

RESEARCH

Left branch extraction, object shift, and freezing effects in Tumbalá Ch'ol

Carol-Rose Little

Cornell University, 203 Morrill Hall, Ithaca, NY, US
crl223@cornell.edu

Ch'ol (Mayan) exhibits asymmetries in what is available for left branch extraction. While both numerals and interrogative possessors are able to extract from absolutive subject position, only numerals may extract from absolutive object position. To capture this asymmetry, I provide evidence that objects with overt possessors always undergo object shift, blocking left branch extraction. This follows from the Freezing Principle (Ross 1974; Wexler & Culicover 1977), or a ban on extraction from a moved constituent. Objects with numeral modifiers do not obligatorily undergo object shift and therefore may extract from the object. In addition to numerals and interrogative possessors, I present and analyze possibilities for other elements to extract out of various positions. I situate this work within Agree-based theories of extraction (e.g. Rackowski & Richards 2005; van Urk & Richards 2015; Branan 2018) and discuss this proposal's theoretical implications. Unless otherwise noted, all data comes from the author's fieldwork.

Keywords: Ch'ol; left branch extraction; subextraction; object shift; freezing effects; islands

1 Introduction

Ch'ol (Mayan) exhibits asymmetries in what is available for left branch extraction. Interrogative possessors may extract from absolutive subjects in (1a), but not from absolutive objects, as in (1b). Numerals, on the other hand, may extract from absolutive subjects (2a) and absolutive objects (2b).

- (1) a. **Majki**_i ta' yajl-I [**i-wakax** *t*_i] ?
who PFV fall-IV **A3-cow**
 'Whose cow fell?'
- b. ***Majki**_i ta' a-k'el-e [**i-chich** *t*_i] ?
who PFV A2-see-TV **A3-sister**
 Intended: 'Whose sister did you see?'
- (2) a. **Cha'-kojty**_i ta' yajl-i [*t*_i **wakax**].
two-CLF PFV fall-IV **cow**
 'Two cows fell.'
- b. **Cha'-kojty**_i ta' i-k'el-e [*t*_i **wakax**] aj-Rosa.
two-CLF PFV A3-see-TV **cow** NC-Rosa
 'Rosa saw *two* cows.'

To capture this asymmetry, I provide evidence that objects with overt possessors always undergo object shift, blocking left branch extraction. This follows from the Freezing Principle (Ross 1974; Wexler & Culicover 1977), or a ban on extraction from a moved

constituent. Numeral modifiers in object position do not obligatorily trigger object shift and therefore may extract from the object.

This study has both empirical and theoretical contributions. Empirically, this paper contributes novel data from fieldwork on left branch extraction from an understudied language. Theoretically, this work has implications for Agree-based theories of extraction (Rackowski & Richards 2005; van Urk & Richards 2015; Branan 2018). I propose that to capture crosslinguistic extraction facts, the ordering of Agree (in the sense of Chomsky (2000; 2001)), and object shift can vary depending on the language.

This paper is structured as follows. In Section 2, I provide background on Ch'ol morphology and word order. In Section 3, I adopt Coon's (2010) predicate-fronting analysis for Ch'ol VOS/VSO word order. Important for this paper's claim is that VSO word order is derived, in part, via object shift when the object is a full DP. New data provides evidence that objects with overt possessors obligatorily shift, while objects with numerals do not. In Section 4, I present the extraction asymmetry facts previewed in the introduction. I include data on other elements, such as demonstratives and possessors, which are banned from extracting from any argument position. In Section 5, I lay out the main claim of the paper. That is, the object shift facts from Section 3 can account for the extraction asymmetries of Section 4: shifted objects are frozen and therefore left branch extraction from them is banned. Section 6 discusses implications of this paper's proposal with Rackowski & Richards's (2005) Agree-based analysis for extraction. While at first blush, the current proposal seems at odds with that of Rackowski & Richards's (2005), I argue that the ordering of Agree and object shift can differ across languages, consequently predicting crosslinguistic variation with respect to left branch extraction. Section 7 summarizes and concludes the paper.

2 Background on Ch'ol morphosyntax

Ch'ol is a Mayan language of Southern Mexico spoken by about 222,000 people (Ethnologue 2019). It is a member of the Ch'olan-Tzeltalan subfamily of Mayan languages. There are three mutually intelligible dialects: Tumbalá, Tila, and Sabanilla. The data here comes from working with speakers of the Tumbalá dialect in San Miguel, in the municipality of Salto de Agua, Chiapas, Mexico. Below, I provide relevant background information on Ch'ol morphology and word order.

2.1 Morphology

Person markers are indexed on the predicate in Ch'ol with ergative/genitive prefixes and absolutive suffixes. Following Mayanist convention, ergative/genitive markers are referred to as set A and absolutive markers as set B, and both are glossed as such throughout the paper. Set A markers index ergative subjects on transitive verbs (3a), unergative subjects (3b), and possessors on the head noun (possessee) (3c). Unergative constructions are structurally transitive and use the transitive light verb *cha'le(ñ)* or *bajbe(ñ)* and a nominalized internal object such as *soñ* 'dance' in (3b).

- (3) Set A markers
- a. Ta' i-k'ux-u waj aj-Rosa.
PFV A3-eat-TV tortilla NC-Rosa.
'Rosa ate a tortilla.'
 - b. Ta' k-cha'l-e soñ.
PFV A1-do-TV dance.NML
'I danced.'

- c. **i-waj** aj-Rosa
A3-tortilla NC-Rosa
 'Rosa's tortilla'

Set B markers are suffixes and index unaccusative subjects (4a), transitive objects (4b), and the theme in predicate noun (4c) and predicate adjective (4d) constructions. The set B marker for third person is null and not included in the glosses.

- (4) Set B markers
- a. Ta' majl-i-**yoñ**.
 PFV go-IV-**B1**
 'I went.'
 - b. Ta' a-k'el-e-**yoñ**.
 PFV A2-see-TV-**B1**
 'You saw me.'
 - c. Loktor-**ety**.
 doctor-**B2**
 'You are a doctor.'
 - d. Pek'-**oñ**.
 short-**B1**
 'I am short.'

Ch'ol exhibits a split ergative system based on aspect. In the perfective aspect, the verb shows an ergative-absolutive alignment pattern, as in (5), where the subject of the intransitive verb is marked with the set B first person suffix *-oñ*. The nonperfective forms in (6) mark the intransitive subject with the first person marker *k-*.

- (5) Ta' majl-i-**yoñ**.
 PFV go-IV-**B1**
 'I went.'
- (6) a. Mi **k-majl-el**.
 IPFV **A1-go-NML**
 'I go.'
- b. Woli **k-majl-el**.
 PROG **A1-go-NML**
 'I am going.'

I follow previous work (Coon 2012; 2013) arguing that this aspect split is epiphenomenal and Ch'ol case assignment is ergative-absolutive throughout. Under Coon's analysis, imperfective and progressive aspectual markers take nominalized complements and seemingly ergative markers are actually possessive markers. For instance, *mi* in (6a) takes the nominalized *kmajlel* as its complement. The verb root *majl* 'go' has the nominalizing suffix *-el* and possessive marker *k-* on it. This is schematized in (7). While this paper concentrates on perfective examples, Section 5.6 discusses the current proposal with respect to nonperfective forms.

- (7) Mi [_{DP} k_i- [majl-el PRO_i]].
 IPFV A1- go-NML
 'I go.' Lit. 'My going happens.'

2.2 Nominal word order

In the nominal domain, possessors follow possessees, as in (8a). When the possessor is interrogative, it precedes the possessive, generating the possessor–possessee order in (8b).

- (8) a. i-waj **aj-Rosa**
 A3-tortilla **NC-Rosa**
 ‘Rosa’s tortilla’
- b. **majki**_i i-waj *t*_i?
 who A3-tortilla
 ‘whose tortilla?’

While fully extended nominal expressions are rare in casual speech, they are possible in elicited contexts. In (9), determiners, numerals, and adjectives are prenominal while the (non-interrogative) possessor is postnominal.

