

Revisiting Person-Case constraint on *ay*-inversion in Tagalog

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Abstract

The Person-Case Constraint (PCC) is traditionally defined as a morphological condition against particular combinations of dative and accusative phonologically weak elements: in such combinations, the accusative element has to be 3rd person. In this thesis, I examine an extended definition of PCC which states that extraction across clause boundaries “may move 3rd person DPs, but not 1st person DPs [while] local extraction may freely move DPs of any person” (Richards 2005). Using the results from a gradient grammatical judgment task, I argue that the syntactic theory-driven account made by Richards is insufficient to fully account for the richness of the data. I examine three constructions that he does not consider (recent perfectives, intensives, and modals) and re-examine copular clauses and reporting verbs, which he used to draw his conclusion. Two of the novel constructions behave contrary to what is expected. Extraction out of a monoclausal recent perfective shows that 1st person extraction is significantly degraded from that of 3rd person, while extraction out of a biclausal modal construction shows no significant difference between persons. As an alternative, I then look at the viability of the *wh*-Processing Hypothesis (Hofmeister *et al* 2007), which examines factors affecting not only the processing of *wh*-questions but also that of filler-gap dependencies in general. Although this processing account captures most of the general trends reflected in the data, it fails to account for PCC. To address this, I offer two alternatives, each with its own strengths and weaknesses: 1) a purely processing account with a different accessibility hierarchy for fillers and intervening elements; 2) an interactionist model based on the interaction between processing constraints and abstract feature specifications. I conclude that more research that examines the interface between syntactic theory and processing-models is needed.

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Abbreviations

Δ	Difference	LD	Long-distance <i>ay</i> -inversion
[()]	No Person Specification	LNK	Linker
[+P]	Positive Person Specification	Loc	Local <i>ay</i> -inversion
[-P]	Negative Person Specification	Local	1 st & 2 nd persons
ACC	Accusative	NG	Non-subject argument marker
ANG	Subject marker	NP	Non-pronominal
ASP	Aspect	O	Object
AV	Voice marker (Agent)	ov	Voice marker (Theme)
AY	<i>ay</i> -inversion marker	P	Pronominal
Can	Canonical word order	PCC	Person-Case Constraint
CC	Copular clause	Q	Question particle
Cl	Clitic	RP	Recent perfective
COMP	Complementizer	S	Subject
DAT	Dative	SA	Promotable adjunct marker
DO	Direct object	Say	Reporting verb
DV	Voice marker (Location)	SG	Singular
EA	External argument	V	Verb
EXCL	Exclusive	Want	Experiencer modal
FGD	Filler-gap dependency	whPH	<i>wh</i> -Processing Hypothesis
FUT	Future	\bar{x}	Mean
H ₀	Null hypothesis		
H _a	Alternative hypothesis		
INCL	Inclusive		
INT	Intensive		
INTENS	Intensifier		

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1 Introduction

Person-Case constraint (PCC) is an extremely robust cross-linguistic restriction on phonologically weak elements such as clitics and/or agreement markers. Traditionally, linguists have examined the manifestation of this constraint in constructions involving ditransitives, causatives with infinitives, benefactives, and datives of inalienable possession (Ciucivara 2007). According to Bonet (1991, 1994), in a combination of accusative and dative clitics, the accusative clitic must be 3rd person and not be local persons, that is, 1st and 2nd persons are impermissible. Consider the following sentences in French:

- (1) (a) *Paul me le présentera*
 Paul CL-1SG.DAT CL-3SG.ACC show.FUT
 ‘Paul will introduce him to me’
- (b) **Paul me lui présentera*
 Paul CL-1SG.ACC CL-3SG.DAT show.FUT
 Intended: Paul will introduce me to him
- (c) *Paul me présentera à lui*
 Paul CL-1SG.ACC show.FUT to 3.sg.DAT
 ‘Paul will introduce me to him’ (Anagnostopoulou 2003, p. 311)

(1a-b) show an accusative-dative clitic cluster. (1a) has a 3rd person accusative clitic *le*, while (1b) has a 1st person accusative clitic *me*. As per Bonet’s generalization, it is to be expected that (1a) is grammatical because the accusative clitic is 3rd person. On the other hand, (1b) is ungrammatical since it violates PCC by having a 1st person accusative clitic *me* in the cluster. Notice, however, in (1c), no such restriction arises when the dative argument *lui* is spelled out as a strong pronoun.

Richards (2005) broadens the definition of PCC. In certain constructions there is “a requirement that certain types of DPs be 3rd person.” He examines the interaction between two distinct phenomena in Tagalog, *ay*-inversion and constraints on long distance extraction. These are exemplified by the sentences below. (4a-b) are taken from Richards (2005, p. 385), though I altered his glosses and translations:

- (2) (a) *S-in-abi-Ø ng pulis na nag-nakaw ako ng kotse*
 ASP-say-OV NG police COMP ASP.AV-steal ANG=1.SG NG car
 ‘The police said that I stole a car’

- (b) *S-in-abi-Ø ng pulis na nag-nakaw siya ng kotse*
 ASP-say-OV NG police COMP ASP.AV-steal ANG=3.SG NG car
 ‘The police said that he stole a car’
- (3) (a) *S-in-abi-Ø ng pulis na ako_i ay nag-nakaw --_i ng kotse*
 ASP-say-OV NG police COMP ANG=1.SG AY ASP.AV-steal NG
 car
 ‘The police said that I stole a car’
- (b) *S-in-abi-Ø ng pulis na siya_i ay nag-nakaw --_i ng kotse*
 ASP-say-OV NG police COMP ANG=3.SG AY ASP.AV-steal NG
 car
 ‘The police said that he stole a car’
- (4) (a) **Ako_i ay s-in-abi-Ø ng pulis na nag-nakaw --_i ng kotse*
 ANG=1.SG AY ASP-say-OV NG police COMP ASP.AV-steal NG
 car
 Intended: The police said that I stole a car
- (b) *Siya_i ay s-in-abi-Ø ng pulis na nag-nakaw --_i ng kotse*
 ANG=3.SG AY ASP-say-OV NG police COMP ASP.AV-steal NG
 car
 ‘The police said that he stole a car’

Sentences (2a-b) show the canonical word order, wherein the ANG-arguments (1st person *ako* and 3rd person *siya*) of the embedded clause do not undergo *ay*-inversion. On the other hand, sentences (3a-b) and (4a-b) show a non-canonical word order, wherein the *ang*-arguments are *ay*-inverted. The only difference between the two sets is that in (3a-b) the inversion process is a local phenomenon taking place within the embedded clause; while in (4a-b) inversion is long-distance, that is, the *ang*-arguments are extracted from the embedded clause and then *ay*-inverted in the matrix clause. According to Richards (2005), *ay*-inversion across clause boundaries (marked by *na*¹) has an interesting restriction: the inverted DP must be 3rd person,

¹Complementizer *na* has three surface forms: *na*, which can be used everywhere, already seen in (2-4); the enclitic *-ng* which may be used when the noun it modifies ends in a vowel (as we will see later on); and the enclitic *-g* which may be used when the noun it modifies ends in <n>

as seen in the ungrammaticality of (4a) and the grammaticality of (4b).

What is of great interest for the nature of this thesis is the Minimalist approach that Richards proposes to account for this phenomenon in extraction constructions, which, to my knowledge, is the first investigation of these effects in Tagalog. He uses copular clauses and reporting constructions with the verb *sabi* ‘say’ to show his generalization of the nature of extraction in Tagalog: extraction across clause boundaries “may move 3rd person DPs, but not 1st person DPs ... [while] local extraction may freely move DPs of any person.” In his analysis, he accounts for this by unifying two independently proposed theories: PCC arises when a single Probe participates in multiple Agree operations (Anagnostopoulou 2003, 2005) and cross-clausal movement requires a Probe to first Agree with the clause and then with the moving XP (Rackowski and Richards 2005).

The main goal of this thesis is to establish a more nuanced understanding of PCC in Tagalog by evaluating Richards’ generalization using constructions that he does not consider. Consequently, these details concerning extraction and PCC in Tagalog can offer insights on the nature of extraction and of PCC cross-linguistically and how these should be analyzed. I begin by providing an overview of Tagalog: its language background, its relevant syntactic and morphological properties. The interaction of these properties is the focus of this thesis. Then I present the theories that Richards use to build his analysis of Tagalog: Anagnostopoulou’s analysis of PCC, Richards and Rackowski’s long distance extraction theory. Moreover, I challenge this analysis by using data based on my work with speakers. These data indicate that a better analysis is needed. Finally, I present viable hypotheses involving processing considerations that could potentially unify both our data.

Before proceeding, it should be noted that this thesis focuses on the restriction only to 1st person in order to be consistent with Richards’ preliminary investigation and for the sake of manageability despite the fact that PCC traditionally groups 3rd person against local 1 and 2nd persons. Further, this does not involve ditransitive constructions but instead it looks at extraction via *ay*-inversion.

2 Tagalog Essentials

I first provide a brief background of the language. Then I provide an overview of the relevant syntactic and morphological properties: basic word order, case, voice,

and pronominal systems, and extraction constructions. The focus of this thesis is the interaction between the pronominal system, *ay*-inversion, and extraction constraints.

2.1 Language Background

Tagalog belongs to the Malayo-Polynesian sub-group of the Austronesian language family. It is a Central Philippine language (“Tagalog,” Ethnologue) that originated from either Northeastern Mindanao or Eastern Visayas (Zorc 1977, Blust 1991). As reported by the 2000 census, there are 21,500,000 speakers in the Philippines and 2,353,200 speakers in other countries. Depending on the person’s language ideologies, however, there can be as many as 25,000,000 speakers worldwide (“Filipino,” Ethnologue)².

