4, ww_{\neg 4}\}$
 c. $C'[\text{“a weight is 4lbs”}] = \{w_4, ww_4\}$
 d. $C'[\text{“the weight is 4lbs”}] = \{w_4\}$

Thus Schlenker is proposing that we revise our notion of informativity to take into consideration cases of context revision as in (5.51): “We assume for the moment that if a sentence

S transmits to the addressee at least as much true information as sentence S' in all cases, and transmits strictly more true information than S' in some cases triggered by Fallibility, then it is to be preferred to S'' (Schlenker 2012:406). I have sketched one way of spelling out this intuition in (5.52). Here, C^{\leq} refers to the set of alternative common grounds constructed by removing any set of established facts from C . (5.52) states that an expression is more informative than an alternative if it reduces the current common ground to a more specific state, and if not, if it reduces some weakened common ground to a more specific state.

(5.52) a. **Informativity-based reasoning:** (revised)

Given a pair of alternative sentences, ϕ and ψ in context C ,

ϕ is more informative than ψ iff $C[\phi] \subseteq C[\psi]$ and $\exists C' \in C^{\leq} : C'[\phi] \subset C'[\psi]$.

b. **Maxim of quantity:** Prefer more informative alternatives.

However, it is unclear how the fallibility-based analysis extends to examples like those in (5.53). Here, by their conventional meanings, the descriptions denote uniquely instantiated properties. Using *a* with such descriptions creates the same sort of infelicity observed in (5.47a).

(5.53) a. [A next speaker] approached the podium.

b. [A first day of Trump's presidency] has passed.

c. [A tallest mountain in Australia] is Mt. Kosciuszko.

d. [An only thing to fear] is fear itself.

To make this clearer, consider Coppock and Beaver's (2015) lexical entry for NP-internal *only*, as in (5.53d). The definition states that *only NP* is interpreted as a property true of an individual x just in case x meets the description of the NP and no other individual meets the description.

(5.54) $only(P) \rightsquigarrow \lambda x.Px : \forall y[y \neq x \rightarrow \neg P(y)]$ Coppock and Beaver 2015:429

In order for Schlenker's theory to account for the oddness of (5.53d), we would have to weaken the common ground by rejecting the presupposition of (5.53d), namely we would have to add worlds to the common ground in which there is more than one "*only thing to fear*". But

according to this definition in (5.54), this is simply a contradiction, so it is not possible to locate such a world. The same principle applies to the other examples in (5.53): there is no way to find possible worlds in which there are multiple first days, tallest mountains, and so on. Schlenker does acknowledge this issue (though his empirical focus is on the factive presupposition of *know*) and suggests it could be resolved by expanding the set of contexts “to include ones that encompass impossible worlds in addition to possible worlds”. Presumably these are worlds which verify contradictions. Later on I explore some alternatives which get us around having to assume impossible worlds.

5.5.2 The relationship to “blindness”

Schlenker points out a similarity between infelicitous examples like the indefinite cases discussed above and examples like (5.55), raised by Spector 2007, Magri 2009, 2011. Based on background knowledge that Italians come from the same country, it follows that (5.55a) and (5.55b) are contextually equivalent. Magri explains that “some” in (5.55a) gives rise to an upper bound (i.e., “not all”) implicature, even though such an implicature conflicts with world knowledge.

- (5.55) a. Some Italians come from a warm country.
 b. All Italians come from a warm country.

There is a clear parallel with the sentences with *a* discussed earlier, such as “a weight of the tent is 4 lbs.”. In both cases, a semantically weak scalar item gives rise to unexpected inferences (non-uniqueness or upper bounding) conflicting with established assumptions of the common ground. Furthermore, in both cases, the weak scalar item is contextually equivalent to the strong scalar item.

Based on examples like (5.55), Magri proposes that the competition between weak scalar items like “some” and their stronger alternatives is blind to contextual information. In calculating the relative informativity of (5.55a) and (5.55b), we do not consider background facts like “*all Italians come from the same country*”. We calculate relative informativity relative to a common ground which is unsettled with respect to whether all Italians come from the same country or not.

An amendment of the previous definition of informativity, in line with Magri’s proposal, follows in (5.56). Now we have a definition of informativity which is context independent: factors specific to the current common ground do not bear on the calculation of relative informativity. In (5.56), $W \sqcap \phi$ abbreviates $\lambda w.W(w) \wedge (\phi(w) = T)$. I have used $W \sqcap \phi$ instead of $W[\phi]$, as $W[\phi]$ will yield a presupposition failure for any ϕ which encodes for a non-trivial presupposition, according to our definition of context update in §3.1.

(5.56) a. **Informativity-based reasoning:** (blindness version)

Given a pair of alternative sentences, ϕ and ψ in context C ,

ϕ is more informative than ψ iff $W \sqcap \phi \subset W \sqcap \psi$.

b. **Maxim of quantity:** Prefer more informative alternatives.

Magri’s analysis then includes the additional proposal of an “oddness filter”, which determines that particular utterances sound odd relative to the common ground assumptions of interlocutors if the pragmatically strengthened meaning of the sentence is incompatible with the common ground. Thus, any utterance of (5.55a) will sound odd, as it gives rise to a “not all” implicature (based on the notion of informativity in (5.56)), which contradicts a standard common ground assumption that all Italians come from the same country.

The parallel to Schlenker’s analysis of *Maximize Presupposition* is clear. In both cases, we assess the relative informativity of competing expressions only with respect to a *weakened common ground*.¹¹ Could Magri’s notion of blindness and informativity serve to explain the oddness of utterances like “a weight of the tent is 4lbs.”? Below, I give two arguments against this hypothesis.

The first problem with this analysis is also true of Schlenker’s analysis. Just like Schlenker’s account, Magri’s account requires a notion of possible worlds which validate contradictions. Consider the pair in (5.57). Intuitively, (5.57a) should be assigned the same kind of judgment as (5.55a). Again, it seems like an inappropriately weak statement. According to Magri, this

¹¹Note that Magri and Schlenker have different notions of a weakened common ground. Magri assesses the relative informativity of alternatives with respect to a null context (i.e., the entire set of worlds), while Schlenker acknowledges that at least some contextual premises are necessary. One reason that Schlenker appeals to the stronger notion is to account for Hirschberg’s (1985) cases of implicatures which rely on a context-sensitive notion of entailment. See Schlenker 2012:§4.2.2 for discussion and Magri 2016 for counterpoints.

would be explained by “some” giving rise to an upper bounding “not all” implicature via competition with its stronger alternative (5.57b), despite the fact that given world knowledge, the two alternatives are equivalent.

- (5.57) a. Some even numbers are divisible by two.
 b. All even numbers are divisible by two.

In order to derive this judgement, Magri would have to say that in order to draw a “not all” implicature from an utterance of (5.57a), we consider the informativity of (5.57a) and (5.57b) relative to the entire universe of worlds. This is in order to “backtrack” on the common ground assumptions which make (5.57a) and (5.57b) contextually equivalent.