- (9) jiñi cha’-kojty i-säsäk wakax aj-Rosa
 DET two-CLF A3-white cow NC-Rosa
 ‘the two white cows of Rosa’s’

2.3 Clausal word order

Like many Mayan languages, Ch’ol is a verb-initial language and has alternating VOS/VSO word order (Vázquez Álvarez 2002b; 2011; Coon 2010; Clemens & Coon 2018). This alternation is determined by structural properties of the object. VOS word order is associated with NP objects, and VSO with DP objects. That is, bare object NPs such as *waj* ‘tortilla’ in (10a) must appear next to the verb, generating the pragmatically neutral VOS word order. VSO word order is ungrammatical with NP objects, as shown by (10b). Other modifiers, such as numerals, may also appear with objects in VOS object position (discussed further in Section 3).

- (10) a. Ta’ i-k’ux-u [_o waj] [_s aj-Rosa].
 PFV A3-eat-TV tortilla NC-Rosa.
 ‘Rosa ate a tortilla.’
- b. *Ta’ i-k’ux-u [_s aj-Rosa] [_o waj].
 PFV A3-eat-TV NC-Rosa tortilla.
 Intended: ‘Rosa ate a tortilla.’

DP objects, or objects with material in or above D, must appear in VSO object position.¹ In Tumbalá Ch’ol, VSO word order with a full DP object was judged felicitous in a context in which the speaker is looking at a dead deer and says (11a). DP objects are judged to be ungrammatical in VOS object position, as in (11b).

- (11) a. Ta’ i-jul-u [_s aj-Ariañ] [_o jiñi me’].
 PFV A3-shoot-TV NC-Adrian DET deer
 ‘Adrian shot the deer.’

¹ While VSO word order is marginal (indeed, two full postverbal nominals across Mayan languages are uncommon (England 1991)), VSO sentences are still judged felicitous and are spontaneously produced, as also Coon (2010: 362) notes for the Tila dialect of Ch’ol.

- b. *Ta' i-jul-u [_o jiñi me'] [_s aj-Ariañ].
 PFV A3-shoot-TV DET deer NC-Adrian
 Intended: 'Adrian shot the deer.'

The preverbal position is associated with interrogative, focused, and topicalized constituents. As Ch'ol is an obligatory *wh*-fronting language, interrogative words such as *majki* 'who' and *chuki* 'what' must appear preverbally in (12a) and (13a). In situ *wh*-words are ungrammatical, as per (12b) and (13b).²

- (12) a. **Chuki**_i ta' i-k'ux-u t_i aj-Rosa?
 what PFV A3-eat-TV NC-Rosa
 'What did Rosa eat?'
 b. *Ta' i-k'ux-u **chuki** aj-Rosa?
 PFV A3-eat-TV what NC-Rosa
 Intended: 'What did Rosa eat?'
- (13) a. **Majki**_i ta' i-k'ux-u waj t_i?
 who PFV A3-eat-TV tortilla
 'Who ate a tortilla?'
 b. *Ta' i-k'ux-u waj **majki**?
 PFV A3-eat-TV tortilla who
 Intended: 'Who ate a tortilla?'

Focused-marked constituents in Ch'ol may also appear in the clause-initial position (Vázquez Álvarez 2011), as shown in (14), though in situ focus has also been shown to be possible in Ch'ol (Clemens et al. 2017).

- (14) a. **Aj-Rosa**_i ta' i-juch'-u sa' t_i.
 NC-Rosa PFV A3-grind-TV masa
 'Rosa ground masa.'
 b. **Sa'**_i ta' i-juch'-u t_i aj-Rosa.
 masa PFV A3-grind-TV NC-Rosa
 'Rosa ground masa.'

In sum, the pragmatically neutral order for transitive verbs with two overt arguments is VOS. As presented above, there are restrictions on VOS objects, summarized in Table 1. NPs are grammatical in VOS object position, but not in VSO. DPs, on the other hand, are banned from appearing in VOS object position. Next, I present Coon's (2010) analysis for

Table 1: Ch'ol object restrictions based on Coon (2010: 363).

	VOS	VSO
NP	✓	*
DP	*	✓

² Ch'ol has morphological ergative-absolutive case marking but is not syntactically ergative. That is, Ch'ol does not exhibit any A-bar extraction restrictions with respect to ergativity.

deriving the restrictions on objects as well as provide new data that expands on the object restrictions in Table 1.

3 Deriving word order in Ch'ol

The word order restriction is summarized in (15).

- (15) Nominals with material in or above D⁰ are banned from VOS object position in Ch'ol. (Coon 2010: 361, ex. 23)

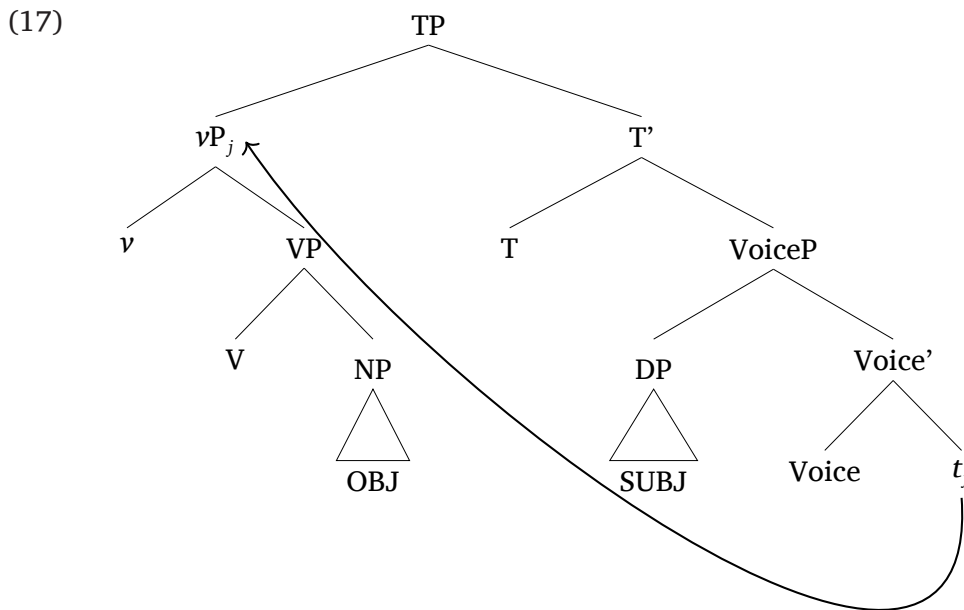
Any word order analysis that derives VSO via object shift is compatible with the current proposal (i.e. Aissen (1992); Coon (2010)). Here, I will adopt Coon's (2010) analysis of (15), where objects with material in or above D shift to a position above the vP. Evidence for object shift comes from the placement of adjuncts and the semantic interpretation of shifted and unshifted objects. I additionally provide new data demonstrating that (15) holds for nominals with overt possessors in object position. The possibilities for object shift will be important in capturing the left branch extraction asymmetries discussed in Section 4.

3.1 A predicate-fronting analysis of VOS/VSO (Coon 2010)

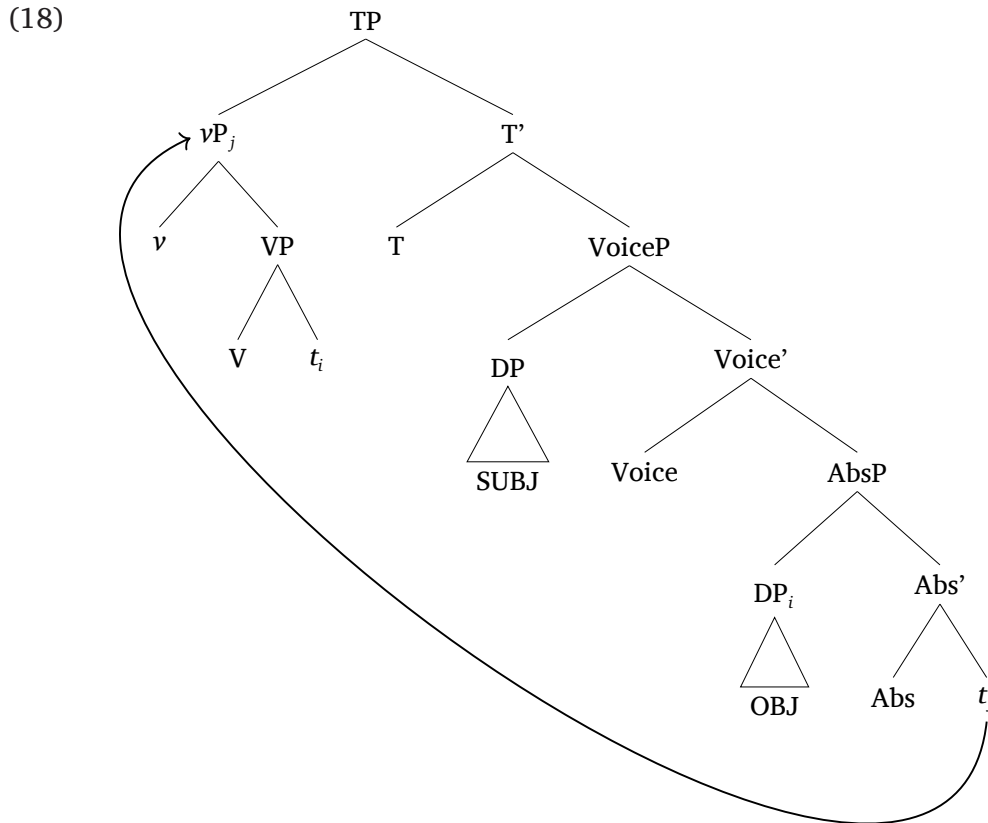
According to Coon (2010), VOS word order follows from the two factors in (16). I refer the reader to Coon (2010) for details motivating these factors.