2.2 Basic Word Order

Generally, Tagalog has verb-initial word order. Post-verbal elements can scramble and still retain the grammaticality and the same basic meaning of the sentence. Consider the following examples adapted from Schachter and Otnes (1972, p. 83):

- | | | | |
|-----|-----|--|-------------|
| (5) | (a) | Nagbigay <u>ng libro</u> <i>sa babae</i> ang lalaki | [V-DO-IO-S] |
| | (b) | Nagbigay <u>ng libro</u> ang lalaki <i>sa babae</i> | [V-DO-S-IO] |
| | (c) | Nagbigay <i>sa babae</i> <u>ng libro</u> ang lalaki | [V-IO-DO-S] |
| | (d) | Nagbigay ang lalaki <u>ng libro</u> <i>sa babae</i> | [V-S-DO-IO] |
| | (e) | Nagbigay ang lalaki <i>sa babae</i> <u>ng libro</u>
‘ The man gave <i>the woman</i> <u>a book</u> ’ | [V-S-IO-DO] |

²Although the Constitution of 1987 declares Filipino as the national language of the Philippines, even to this day, such expression is still subject to several controversies and misunderstandings. Some consider it to be: synonymous with Tagalog; an amalgamation of Philippine languages and uses other languages (e.g. English and Spanish) as lexical sources; or a dialect of Tagalog spoken in Metro Manila with borrowings from Philippine and other languages. It is outside the scope of this paper to discuss this language issue in detail. See Barrios-Le Blanc (forthcoming) for a brief historical discussion of how this language issue came about.

Although post-verbal elements can scramble, word order is not completely random. In fact, it is more natural in a neutral context for the subject (*ang*-marked argument) to be after all the other DPs (Kroeger 1993, p. 111). Further, benefactives, adverbials, and prepositional elements are most natural in sentence-final position, that is, they follow the subject (Rackowski 2002, p. 24). The latter fact about word order, however, will not play any role in what follows.

2.3 Case, Voice, and Pronouns

Tagalog has three “particles” that precede the DP, often analyzed as a case system, which I will label *ang* [aŋ], *ng* [naŋ], and *sa* [sa]. *Sa* is used for goals, recipients, and locations; *ng* is used for possessors, instruments, and indefinite objects. *Ang* may be used for any argument role, depending on the affixation on the verb as explained later. The allomorphy of the case markers is listed below:

Table 1: Case Marker Allomorphy

	ANG	NG	SA
Common noun	<i>ang</i>	<i>ng</i>	<i>sa</i>
Personal name	<i>si</i>	<i>ni</i>	<i>kay</i>

In addition, pronouns are also inflected for this tripartite distinction. All but one have exactly one form for each case. The *ang*-form of 2.SG has two surface manifestation depending on its position relative to the verb: *ka* is used when it occurs in post-verbal position, while *ikaw* when it occurs pre-verbally. In the table below, I have bolded the pronouns whose extraction behavior will be investigated in what follows:

Table 2: Pronoun Allomorphy

	ANG	NG	SA
1.SG	ako	ko	akin
2.SG	ikaw/ka	mo	iyo
3.SG	siya	niya	kanya
1.PL.INCL	tayo	natin	atin
1.PL.EXCL	kami	namin	amin
2.PL	kayo	ninyo	inyo
3.PL	sila	nila	kanila

Subjecthood³ is signaled by the particle *ang*. Tagalog allows for any argument DP (and some adjunct) to be the subject of the clause by adding a voice morpheme on to the verb, which has a different morpho-phonological form depending on which argument is promoted to be the subject. Consider the following examples, adapted from Foley and Van Valin (1984, p.135):

(6) (a) Agent

B-um-ili ang lalaki ng isda sa tindahan
 ASP.AV-buy ANG man NG fish SA store
 ‘**The man** bought fish at the store’

(b) Theme

B-in-ili-Ø ng lalaki ang isda sa tindahan
 ASP-buy-OV NG man ANG fish SA store
 ‘The man bought **the fish** at the store’

(c) Locative

B-in-ilh-an ng lalaki ng isda ang tindahan
 ASP-buy-DV NG man NG fish ANG store
 ‘The man bought fish **at the store**’

The examples above show that this voice-marker reflects the role of the *ang*-argument in that clause: AV for the agent, OV for the theme, and DV for the location. See Schachter and Otnes (1972, Chapter 5) for other types of voices. Argument DPs that are non-subjects are *ng*-marked in different voices, as seen in (6b-c) where the agent *lalaki* does not function as the subject of the sentence. Promotable adjuncts⁴ are generally *sa*-marked DPs.

³The status of subjects in Tagalog is highly debated (Bloomfield 1917, Blake 1925, Bell 1976, Schachter 1976 and 1977, Carrier-Duncan 1985, Gerdtz 1988, Payne 1982). According to Kroeger 1993 and others, there are syntactic properties (cross-linguistically controlled by subjects) that are controlled by the agent of the clause and there are some that are controlled by the *ang*-marked argument. For the purposes of this paper, I adopt the analysis that the *ang*-marked argument functions as the subject of the its clause.

⁴Adjunct DPs that can be promoted to be the subject of sentences include locatives and benefactives to name a couple.

2.4 Extraction

In Tagalog, as in many other Austronesian languages, extraction requires that the extracted DP be the subject of the clause. In this section, I look at two major extraction constructions – relativization and constituent question formation – and *ay*-inversion.

2.4.1 Relativization

Only the subject of the clause can be relativized (though see Cena 1979 for discussion of possible exceptions to the rule). Thus the gap in a relative clause will always correspond to the argument role which is signaled by the voice-marker on the verb. Consider the following examples:

- (7) (a) *lalaki_i=ng b-um-ili ng isda $_i$ sa tindahan*
man=COMP ASP.AV-buy NG fish SA store
'man who bought fish at the store'
- (b) *isda_i=ng b-in-ili- \emptyset ng lalaki $_i$ sa tindahan*
fish=COMP ASP-buy-OV NG man SA store
'fish that the man bought at the store'
- (c) **lalaki_i=ng b-in-ili- \emptyset $_i$ ang isda sa tindahan*
man=COMP ASP-buy-OV ANG fish SA store
Intended: man who bought fish at the store
- (d) **isda_i=ng b-um-ili $_i$ ang lalaki sa tindahan*
fish=COMP ASP.AV-buy ANG man SA store
Intended: fish that the man bought at the store

Examples (7a-b) are grammatical because the relativized DPs act as the subjects of their respective clauses, as signaled by voice-marker on the verb. In (7a) the verb carries an agentive voice-marker when the agent is relativized. Similarly, in (7b) the voice-marker on the verb changes to that of a theme when the theme is relativized. On the other hand, examples (7c-d) are ungrammatical because non-subjects were relativized. There is an overt DP that is *ang*-marked within the relative clause, which shows that the relativized positions (i.e. the gaps) correspond to arguments – *lalaki* in (7c) and *isda* in (7d) – are not *ang*-marked, but are instead *ng*-marked in their respective clauses.

2.4.2 Constituent Question Formation

In Tagalog, constituent question formation involves *wh*-fronting whose exact structural details are not relevant here, but see Kroeger (1993) and Rackowski (2002) for such details. More importantly, constituent question formation obeys the same extraction constraint shown above. Consider the following examples:

- (8) (a) *Sino_i (ba) ang b-um-ili ng isda --_i sa tindahan?*
 who Q ANG ASP.AV-buy NG fish SA store
 ‘Who bought fish at the store?’
- (b) *Ano_i (ba) ang b-in-ili-∅ ng lalaki --_i sa tindahan?*
 what Q ANG ASP-buy-OV NG man SA store
 ‘What did the man buy at the store?’
- (c) **Sino_i (ba) ang b-in-ili-∅ --_i ang isda sa tindahan?*
 who Q ANG ASP-buy-OV ANG fish SA store
 Intended: Who bought fish at the store?
- (d) **Ano_i (ba) ang b-um-ili --_i ang lalaki sa tindahan?*
 what Q ANG ASP.AV-buy ANG man SA store
 Intended: What did the man buy at the store?

Just as the gap must correspond to the subject in the relativized examples shown above, the *wh*-word must also correspond to the subject of the sentence. This explains the grammaticality of (8a-b). In (8a), the verb carries the agentive voice-marker when the agent is questioned. This voice-marker on the verb changes when the theme is questioned, as seen in (8b). On the other hand, (8c-d) are ungrammatical because the *wh*-words correspond to *ng*-marked arguments in their clauses. In (8c), the verb carries the voice-marking for the theme but the *wh*-word corresponds to the agent. A similar mismatch is seen in (8d) when the verb carries the agentive voice-marking but the theme is in question.

However, the subject-only constraint in constituent question formation is bypassed when the *wh*-word remains *in situ*, as seen in the following examples:

- (9) (a) *B-in-ili-∅ (ba) nino ang isda sa tindahan?*
 ASP-buy-OV Q ANG fish NG=who SA store
 ‘Who bought fish at the store?’

- (b) *B-um-ili (ba) ng ano ang lalaki sa tindahan?*
 ASP.AV-buy Q NG what ANG man SA store
 ‘What did the man buy at the store?’

In (9a-b), the *wh*-word occupies a post-verbal position, contrary to what we would expect in regular constituent question formation. Here, it remains in its base-generated position, retains its *ng*-marking, and does not correspond to the voice-marker on the verb. Such constructions, as noted by Schachter and Otnes (1972, p. 505), are infrequent. In a way, relativization and constituent question formation are similar since they both target the *ang*-marked arguments. However, they are different since the latter, given the right conditions, can also target *ng*-marked arguments and non-arguments. Put more simply, the differences arise because Tagalog allows *wh-in situ* questions but not *in situ* relativization.

2.4.3 *Ay*-inversion

According to Schachter and Otnes (1972, p. 485), Tagalog has four types of inversions: contrastive, emphatic, non-emphatic, and *ay*-inversion. This section only looks at the relevant one, *ay*-inversion.

This process changes the word-order from verb-initial to subject-initial by adding the morpheme *ay*⁵. Speakers describe this operation as completely optional, with no obvious effect on the meaning of the sentence (Schachter and Otnes 1972, p. 486; Richards 2005). Stylistically, however, *ay*-inversion is characteristic of a more formal style, and is more common in writing, lectures, sermons, etc., than it is in ordinary conversations.