But in any information state in which (5.57b) is more informative requires us to add worlds in which some but not all even numbers are divisible by two. Only in this hypothetical weakened common ground will (5.57b) be more informative than (5.57a). Just as we saw with Schlenker’s analysis of *Maximize Presupposition*-based implicatures, this analysis entails that we must add impossible worlds to the common ground (i.e., worlds which verify contradictions).

A second argument against the blindness-based account of *Maximize Presupposition* implicatures come from some of Heim’s original examples motivating her particular construal of the pragmatic principle. Recall these earlier examples.

- (5.58) a. Robert caught a 20 ft. catfish.
 b. Robert caught the 20 ft. catfish.

According to Heim, (5.58a) is felicitously uttered in a context which makes no prior assumptions about the existence of large fish. In such a context, the indefinite *a 20 ft. catfish* does not give rise to a non-uniqueness inference. Intuitively, (5.58a) is judged as perfectly compatible with the restriction of the indefinite being uniquely instantiated. Heim’s account of this observation is that the indefinite does not enter into competition with the corresponding definite sentence (5.58b). In a context which does not make assumptions about the number of fish, (5.58b) should give rise to a presupposition failure (which, additionally, is unlikely to be accommodated). For this reason, interlocutors have no need to reason about why the speaker chose the indefinite form *a 20 ft. catfish* over the corresponding definite. It is clear why the indefinite

was chosen: the definite would have triggered a presupposition failure. As no competition takes place, no non-uniqueness inference arises.

If we extend Magri's account to *Maximize Presupposition*-based implicatures, we make the wrong prediction here. Under this account, we calculate the relative informativity of utterances in a context independent way. But the reasoning here about (5.58) is crucially context dependent. The justification for the absence of the non-uniqueness inference lies in the assumption of the interlocutor's ignorance about the number of catfish in the discourse context.

According to the definition in (5.56a), we consider the relative informativity of (5.58a) and (5.58b) with respect to the entire universe of worlds. Thus, it cannot fail to be the case that the definite alternative is *always* more informative than its indefinite alternative. If non-uniqueness inferences triggered by indefinites are derived via informativity-based reasoning, as defined in (5.56), we predict that examples like (5.58a) should always trigger such inferences, contra what is observed.

5.5.3 Informativity based preferences

According to the above account, the infelicity of weak scalar items is derived by refining the definition of informativity. But this is not the only approach which has been taken. Lauer 2016 proposes that notions of linguistic markedness, broadly construed, also play a role in adjudicating between scalar alternatives. Likewise, Potts 2013 proposes a similar idea in order to account for the kinds of cases discussed by Magri and Schlenker. According to these accounts, speakers will opt for less "costly" utterances. Different costs of uttering scalar items can create the kinds of inferences discussed in the previous subsection.

Potts 2013 responds to Magri's arguments about examples like (5.55) and (5.57). Potts acknowledges that Magri's examples can be understood as contextually synonymous. For this reason, it is problematic to cash out the markedness of "some" in these cases as being linked to relative informativity. Following Eckardt 2007 and Lauer 2013, we predict mandatory implicatures given the following conditions about the meanings and forms of competing utterances.

(5.59) *A recipe for obligatory implicatures:*

there are forms ϕ and ψ such that, relative to the current context, C

- a. $C[\phi] \subseteq C[\psi]$, and
- b. ψ is strictly more costly than ϕ .

With respect to examples like (5.57), it follows that condition (a) holds due to their contextual synonymy. Potts claims that we can derive the markedness of the *some* examples in cases like (5.57) if we stipulate that *some* is a more costly expression than *all*.¹² The costliness of *some* translates into a bias against using *some* over its competitor, here *all*. This bias, stated informally below, can be taken as a sub-maxim of the maxim of manner.

(5.60) **Maxim of manner:**

Prefer less costly utterances.

This predicts that *all* should be used in all cases in which *some* and *all* are contextually equivalent. If the speaker does choose *some* over *all*, the listener should interpret this as suggesting that the speaker regards them as contextually distinct (thus triggering a revision of prior assumptions about their equivalence), or that the speaker is being uncooperative.

Like Schlenker, Lauer 2016 proposes a way that presuppositional implicatures can be derived without stipulating *Maximize Presupposition* as an independent principle. However, Lauer rejects Schlenker's view that informativity is the relevant factor in determining the preference for presuppositionally stronger items. Like Potts 2013, Lauer proposes that the assumed infelicity of "a weight of the tent is 4lbs" should reduce to a preference between linguistic forms: "[*Maximize Presupposition*] is simply stipulated as a preference between forms that speakers happen to have, akin to the submaxims of Grice's MAXIM OF MANNER" (Lauer 2016:997).

Under Lauer's account, *a* is taken to be *a priori* preferable to *the*. Lauer makes explicit connections between his account and similar accounts which make use of numerical cost values like Potts 2013: "in frameworks that use numerical utilities, these kinds of preferences are usually modelled via action-specific costs that are subtracted from the (outcome-)utility of the action" (Lauer 2016:fn16).

We assess the competing expressions like "A sun is shining" and "The sun is shining" relative to various interacting factors, including quantity, quality, and manner-based preferences.

¹²Potts 2013 actually deals with very similar competitions between *some* and definite plurals, though the details are roughly the same.

In contexts in which the two alternatives are equivalent in terms of informativity, the manner-based preference emerges as the determining factor.¹³ As *the* is preferred (i.e., less costly), it should be preferred in such a context. A speaker who uses the version with *a*, given contextual equivalence between the alternatives, is violating some conversational norm, accounting for the markedness of “*A sun is shining*”.

Taken together, Potts 2013 and Lauer 2016 make a case that in contexts in which it is not possible to assess the relative semantic strength of competing expressions, we appeal to other kinds of properties of the expressions, such as their relative costs. The work therefore accounts for the observed markedness of the relevant cases and makes connections with existing cost-based analyses of mandatory implicatures (Eckardt 2007, Lauer 2013).

However, there is a sense in which Potts 2013 and Lauer 2016 are missing a generalization. We can open up the empirical picture to a wider set of lexical alternatives as in (5.61). In each of these examples world knowledge precludes the associated implicature derived via competition with the stronger alternative.

- (5.61) a. It’s ^(??)possible/necessary that two plus two equals four.
 b. Two plus two ^(??)can/must equal four.
 c. John waved ^(??)all/both his arms
 b. A triangle has ^(??)at least/exactly three sides.

Extending the cost-based account to these cases, we start to see a pattern: the more costly lexical alternative is the one which is semantically weaker (e.g., “some” is more costly than “all”, “a” is more costly than “the”, and so on). It is hard to see other reasons why the marked lexical items should be more costly than their competitors (given their similar phonological and morphosyntactic forms).

The cost-based account seems to be implicitly assuming a unifying principle: assign a higher cost to the semantically weaker member of a pair of lexical alternatives, or rephrased, the semantically weaker alternative should be less preferred than the stronger alternative. Paraphrasing the cost-based analysis in this way, we can see that the analysis reduces back to the

¹³Lauer’s (2016) analysis is framed in terms of Optimality Theory, i.e., pragmatic preferences are stated as ranked, violable constraints on alternative utterances.

informativity based analysis. We are still confined to preferring semantically stronger expressions, though the cost-based account provides a way of spelling out this preference. I return to this point in the next section.