- (16) A predicate-fronting proposal for verb-initial word order
 a. Strong agreement features on T requiring the verb to move overtly to T;
 b. A general absence of head movement. (Coon 2010: 355)

VOS word order is derived, as in (17), where the vP, containing the verb and object NP, fronts to Spec,TP to check strong agreement features on T.



To derive VSO word order with full DP objects, the object first shifts out of the vP to a projection Coon (2010) labels AbsP, following Massam (2000). Then the vP fronts to Spec,TP, as in (18), generating VSO word order.



Importantly, VSO word order is derived, in part, via object shift. Additional support for object shift comes from the placement of adjuncts, to which I turn next.³

3.2 Adjunct placement as a diagnostic for object shift

The placement of adjuncts has been used as a test in Germanic languages for object shift (i.e. Holmberg (1986); Diesing (1992; 1996)) and can provide evidence that the object has moved. As previously discussed in Coon (2010), temporal adverbs and prepositional phrases can intervene between the DP object and the verb, generating V-XP-(S)-O order, as in (19a). An adjunct may not intervene between an NP object and verb, as in (19b).⁴ The adverb may only appear *after* the NP object, as in (19c).⁵

³ Coon (2010: 365 footnote 11) remains agnostic to the structural location of the aspect marker, suggesting that one possibility is that it heads an Asp(ect)P above vP and it is AspP, rather than vP, which fronts.

⁴ While temporal adverbs and PPs display similar distributional behavior with respect to NP and DP objects, other adverbials attach directly to the VP, such as the prefix *cha*² in (i).

- (i) Tyi i-**cha**'-boñ-o otyoty jiñi wiñik.
 PFV A3-**again**-paint-TV house DET man
 'The man painted the house again.' (Coon 2010: 373)

As suggested by Coon (2010: 373), I take the adverb in (i) to be a VP-level adverb. Evidence for this comes from the fact that (i) means that the house has been painted before, but not necessarily by the same man, suggesting the adverb does not have scope over the subject. These VP modifiers can have scope over the object and thus seem to attach lower in the verbal domain than the adverbs and PPs discussed above.

Directionals are another set of elements that seem like adverbs in Ch'ol and may appear between a bare noun object and verb. However, as Coon (2013) notes, directionals are different from other adverbials, as they must appear next to the verb, without anything else intervening. Directionals have been reported to be a closed class of items in a number of Mayan languages (England 1976: Mam; Haviland 1993; Aissen 1994: Tsotsil; Mateo Toledo 2004: Q'anjob'al). Mateo Toledo (2004) argues that directionals in Q'anjob'al are clitics to the verb. Aissen (2009) proposes that the directionals in Tsotsil are serial verb constructions. For these reasons, I do not use directionals as a diagnostic for object shift.

⁵ No difference was exhibited with PP adjuncts for the word order facts in (19). The adverb *ak'bi* 'yesterday' may be replaced with a PP adjunct such as *tyi kotyoty* 'in my house' and the word order facts remain the same.

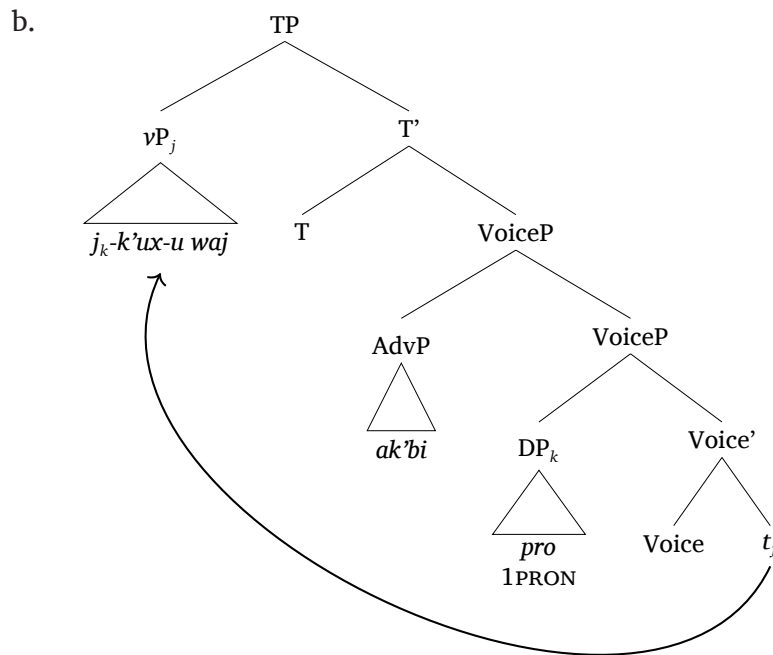
(19) Data based on Coon (2010: ex (40) and (41))

- a. Ta' j-k'ux-u **ak'bi** [_{DP} jiñi waj].
 PFV A1-eat-TV **yesterday** DET tortilla.
 'I ate the tortilla yesterday.'
- b. *Ta' j-k'ux-u **ak'bi** [_{NP} waj].
 PFV A1-eat-TV **yesterday** tortilla.
 Intended: 'I ate a tortilla yesterday.'
- c. Ta' j-k'ux-u [_{NP} waj] **ak'bi**.
 PFV A1-eat-TV tortilla **yesterday**
 'I ate a tortilla yesterday.'

According to Coon's (2010) analysis, these adverbs and PPs attach as adjuncts to VoiceP. As the NP object remains within the vP, nothing may intervene between it and the verb, and the ungrammaticality of (19b) is predicted. The vP moves over the null subject and adjunct, generating the grammatical V-O-XP-(S) word order of (19c), given in (20b).

(20) NP object and adjunct Based on Coon (2010: 367)