Examples of this are shown below:

- (10) (a) *B-um-ili ang lalaki ng isda sa tindahan*
 ASP.AV-buy ANG man NG fish SA store
 ‘The man bought fish at the store’
- (b) [*Ang lalaki*]_i *ay b-um-ili ng isda —i sa tindahan*
 ANG man AY ASP.AV-buy NG fish SA store
 ‘The man bought fish at the store’

⁵*Ay* can have two surface forms: the enclitic *-y*, which we’ve seen in (3-4), is only used when the word it precedes ends in a vowel; and *ay* that can be used for everything

- (c) **[Ng isda]_i ay b-um-ili →_i ang lalaki sa tindahan*
 NG fish AY ASP.AV-buy ANG man SA store

Intended: 'The man bought fish at the store'

(10a) shows the canonical word-order, while (10b) shows the word-order after a successful *ay*-inversion. (10c) shows a failed *ay*-inversion. Notice how in (10b) when the verb carries the agentive voice, the agent of the clause can be inverted. Contrast this with (10c) – that the verb carries the agentive voice but the theme is inverted results to ungrammaticality. Having said that, there is a degree of similarity between the extraction constructions discussed before and *ay*-inversion, that is, they both target *ang*-marked arguments. As we see later on, given the right conditions, *ay*-inversion can also target *ng*-marked arguments (and non-arguments).

3 A formal syntactic analysis of Tagalog PCC

This section presents Richards' (2005) analysis of PCC and lays out the relevant theoretical background.

3.1 Voices and Phases

Rackowski and Richards (2005) claim that Tagalog subjects are “syntactically akin” to object-shifted DPs in Germanic languages, that is, they have the same specificity effect associated with the shifted DP and that they have the same locality restrictions identified in Germanic. Examples in (6), repeated here as (11), show the former:

- (11) (a) Agent

B-um-ili ang lalaki ng isda sa tindahan
 ASP.AV-buy ANG man NG fish SA store

'**The man** bought fish at the store'

- (b) Theme

B-in-ili-Ø ng lalaki ang isda sa tindahan
 ASP-buy-OV NG man ANG fish SA store

'The man bought **the fish** at the store'

(c) Locative

B-in-ilh-an ng lalaki ng isda ang tindahan
ASP-buy-DV NG man NG fish ANG store

‘The man bought (the) fish **at the store**’

An interesting property of Tagalog subjects seen in these examples is that all subjects are obligatorily specific. For instance, (11a) cannot mean ‘A man bought fish at the store⁶’. On the other hand, objects are obligatorily nonspecific when the external argument is the subject, as seen in (11a). They are optionally specific when some other argument functions as the subject, as seen in (11c).

The specificity effects of subjects becomes strikingly clear in the case of pronouns. Pronouns, which are obligatorily specific, are ungrammatical as ordinary objects. If an object pronoun is present, the voice-marker on the verb changes to make the pronoun the subject of the sentence, as seen below:

(12) (a) **S-um-ampal ko ang mandurukot*
ASP.OV-slap NG=1.SG ANG pickpocket

Intended: The pickpocket slapped me

(b) *S-in-ampal-Ø ako ng mandurukot*
ASP.OV-slap ANG=1.SG NG pickpocket

‘A/the pickpocket slapped me’ (Rackowski and Richards 2005, p. 567-8)

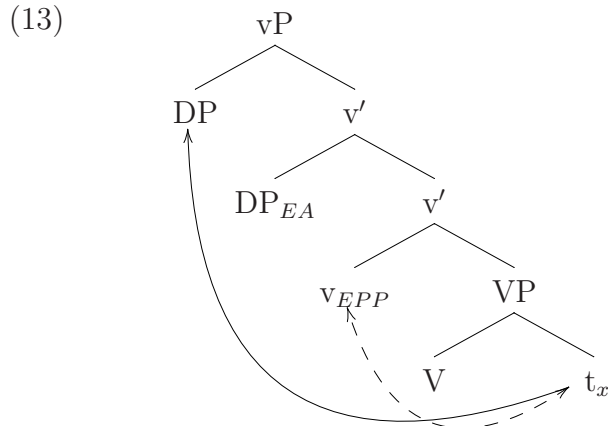
In (12a), the pronoun functions as the object since there is an overt ANG-marked argument and the verb codes for agentive voice. In (12b), the pronoun functions as the subject because it is inflected as an *ang*-form and the voice-marker codes for objective voice. The ungrammaticality of (12a) is due to the fact that the pronoun is forced to function as an ordinary object, hence the derivation fails. In (12b), the grammaticality is to be expected since the pronoun functions as the subject of the sentence.

This behavior is similar to object shifts in Germanic languages, where specific direct objects are disallowed in VP-internal positions. For example, in Icelandic, specific objects shift out of VP and non-specific ones remain inside the VP. Shifted items move to a position to the left of VP-adjoined adverbs and negation. Refer to Diesing (1996, 1997) for a more comprehensive discussion on object shifts in Icelandic/Germanic. What is of great interest for this thesis,

⁶Sentences with indefinite subjects are realized as existential constructions.

however, is how Rackowski and Richards (2005) propose to account for this specificity effect in Tagalog.

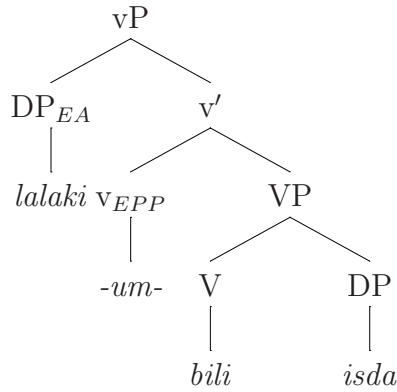
Chomsky (2001) argues that object shift occurs as a result of an EPP-feature on *v*, which is present only when it affects the semantic outcome. Rackowski and Richards (2005, p. 569) build on this and claim that “Tagalog subjects ... are DPs that have entered into an Agree relation with *v*, allowing them to raise into the edge of the phase and triggering Case⁷ agreement morphology on the verb.” They argue that there is an effect on semantic outcome because the position at the edge of the *v*P – be it a shifted object or the external argument when no object shift takes place – is assigned a specific interpretation, while everything internal to *v*P is assigned a nonspecific interpretation. And as we have seen, *ang*-arguments are obligatorily specific. Further, they assume that there is no tucking-in below a thematic specifier (Rackowski 2002). Consequently, object shift in Tagalog lands in a specifier above the thematic specifier occupied by the external argument. This process is schematized below in (13):



To see this process in action, consider (11a-b) once again, repeated here as (14) and (15), and derive the following:

- (14) Agent
- B-um-ili ang lalaki ng isda sa tindahan*
 ASP.AV-buy ANG man NG fish SA store
 ‘**The man** bought fish at the store’

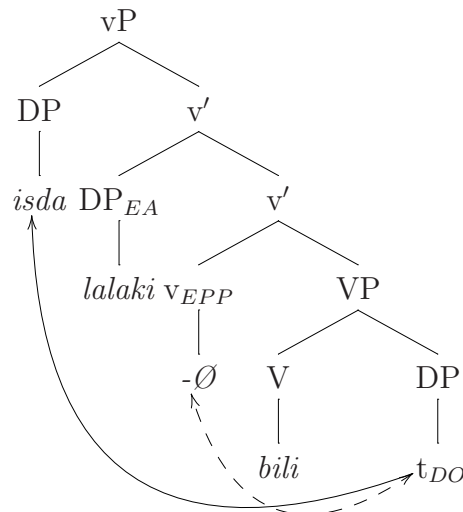
⁷Notice that Rackowski and Richards (2005) refer to voice-marking on the verb as Case and is schematized in 14 as *v*. However, I will continue to refer to it as voice-marking to be consistent with the description of Tagalog clause structure in the previous sections.



In (14), no object shift occurs, therefore, the external argument is at the edge of vP. Consequently, the external argument gets an obligatorily specific interpretation, checking the EPP feature on v and triggering voice-marker *-um*.

(15) Theme

*B-in-ili-∅ ng lalaki **ang isda** sa tindahan*
 ASP-buy-OV NG man ANG fish SA store
 ‘A/the man bought **the fish** at the store’



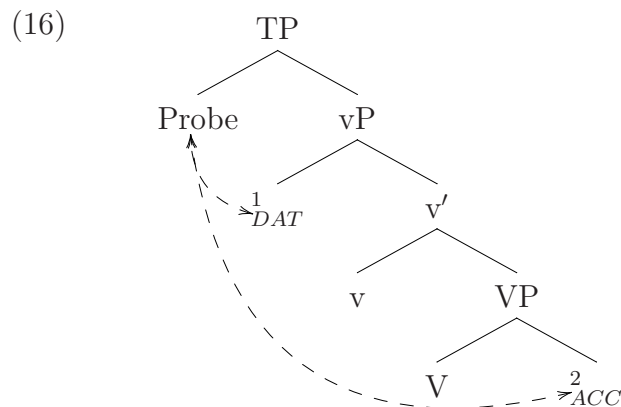
In (15), object shift occurs, moving the direct object at the edge of the phase via Agree with v (represented here by a dashed line). Consequently, the shifted object gets an obligatorily specific interpretation, checking the EPP feature on v and triggering voice-marking *-∅*, while the thematic specifier receives an optionally specific interpretation.

3.2 Person-Case Constraint

Aforementioned, PCC is an extremely robust cross-linguistic phenomenon that requires certain DPs be 3rd person in certain constructions. Anagnostopoulou (2003, 2005) develops a Minimalist approach to PCC by attributing these effects to the conflicting feature specifications in Multiple Agree relations by a single Probe.

Following much work on morphology, she assumes that local persons and reflexives are [+person] pronouns (Bonet 1991, 1995; Taraldsen 1995; Ritter 1995; Kayne 2000). On the other hand, following Adger and Harbour (2003, p. 25), for 3rd person, she assumes that there is a distinction between dative and accusative objects: “3rd indirect objects have a negative person specification (i.e. they are [-person]) while 3rd person direct object lack a person feature entirely” (2005, p. 211). Finally, she claims that two arguments can target a single functional head, which results in a ‘two arguments against one head’ construction (p. 210). The functional head first enters into an Agree relation with (henceforth Agree with) the closest argument first, then enters into another Agree with the argument that is further down.

She argues that PCC arise in these ‘two arguments against one head’ contexts. For instance, whenever a dative argument Agrees with a Probe P checking its ϕ -features (labeled 1 in the diagram below), the lower argument Agrees with the Probe P second and checks the remaining number features (labeled 2).