5.6 Implementing the cost-based account

Informativity-based reasoning is sufficient to explain a subset of presuppositional implicatures. In these cases, interlocutors reason about alternative utterances which differ only by the presence on an implicature encoded by the stronger alternative. In cases in which the presupposition of the stronger alternative would have been accommodated into the common ground, the stronger alternative can be considered to be more informative. An utterance of a weaker alternative licenses interlocutors to reason about why the speaker chose the less informative version.

In another set of cases, in which the common ground is settled with respect to the presupposition encoded by the stronger alternative, informativity, under a number of definitions, is insufficient to assign a preference to the stronger alternative. For this reason, alternative theories (Potts 2013, Lauer 2016) have invoked additional principles besides quantity-based considerations in order to ensure that the semantically stronger alternative is preferred.

The following model of pragmatic enrichment is designed to formalize pragmatic reasoning, incorporating elements of the discussion in this chapter. The central idea is that presuppositional implicatures generated by weak scalar items like *a* reduce to the same kinds of mechanisms which generate upper bounding implicatures generated by weak scalar items like *some*. The presentation here follows Bergen et al. (2012) and Potts 2013. The goal is to demonstrate an integrated theory of pragmatic inference which derives the observed presuppositional implicatures and PWSI blocking without an appeal to a devoted principle like *Maximize Presupposition*.

5.6.1 Setting up the game

Utterances are produced and interpreted within a communication game, in which rational agents attempt to collaboratively match messages with meanings. Speakers choose messages which best describe their observations about the world (relative to alternative messages). Listeners decide on the state of the world given the utterance and their prior beliefs. Listeners and speakers

reason recursively about each other. A communication game can be basically structured as in (5.62).

(5.62) A communication game: $\langle W, M, \llbracket \cdot \rrbracket, P, C \rangle$

- a. W is a set of worlds
- b. M is a set of messages
- c. $\llbracket \cdot \rrbracket : M \mapsto \wp(W)$ is an interpretation function
- d. $P : W \mapsto [0, 1]$ is a probability distribution over worlds
- e. $C : M \mapsto [0, 1]$ is a cost function over messages

W can be equated with the universe of discourse. In conjunction with P , a probability distribution over worlds, we can reconstruct the notion of common ground. Interlocutors assign a non-zero probability to worlds which are compatible with their beliefs. M is the entire set of ($\langle s, t \rangle$ -type) statements in a logical representation language, generated by the compositional semantics, and messages mapped to their verifying worlds by $\llbracket \cdot \rrbracket$ as usual.

Each message can be assigned a cost via the function C . We use C to bias messages over other messages. Messages with a cost 1 have no bias against their use, messages with a cost 0 are prohibited from being used, and any value in between represents the corresponding level of prohibition.

The model encodes for an initial listener L_0 . Intuitively, the initial listener perceives messages and using Bayesian inference, eliminates worlds (i.e., assigns them a zero probability) which contradict the message. This can be understood as a probabilistic implementation of the notion of contextual update discussed earlier. Formally, the initial listener L_0 is a probability distribution over world-message pairs. In (5.63), $\mathbb{I}(p)$ equals 1 if p is true, and 0 otherwise.

(5.63) **Initial listener:**

$$L_0(w|m) = \frac{\mathbb{I}(w \in \llbracket m \rrbracket) P(w)}{\sum_{w' \in W} \mathbb{I}(w' \in \llbracket m \rrbracket) P(w')}$$

Having established the behavior of the literal listener, more sophisticated agents reason about the initial listeners behavior, and the behavior of other agents. These agents are defined

recursively. The pragmatic speaker is such an agent, who reasons about a listener’s behavior. The speaker chooses a message based on the probability that the listener perceiving the message will correctly update his beliefs. The speaker’s choice is weighted by the cost of (or bias against) the message. Formally, a pragmatic speaker is a function from probability distributions (a listener), to probability distributions over message-world pairs.

(5.64) **Pragmatic speaker:**

$S(l) = s$ such that for any $w \in W$ and $m \in M$,

$$s(m|w) = \frac{l(w|m)C(m)}{\sum_{m' \in M} l(w|m')C(m')}$$

The final definition is the pragmatic listener, who reasons about the behavior of speakers. The listener chooses worlds based on the message provided by the speaker. The choice is determined by the probability that the speaker would have chosen the message (given her options of alternative utterances), and the interlocutors’ prior beliefs about the world. Like the pragmatic speaker, the pragmatic listener is a function from probability distributions to probability distributions.

(5.65) **Pragmatic listener:**

$L(s) = l$ such that for any $w \in W$ and $m \in M$,

$$l(w|m) = \frac{s(m|w)P(w)}{\sum_{w' \in W} s(m|w')P(w')}$$

These are the ingredients to fully specify a communicative game which derives the observed implicatures discussed in this chapter.

5.6.2 Informativity-based reasoning

We can start with a basic case of an upper bound implicature triggered by a weak scalar item. The discussion here is a recap of several previous papers, including Frank and Goodman 2012, Bergen et al. 2012, Potts 2013, Bergen et al. 2016, amongst others. In this game, interlocutors are matching utterances of a weak scalar item and a strong scalar item (i.e., “some” and “all”) with (equivalence classes of) worlds. Here, “some” and “all” can be taken to represent utterances such as “some/all of the students left”. The two worlds differ as to whether the “all”

statement is true or not, as in (5.66a,c). Interlocutors have no prior expectations towards one world or the other, as in (5.66d), and have no linguistic biases against using either expression (5.66e).

(5.66) **Game 1:** (informative scalar implicatures)

- a. $W = \{\forall, \exists\neg\forall\}$
- b. $M = \{\text{“some”}, \text{“all”}\}$
- c. $\llbracket \text{some} \rrbracket = \{\forall, \exists\neg\forall\},$
 $\llbracket \text{all} \rrbracket = \{\forall\}$
- d. $P(\forall) = P(\exists\neg\forall) = 0.5$
- e. $C(\text{“some”}) = C(\text{“all”}) = 1$

We use the definitions of the literal listener l_0 to calculate the behavior of an interpreter who makes no pragmatic inferences, in (5.67a). As “some” is true in either world, he will hedge on which world “some” refers to, but will bank on “all” referring to the \forall world, as expected. Next, the first-level pragmatic speaker in (5.67b) chooses her utterance based on the behavior of the literal listener. She is certain to choose “some” if she wants to signal the $\exists\neg\forall$ world, and is somewhat biased against uttering “some” if she wants to signal the \forall world, due to the more informative utterance she could have chosen, “all”.

The pragmatic listener reasons about the behavior of the pragmatic speaker. As opposed to the literal listener, the pragmatic listener is biased towards interpreting “some” as referring to the $\exists\neg\forall$ world, reasoning about the pragmatic speaker’s biases against using “some” to refer to the \forall world. Successive iterations of the pragmatic speaker and listener reasoning about each other’s behaviors strongly biases towards the speaker choosing “some” in the $\exists\neg\forall$ world and the listener interpreting “some” as referring to the $\exists\neg\forall$ world. The game effectively models how an upper bounding implicature on a weak scalar item is derived from both a production and interpretation standpoint.