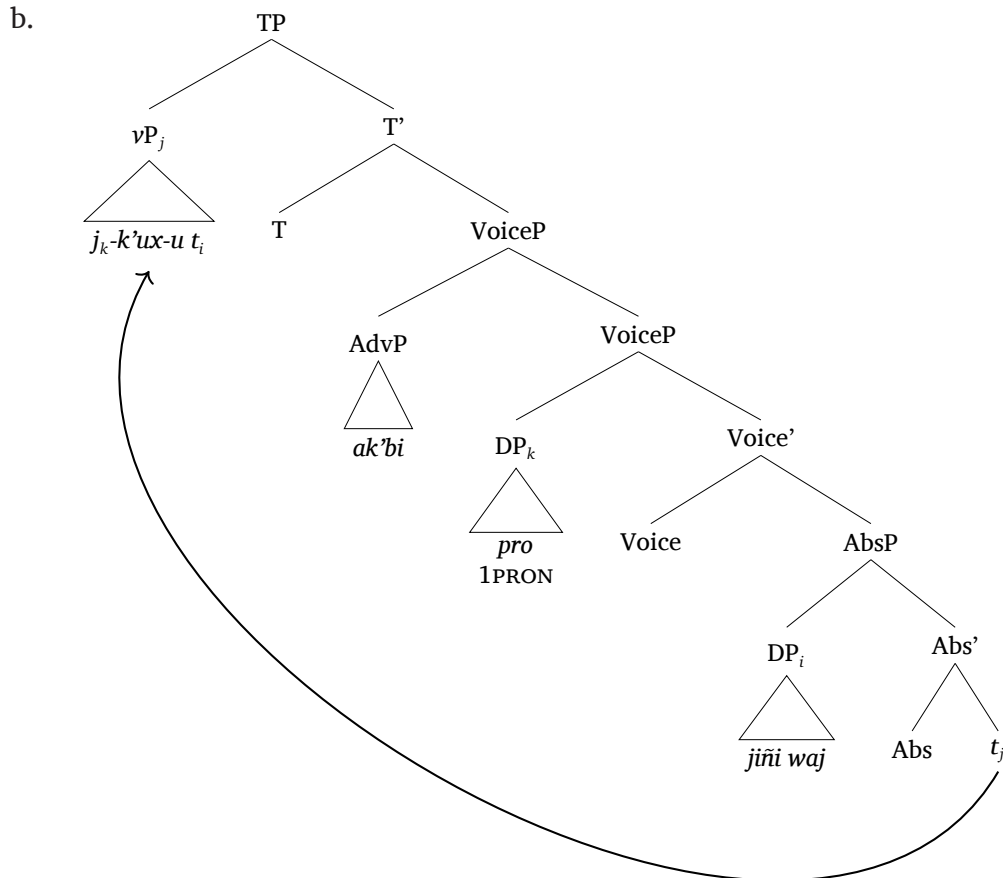
- a. Ta' j-k'ux-u [_{NP} waj] **ak'bi**.
 PFV A1-eat-TV tortilla **yesterday**
 'I ate a tortilla yesterday.'



To derive (19a), repeated in (21a), the DP object shifts to a position above vP, below the subject and adjunct. The vP then fronts to Spec,TP, generating the order V-XP-(S)-O, modeled in (21b).

(21) DP object and adjunct Based on Coon (2010: 368)

- a. Ta' j-k'ux-u **ak'bi** [_{DP} jiñi waj].
 PFV A1-eat-TV **yesterday** DET tortilla.
 'I ate the tortilla yesterday.'



In sum, the placement of adjuncts with respect to the object provides evidence for whether object shift has taken place. That is, if an adjunct can intervene between the verb and object, the object has shifted. Next, I introduce new data on objects with overt possessors, which pattern with the DP objects just discussed.

3.3 Overt possessors in object position trigger object shift

Data from alternating VOS/VSO word order and the placement of adverbs provides evidence that the restriction in (15) also holds for nominals with overt possessors in object position. As seen with objects with determiners, VOS word order is prohibited for objects with overt possessors, as in (22a). Rather, objects with overt possessors appear in VSO object position in (22b).

- (22) a. *Ta' i-k'ux-u [_o i-waj aj-Wañ] [_s aj-Rosa].
 PFV A3-eat-TV A3-tortilla NC-Juan NC-Rosa
 Intended: 'Rosa ate Juan's tortilla.'
- b. Ta' i-k'ux-u [_s aj-Rosa] [_o i-waj aj-Wañ].
 PFV A3-eat-TV NC-Rosa A3-tortilla NC-Juan
 'Rosa ate Juan's tortilla.'

As in (19a) for DP objects, an adjunct may intervene between the verb and an object with an overt possessor as in (23).⁶

⁶ A possessed nominal *without* an overt possessor, on the other hand, may appear in VOS object position. I propose, as suggested in Coon & Henderson (2010), that when there is no overt possessor, there is no DP layer.

- (23) Ta' j-k'ux-u **ak'bi** [_{DP} i-waj aj-Eve].
 PFV A1-eat-TV **yesterday** A3-tortilla NC-Eve
 'I ate Eve's tortilla yesterday.'

For these reasons, I analyze objects with overt possessors as DPs, which consequently trigger object shift. This will be important for capturing the ban on interrogative possessor extraction from object position.

3.4 Objects with numeral modifiers can shift

Numerals can appear in VOS object position, as shown in (24a). New data in (24b) demonstrates that numerals may also occur in VSO object position, indicative of object shift.

- (24) a. Ta' i-k'ux-u [_O cha'-k'ej waj] [_S aj-Rosa].
 PFV A3-eat-TV two-CLF tortilla NC-Rosa
 'Rosa ate two tortillas.'
- b. Ta' i-k'ux-u [_S aj-Rosa] [_O cha'-k'ej waj].
 PFV A3-eat-TV NC-Rosa two-CLF tortilla
 'Rosa ate two tortillas.'

As may be expected, shifted and unshifted objects with numerals give rise to different semantic interpretations. Evidence for this comes from their scopal relations with adverbs. In (25), the PP adjunct may appear before or after the object *cha'tyikil wiñik* 'two men'. While (25a) is felicitous in a context in which the speaker sees two different men every day, (25b) is felicitous in a context in which the speaker sees two specific men every day.

- (25) a. Ju-jum-p'ej k'iñ mi j-k'el [**cha'tyikil wiñik**] tyi bij.
 one-RED-CLF day IMF A1-see **two-CLF man** PREP way
 'Every day, I see two men on the road.' $\forall > 2$
- b. Ju-jum-p'ej k'iñ mi j-k'el tyi bij [**cha'tyikil wiñik**].
 one-RED-CLF day IMF A1-see PREP way **two-CLF man**
 'Every day, I see two (specific) men on the road.' $2 > \forall$

These interpretational differences are predicted by Diesing's (1992) Mapping Hypothesis, where unshifted objects such as in (25a) are existentially closed at the VP level, as they are within the domain of existential closure, (i.e. within the VP). Therefore, the object in (25a) takes low scope with respect to the adverb. Presuppositional or specific objects as in (25b) shift out of the domain of existential closure (i.e. outside of VP), indicated by the PP that intervenes between the verb and the object. In (25b), the object scopes over the adverb and the interpretation is that the speaker sees two specific men every day on the road. The interpretations in (25) constitute further semantic evidence for object shift, compatible with Diesing's Mapping Hypothesis. The optional shifting of objects with numerals will be relevant for capturing the left branch extraction asymmetries.

Before summarizing the Ch'ol object shift facts, I briefly consider reasons why object shift occurs in Ch'ol. Motivations for object shift have been explored in a number of languages (Holmberg 1986; Diesing & Jelinek 1995; Diesing 1996; Vikner 2005). For Ch'ol, I suggest that overt definiteness is incompatible with an existential interpretation (see also discussion in Diesing & Jelinek (1995: 130) for German). Overt material associated with definiteness includes determiners, demonstratives, and overt possessors. Bare nouns, on the other hand, remain in the VP and may be existentially closed there.⁷

⁷ Bare nouns may also be definite in Ch'ol.

3.5 Summary of object restrictions

An updated summary of object restrictions is given in Table 2. While bare objects must appear in VOS object position, objects with determiners or overt possessors must appear in VSO object position—indicative of object shift. Objects with numerals may appear in VOS or VSO object position. These object shift facts lay the foundation for capturing the asymmetries exhibited with respect to left branch extraction.

4 Left branch extraction data

In this section I lay out the empirical facts for the left branch extraction, or subextraction, of a number of elements in the Tumbalá dialect of Ch'ol. Left branch extraction is when an element (located in the left branch of a larger NP or DP) is moved via A-bar movement. In the Mayan literature, interrogative possessor extraction has been noted before for the Tila dialect of Ch'ol (Coon 2009) and the closely related language Tsotsil (Aissen 1979; 1987; 1996). This study adds new data on the possibilities for extracting a variety of elements from different positions in the Tumbalá dialect of Ch'ol.

4.1 Interrogative possessor extraction

Interrogative possessors may extract from absolutive subjects, as in (26a), where the interrogative possessor *majki* appears before the verb. Pied-piping is also an available option, as shown by (26b), where the constituent containing the interrogative possessor and its possessee fronts to the preverbal position. Semantically, left branch extraction is associated with focus on the extracted constituent. In (26b), a speaker may be asking simply whose cow fell, but in (26a), the speaker may not have properly heard the name of the cow-owner and is asking for the interlocutor to repeat it.