If the lower argument is of an appropriate type, that is, it is 3rd person, then the derivation converges. However, if the the lower argument is inappropriate, that is, it is a ‘person pronoun’, the derivation crashes. Below I provide a summary of

every possible combinations and their results in derivation per Anagnostopoulou’s assumptions on person features (2005):

Feature	Spell Out	Result
[+P] [+P]	local-DAT + local-ACC	no feature clash
[+P] [-P]	local-ACC + 3-DAT	feature clash
[+P] [()]	local-DAT + 3-ACC	no feature clash
[-P] [-P]	3-DAT + 3-DAT	impossible combination?
[-P] [()]	3-DAT + 3-ACC	no feature clash
[()] [()]	3-ACC + 3-ACC	impossible combination?

[+P] = positive person specification; [-P] = negative person specification; [()] = no person specification

The first combination’s derivation is successful because both ϕ -features match, therefore there is no feature clash. The second combination’s derivation fails because ϕ -feature [-P] of the dative argument first Agrees with the Person feature of the Probe P, rendering it unable to Agree with ϕ -feature [+P] of the accusative argument because that would contradict the Person feature already established. The third combination’s derivation is successful because there is no feature clash. ϕ -feature [+P] of the dative argument first Agrees with the Person feature of the Probe P, then it Agrees with the accusative argument, which has no ϕ -feature. Similarly, the fifth combination’s derivation succeeds because there is no feature clash. Since the accusative argument has no ϕ -features, the already established ϕ -feature [-P] of the dative argument on Probe P does not contradict ϕ -feature on subsequent Agrees. The fourth and sixth combinations are, to my knowledge, unattested combinations.

3.3 Long Distance Extraction

Long distance extraction in Tagalog is possible only out of a sentential subject. This is true when the subordinate clause containing the gap is the finite complement of a reporting verb like *sabi* ‘say’ or the non-finite complement in a control construction. Consider the following sentences (adapted from Kroeger 1992, p. 216):

- (17) (a) *Nag-sabi ako kay Pedro na b-um-ili si Linda*
 ASP.AV-say ANG=1.SG SA Peter COMP ASP.AV-buy ANG Linda
ng kotse
 NG car
 ‘I told Peter that Linda bought the car’

- (b) *S-in-abi-han ko si Pedro na b-um-ili si Linda*
 ASP-say-DV NG=1.SG ANG Peter COMP ASP.AV-buy ANG Linda
ng kotse
 NG car
 ‘I told Peter that Linda bought the car’
- (c) *S-in-abi-Ø ko kay Pedro na b-um-ili ni Linda*
 ASP-say-OV NG=1.SG SA Peter COMP ASP.AV-buy NG Linda
ng kotse
 ANG car
 ‘I told Peter that Linda bought the car’

Sentences (17a-c) show the range of voice possibilities for the reporting verb *sabi*. In (17a) the verb carries the agentive voice-marker which targets the speaker *ako* as the subject of the matrix clause. In (17b), the voice-marker on the verb selects the hearer *Pedro* as the subject of the matrix clause. Finally, in (17c), the objective voice-marker on the verb selects the sentential complement as the matrix subject.

Thus, when an element of the complement clause is involved in a filler-gap dependency, two conditions must be met: the voice-marker on the embedded verb must indicate that the gap functions as the subject of the lower clause and the voice-marker of the matrix verb must also indicate that the complement clause functions as the subject of the matrix clause. No other combinations are possible, as seen below (adapted from Kroeger 1992, p.216-7):

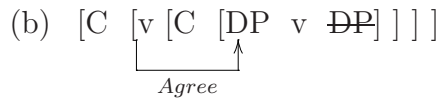
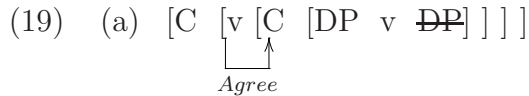
- (18) (a) [*Alin=g kotse*]_i *ang s-in-abi-Ø ko kay Pedro na*
 which=LNK car ANG ASP-say-OV NG=1.SG SA Peter COMP
b-in-ili-Ø ni Linda _{-i}?
 ASP-buy-OV NG Linda
 ‘Which car did I tell Peter that Linda bought?’
- (b) **[Alin=g kotse]*_i *ang s-in-abi-Ø ko kay Pedro na*
 which=LNK car ANG ASP-say-OV NG=1.SG SA Peter COMP
b-um-ili _{-i} *si Linda?*
 ASP.AV-buy ANG Linda
 Intended: Which car did I tell Peter that Linda bought?

- (c) **[Alin=g kotse]_i ang nag-sabi-Ø ako kay Pedro na*
 which=LNK car ANG ASP.AV-say ANG=1.SG SA Peter COMP
b-in-ili-Ø ni Linda --i?
 ASP-buy-OV NG Linda

Intended: I told Peter that Linda bought the car

(18a) shows the gap and the sentential complement functioning as the subjects of their respective clauses via voice-marking on their respective verbs (in this case, the objective voice for them both). In (18b), although the complement clause functions as the matrix subject (via objective voice-marker on matrix verb), the gap isn't the subject of the lower clause. Instead, it is 'Linda' that is so, as seen on the agentive voice-marker on the embedded verb. As a result, the sentence is ungrammatical. (18c) is the exact opposite of (18b). Here, it is the sentential complement that does not function as the subject of its respective clause, as seen in the agentive voice-marker on the matrix verb, while the gap functions as one.

In Rackowski and Richards (2005), they propose a theory of extraction that ultimately states that in order to extract out of a complement clause, matrix v must first Agree with CP (labeled (a) in the schema below). This operation forces the CP where an element is to be extracted out of to be a subject in Tagalog, making it transparent for extraction and making the soon to be extracted DP accessible to then Agree with matrix v (labeled (b)).



They argue that Tagalog provides evidence, via a morphological reflex (voice-marker) on the matrix verb, for this theory of extraction. See Rackowski and Richards (2005) for a thorough discussion of the empirical motivations for positing two Agree relations.

3.4 Richards' Generalization: PCC in Tagalog

Instead of its traditional definition, Richards (2005) uses PCC in a more generalized sense: in certain constructions there is "a requirement that certain

types of DPs be 3rd person.” He examines the interaction between two distinct phenomena in Tagalog, *ay*-inversion and constraints on long distance extraction. After examining copular clauses and transitive reporting verb *sabi* ‘say’ interacting with *ay*-inversion, he makes a generalization regarding the nature of extraction in Tagalog: extraction across clause boundaries “may move 3rd person DPs, but not 1st person DPs ... [while] local extraction may freely move DPs of any person.” These are exemplified by the sentences below (adapted from Richards 2005, p. 388):

- (20) (a) *Ako_i* *ay Pilipino* --_i
 ANG=1SG AY Filipino
 ‘I am Filipino’
- (b) *Siya_i* *ay Pilipino* --_i
 ANG=1SG AY Filipino
 ‘He is Filipino’
- (21) (a) **Ako_i* *ay s-in-abi-Ø ng pulis na nag-nakaw* --_i *ng*
 ANG=1.SG AY ASP-say-OV NG police COMP ASP.AV-steal NG
kotse
 car
 Intended: The police said that I stole a car
- (b) *Siya_i* *ay s-in-abi-Ø ng pulis na nag-nakaw* --_i *ng*
 ANG=3.SG AY ASP-say-OV NG police COMP ASP.AV-steal NG
kotse
 car
 ‘The police said that he stole a car’

Sentences (20a-b) show *ay*-inversion occurring locally, that is, they do not cross clause boundaries. In these examples, PCC does not arise. Sentences (21a-b) show long distance *ay*-inversion. Richards (2005) claim that PCC is manifested in these types of construction, as seen in the grammaticality of (21b) when a 3rd person pronoun is extracted and the ungrammaticality of (21a) when a 1st person pronoun is extracted.

In his analysis, he accounts for this by unifying two independently proposed theories: PCC arises when a single Probe participates in multiple Agree operations (Anagnostopoulou 2003, 2005) and cross-clausal movement requires a Probe to first Agree with the clause and then with the moving XP (Rackowski and Richards 2005).

In sentences (21a-b), for example, matrix *v* first Agrees with the CP, valuing its ϕ -features; then, now that the CP is transparent for extraction, the soon to be extracted DP is now accessible for matrix *v* to Agree with. However, it is rendered unable to Agree a second time with a DP at the edge of a phase that has a Person feature, as seen in the ungrammaticality of (21a). Thus, successful extraction occurs when there is no ϕ -feature clash in these two Agree operations, as discussed in Section 3.2. On the other hand, in (20a-b), there is no such constraint to local persons because the extraction/*ay*-inversion is local. Richards (2005, p. 388) argue that “when extraction does not cross clause boundaries, no Probes need to Agree with more than one goal.”

4 PCC in Tagalog Revisited and Evaluated

The main goal of this section is to provide a better understanding of PCC in Tagalog by evaluating Richards’ generalization using constructions that he does not consider. Consequently, these details can offer insights as to how extraction and PCC work not only in Philippine languages but also cross-linguistically and as to how these should be analyzed. First, I provide an overview of a group of sentences that are considered “subjectless” under the analysis that *ang* is subject marker. Then I provide the structural representation of *ay*-inversion, both local and long-distance. Then , I briefly discuss the implications of “subjectless” sentences to this proposed structure. Then I challenge Richards’ generalization by using data based on my work with language informants. These data indicate that a better analysis is needed.

4.1 “Subjectless” Sentences

There are a number of sentence types in Tagalog that are perfectly well-formed even though they lack an *ang*-marked argument. The existence of such sentences poses a problem to the analysis of the *ang*-marked argument as subjects, if one assumes that all sentences must have a subject. In this section, I provide an overview of three types of these sentences. Refer to Kroeger (1992) for a comprehensive list of “subjectless” sentences. These are relevant because they show the complex interactions of the pronominal system, *ay*-inversion, and extraction constraints in the language.

4.1.1 Intensive

These sentences denote a stronger or more forceful action compared with the root on which it is built. Consider the following examples:

- (22) (a) *Napaka-tapang niya*
INTENS-brave NG=3.SG
'He/she is very brave'
- (b) *Siya_i ay napaka-tapang --_i*
ANG=3.SG ay INTENS-brave
'He/she is very brave'
- (c) **Niya_i ay napaka-tapang --_i*
NG=3.SG ay INTENS-brave
Intended: He/she is very brave
- (23) (a) *Matapang siya*
brave ANG=3.SG
'He/she is brave'
- (b) *Siya_i ay matapang --_i*
ANG=3.SG AY brave
'He/she is brave'

(22) shows an intensive copular construction. As seen in (22a), these types of sentences do not contain an *ang*-argument. Despite this, they are capable of undergoing *ay*-inversion, as seen in (22b). It is curious that after such inversion, an *ang*-argument surfaces. (22c) shows that these sentences' sole argument cannot undergo *ay*-inversion if the *ng*-marking is retained. (23), on the other hand, shows a regular copular clause. Unlike their intensive counterparts, these sentences contain an *ang*-argument, as seen in (23a). Like their intensive counterparts, these arguments can be *ay*-inverted, as seen in (23b).