		$\exists\neg\forall$	\forall			“some”	“all”		
(5.67) a.	$l_0 =$	“some”	0.5	0.5	b.	$S(l_0) =$	$\exists\neg\forall$	1	0
		“all”	0	1			\forall	0.33	0.67

$$\begin{array}{c}
 \exists \neg \forall \quad \forall \\
 \hline
 \text{c. } L(S(l_0)) = \begin{array}{ccc}
 \text{“some”} & 0.77 & 0.23 \\
 \text{“all”} & 0 & 1
 \end{array}
 \end{array}$$

Now the challenge is to apply this framework in order to account for presuppositional implicatures. Firstly, I focus on cases in which an utterance of an indefinite is felicitous (as opposed to cases like “A sun is shining”). Based on the discussion throughout the chapter, we can divide these cases into two sorts, based on whether or not the presupposition of the definite alternative would be accommodated if uttered. As outlined above, this distinction is predicted to determine whether the implicature arises.

- (5.68) a. The presupposition of the corresponding definite utterance is accommodated.
 \rightsquigarrow The indefinite triggers a non-uniqueness implicature.
- b. The presupposition of the corresponding definite utterance is not accommodated.
 \rightsquigarrow The indefinite does not trigger a non-uniqueness implicature.

Game 2 is intended to model case (a), in which an indefinite competes with a definite whose presupposition has been accommodated. For concreteness take an utterance of (5.69a). In a plausible context, the hearer of the definite alternative (5.69b), without any prior knowledge, would be licensed to accommodate the uniqueness presupposition, given that the speaker is likely to be an authority of the number of bathrooms in her apartment.

- (5.69) a. I am renovating a bathroom in my apartment.
- b. I am renovating the bathroom in my apartment.

Given the reasoning informally sketched in §4 in (5.42), given the assumptions of speaker authority and sincerity, the effect of uttering the definite in (5.69b) has the effect of updating the common ground with both the presupposition and the at-issue content. Thus, the presupposition is informative, serving to eliminate worlds from the common ground in which it is false.

Game 2 models the reasoning comparing the potential updated common ground in this kind of scenario.

We can assume two (equivalence classes of) worlds, represented as ONE (in which there is one element in the domain, i.e., one bathroom) and TWO (in which there is more than one).

Likewise, there are two messages “a” and “the” (which we can take to symbolize the utterances in (5.69)). The meanings of each message in this game, supplied by $\llbracket \cdot \rrbracket$, incorporate the accommodation of the definite’s presupposition. That is, the definite utterance eliminates worlds in which the presupposition is false. We can think of $\llbracket the \rrbracket$ in this game as representing the post-utterance common ground, updated with the accommodated presupposition. Thus accommodation is represented here as simply “truth-conditionalizing” the presupposition. As before, we do not assume distinct priors for the two possible worlds or distinct costs for the two utterances.

The account here separates out the presupposition accommodation as a step in the reasoning apart from the reasoning modeled by the Rational Speech Act model. A more complete account would incorporate the accommodation and the implicature calculation all in one model of reasoning. Muhlstein et al. 2015 provides a promising way of accounting for presuppositional meaning within a Rational Speech Act model, and models how speakers use definite utterances to reason about the cardinality of elements within a domain. For now, this far more simple model in Game 2 simply deals with the definite utterance “post-accommodation”.

(5.70) **Game 2:** (informative presuppositional implicatures)

- a. $W = \{\text{ONE}, \text{TWO}\}$
- b. $M = \{\text{“a”}, \text{“the”}\}$
- c. $\llbracket a \rrbracket = \{\text{ONE}, \text{TWO}\},$
 $\llbracket the \rrbracket = \{\text{ONE}\}$
- d. $P(\text{ONE}) = P(\text{TWO}) = 0.5$
- e. $C(\text{“a”}) = C(\text{“the”}) = 1$

Due to the presupposition accommodation of the definite utterance, the definite utterance is strictly more informative than the indefinite utterance. For this reason, the behaviors of the listeners and speakers are exactly parallel to those in the case of scalar implicatures. After successive iterations of reasoning, the speaker will be biased against using “a” in the world in which the restriction is uniquely instantiated, as in (5.71b). Intuitively, this is because the speaker has a more optimal choice in such a world, i.e., “the”.

Likewise, the listener will be biased towards choosing the world in which there are two (or more) cats if the speaker utters “a”, as in (5.71c). The listener reasons that in this context, if the speaker had intended to identify worlds in which uniqueness holds, the speaker would have used “the”. The upshot is that no new theoretical apparatus needs to be introduced in order to derive presupposition implicatures, provided we assume that the presupposition of the strong scalar item will be accommodated, as in the definition of $\llbracket\text{the}\rrbracket$ in (5.70c).

(5.71) a.	$l_0 =$		TWO	ONE		b.	$S(l_0) =$		“a”	“the”
		“a”	0.5	0.5				TWO	1	0
		“the”	0	1				ONE	0.33	0.67

c.	$L(S(l_0)) =$		TWO	ONE
		“a”	0.77	0.23
		“the”	0	1

Now we can move to case (b) in (5.68), in which the presupposition is not accommodated. This is represented by Heim’s example “Robert caught a 20ft. catfish”. The definite alternative “Robert caught the 20ft. catfish” would lead to a presupposition failure. Repeating our earlier definition of context update below, presupposition failure leads to the absurd information state, i.e., the empty set of worlds. Thus, if we update with a definite utterance, we eliminate all worlds if the presupposition is not a mutual, public belief of the interlocutors (and the discourse conditions are not such that the presupposition would be accommodated).

(5.72) **Context update:** (with definedness conditions)

$$C[\phi] = \lambda w. (\forall w' [C(w') \rightarrow P\phi(w')]) \wedge C[\phi](w)$$

This informs the setup for **Game 3**, in which the presupposition of the definite alternative would *not* be accommodated. The only difference from Game 2 is that $\llbracket\text{the}\rrbracket$ maps to the empty set of worlds, as per the definition in (5.72).

(5.73) **Game 3:** (presupposition failure, no implicature)

a. $W = \{\text{ONE}, \text{TWO}\}$

b. $M = \{\text{“a”}, \text{“the”}\}$

- c. $\llbracket a \rrbracket = \{\text{ONE}, \text{TWO}\},$
 $\llbracket \text{the} \rrbracket = \{\}$
- d. $P(\text{ONE}) = P(\text{TWO}) = 0.5$
- e. $C(\text{“a”}) = C(\text{“the”}) = 1$

As the presupposition failure eliminates “the” as a competitor, the speaker is forced to use “a”. This means that the listener cannot draw pragmatic inferences based on the choice between “a” and “the”. The game here remains stable. Both the literal and pragmatic listeners assign equal probability to worlds in which the domain has one or more than one element. Speakers must choose “a” regardless of which world she is trying to signal. As the listener is not biased towards one world over the other, no implicature arises.