- (26) Absolutive subject
- a. **Majki**_i ta' yajl-i [**i-wakax** *t*_i] ?
who PFV fall-IV **A3-cow**
 'Whose cow fell?'
 - b. [**Majki i-wakax**]_i ta' yajl-i *t*_i ?
who A3-cow PFV fall-IV
 'Whose cow fell?'⁸

Extraction of an interrogative possessor is also possible out of ergative subjects in (27a), though speaker variation is attested. Pied-piping is an option available to all speakers, as in (27b).⁹

Table 2: Updated summary of object restrictions.

	VOS	VSO
Bare object	✓	*
Object with determiner	*	✓
Object with overt possessor	*	✓
Object with numeral	✓	✓

⁸ The traces represent where the interrogative possessor originates (i.e. postnominally). Interrogative possessors undergo additional movement within the DP (not shown by the traces) to generate the correct surface word order, in which the interrogative possessor is prenominal.

⁹ In the Tila dialect of Ch'ol, extraction from ergative subjects is ungrammatical (Coon 2009).

(27) Ergative subject

- a. %**Majki**_i ta' i-k'el-e-yety [**i-chich** *t_i*] ?
 who PFV A3-see-TV-B2 **A3-sister**
 'Whose sister saw you?'
- b. [**Majki i-chich**]_i ta' i-k'el-e-yety *t_i* ?
 who **A3-sister** PFV A3-see-TV-B2
 'Whose sister saw you?'

Extraction of an interrogative possessor from the subject of an unergative verb is grammatical for some speakers (and slightly better than (27a)), as shown in (28a). Pied-piping, again, is an available option for all speakers, as in (28b).

(28) Unergative subject

- a. %**Majki**_i ta' i-cha'l-e soñ [**i-chich** *t_i*] ?
 who PFV A3-dance-TV dance.NML **A3-sister**
 'Whose sister danced?'
- b. [**Majki i-chich**]_i ta' i-cha'l-e soñ *t_i* ?
 who **A3-sister** PFV A3-dance-TV dance.NML
 'Whose sister danced?'

Extraction of an interrogative possessor from an absolutive object, on the other hand, is ungrammatical, as in (29a).¹⁰ In this case, pied-piping is the only available option, as in (29b).¹¹

¹⁰ With the applicative suffix *-be*, possessor extraction from object position is possible, as in (i). Following Coon & Henderson (2010), (i) is an external possessive construction, indicated by the applicative marker, and not an instance of left branch extraction.

- (i) **Majki**_i ta' a-k'el-be i-chich *t_i* ?
 who PFV A2-see-**APPL** A3-sister
 'Whose sister did you see?'

¹¹ As noted by Coon (2009) for the Tila dialect of Ch'ol, Ch'ol allows recursive possessive constructions. Additional data confirms that the Tumbalá dialect has recursive possessive constructions and that left branch extraction patterns similarly. Extraction is banned from absolutive objects (i), but possible from absolutive subjects (ii).

(i) Absolutive object

- a. ***Majki**_i ta' a-tyop'-o [i-latyu i-ts'i' *t_i*] ?
 who PFV A2-break-TV A3-plate A3-dog
 Intended: 'Whose dog's plate did you break?'
- b. *[**Majki i-ts'i'**]_i ta' a-tyop'-o [i-latyu *t_i*] ?
 who A3-dog PFV A2-break-TV A3-plate
 Intended: 'Whose dog's plate did you break?'
- c. [**Majki i-latyu i-ts'i'**]_i ta' a-tyop'-o *t_i* ?
 who A3-plate A3-dog] PFV A2-break-TV
 'Whose dog's plate did you break?'

(ii) Absolutive subject

- a. **Majki**_i ta' yajl-i [i-latyu i-ts'i' *t_i*] ?
 who PFV fall-IV A3-plate A3-dog
 'Whose dog's plate fell?'
- b. [**Majki i-ts'i'**]_i ta' yajl-I [i-latyu *t_i*] ?
 who A3-dog PFV fall-IV A3-plate
 'Whose dog's plate fell?'
- c. [**Majki i-latyu i-ts'i'**]_i ta' yajl-i *t_i* ?
 who A3-plate A3-dog PFV fall-IV
 'Whose dog's plate fell?'

Compare (ii) to data in Coon (2009: 168)

- (29) Absolutive object
- a. ***Majki**_i ta' a-k'el-e [**i-chich** *t_i*] ?
who PFV A2-see-TV **A3-sister**
 Intended: 'Whose sister did you see?'
- b. [**Majki i-chich**]_i ta' a-k'el-e *t_i* ?
who **A3-sister** PFV A2-see-TV
 'Whose sister did you see?'

Paralleling the pattern for objects of transitive verbs, extraction of an interrogative possessor out of the direct object or indirect object of a ditransitive verb is also ungrammatical, as in (30) and (31).¹² When occurring in ditransitive objects, interrogative possessors must pied-pipe their possessees.

- (30) Ditransitive DO
- a. ***Majki**_i ta' a-choñ-be aj-Rosa [**i-karu** *t_i*] ?
who PFV A2-sell-APPL NC-Rosa **A3-car**
 Intended: 'Whose car did you sell to Rosa?'
- b. ***Majki**_i ta' a-choñ-be [**i-karu** *t_i*] aj-Rosa?
who PFV A2-sell-APPL **A3-car** NC-Rosa
 Intended: 'Whose car did you sell to Rosa?'
 Only possible meaning: 'Who did you sell Rosa's car to?'

- (31) Ditransitive IO
- a. ***Majki**_i ta' a-choñ-be karu [**i-chich** *t_i*] ?
who PFV A2-sell-APPL car **A3-sister**
 Intended: 'Whose sister did you sell a car to?'
- b. ***Majki**_i ta' a-choñ-be [**i-chich** *t_i*] karu ?
who PFV A2-sell-APPL **A3-sister** car
 Intended: 'Whose sister did you sell a car to?'

Finally, interrogative possessors inside PPs must pied-pipe the entire PP, as in (32a). They may not extract from PPs as per (32b).

While extraction of multiple possessors from ergative subjects is possible for some speakers in (iia), the speakers that accept (iia) judge extraction of two possessors ungrammatical in (iib). I leave an analysis on this difference for future work.

- (iii) Ergative subject
- a. %**Majki**_i ta' i-jats'-ä-yety [i-latyu i-ts'i' *t_i*] ?
who PFV A3-hit-TV-B2 A3-plate A3-dog
 'Whose dog's plate fell on you?'
- b. * [**Majki i-ts'i'**]_i ta' i-jats'-ä-yety [i-latyu *t_i*] ?
who A3-dog PFV A3-hit-TV-B2 A3-plate
 Intended: 'Whose dog's plate fell on you?'
- c. [**Majki i-latyu i-ts'i'**]_i ta' i-jats'-ä-yety *t_i* ?
who A3-plate A3-dog PFV A3-hit-TV-B2
 'Whose dog's plate fell on you?'

¹² I provide two possible word orders for the ditransitive constructions, as multiple overt postverbal nominals are rare in Mayan languages. It seems that when the direct object is bare, the pragmatically neutral ordering of postverbal objects is V-DO-IO.

- (32) PP adjunct
- a. [_{pp} **Majki** tyi **y-otyoty**]_i ta' k'oty-i-yety t_i?
who PREP **A3-house** PFV arrive-IV-B2
 'To whose house did you go?'
- b. ***Majki**_i ta' k'oty-i-yety [_{pp} tyi **y-otyoty** t_i]?
who PFV arrive-IV-B2 PREP **A3-house**
 Intended: 'To *whose* house did you go?'

In fact, extraction of the object of a preposition is impossible, as in (33).

- (33) ***[Majki y-otyoty]_i** ta' k'oty-i-yety [_{pp} tyi t_i]?
who **A3-house** PFV arrive-IV-B2 PREP
 Intended: 'Whose house did you go to?'

I follow previous work, which argues that that PPs in Ch'ol are adjuncts (Coon 2013; Coon & Preminger 2011), and therefore adjunct islands. This claim is further supported with the data above, where extraction of the PP object in (33) and extraction of the interrogative possessor in (32b) are banned. Additional support for the islandhood of PPs comes the fact that PPs are never selected as complements in Ch'ol. For instance, picture-of-NPs are expressed with possessive phrases—'a picture of Rosa' in Ch'ol would be 'Rosa's picture'.