4.1.2 Recent Perfective

The recent perfective expresses actions recently completed before the time of utterance or some other specified time. This aspect is marked by the prefix *ka-* plus a CV reduplication of the verb root. This verb form carries no voice-markers on the

verb, therefore no arguments get *ang*-marked (Kroeger 1992). Consider the following:

- (24) (a) *Kabi-bili lang ng lalaki ng isda*
 ASP-buy just NG man NG fish
 ‘The man just bought fish’
- (b) [*Ang/*ng lalaki*]_i *ay kabi-bili lang --i ng isda*
 ANG/NG man AY ASP-buy just NG fish
 ‘The man just bought fish’
- (c) [*Ang/*ng isda*]_i *ay kabi-bili lang ng lalaki --i*
 ANG/NG fish AY ASP-buy just NG man
 ‘The man just bought fish’ (Schachter and Otones 1972)

(24a) shows the canonical word order and, as mentioned previously, there is no *ang*-marked argument. (24b-c) show that the agent and the theme, respectively, can be *ay*-inverted. Similar to the intensive constructions discussed above, (24b-c) also show that an *ang*-form of the *ng*-argument surfaces when it is inverted and that retaining its *ng*-marking results to ungrammaticality.

4.1.3 Modal

Kroeger (1992) describes various Tagalog verbs that are morphologically different from main verbs in several respects. These verbs are defective since they carry neither voice- nor aspect-markers. Also, they allow no variation in subject selection. There are three types of modals⁸ that behave differently syntactically. For the purpose of this thesis, however, I am only interested in what Kroeger calls “experiencer modals”, which are lexically specified to take two arguments, an experiencer and a goal. The experiencer always takes *ng*-marking, while the goal can be *ang*-marked, *sa*-marked, or a sentential complement. Now, let’s consider the following sentences:

- (25) (a) *Gusto ng lalaki ng turon*
 want NG man NG turon
 ‘The man wants a turon’
- (b) *Ano_i (ba) ang gusto ng lalaki --i?*
 what Q ANG want NG man

⁸For a lengthy discussion of these verb types’ behavior, see Schachter and Otones (1972), Kroeger (1992), and Buenaventura (1972)

‘What does the man want?’

- (c) **Sino_i (ba) ang gusto --_i ng turon?*
who Q ANG want NG turon

Intended: Who wants a turon?

- (d) *Sino_i (ba) ang may --_i gusto ng turon?*
who Q ANG have want NG turon

‘Who wants a turon?’

Literal: Who has a liking for turon? (adapted from Kroeger 1992, p. 52)

(25a) shows the canonical word order of a construction involving this subclass of modal. There is no *ang*-marked argument licensed in this clause. Only the goal but not the experiencer can undergo extraction (in this case, constituent question formation), as seen in the grammaticality of (25b) and the ungrammaticality of (25c). (25d) shows a “repair mechanism” in which the experiencer can be targeted by a *wh*-word. This is done via an existential equivalent of the sentence.

For this thesis, I am mostly interested in modals of this subclass that take a sentential complement. These serve as a parallel for the long-distance extraction that Richards (2005) examines using reporting verb *sabi* ‘say’. Now consider the following:

- (26) (a) *Gusto ni Linda-ng palu-in ni David si Jessica.*
want NG Linda=COMPL spank-OV NG David ANG Jessica
‘Linda wants David to spank Jessica.’

- (b) *Ano_i (ba) ang gusto ni Linda --_i.*
what Q ANG want NG Linda
‘What does Linda want?’

- (c) **Sino_i (ba) ang gusto --_i na palu-in ni David si Jessica?*
what Q ANG want COMPL spank-OV NG David ANG
Jessica?
Jessica

Intended: Who wants David to spank Jessica?

- (d) *Sino_i (ba) ang may --_i gusto na palu-in ni David si Jessica?*
what Q ANG have want COMPL spank-OV NG David ANG
Jessica?
Jessica

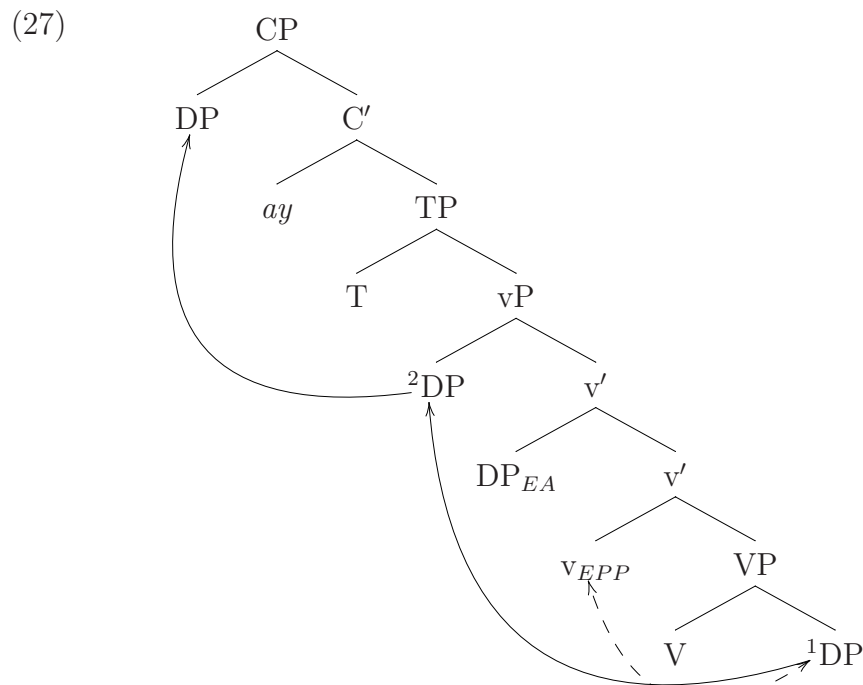
‘Who wants David to spank Jessica?’

Literal: Who has a liking for Jessica to be spanked by David?

The examples in (25) parallel these in (26). (26a) show the canonical word order, wherein the experiencer DP precedes the sentential argument. This sentential complement can undergo extraction, here it can be targeted by a *wh*-word, as seen in the grammaticality of (26b). On the other hand, the same restriction applies to the experiencer, as seen in (26c). Further, the same repair mechanism can be employed to enable the experiencer to be targeted by the *wh*-word.

4.2 The syntax of *ay*-inversion

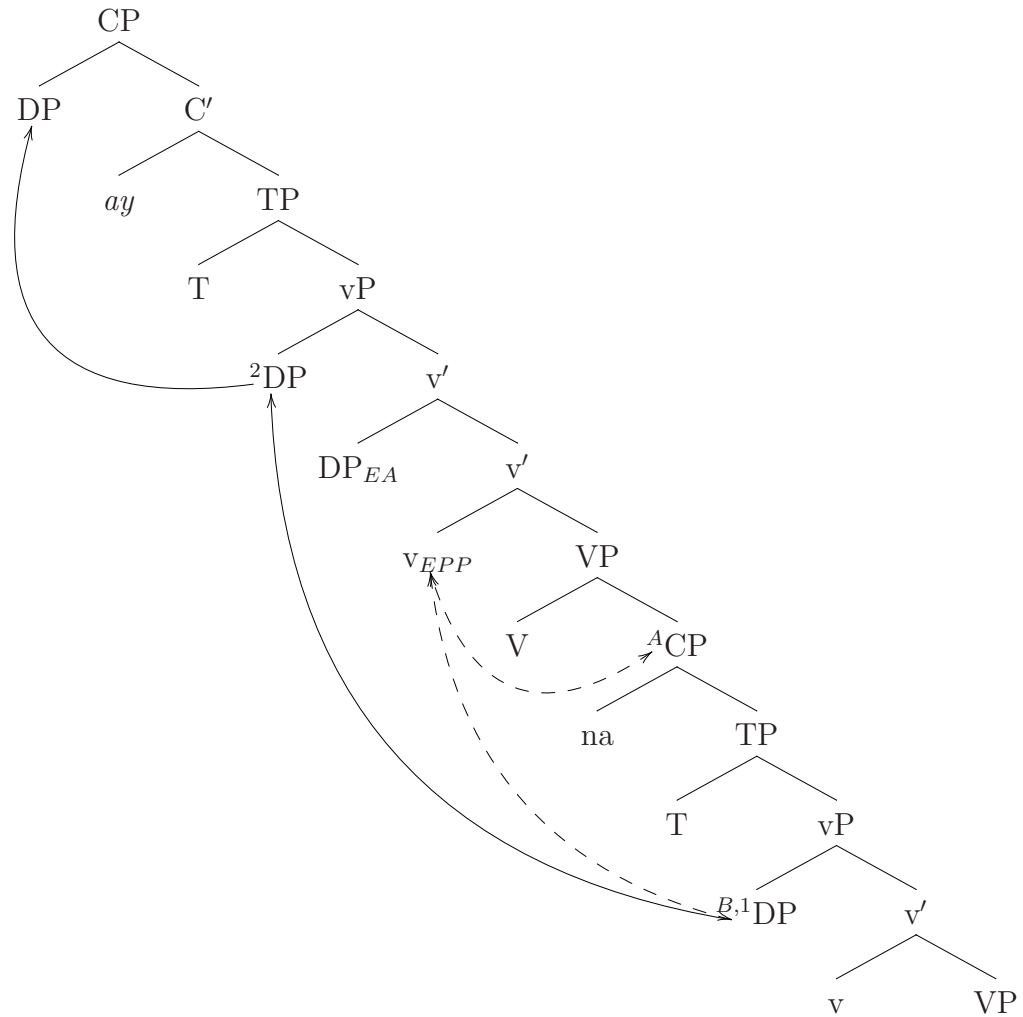
Richards (2005) never makes explicit how *ay*-inversion proceeds after DPs are made transparent for extraction. Here, I provide a schema of this process based on my understanding of his analysis and theoretical assumptions.