		TWO	ONE		
(5.74) a.	$l_0 =$				
	“a”	0.5	0.5		
	“the”	0	0		

		“a”		“the”	
b.	$S(l_0) =$				
	TWO	1	0		
	ONE	1	0		

		TWO	ONE
c.	$L(S(l_0)) =$		
	“a”	0.5	0.5
	“the”	0	0

Thus, the presence of a non-uniqueness implicature is derived without additional alterations to the basic set up used for scalar implicatures based on competition between *some* and *all*. Further, we have derived a way of linking the presence of a presuppositional implicature to whether or not the presupposition of the stronger alternative would be accommodated, deriving both kinds of cases in (5.68).

5.6.3 Cost-based reasoning

The more challenging cases are Heim’s examples of blocking the use of the presuppositionally weak scalar item, such as “a weight of the tent is 4lbs”, and Magri’s cases of weak scalar item blocking “some Italians come from a warm country”. In both cases, the weak scalar item is blocked in cases in which the weak and strong scalar items are equally informative.

The fourth game is designed to derive Magri’s cases of weak scalar item blocking. In this game, prior assumptions in the common ground determine that the $\exists \rightarrow \forall$ world is not available.

For example, say we are considering the utterances of “some/all even numbers are divisible by two”. Given our assumptions about the nature of even numbers, the $\exists \rightarrow \forall$ world has been eliminated as possibility (P assigns it 0). For this reason, only the \forall world is available, and the literal content of “some” and “all” are equivalent, they both locate the interlocutors in the \forall world.

(5.75) **Game 4:** (non-informative weak scalar items)

- a. $W = \{\forall\}$
- b. $M = \{\text{“some”}, \text{“all”}\}$
- c. $\llbracket \text{some} \rrbracket = \{\forall\},$
 $\llbracket \text{all} \rrbracket = \{\forall\}$
- d. $P(\forall) = 1$
- e. $C(\text{“all”}) = 1$
 $C(\text{“some”}) = 0.5$

The key factor here is the cost function C . Here, following Potts 2013, the speaker is *a priori* biased against using “some”, but has no bias against using “all”. In (5.76) I map out how the game operates. Although the literal listener will associate both the “some” and “all” statements with the \forall world, any pragmatic reasoner biases against associating “some” with \forall . Like the previous game, successive iterations of reasoning do not strengthen this bias.

$$(5.76) \text{ a. } l_0 = \begin{array}{c} \forall \\ \hline \begin{array}{cc} \text{“some”} & 1 \\ \text{“all”} & 1 \end{array} \end{array} \qquad \text{b. } S(l_0) = \begin{array}{cc} \text{“some”} & \text{“all”} \\ \forall & \begin{array}{cc} 0.33 & 0.66 \end{array} \end{array}$$

$$\text{c. } L(S(l_0)) = \begin{array}{c} \forall \\ \hline \begin{array}{cc} \text{“some”} & 0.33 \\ \text{“all”} & 0.66 \end{array} \end{array}$$

Again, we can extend this case to the presuppositional case without any alterations. Here we are dealing with two equally informative utterances, say “an only way is up” and “the only way is up”, represented by “a” and “the” respectively. Both utterances validate the ONE world,

and worlds in which any other cardinality is assigned to “only ways up” are eliminated by the prior expectations P . As above, we can assign a bias against using the weak scalar item “a”.

(5.77) **Game 4:** (non-informative presuppositionally weak scalar items)

- a. $W = \{\text{ONE}\}$
- b. $M = \{\text{“a”}, \text{“the”}\}$
- c. $\llbracket \text{a} \rrbracket = \{\text{ONE}\},$
 $\llbracket \text{the} \rrbracket = \{\text{ONE}\}$
- d. $P(\text{ONE}) = 1$
- e. $C(\text{“the”}) = 1$
 $C(\text{“a”}) = 0.5$

The game works in total parallel with the non-presuppositional scalar items as in (5.76). Again, we have a bias against the association of the weak scalar item with the world which verifies the strong scalar item. Again, this bias does not increase over iterations of reasoning.

$$(5.78) \text{ a. } l_0 = \begin{array}{c} \text{ONE} \\ \hline \text{“a”} \quad 1 \\ \text{“the”} \quad 1 \end{array} \qquad \text{b. } S(l_0) = \begin{array}{c} \text{“a”} \quad \text{“the”} \\ \hline \text{ONE} \quad 0.33 \quad 0.66 \end{array}$$

$$\text{c. } L(S(l_0)) = \begin{array}{c} \text{ONE} \\ \hline \text{“a”} \quad 0.33 \\ \text{“the”} \quad 0.66 \end{array}$$

The mechanisms behind the above two games are very clearly parallel. In both cases, we bias the speaker against using the weak scalar item. We can encode this by proposing a constraint on cost functions C which are used in these kinds of games of pragmatic reasoning. Below, I propose the following constraint on the uses of scalar items. Given any scale, the speaker will *a priori* prefer the scalar item which are ranked higher.

In (5.79), this principle is spelled out using the C function from the above reasoning games. The C will assign a higher value to higher ranked scalar items, and thus there will be less of a bias against using such items. (5.79) also leaves it unspecified exactly how scalar items are

ranked. They may be ranked via a generalized notion of entailment, though other rankings may be possible as argued by Hirschberg 1985 and in the previous chapters with reference to the Tagalog data. Here $a \prec_S b$ means b outranks a on the scale S , underspecifying exactly how a and b are ranked (e.g., by semantic strength or by some other ordering).

(5.79) **Biases against weak scalar items:**¹⁴

For any expressions, a, b , such that a and b are members of a scale S , and $a \prec_S b$, then $C(a) < C(b)$.

The principle in (5.79) has a clear connection to the statement of *Maximize Presupposition* in Percus 2006, as paraphrased below in (5.81). Like the current account, Percus 2006 simply states a bias against the use of presuppositionally weaker alternative lexical items.

(5.81) *Maximize Presupposition* (Percus 2006, paraphrased):

Do not use lexical item ϕ if a presuppositionally stronger alternative lexical item ψ is:

- a. felicitous, and
- b. contextually equivalent to ϕ .

The current account differs from the account pursued by Percus in that informativity (calculated at the level of the utterance with respect to the common ground) does play a central role in the calculation of presuppositional implicatures, as discussed in §4. Next, the cost-based account provides a way of unifying biases against non-presuppositional weak scalar items like “some” and presuppositionally weak scalar items like “a”, by the constraint on cost functions in (5.79). Thus, (5.79) is intended to generalize to a variety of different sorts of lexical scales, including those ordered by semantic strength and presuppositional strength.