4.2 Numeral extraction

Numerals may extract from absolutive subject position in (34a) *and* absolutive object position in (34b).¹³

- (34) a. **Cha'-kojty**_i ta' yajl-i [t_i **wakax**].
two-CLF PFV fall-IV **cow**
 'Two cows fell.' Absolutive subject
- b. **Cha'-kojty**_i ta' i-k'el-e [t_i **wakax**] aj-Rosa.
two-CLF PFV A3-see-TV **cow** NC-Rosa
 'Rosa saw *two* cows.' Absolutive object

When only the numeral extracts, the numeral alone is focused (rather than the whole nominal argument). For instance, (34a) may be a response to someone who mistakenly said that only one cow fell.¹⁴

As shown for interrogative possessors, extraction out of ergative subjects receives mixed judgements, as in (35).

- (35) %**Cha'-kojty**_i ta' i-k'ux-u-yoñ [t_i **mis**].
two-CLF PFV A3-eat-TV-B1 **cat**
 'Two cats bit me.' Ergative subject

Numeral extraction is possible from the direct object of a ditransitive verb, as in (36a), but degraded from the indirect object (36b). The data in (36) contrasts with what was reported above for objects of ditransitives with interrogative possessors.

¹³ I take numerals to be modifiers adjoined to the *nP* in Ch'ol, following Bale et al. (2019).

¹⁴ For reasons of space, I do not give data on other quantifiers, but the numeral in (34) can be substituted with a quantifier like *pejtyel(el)* 'all' and the extraction facts remain the same.

- (36) a. **Cha'-kojty**_i ta' k-choñ-be [*t_i karu*] aj-Rosa.
two-CLF PFV A1-buy-APPL **car** NC-Rosa
 'I sold *two* cars to Rosa.' Ditransitive DO
- b. ?**Cha'-tyikil-ob**_i ta' k-choñ-be karu [*t_i x-'ixik-ob*].
two-CLF-PL PFV A1-sell-APPL car **NC-woman-PL**
 Intended: 'I sold cars to *two* women.' Ditransitive IO

Further data reveals a clear difference between extraction from the direct object and extraction from the indirect object in Ch'ol. In (36b), the classifier used with 'two' is the human classifier (-*tyikil*). When both objects take the same classifier (-*kojty*), as in (37) with chili peppers and cats, the extracted numeral unambiguously modifies the direct object 'chili peppers'.

- (37) **Cha'-kojty** ta' k-äk'-e ich mis.
two-CLF PFV A1-give-APPL chili cat.
 'I gave *two* chili peppers to the cat.'
 NOT: 'I gave chili peppers to *two* cats.'

The example in (37) provides evidence that extraction from the direct object is easier than extraction from the indirect object. I return to why this may be the case in Section 5.7.

Finally, it is not possible to extract numerals from PPs, as shown by the ungrammatical (38). I take (38) as further evidence for the islandhood of PPs in Ch'ol.

- (38) ***Cha'-p'ej**_i ta' k'otyi-yoñ [*tyi t_i otyoty*].
two-CLF PFV arrive-IV-B1 PREP house
 Intended: 'I went to *two* houses.'

4.3 Demonstratives and non-interrogative possessors cannot extract

For completeness, I present data on other elements, which may *not* extract from any position. Demonstratives such as *ixä* 'that' may not extract from any argument position, as shown by the data in (39).

- (39) a. ***Ixä**_i ta' yajli [*t_i wakax*].
that PFV fall-IV **cow**
 Intended: 'That cow fell.' Absolutive subject
- b. ***Ixä**_i ta' i-k'el-e-yoñ [*t_i wiñik*].
that PFV A3-see-TV-B1 **man**
 Intended: 'That man saw me.' Ergative subject
- c. ***Ixä**_i ta' k-mäñ-ä [*t_i karu*].
that PFV A1-buy **car**
 Intended: 'I bought *that* car.' Absolutive object
- d. ***Ixä**_i ta' k-choñ-be [*t_i karu*] aj-Rosa.
that PFV A1-sell-APPL **car** NC-Rosa
 Intended: 'I sold *that* car to Rosa.' Ditransitive DO
- e. ***Ixä**_i ta' k-choñ-be karu [*t_i wiñik*].
that PFV A1-sell-APPL car **man**
 Intended: 'I sold *that* man a car.' Ditransitive IO

Non-interrogative possessors may also not extract, as shown in (40).

- (40) a. *aj-Rosa_i ta' yajl-i [i-wakax t_i].
 NC-Rosa PFV fall-IV A3-cow
 Intended: 'Rosa's cow fell.' Absolutive subject
- b. *aj-Rosa_i ta' i-k'el-e-yoñ [i-chich t_i].
 NC-Rosa PFV A3-see-TV-B1 A3-sister
 Intended: 'Rosa's sister saw me.' Ergative subject
- c. *aj-Rosa_i ta' j-k'el-e [i-chich t_i].
 NC-Rosa PFV A1-see-TV A3-sister
 Intended: 'I saw Rosa's sister.' Absolutive object
- d. *aj-Rosa_i ta' k-choñ-be-yety [i-karu t_i].
 NC-Rosa PFV A1-sell-TV-B2 A3-car
 Intended: 'I sold you Rosa's car.' Ditransitive DO
- e. *aj-Rosa_i ta' k-choñ-be karu [i-chich t_i].
 NC-Rosa PFV A1-sell-TV car A3-sister
 Intended: 'I sold a car to Rosa's sister.' Ditransitive IO

I return to these ungrammatical instances of extraction in Section 5.5.

4.4 Summary

The left branch extraction facts from this section are summarized in Table 3.¹⁵ Crucially, extraction of interrogative possessors is banned from object position of transitive and ditransitive verbs. Numerals, on the other hand, can extract out of the object position. Extraction from subjects of transitive verbs and indirect objects is degraded. Demonstratives and non-interrogative possessors may never extract out.

5 Proposal

5.1 Shifted objects are islands to extraction

I argue that object shift, discussed in Section 3, freezes the object, creating an island. Elements within that object are subsequently prohibited from extracting out. This follows from the Freezing Principle in (41), which bans moving something out of an already moved element (i.e. (Ross (1974); Wexler & Culicover (1977); see also discussion in Corver (2006)).

- (41) The Freezing Principle (Wexler & Culicover 1977: 17)
 Moved constituents are islands to extraction.

Table 3: Left branch extraction summary.

	Subj of IV	Subj of TV	Obj of TV	DO of Ditrans	IO of Ditrans
Interrogative possessor	✓	%	*	*	*
Numeral	✓	%	✓	✓	?
Demonstrative	*	*	*	*	*
Possessor	*	*	*	*	*

¹⁵ As a reviewer points out, elements which can extract are those that are prenominal. However, not all prenominal elements can extract: demonstratives and determiners cannot extract out, for example.

While the Freezing Principle in (41) may be too strong¹⁶—indeed, not all moved constituents are islands for extraction (see, e.g. Konietzko et al. 2018)—object shift has been shown to create islands in a number of languages, including English (Chomsky 1973; Lasnik 2001), German (Diesing 1992), and Ukrainian (Mykhaylyk 2010). Here I argue that Ch'ol, too, bans extraction from shifted objects.

Recall that nominals with overt possessors are banned from VOS object position and must always shift under Coon's (2010) analysis. Like non-interrogative possessors, interrogative possessors also trigger object shift before the interrogative phrase fronts to the preverbal position. It then follows that for interrogative possessors in object position, the object first undergoes object shift, creating an island as per the principle in (41). This accounts for the ungrammaticality of interrogative possessor extraction from object position.¹⁷

Given the principle in (41), extraction *from*, not extraction *of*, the shifted object is banned. As noted above, the interrogative possessor can pied-pipe the possessee, which is predicted on this analysis. As Coon (2010: 368) notes, the entire object constituent may extract from the specifier position of AbsP, and indeed there is no ban on the movement of object constituents in Ch'ol (see example (12a) above).

5.2 Shifted numerals and adjectives may not extract

Further support for the current proposal comes from shifted objects with numeral and adjective modifiers. While objects with overt possessors *always* shift, numerals and adjectives may appear in VOS or VSO object position. It is therefore possible to test whether extraction of the numeral is grammatical when the object shifts. Extraction of a numeral from the object position is only possible in VOS word order, as shown by (42a). Extraction of a numeral from a shifted object, indicated by VSO word order, is ungrammatical, as in (42b).