(27) represents local *ay* inversion. Movement 1 (from [Comp, VP] to [Spec, vP]), which is done via Agree (represented by the dashed line), is for object-shift. If there is no object-shift involved, then disregard the movement and consider DP_{EA} the highest [Spec, vP]. Movement 2 (from [Spec, vP] to [Spec, CP]) is for *ay*-inversion.

This movement only proceeds from the highest [Spec, vP].

(28)



(28) represents long distance *ay*-inversion. Movement 1 (from embedded [Spec, vP] to matrix [Spec, vP]) is somewhat unorthodox for successive cyclic movement⁹ since it skips embedded [Spec, CP] and jumps all the way to matrix [Spec, vP]. Movement 2 (from matrix [Spec, vP] to [Spec, CP]) is for *ay*-inversion. This movement only proceeds from the highest [Spec, vP]. The only crucial difference between (26) and (27) is that matrix *v* Agrees first with embedded CP (represented as A), then with

⁹It is outside the scope of this thesis to discuss a full review of the evidence that supports this assumption. Refer to Richards and Rackowski (2005) for relevant discussion.

the extracted DP (represented as B).

4.2.1 Relevance of subjectless sentences for Richards' theory

For each of the sentence patterns exemplified in the sections before, we need to ask whether the fact that such sentences contain no *ang*-marked argument, no voice-morphology on the verb should have serious implications on Richards (2005) theory of PCC in Tagalog and his given assumptions.

In intensives, there is no *ang*-argument realized. Structurally, this means that the sole argument is not located at the edge of the phase since that position results to *ang*-marking. Per Rackowski and Richards' (2005) theory of extraction, this means that the sole argument should not be extractable. However, as we've seen in (22), it is indeed extractable if the spell out is the *ang*-form of the DP.

In recent perfectives, I argue based on the facts provided above that Probe *v* is defective, that is, it is unable to carry voice-markers (or Case under Rackowski and Richards' (2002) framework). Thus, it should not be able to Agree with a DP to move it at the edge of the phase (in other words, to undergo object shift). If that were the case, then that DP should not be transparent for extraction. However, as seen in the examples above, both DPs, agent and theme, are capable of being extracted.


In modals, even if the to-be-extracted DP had some independent way of getting to the edge of the phase of the embedded clause, it should still be unextractable. A similar argument can be made for modal constructions (not only those with sentential complements but modals in general) because Probe *v* of the matrix clause is defective, therefore, it is unable to Agree with the CP.

Suppose for a moment that modals are not defective and that they carry verbal morphology that licenses an *ang*-argument. If this were the case, then modals function like regular verbs, such as the reporting verb *sabi* 'say'. Per Anagnostopoulou's discussion on Person specification (2005), Richards' account for PCC manifesting in long-distance extraction is not borne out. For his PCC account to hold true, the ϕ -features of the CP must have person specification [-Person] (that is, it must function like a dative argument). However, the CP in these verbs function more like a nominative/accusative argument, as seen in (26). Thus, CPs, according to Anagnostopoulou, should get no Person specification¹⁰. Now let's

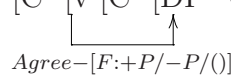
¹⁰Refer to Adger and Harbour (2007) for a thorough discussion of the differing feature

translate this back to Richards' PCC account:

$$(29) \quad (a) \quad [C \left[v \left[C \left[DP \ v \ \cancel{DP} \right] \right] \right]]$$



$$(b) \quad [C \left[v \left[C \left[DP \ v \ \cancel{DP} \right] \right] \right]]$$



If the CP does indeed behave more like a nominative/accusative argument rather than a dative argument, then it will carry $[\phi: ()]$. If that were the case, then matrix v 's first Agree with the CP should not impose a Person specification on its second Agree with the extracted DP, that is, matrix v should be free to Agree (for the second time) with any DP of any Person specification.

Now let's end our supposing. Modals, being defective in nature, cannot have its v Agree with CP to begin with. However, what this discussion underlines is a theoretical problem posed by Richards' (2005) PCC account in Tagalog with regular verbs that take sentential complements. More concretely, Richards' generalization is not borne out by the reporting verb *sabi* 'say'. As mentioned above, the first Agree with the CP should not render Probe v of *sabi* unable to second Agree with the extracted DP since the first Agree did nothing to v 's ϕ -features. Hence, second Agree with the DP can be of any Person specification.

4.3 New Data

In this section I evaluate Richards' generalization the results of a grammaticality judgment study of the sentence types discussed above and those that Richards uses to formulate his generalization, namely copular clauses and reporting verb *sabi* 'say'.

4.3.1 Participants, Task, and Experimental Stimuli

10 subjects were recruited, ranging from 20 to 70 years of age. All of them are native speakers of Tagalog and are literate in both Tagalog and English.

specifications of dative and nominative/ accusative/ absolutive arguments.

They were asked to evaluate sentences based on acceptability and naturalness using a scale from 1 to 5. A rating of 5 means that the sentence is fully acceptable and natural, while a rating of 1 means that it is fully unacceptable and unnatural. I chose a gradient rather than categorical scale because we are dealing with relative degrees of acceptability. That is, the unacceptability of these *ay*-inverted sentences is not generally considered to be of the same type or strength as that observed with extracting non-subjects in regular verbs or extracting non-subjects while retaining its *ng*-marking in “subjectless” sentences¹¹. In this respect, the effects considered here are markedly weaker and more subtle. Refer to Appendix A for the Stimuli.

The stimuli were sentences that can be divided into categories based on the following¹²:

- clause structure-type (monoclausal vs. **biclausal**)
- construction-type (recent perfective, copular clause, intensive, **say**, and **want**)
- word-order (canonical vs. local/long distance *ay*-inversion)
- DP-type (pronominal vs. non-pronominal)
- person (first vs. third)

These categories are nested in this order: clause structure type > construction-type > word-order > DP-type > person. In total, the 20 extracted DPs serve as the critical stimuli, while the 20 DPs in canonical position function as fillers. In addition, I assume that local *ay*-inversion in biclausal construction behaves similarly as that in a monoclausal construction. For this reason, I chose not to include it in the experiment.

4.3.2 Results

Aforementioned, *ay*-inverted sentences are not categorical but rather are scalar in nature. This fact is borne out by the judgments elicited from the consultants. Refer to Appendix B for the raw data. Before proceeding, it is important to discuss how I derived my interpretation of the results based on the gradient ratings. I began by taking the mean (\bar{x}) of the subjects’ ratings per item. Since we want to compare the effect of personhood in a given construction, I took the difference (Δ) between 1st

¹¹This claim is based on my observations and intuitions as a native speaker. Richards (2005) does not acknowledge this; instead he uses the traditional categorical scale of measuring grammaticality.

¹²Biclausal constructions are bold-faced

person's \bar{x} -rating of that particular construction and that of 3rd person's. Using the logic behind PCC, it makes sense to use 3rd person's \bar{x} -rating as the minuend and that of 1st person as the subtrahend. Put more simply:

$$(30) \quad \Delta = 3^{\text{rd}} \text{ person's } \bar{x} - 1^{\text{st}} \text{ person's } \bar{x}$$

Now the question to ask ourselves is what Δ value is statistically significant to make a claim that PCC is indeed manifested in such instances. To address this, I used a statistical test for significance called paired t -test. According to Johnson (2008, p. 79), this is used when the observations are "meaningfully paired." That is, the observations come naturally in pairs. In this particular case, 1st and 3rd person expressions with the same sentence-type and word-order form a minimal pair, that is, only the personhood of the DP changes and all else is held the same. For instance, 1st and 3rd person with a canonical word order in a recent perfective construction constitute a pair and so do ay-inverted 1st and 3rd person expressions in such construction.

The paired t -test is designed to test whether the differences between two observations is 0. So, if Δ represents the differences, there are two hypotheses:

$$(31) \quad \begin{aligned} & \text{(a) } H_0 : \Delta = 0 \\ & \text{(b) } H_a : \Delta \neq 0 \end{aligned}$$

The null hypothesis (H_0) is when Δ between the two observations is statistically insignificant and, therefore, could be dismissed as 0. The alternative hypothesis (H_a) is when Δ between the two observations is statistically significant and, therefore, not equal to 0. The test statistic of a t -test is t with $n-1$ degrees of freedom. If the p -value associated with t is low ($p < 0.01$), there is evidence to reject the null hypothesis. Thus, we have evidence that there is a difference in means across the paired observations.

A paired t -test was conducted on the \bar{x} of 1st and 3 person for each construction to evaluate whether Δ for paired constructions are significantly different. This resulted to: $[t(19) = 5.7, p < 0.01]$ with 95% CI $[0.21, 0.44]$. So what does this mean for this experiment? The confidence interval (CI) is the range in which H_0 can be rejected, given the t statistic and the p -value associated with it. In this case, we know that 95% of the time, Δ will not be statistically insignificant between 0.21 and 0.44. Taking that into account, I decided to accept H_0 if the pair has $\Delta \leq 0.44$ and reject H_0 if the pair has > 0.44 . I chose the upper limit of the confidence interval so that each stimuli is given the maximum number of chances to succeed, that is, to be considered natural and acceptable, by setting the rejection

zone high. Now let’s consider the summary of the results derived from the stimuli provided below¹³:

Table 3: Summary of the Gradient Grammatical Judgment Task

		RP		CC		Int		Say		Want	
		Can	Loc	Can	Loc	Can	Loc	Can	LD	Can	LD
P	1 st	4.90	2.60	4.90	4.20	4.70	3.20	3.80	2.00	4.30	2.30
	3 rd	4.80	3.30	5.00	4.50	5.00	3.50	3.60	2.60	4.50	2.70
	Δ	-0.10	0.70	0.10	0.30	0.30	0.30	-0.20	0.60	0.20	0.40
		RP		CC		Int		Say		Want	
		Can	Loc	Can	Loc	Can	Loc	Can	LD	Can	LD
NP	1 st	4.50	3.00	4.80	4.30	4.60	3.60	3.90	2.40	3.90	2.70
	3 rd	4.80	3.70	4.90	4.70	5.00	3.90	4.30	2.80	4.20	2.70
	Δ	0.30	0.70	0.10	0.40	0.40	0.30	0.40	0.40	0.30	0.00

Generally speaking, across environments, non-pronominals tend to have higher mean ratings than pronominals. Also, local extractions tend to be higher than long distance extractions. In the monoclausal category, copular clause has the highest, followed by intensive, and then the recent perfective. In the biclausal category, modal has the highest one. Now, let’s move to PCC-oriented observations. Extraction of pronominals and non-pronominals in recent perfectives shows significant degradation of grammatical judgment in 1st person, ($\Delta = 0.70, 0.70$, respectively). Moreover, in sentences involving the reporting verb *sabi* ‘say’, long distance *ay*-inversion of pronominals also exhibits a significant degradation, ($\Delta = 0.60$). However, copular clauses, intensives and modals do not show statistically significant degradation of judgment. In terms of Richards’ generalization, *ay*-inversion in monoclausal copular clauses and intensives, and that in biclausal reporting verbs support his generalization. However, monoclausal recent perfectives and biclausal modals go against it by showing the reverse of what we would expect: local *ay*-inversion in recent perfectives seems to exhibit PCC, while long distance *ay*-inversion in modals does not seem to do so.