¹⁴The principle (5.79) of course requires us to revise the previous games to take into account the differential biases against using scalar items. Assuming that speakers are *a priori* biased against using weak scalar items, the informativity-based implicatures triggered by the weak scalar items become even stronger, as demonstrated in (5.80) which assumes, as in **Game 4**, that $C(\text{“a”}) = 0.5$. As expected, totally analogous results are derived for the “some” vs. “all” case, assuming a bias against “some”.

$$(5.80) \text{ a. } l_0 = \begin{array}{c} \text{TWO} \quad \text{ONE} \\ \hline \text{“a”} \quad 0.5 \quad 0.5 \\ \text{“the”} \quad 0 \quad 1 \end{array} \quad \text{b. } S(l_0) = \begin{array}{c} \text{“a”} \quad \text{“the”} \\ \hline \text{TWO} \quad 1 \quad 0 \\ \text{ONE} \quad 0.2 \quad 0.8 \end{array}$$

$$\text{c. } L(S(l_0)) = \begin{array}{c} \text{TWO} \quad \text{ONE} \\ \hline \text{“a”} \quad 0.83 \quad 0.17 \\ \text{“the”} \quad 0 \quad 1 \end{array}$$

Another feature of the cost-based account is that cost functions are open to various pressures from the linguistic form of the utterance and the broader discourse. Lauer (Lauer 2016:986) gives the following piece of evidence for his version of the cost-based account of *Maximize Presupposition*. The preceding linguistic discourse motivates the use of the weak scalar item “all”, over its presuppositionally stronger competitor “both”, via a bias towards parallelism. As A uses the phrase “all students”, B also uses the phrase in order to preserve parallelism.

(5.82) A : Has Mary submitted the grades for all students in her seminar?

B : How many people took it for credit?

A : [looks it up] Just two.

B : I see two grades. So she has submitted the grades for all students.

Principles like parallelism which constrain the choices of forms would under this theory influence the cost function, assigning higher values (and thus less bias) towards forms preserving parallelism. This pressure would interact with and even override the pressure proposed in (5.79).

What motivates a principle like (5.79)? Why should weak scalar items be more marked? Under the account presented here, the notion of informativity is directly encoded into the linguistic system by assigning biases against the use of lexical items lower ranked on a pragmatic scale. Although the preference is directly analogous to the relative informativity of the lexical item when embedded in an upward monotone context, the preference itself (implemented using the cost function) is not tied to the semantics of the lexical item. This can be linked to the neo-Gricean approach which is committed to the idea that the relative informativity of lexical items is conventionalized.

5.6.4 Linking back to Tagalog

We are now in a position to provide a full derivation of how the non-uniqueness implicature emerges from the use of a genitive bare NP in Tagalog, as in (5.83).

(5.83) a. *Na-diskubre ni Karlos ang buwan*
 PERF.PV-discover GEN Karlos NOM moon

Karlos discovered the moon.

↪ *There is only one moon*

- b. *Naka-diskubre si Karlos ng buwan*
 PERF.AV-discover NOM Karlos GEN moon
 Karlos discovered a moon. \rightsquigarrow *There is more than one moon*

As discussed in this chapter, the presupposition imposed by the definite alternative can be accommodated by the interlocutors, provided certain contextual assumptions hold. This means that the presupposition (that there is just one moon) can be adopted into the mutual public beliefs of the interlocutors, even when they are not part of their mutual beliefs prior to the utterance. This requires interlocutors to believe that the speaker is an authority about whether or not the presupposition is true, and that the speaker utters the presupposition trigger (i.e., the patient voice construal of the sentence) with sincerity, entailing his belief that the presupposition holds. In such a context, the presupposition can be understood as being *informative*. Below is a derivation of how the uniqueness presupposition of (5.83b) is accommodated.

(5.84) Speaker utters u (= ‘*nadiskubre ni Karlos ang buwan*’) with:

- at issue content p : **one(moon)(discover)**
- presupposition q : **unique(moon)**
- a. *Premise*: The speaker believes q .
- b. *Premise*: The hearer does not believe q .
- c. By (a–b), the common ground C does not entail q .
- d. *Premise*: The hearer believes that the speaker is an authority on q .
- e. *Premise*: The hearer believes that the speaker communicates only things that he believes.
- f. By (d–e), The speaker’s communication of q and p implies that the hearer believes p and q .
- g. By (a–f), post-utterance, the common ground is $C[q][p]$ (i.e., both q and p are adopted)

With this in mind, we can compare the relative informativity of the competing utterances in (5.83). It so happens that the at-issue content of the patient voice (5.83b), **one(moon)(discover)**,

is also the at-issue content of the actor voice (5.83a) with the genitive indefinite. Thus, both utterances are equally informative relative to their at-issue content. Next, if the presuppositional content of the patient voice (5.83b), imposed by *iota*-type shifting, is accommodated as in (5.84), then (5.83b) is consequently *more* informative than its actor voice competitor.

As the patient voice utterance (5.83a) is more informative if its presupposition is accommodated, interlocutors should assume that the speaker will choose the patient voice version if its presupposition holds. If the presupposition does not hold, or the speaker cannot support the presupposition with evidence, the speaker should choose the semantically weaker actor voice version (5.83b). Based on the discussion above, we can simply state that interlocutors prefer more informative utterances. The use of a less informative utterance, like the indefinite (5.83a) will lead interlocutors to infer the reasons why the more informative (5.83b) was not chosen.

Below is an informal sketch of the reasoning involved. The formal implementation would follow the illustration for the English examples in the previous sub-section without much alteration.

(5.85) *Sp*: ‘*Nakadiskubre si Karlos ng buwan*’ (= utterance *u*).

- *At-issue content*: **one(moon)(discover)**

- *Implicature*: **¬unique(moon)**

- a. *Contextual premise*: *Sp* is an authority relative to the number of moons.
- b. *Contextual premise*: *Sp* is obeying the Cooperative Principle, the Gricean maxims, and *Maximize Presupposition*.
- c. There is an alternative utterance *u'* (the patient voice (5.83b)).
- d. The interpretation of *u'* is more informative than *u* if the presuppositions of *u'* would be accommodated.
- e. The interpretation of *u'* is just as relevant as the interpretation of *u*.
- f. *u'* is at most as costly as *u*.
- g. By (c–f), *Sp* did not utter *u'* as s/he lacks sufficient evidence to attest to the truth of the content of *u'*.

h. By (a) and (g), *Sp* did not utter *u'* as s/he believes its presuppositions to be false.

So far, nothing needs to be added to the theory of presuppositional implicatures proposed in the previous chapters. If the presupposition of the patient voice utterance can be accommodated, it can be treated as more informative. Thus an utterance of the less informative actor voice triggers a non-uniqueness inference.

The trickier case is where the uniqueness presupposition of the patient voice variant is settled within the common ground. In this chapter, I argued non-uniqueness implicatures could be derived in such cases if we assume that weak scalar items like “a” are costlier than strong scalar items. This can be implemented as a regular constraint on factors which determine utterance cost: lower ranked members of lexical scales are costlier than higher ranked members, as stated in the previous section. The function *C* is designed to weight utterances such that speakers are more willing to employ expressions with higher values (i.e., greater values correspond to lower cost).