- (42) a. **Cha'-kojty**_i ta' i-k'el-e [*t*_i wakax] aj-Rosa.
 two-CLF PFV A3-see-TV cow NC-Rosa
 'Rosa saw two cows.'
- b. ***Cha'-kojty** ta' i-k'el-e aj-Rosa [*t*_i wakax].
 two-CLF PFV A3-see-TV NC-Rosa cow
 Intended: 'Rosa saw two cows.'

Yet more evidence that object shift blocks extraction comes from the extraction of adjectives from object position. Under the current proposal, we would expect that extraction of an adjective from a VSO object would be ungrammatical. Indeed, adjectival extraction from the object is only possible from VOS objects in (43a), not VSO, as in (43b).¹⁸

¹⁶ See also discussion on the Revised Extraction Constraint from Diesing (1992: 128).

¹⁷ Left branch extraction takes place after the *vP* fronts to Spec,TP. Under the predicate-fronting analysis adopted here, the *vP* moves with NP objects to Spec,TP. I argue that this movement does not induce an island effect. The NP is still within its licensing domain (i.e. within the domain of *v*, which Agrees with the object and assigns it case (Coon 2017)). I propose that left branch extraction of the interrogative possessor is not blocked in these cases, as the object has not moved away from its licensor, *v*. This builds on recent Agree-based accounts of extraction and unlocking, further discussed in Section 6.

¹⁸ Adjectival extraction is not possible from both ergative and absolutive subjects. When adjectives appear discontinuous from nouns in these positions, they are interpreted as secondary predicates or depictives, as shown in (i).

- (i) a. *Pek' ta' i-k'el-e-yoñ wiñik.
 short PFV A3-see-TV-B1 man
 Intended: 'The short man saw me.' Ergative subject
 OK if (ia) means 'The man saw me as short.'

- (43) Context: What kind of car did Rosa buy?
- a. **Säsäk**_i ta' i-mään-ä [t_i karu] aj-Rosa.
white PFV A3-buy-TV car NC-Rosa
'Rosa bought a *white* car.' Unshifted absolutive object
- b. ***Säsäk**_i ta' i-mään-ä aj-Rosa [t_i karu].
white PFV A3-buyTV NC-Rosa car
Intended: 'Rosa bought a *white* car.' Shifted absolutive object

While it is impossible to test whether unshifted objects with overt possessors allow extraction of an interrogative possessor, as they always shift, data from shifted objects with numerals and adjectives can provide support for the bleeding effects of object shift.

5.3 Moved absolutive subjects block left branch extraction

Absolutive subjects, like objects, in Ch'ol originate as complements to the verb. Unlike objects, absolutive subjects with overt possessors do not always move (see also Coon 2010: 362). Nevertheless, if they do move, indicated by the placement of adjuncts, extraction from the subject is ungrammatical. In (44), the subject has an overt possessor, and the PP adjunct may appear between the verb and subject, or after the verb and subject.

- (44) Ta' yajl-I (✓ tyi potreru) i-wakax aj-Rosa (✓ tyi potreru).
PFV fall-IV PREP field A3-cow NC-Rosa PREP field
'Rosa's cow fell in the field.'

In (45), an interrogative possessor may extract when the subject remains next to the verb, as in (45a). However, when the subject has moved, indicated by the placement of the intervening PP in (45b), the interrogative possessor may no longer extract out.¹⁹

- (45) a. Majki_i ta' yajl-I [i-wakax t_i] tyi potreru?
who PFV fall-IV A3-cow PREP field
'Whose cow fell in the field?'
- b. *Majki_i ta' yajl-i tyi potreru [i-wakax t_i]?
who PFV fall-IV PREP field A3-cow
Intended: 'Whose cow fell in the field?'

-
- b. *Säsäk ta' wejl-i maj x-ch'e'.
white PFV fly-IV DIR NC-bird
Intended: 'The white bird flew away.' Absolutive subject
Speaker comment: A translation of this would be 'the bird flew away white'.
However, speakers comment that this does not make sense.

See Vázquez Álvarez (2002a) and Martínez Cruz (2007) for further discussion on secondary predication, depictives, and adjectives in Ch'ol. At the moment, I do not know why adjectives may only extract from object position. I note this as an issue for future research, but highlight that the pattern in (43) further supports this paper's main claim that if the object shifts, the adjective may not extract.

¹⁹ Speakers have similar judgements for (44) and (45) if the PP is replaced with the temporal adverb *ak'bi*, as in (i) and (ii).

- (i) Ta' yajl-i (✓ ak'bi) i-wakax aj-Rosa (✓ ak'bi).
PFV fall-IV yesterday A3-cow NC-Rosa yesterday
'Rosa's cow fell yesterday.'
- (ii) Majki ta' yajl-I (?? ak'bi) [t_i i-wakax] (✓ ak'bi)?
who PFV fall-IV yesterday A3-cow yesterday
'Whose cow fell in the field?'

5.4 Shifted ditransitive objects block left branch extraction

Recall that extraction of interrogative possessors is ungrammatical from objects of ditransitives, but the extraction of numerals is grammatical for direct objects of ditransitive verbs. The argument for ditransitive objects proceeds in a similar fashion: when the object shifts, extraction is blocked from the object. I again use adjunct placement as a diagnostic for object shift.

While interrogative words must always front to the preverbal position, it is possible to test object shift with objects that have overt possessors. New data from direct objects with interrogative possessors reveals that they, too, undergo object shift, as in (46). In (46), the adverb *ak'bi* 'yesterday' comes between the verb and direct object *ikaru ajRosa* 'Rosa's car', indicating that the direct object has shifted. Following the line of argument laid out here, it is correctly predicted that extraction of interrogative possessors from objects of ditransitive verbs is ungrammatical: overt possessors trigger object shift with ditransitive objects as well, bleeding extraction from object position.

- (46) Ta' k-choñ-be-yety **ak'bi** [i-karu aj-Rosa].
 PREF A1-sell-APPL-B2 **yesterday** A3-car NC-Rosa
 'I sold you Rosa's car yesterday.'

Numerals provide further evidence that object shift bleeds extraction: when an object with a numeral has shifted, the numeral cannot extract out. When an adverb intervenes between a ditransitive object and verb in (47a), extraction of the numeral is blocked. When the verb and object are adjacent, however, extraction may proceed as expected in (47b).

- (47) a. *Cha'-kojty ta' k-choñ-be-yety **ak'bi** [t_i karu].
 two-CLF_i PFV A1-sell-APPL-B2 **yesterday** car
 Intended: 'I sold you *two* cars yesterday.' Shifted DO
- b. Cha'-kojty ta' k-choñ-be-yety [t_i karu] **ak'bi**.
 two-CLF_i PFV A1-sell-APPL-B2 car **yesterday**.
 'I sold you *two* cars yesterday.' Unshifted DO

5.5 Ruling out demonstrative and non-possessor extraction

Demonstratives and possessors may never extract from any position. I suggest that demonstratives project in Ch'ol²⁰ and that there is a ban on the A-bar extraction of the demonstrative head (see discussion on movement in, e.g., Travis 1984).²¹ Numerals, adjectives, and interrogative possessors, on the other hand, all form their own constituents and therefore have the possibility of extracting out. While this suggestion admittedly raises some questions about the nature of demonstratives and other determiner-like elements in Ch'ol, I leave these issues open for future research.

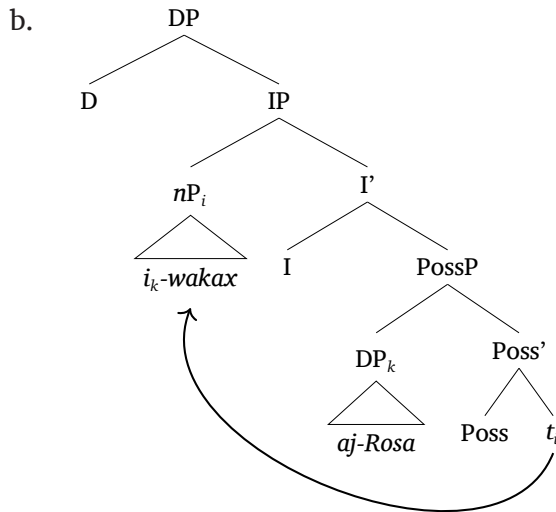
To rule out possessor extraction, I propose that this is due to the inability of (non-interrogative) possessors to move to the edge of DP. Under a phase-based theory of movement (Chomsky 2000; 2001; 2008), in order to extract out of a phase, constituents must move to the edge of that phase. Adopting the proposal that DPs are phases (Chomsky 2008), a

²⁰ See, e.g., Nicolae (2015) for an analysis of weak demonstratives in Romanian as heads.