One could try to modify Richards’ (2005) analysis to account for the contrary behavior of monoclausal recent perfectives and biclausal modals, but the required revisions would appear to be entirely ad hoc. Instead, I will pursue a completely different kind of explanation, taking my inspiration from recent work on extraction

¹³RP = recent perfective; CC = copular clause; Int = intensive; Say = reporting verb; Want = experiencer modal; Can = canonical word order; Loc = local *ay*-inversion; LD = long distance *ay*-inversion; P = pronominal; NP = non-pronominal; Δ = difference between 3rd and 1st observations

asymmetries in English.

5 An Alternative Analysis?

As we've seen in Section 4.2.1, Tagalog “subjectless” sentences pose an analytical challenge to the Minimalist account of PCC developed by Richards (2005). In the previous section, we saw that *ay*-inversion in constructions involving recent perfectives and modals do indeed deviate empirically from his generalization. We see that, contrary to what is expected, extraction of a 1st person DP in recent perfectives exhibit a significantly degraded grammatical judgment, while that of modals do not. This section discusses a viable hypothesis to account for such deviation by looking at processing of filler-gap dependencies (FGDs).

5.1 *wh*-Processing Hypothesis

Hofmeister *et al* (2007) examine two factors in the processing of English *wh*-questions, that is, locality and accessibility. They argue that these factors play significant roles in the processing and ultimately the acceptability of FGDs in general. Considering that *ay*-inversion is a type of FGD, I believe that it will be beneficial to look at their hypothesis in detail.

The first factor to consider here is the locality of the dependency. According to Gibson (2000) and Hawkins (2005), the distance between the filler and the gap strongly affects the processing difficulty and relative acceptability of sentences with FGDs. In English, an SVO language, for instance, relativized objects need more cognitive resources and increase processing difficulty compared to relativized subjects, which have shorter distance between the filler and the gap. This is indicated by reading times, question-answer accuracy, and lexical-decision tasks (King and Just 1991).

The second factor to consider is accessibility, which is a measure of activation level. First, the referential properties of intervening elements between the filler and the gap affect the processing of FGDs. Consider the following:

- (32) The consultant who {we, the chairman, a chairman, Donald Trump}_i called advised wealthy companies about tax laws. (Warren and Gibson 2005, p. 100)

In sentences like (34), the verbs are read faster when the relative clause's subject position is occupied by a DP-type closer to the given end of the Givenness Hierarchy of nominal reference (Ariel 1990; Gundel *et al* 1993). This hierarchy is provided below:

- (33) in focus > activated > familiar > uniquely identifiable > referential > type identifiable
(more given > less given)

Warren and Gibson (2002, 2005) interpret this in terms of accessibility (Ariel 1990, 2001). That is, “the more accessible the intervening referents are, the less burden there is on the processor, which is already taxed by maintaining the filler-gap dependency” (Hofmeister *et al* 2007, p. 187). In other words, processing forms that are lower in the Givenness Hierarchy (less given), therefore, requires more work and hence adds to the processing difficulty while an FGD is being parsed.

Second, the referential property of the DP/filler itself also affects the processing of FGD. According to Ariel (2001), morphologically simple and less informative DPs, such as pronouns, are used to refer to entities of higher activation or salience, while morphological complexity and high informativity, such as definite descriptions, indicate that the referent is less activated at the time of utterance. Therefore, the form of the DP marks the current degree of activation. Although this sounds counter-intuitive, it also “partially *determines* the degree of activation subsequent to their utterance” (Hofmeister *et al* 2007, p. 188). This is referred to as future accessibility (Ariel, 2001). In other words, the more explicit an NP is, the greater the subsequent increase in activation of the corresponding referent. This facilitates other linguistic operations that involve that information, such as the integration of fillers and gaps (Hofmeister *et al* 2007, p. 188).

When Hofmeister *et al* (2007) proposed the *wh*-Processing Hypothesis (henceforth whPH), they argue that factors that have already been shown to burden the processing of referential FGDs burden the processing of all FGD and that many sentences involving FGDs that have traditionally been analyzed as ungrammatical, for instance ‘island’ constraints violation, are in fact grammatical, but are judged to be of degraded acceptability due to processing difficulties. Their hypothesis makes the following predictions:

- (34) (a) The greater the distance between the filler and its gap, the less acceptable the sentence.
(b) Less accessible fillers make filler-gap sentences less acceptable.

(c) Less accessible interveners make filler-gap sentences less acceptable

In this section, we have discussed whPH and have seen how the factors, locality and accessibility, influence the acceptability of the sentences. In the section that follows, I extend this analysis to Tagalog *ay*-inversion and argue that this could potentially provide a better account for the patterns exhibited by the data that I have collected than Richards' (2005) Minimalist account.

5.2 Processing constraint on *ay*-inversion

Given all the facts we know about the morpho-syntax of Tagalog, I argue that the processing-based constraint outlined in Hofmeister *et al*'s whPH (2007) captures most, if not all, of the general trends reflected in the data. Let's revisit the results:

		RP		CC		Int		Say		Want	
		Can	Loc	Can	Loc	Can	Loc	Can	LD	Can	LD
P	1 st	4.90	2.60	4.90	4.20	4.70	3.20	3.80	2.00	4.30	2.30
	3 rd	4.80	3.30	5.00	4.50	5.00	3.50	3.60	2.60	4.50	2.70
Δ		-0.10	0.70	0.10	0.30	0.30	0.30	-0.20	0.60	0.20	0.40

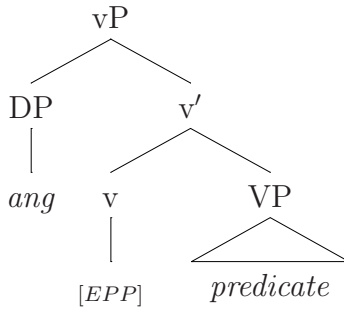
		RP		CC		Int		Say		Want	
		Can	Loc	Can	Loc	Can	Loc	Can	LD	Can	LD
R	1 st	4.50	3.00	4.80	4.30	4.60	3.60	3.90	2.40	3.90	2.70
	3 rd	4.80	3.70	4.90	4.70	5.00	3.90	4.30	2.80	4.20	2.70
Δ		0.30	0.70	0.10	0.40	0.40	0.30	0.40	0.40	0.30	0.00

Generally, *ay*-inversion of pronouns is more degraded than that of non-pronominals. This is predicted by the whPH because non-pronominals are more accessible fillers. Pronouns are morphologically simple and less informative DPs while non-pronominals have greater morphological complexity and higher informativity. Further, long-distance *ay*-inversion is more degraded than local *ay*-inversion. This is to be expected because the distance between the filler and the gap is definitely greater in the former than in the latter. In addition, there are more intervening elements present, which add to processing difficulty while an FGD is being parsed.

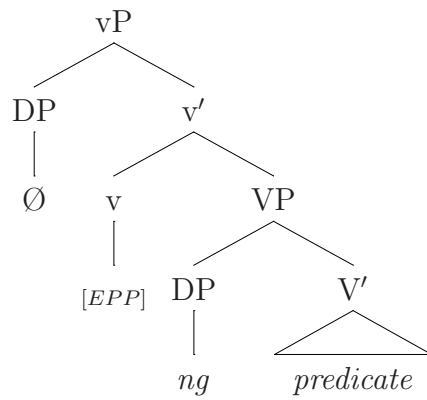
Ay-inversion in recent perfectives tends to be more degraded compared to the *ay*-inversion in copular clauses and intensives. In fact, if we order these three monoclausal constructions based on their degradation, the most degraded one is the

recent perfective, then the intensive, and finally the copular clause. I argue that the distance between the filler and the gap in copular clauses is shorter compared to the other two. Structurally, this is true since copular clauses have an external argument (an *ang*-argument) while the other two do not. Refer to the diagrams below:

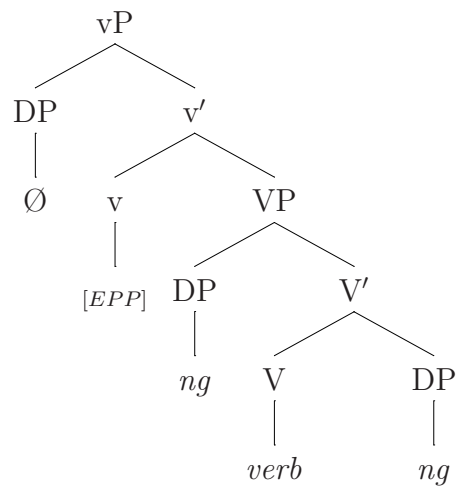
(35) (a) Copular clause



(b) Intensive



(c) Recent Perfective



In addition, the reason why copular clauses and intensives have higher ratings can be attributed to the fact that these constructions only have one argument and, therefore, have no intervening elements between the filler and the gap. On the other hand, the recent perfectives I have chosen as stimuli are all transitives. For this reason, they will always have an intervening element between the filler and the gap. It would be interesting to see how the scores would change if I had used intransitive verbs in the recent perfective aspect. I predict that the mean rating would have been somewhere close to that of intensives.

When we compare long distance *ay*-inversion in the two biclausal constructions, it seems that reporting verbs are more degraded than modals. I argue that the degradation is lexically based. It seems that reporting verbs (even in canonical position) generally get lower ratings than modals. Compare this with the ratings of the monoclausal constructions wherein all of the constructions in canonical position are primarily within the 4.8 zone. Having said that, whPH does not need to account for such difference.