All that needs to be said to extend the theory to the Tagalog case is to assume the scale ⟨AV, PV⟩ corresponds to a scale of relative costliness. As the patient voice affix is ranked higher on a pragmatic scale than the actor voice affix, there is a greater bias against the use of the actor voice affix. We can define many ways of ranking ⟨AV, PV⟩, for example, in structures in which both are licensed (clauses with transitive verbs), the patient voice affix will trigger additional presuppositions and therefore semantically stronger expressions (where semantic strength is calculated at a level which is more syntactically complex than the lexical item).

5.7 Conclusion

The previous two chapters discussed ways in which pragmatic alternatives are calculated, using Tagalog as a case study. In this chapter, I explored the question of how these alternatives enter into pragmatic competition. I have focused on how interlocutors reason about alternatives with presuppositional semantics and in particular how indefinite expressions are enriched via pragmatic competition with definites.

Throughout this chapter, I have drawn a parallel between the kinds of reasoning underlying upper bounding implicatures of weak scalar items like “some” and “possible” with the reasoning

behind anti-presuppositional implicatures of scalar items like “a”, “all”, and “believe”. I have shown how the two kinds of phenomena can given the same analysis, broadly compatible with the standard assumptions of neo-Gricean pragmatics.

Given contextual premises relating to the speaker’s epistemic authority, presuppositions triggered by lexical items can be accommodated by interlocutors and incorporated into the common ground. In such uses, presuppositions are informative. Thus, accommodation allows us to differentiate pairs of lexical items like $\langle a, the \rangle$ in terms of informativity, even when they only differ in terms of their presuppositional content, following previous work, especially Schlenker 2012. In such cases, the presuppositional implicature (i.e., the non-uniqueness inference of “a”) can be derived just like a scalar implicature. There is no need to invoke a special principle of *Maximize Presupposition*, above and beyond general communicative principles which bias towards more informative utterances such as the maxim of quantity.

Maximize Presupposition is most commonly invoked as an independent pragmatic principle in order to treat cases which I have dubbed weak scalar item blocking, in which the use of a presuppositionally weak scalar item like “a” is infelicitous in cases in which the presupposition of the stronger item is known to be settled. The original paper by Heim attributes such examples (like “a weight of the tent is 4 lbs.”) as the central motivation for *Maximize Presupposition* as a principle independent from the maxim of quantity. Like Schlenker 2012, I have drawn a parallel between these cases and analogous cases in the non-presuppositional domain of pragmatic competition between scalar items, i.e., Magri’s cases of “blindness”. I suggest that both cases can be productively analyzed in a Gricean fashion, without an independently stipulated principle of *Maximize Presupposition* if we treat the utterance of weak scalar items (both presuppositional and non-presuppositional) as more costly than utterances of stronger items. This idea has precedence in the original formulation of *Maximize Presupposition* from Percus 2006, but spells out Percus’s notion of preference in terms of cost, following the proposals of Potts 2013 and Lauer 2016. I suggest a unification of these closely related but distinct accounts by proposing a regularized bias against the utterance of weak scalar items.

In sum, the account pursued in this chapter has the advantage of unifying phenomena associated with pragmatic competition between non-presuppositional items and between presuppositional scalar items. I suggest that we can dispense with *Maximize Presupposition* as an

independent principle. Presupposition accommodation and a proposed bias against the utterance of weak scalar items jointly subsume its functions. This is a positive outcome, given that pragmatic principles guiding communicative behavior like the Gricean maxims are ideally rooted in the rational behavior of agents. The obligations to be truthful, informative, relevant, and so on, ground out in behavioral characteristics of cooperative agents. The obligation to prefer presuppositionally stronger utterances has had an uneasy status in the company of the Gricean maxims. Its foundation in rational behavior is uncertain. Therefore, its reduction to existing principles of cooperativity should be a welcome result.

Chapter 6

Conclusion

The overarching goal of the dissertation is to explore how NPs are assigned conventional interpretations and how they trigger pragmatic inferences in a language like Tagalog, a language in which singular, count noun phrases are able to appear without articles. The dissertation suggests that languages like Tagalog give rise to the same kinds of pragmatic inferences that we observe in languages with articles, like English, at least in certain structural configurations. Bare NP indefinites in Tagalog give rise to *non-uniqueness* implicatures, just like English indefinites with *a*. Previous theories of non-uniqueness implicatures of indefinites derive the implicature via pragmatic competition between articles. Thus, in a language like Tagalog, we need an explanation of how pragmatic competition can apply in the absence of articles. This dissertation provided a strategy of how this could be achieved.

In chapter 2, I argued that the voice affixes in Tagalog create distinct structural configurations. In clauses in which the verb carries a *patient voice* affix, the patient NP is placed in a structurally high position, composing with the entire predicate. If the verb has an *actor voice* affix, the patient NP composes directly with the transitive verb. These two distinct positions for the patient argument have corresponding compositional differences. The nominative case-marked patient in patient voice clauses must type-shift in order to compose, giving rise to a definite interpretation. The genitive case-marked patient in actor voice clauses does not need to type-shift, but is instead existentially quantified by the verb. I showed how this latter proposal has empirical and theoretical advantages over the dominant approach to Tagalog semantic composition, stemming from the work of Diesing 1992, assumed by Rackowski 2002, Aldridge

2004, and Rackowski and Richards 2005.

The proposals outlined in chapter 2 have cross-linguistic applicability. The compositional account provides a way of accounting for the link between a bare NP's interpretation and its syntactic position. Previous studies have observed similar phenomena in languages as diverse as Chinese (Cheng and Sybesma 1999), Icelandic (Collins and Thráinsson 1996), Finnish (Holmberg and Nikanne 2002), and Hawaiian (Medeiros 2013). Many such analyses invoke Diesing's Mapping Hypothesis in order to account for the sensitivity of NP-interpretation to the NP's surrounding syntactic context. Exploring how the analysis proposed in chapter 2 extends to phenomena in language such as those listed above has the potential to strengthen the empirical basis of the theory and test its cross-linguistic applicability.

Chapter 2 shows how the bare NPs in Tagalog are able to be assigned their observed interpretations in a fully compositional system. The chapter formed a basis for the account of how pragmatic inferences are calculated in the subsequent chapters. In chapter 2, it was determined that the voice affixes in Tagalog were ultimately responsible for the interpretive differences between bare NP patients. As the voice affixes are analyzed as determining the structural positions of the bare NP arguments, they therefore determine which bare NPs must type-shift, and which may directly compose with their syntactic environment.

As the voice affixes determine the structural configurations and interpretations of the bare NPs, I analyzed the choice between the voice affixes as being a central factor in the calculation of pragmatic inferences. The voices were analyzed as comprising a pragmatic scale in the sense of Horn 1972, though suspending Horn's requirement that such scales be ordered by semantic strength of the lexical items themselves. I then showed how the non-uniqueness inference triggered by genitive bare NP indefinites could be calculated with reference to this scale of voice affixes.