This processing constraint captures most, if not all, of the general trends. However, it proves to be difficult to account for PCC given the components of Hofmeister *et al*'s (2007) theory. One would expect that 3rd person is situated lower in the Givenness Hierarchy than 1st person and, therefore, should be harder to extract. This is contrary to Richards' (2005) PCC generalization and the strong preference for extracting 3rd person, shown by the data. In the section that follows, I briefly sketch two alternatives, each with its own strengths and weaknesses.

6 Modifying the alternative

As seen previously, the whPH is promising but it is insufficient. In this section, to address this, I offer two alternatives not by completely discarding the said hypothesis but rather providing addenda to it.

The first alternative builds on the said hypothesis and maintains a purely processing-based account for the phenomenon. This alternative posits a different accessibility hierarchy for intervening elements and for fillers. The former still follows the Givenness Hierarchy (Ariel 1990; Gundel *et al* 1993), the latter follows the hierarchy schematized below:

(36) Non-pronominal > 3 > 1, 2

Intuitively, there is a difference between the filler and the gap. One can argue that these differing hierarchies arise from the need to differentiate fillers and intervening elements. To use the metaphor of cooperative principle (Grice 1975), one can argue that locutors want to be as helpful as possible to make processing as simple for others. In addition, one can also argue that local persons are too given that it is dispreferred in sentence-initial position. This modification, however, has its weaknesses. For instance, positing differing accessibility hierarchies for fillers and intervening elements is not completely improbable but it is not economical, especially for a processing-based account. Certainly having to know/learn 2 hierarchies – be it consciously or unconsciously – is more taxing than 1. In addition, positing that local persons in sentence-initial position becomes too given and, therefore, is dispreferred is not completely improbable either. However, this violates the assumption that *ay*-inversion doesn't affect meaning.

The second alternative is an interactionist model based on the interaction between processing constraints and abstract features. To use the metaphor of chaos/complexity theory (Larsen-Freeman 2003), one can argue that processing is affected by anything and everything. In this case, it is affected not only by locality and accessibility but also by feature specifications. The fact that the interface between syntactic theory and processing models is not well studied is both its strength and its weakness. It is unfortunate that much of the processing models developed are used to discredit syntactic theories. However, if researchers were to examine such interfaces, the sky is the limit.

In this section, I briefly sketched two possible modifications of the whPH. With these in mind, I tentatively favor the latter for it is more of a holistic approach, implying that language is not used/produced/processed as an isolated, self-contained system, but rather as an element collectively shaped by a variety of factors – be it cognitive or social in nature. To what extent can these hold true? Further research is needed.

7 Conclusion

This thesis has been a discussion of Person-Case Constraint (PCC) on *ay*-inversion in Tagalog. Richards (2005) developed a Minimalist approach to such phenomenon by combining two independently proposed theories of the nature of Agree operations in Tagalog. PCC arises when a single Probe participates in multiple Agree operations (Anagnostopoulou 2003, 2005), which is present in Tagalog when there is movement

across a clause boundary. Such movement requires a Probe to Agree first with the clause and then with the moving phrase (Rackowski and Richards 2005). This proposal, though promising, is insufficient based on my work with Tagalog speakers. Two of the novel constructions that were examined deviated empirically from his generalization. In fact, we saw that extraction of a 1st person DP in recent perfectives exhibited a significantly degraded grammatical judgment, while that of modals did not. To account for such, one could try and modify the proposed analysis; however, it seemed that the necessary revisions would entirely be ad hoc. Consequently, I pursued a completely different kind of explanation, one that involved processing considerations, which was inspired by recent work on extraction asymmetries in English (Hofmeister *et al* 2007). Although the *wh*-Processing Hypothesis (whPH) was able to capture most, if not all, of the general trends reflected in the data, it failed to account for PCC. In response, I briefly sketched two possible addenda to the existing whPH, each with its own strengths and weaknesses: 1) a purely processing account with a different accessibility hierarchy for fillers and intervening elements; 2) an interactionist model based on the interaction between processing constraints and abstract feature specifications. Given what we (don't) know, I favor the latter modification of the whPH due its holistic approach on language use, production, and processing. Ultimately, however, I conclude that more research that examines the interface between syntactic theory and processing-models is needed.

Appendix A

Directions: Rate the acceptability and naturalness of the following sentences using a scale from 1 to 5, 5 being fully acceptable and natural and 1 being fully unacceptable and unnatural.

Panuto: Suriin ang mga sumusunod na pangungusap at pag-antasin kung katanggap-tanggap at natural. Gamitin ang bilang 5 para sa katanggap-tanggap at natural at 1 para sa hindi katanggap-tanggap at hindi natural.

1. Kabibili ko lang ng isda.
2. Kaming mga bata ay matatalino.
3. Napakabait niya.
4. Ang bahay ay sinabi ng bombero na sinunog ng mga tao.
5. Kasasagot lang naming mga guro ng mga tanong.
6. Ako ay estudyante.
7. Napakaganda ng tanawin.
8. Gusto ng samahan na tapusin ko kaagad ang mga proyekto.
9. Kababasa lang ng nanay ng diyaryo.
10. Siya ay gusto ng mga manggagawa na tumakbo bilang pangulo ng organisasyon.
11. Matiyaga kaming mga Intsik.
12. Ang banyo ay napakapanghi.
13. Sinabi ng nars na tumakbo ang pasyente.
14. Gusto ni Tita na magtapos kaming mga magpinsan ng medisina.
15. Kabebenta lang niya ng alahas.
16. Siya ay manunulat.
17. Kaming mga taga-Amerika ay napaka-pikon.
18. Sinabi ng mga bata na kumain siya ng isda.

19. Gusto ng nanay na pumunta ako sa simbahan.
20. Sinabi ng mga binibini na kakanta kaming mga lalaki ng mga kundiman.
21. Ako ay kalilinis lang ng banyo.
22. Kaming mga sundalo ay gusto ng pangulo na magbantay ng mga bihag.
23. Amerikano siya.
24. Siya ay kapapalit lang ng damit.
25. Gusto ng mga guro na magbasa siya ng libro.
26. Ang bata ay kakakain lang ng pansit.
27. Kaming mga magsasaka ay katatanim lang ng mga gulay.
28. Ako ay sinabi ng pulis na nag-nakaw ng kotse.
29. Pilipino ako.
30. Siya ay napakasungit.
31. Kaming mga dalaga ay sinabi ng madre na nagbibigay ng aliw sa mga binata.
32. Maganda ang guro.
33. Siya ay sinabi ng pulis na nag-nakaw ng kotse.
34. Ang silid ay marumi.
35. Napakataba ko.
36. Ang mga estudyante ay gusto ng propesor na mag-aral nang mabuti para sa eksamen.
37. Ako ay napakaingay.
38. Sinabi ng guro na nag-basa ako ng libro.
39. Ako ay gusto ng mga bata na magbigay ng mga laruan.
40. Napakagalante naming mga lalaki.

Appendix B

Subj	RP				CC				Int			
	Can		Loc		Can		Loc		Can		Loc	
	1	3	1	3	1	3	1	3	1	3	1	3
Z	5	5	2	3	5	5	5	5	5	5	5	4
Y	5	5	3	2	5	5	5	5	5	5	1	2
X	5	5	2	3	5	5	3	5	4	5	2	2
W	5	5	4	5	5	5	5	5	5	5	5	5
V	5	5	2	2	4	5	4	5	4	5	2	4
U	4	5	2	3	5	5	4	4	4	5	2	4
T	5	4	2	3	5	5	3	3	5	5	3	4
S	5	5	3	5	5	5	5	5	5	5	5	3
R	5	4	4	4	5	5	5	5	5	5	5	5
Q	5	5	2	3	5	5	3	3	5	5	2	2
\bar{x}	4.9	4.8	2.6	3.3	4.9	5.0	4.2	4.5	4.7	5.0	3.2	3.5

Subj	Say				Want			
	Can		LD		Can		LD	
	1	3	1	3	1	3	1	3
Z	5	5	2	4	5	5	4	4
Y	3	4	2	2	4	2	1	2
X	2	4	1	2	2	5	1	2
W	4	3	5	4	5	5	4	3
V	4	2	2	1	5	5	1	2
U	5	5	1	2	4	5	2	2
T	2	5	3	3	4	5	2	2
S	5	3	1	2	5	5	5	5
R	4	2	2	4	5	4	2	4
Q	4	3	1	2	4	4	1	1
\bar{x}	3.8	3.6	2.0	2.6	4.3	4.5	2.3	2.7

Subj	RP				CC				Int				
	Can		Loc		Can		Loc		Can		Loc		
	1	3	1	3	1	3	1	3	1	3	1	3	
R	Z	5	5	5	4	5	4	5	5	5	5	4	4
	Y	3	5	1	4	4	5	3	4	4	5	2	2
	X	4	4	1	2	5	5	3	5	4	5	3	5
	W	5	5	4	5	5	5	5	5	5	5	5	5
	V	5	5	2	3	5	5	4	5	4	5	3	5
	U	5	5	4	3	5	5	3	3	5	5	2	2
	T	4	4	2	5	5	5	5	5	4	5	5	5
	S	4	5	5	5	4	5	4	3	5	5	5	4
	R	5	5	4	4	5	5	5	5	5	5	5	5
	Q	5	5	2	2	5	5	3	3	5	5	2	2
\bar{x}	4.5	4.8	3.0	3.7	4.8	4.9	4.0	4.3	4.6	5.0	3.6	3.9	

Subj	Say				Want				
	Can		LD		Can		LD		
	1	3	1	3	1	3	1	3	
R	Z	5	5	2	4	2	5	4	2
	Y	3	4	2	1	5	4	2	2
	X	4	4	1	1	2	4	2	2
	W	3	5	3	3	5	5	4	4
	V	3	5	1	1	5	5	2	2
	U	4	5	2	2	3	5	2	2
	T	4	4	2	2	3	4	2	2
	S	3	3	1	4	5	3	4	5
	R	5	4	2	4	4	5	4	4
	Q	5	4	1	1	5	2	1	2
\bar{x}	3.90	4.3	1.7	2.3	3.9	4.2	2.7	2.7	

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