This approach is significant in that it shows how syntactically complex structures can enter into pragmatic competition just like lexical items. Our standard theories of pragmatic competition are based around English examples in which individual lexical items like *some/all* or *possible/necessary* enter into pragmatic competition. The Tagalog case study proves to be revealing as it shows that competition can be between more abstract structures, the actor voice clause structure and patient voice structure. These structures are interpretationally distinct due

to the presence or absence of type-shifting operators in the compositional semantics, and not due to the lexical semantics of the individual lexical items. By positing a pragmatic scale consisting of the Tagalog voice affixes, I have proposed a way that this sort of structurally complex pragmatic competition can be understood with minimal change to the lexical scale-based view of pragmatic competition.

Lexical scales are still referenced in the calculation of implicatures. What is novel here is that the lexical competitors do not themselves encode for strong and weak conventional meanings. Instead, the lexical competitors, the voice affixes, give rise to the structural conditions necessary for generating strong and weak meanings which enter into pragmatic competition and give rise to implicatures. A central finding outlined in chapter 3 is that under this view of pragmatic competition, we should suspend the requirement that lexical scales need to be ordered via semantic strength. Under the analysis provided in chapter 2, the actor voice and patient voice affixes encode for any semantics at all, and therefore they cannot be said to be meaningfully ranked by semantic strength. We must allow for the possibility that lexical scales can be ranked by other metrics, an approach previously adopted in Hirschberg 1985.

Relatedly, the Tagalog case study forms an argument against approaches to pragmatic competition, such as the one adopted in Percus 2006, which assume that utterances are ranked only with reference to the lexical semantics of the lexical competitors. While this approach has the potential to account for pragmatic competition in cases in which a lexical presupposition encoded by a semantic competitor is filtered out (e.g., in a conditional antecedent), it cannot account for cases like those in Tagalog, in which the competing indefinite and definite meanings are derived only within the broader syntactic structure via type-shifting, and not by the semantics of any particular lexical item. In order to accommodate for Percus's point about filtering sentences, I propose to adopt Singh's (2011) approach in which pragmatic competition between definites and indefinites is calculated at the clausal level, rather than only at the utterance level.

The account of pragmatic competition between definites and indefinites has the potential to also account of a longstanding puzzle in the syntax-semantics of western Austronesian languages. It has been noted since Schachter and Otnes 1982 that bare NP patients marked with genitive case are preferentially interpreted as indefinites in verb-initial clauses, and reject NP descriptions which are mutually understood to be uniquely instantiated by interlocutors (e.g.,

mundo “earth”). However, this generalization doesn’t hold in clauses in which the actor NP precedes the verb, such as in relative clauses, *wh*-questions, topicalization structures and other sorts of clauses. In such clauses, genitive bare NP patients may take on definite interpretations and admit uniquely instantiated descriptions.

Like previous analyses of this phenomenon, such as Gärtner 2004 and Rackowski and Richards 2005, I link this phenomenon to the western Austronesian ‘*Extraction Restriction*’, the morphosyntactic rule which demands that verbs bear the affix corresponding to the thematic role of any fronted NP. Thus, in clauses which contain a fronted actor, the verb must bear actor voice. This demands that in clauses with a fronted actor, the verb cannot appear in patient voice with a nominative, definite patient.

Unlike previous approaches, I base the explanation of this phenomenon and the link to the *Extraction Restriction* in pragmatics. I argued that in verb-initial clauses, genitive bare NPs give rise to non-uniqueness implicatures via competition with definite, nominative bare NPs. However, in actor-initial clauses, the patient voice form of the verb is blocked, and actor voice is the only option available to the speaker. As the speaker lacks the choice between the two salient voice affixes, pragmatic competition cannot proceed.

This result has implications for how we should think about pragmatic competition. The analysis assumes that pragmatic competition cannot take place between two utterance alternatives if one is ungrammatical. This shows us that grammar plays a crucial role in the calculation of implicatures. Does this force us into a view of pragmatics which assumes that the calculation of implicatures is highly grammaticalized, paying close attention to purely linguistic notions such as morphosyntactic well-formedness? I would suggest that we can maintain the core Gricean view that pragmatic reasoning and implicature calculation can be thought of as rooted in the rational behavior of communicative agents. We only need to adopt the assumption that rational agents have access to knowledge about what sorts of utterances are available for use in their language and whether or not any given alternative is or is not grammatical. We can construe grammaticality as a set of constraints on the possible utterance choices of an agent. Under this conceptualization of grammar, it is understandable that when interlocutors reason about the action choice of a speaker, they should also be able to reason about the possible utterance choices available to the speaker.

Finally, in chapter 5, I explored in more detail how non-uniqueness implicatures are calculated by an investigation of several previous accounts of how presuppositions and implicatures interact. Starting with Heim 1991, many proposals make use of a principle *Maximize Presupposition* in order to account for pragmatic competition between indefinites and definites, as well as other sorts of competition between presupposition triggers and their lexical alternatives. I argued in chapter 5 that we can reduce *Maximize Presupposition* to other, independently motivated pragmatic principles. Firstly, following Schlenker 2012 and Leahy 2016, we can understand the competition between presuppositional lexical items like *the* and their non-presuppositional competitors like *a* as rooted in quantity-based reasoning. This is possible if we allow for the possibility of the presupposition encoded by *the* to be accommodated by the interlocutors. If the presupposition is accommodated, it is therefore informative, and the pragmatic alternative containing the presupposition trigger is therefore semantically stronger than its non-presuppositional alternative.

Maximize Presupposition is also often invoked to account for the infelicity of indefinite *a* with uniquely instantiated descriptions like ??*a sun* or **an only way out*. I argued that we can account for such cases by imposing an *a priori* preference for presupposition triggers, following the original insight of Heim 1991, and also Percus 2006 and Lauer 2016. However, I argue that this preference does not only hold for scales ordered by presuppositional strength, but holds for other types of scales as well. I propose an *a priori* preference for higher ranked members of lexical scales, whether they are ordered via presuppositional strength or not, which determines that utterance alternatives using the stronger lexical items are preferred in cases in which the alternatives are semantically equivalent. I showed how this can unify cases like ??*a sun* or **an only way out* with cases observed by Magri 2009, referred to as “blindness”, in which non-presuppositional scales like ⟨*some, all*⟩ seem to be subject to the same constraint. The chapter provides a way of understanding the key use-cases of *Maximize Presupposition* according to principles which are not only applicable to pragmatic scales ordered by pragmatic strength. Thus, no pragmatic principles are necessary in order to uniquely handle the interaction of presuppositions and implicatures.

Overall, the dissertation provides a way of understanding how semantic composition and pragmatic competition proceeds in Tagalog, a language which signals definiteness using very

different mechanisms when compared to English. I show how we can provide a unified understanding of how definite and indefinite meanings are computed in both languages. According to the proposal, the differences between Tagalog and English are highly particularized. For example, Tagalog, unlike English, allows singular, count bare NPs, which in turn licenses the application of type-shifters. English signals definiteness using articles, while Tagalog uses verbal affixes. Despite these morphosyntactic and compositional differences, the pragmatic inferences associated definite and indefinite meanings in the two languages are calculated on the basis of the same kinds of guiding principles: interlocutors draw implicatures assuming mutual cooperativity. The pragmatic inferences associated with indefinite forms are expected if we take interlocutors to be obligated to choose definite forms over their indefinite competitors.

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