²¹ The determiner *jñ(i)* may appear discontinuous to the noun (Vázquez Álvarez 2011: 337), but as discussed by Vázquez Álvarez (2011) and Little & Wiegand (2018), it also acts as a focus marker. In Ch'ol and many Mayan languages, the preverbal position is the focus position. For the present paper, I follow Vázquez Álvarez (2011) and Little & Wiegand (2018) in assuming that *jñ(i)*, when discontinuous from nouns, is the spellout of focus features in the preverbal focus position, rather than an extracted constituent.

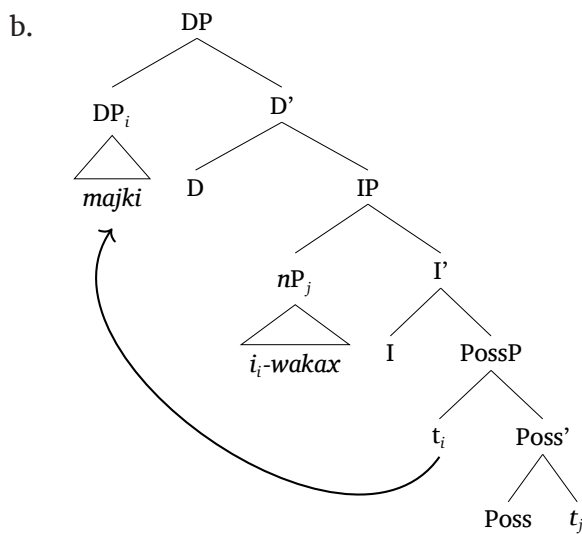
possessor must be able to reach the edge of the DP phase to extract out.²² To illustrate, take the possessive construction in (48a) and Coon's (2010) analysis of (48a) in (48b). In (48b), the possessee *nP* fronts to a position between DP and PossP, which Coon (2010) labels as IP, paralleling *vP* fronting in the clausal domain. This generates the correct possessee–possessor word order.

- (48) a. *i-wakax aj-Rosa*
 A3-cow NC-Rosa
 'Rosa's cow'



Interrogative possessors always appear before their possessee, as in (49a). This involves additional movement of the interrogative possessor to Spec,DP, as shown in (49b). As the interrogative possessor is at the edge of the DP phase, it has the possibility to extract out.

- (49) a. *majki i-wakax t_i?*
 who A3-cow
 'whose cow?'



I posit that while *wh*-features obligatorily trigger movement in (49), other features, such as focus, do not. It may be expected that if a possessor fronts within the DP, it gives rise to a

²² Nominals with numeral or adjective modifiers are NPs for Coon (2010), and are not phases.

focus interpretation, paralleling focus movement in the clausal domain. However, as shown by (50), even when prosodically stressed, a non-interrogative possessor may never occur before its possessee. In Ch'ol, the possessor in (50) is unable to move to the edge of the DP phase, evidenced by its inability to appear prenominally. As it cannot move to the edge of the DP, it cannot extract out. Interrogative possessors, on the other hand, do move to the edge of DP, driven by *wh*-features, as in (48), and therefore have the ability to extract out.

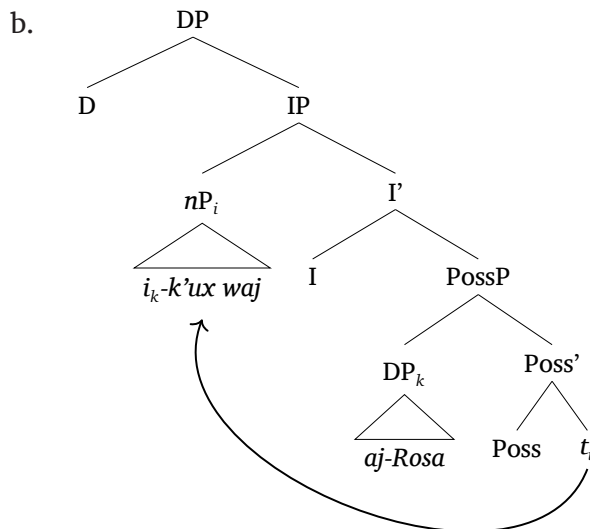
- (50) *aj-Rosa_i i-wakax t_i
 NC-Rosa A3-cow
 Intended: 'Rosa's cow'

The differences in *wh*- and focus-driven movement within the nominal domain have parallels in the verbal domain. While *wh*-features always trigger movement within the verbal and nominal domains, focus features do not: in situ focus is possible in Ch'ol (Clemens et al. 2017).

5.6 Nonperfectives

As previewed in Section 2.1, under Coon's (2013) analysis of split ergativity in Ch'ol, non-perfective forms are possessed nominals. The nonperfective aspect marker is a syntactic predicate that takes a nominalized clause as its argument. For example, the progressive marker *woli* in (51a) is analyzed as taking the DP *i-k'ux waj aj-Rosa* as its complement. To derive VOS word order, the *nP* fronts to a position within the DP, as shown in (51b), paralleling *vP* fronting to Spec,TP in the clausal domain in (17).

- (51) a. Woli [_{DP} i-k'ux waj aj-Rosa].
 PROG A3-eat tortilla NC-Rosa
 'Rosa is eating a tortilla.'



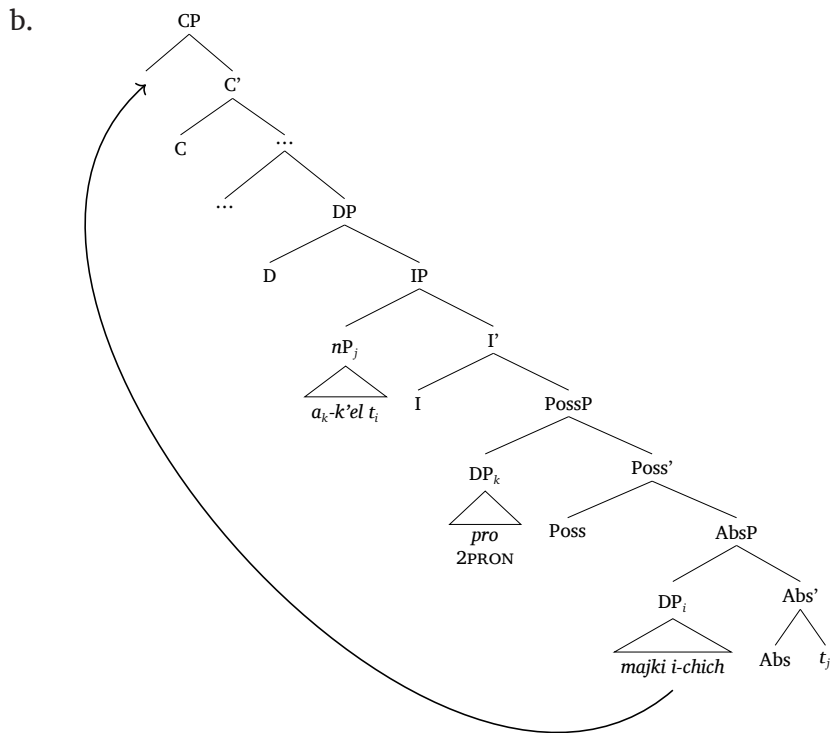
Despite these structural differences, left branch extraction patterns are the same for non-perfectives: extraction is not possible with interrogative possessors from object position (52a) and also not possible with numerals from shifted objects, indicated by the intervening PP, as in (52b).

- (52) a. *Majki_i woli a-k'el [i-chich t_i] ?
 who PROG A2-see A3-sister
 Intended: 'Whose sister are you looking at?'

- b. ***Cha'-kojty_i** woli j-k'el [_{pp} tyi potreru] [t_i **wakax**].
two-CLF PROF A1-see PREP field **cow**
 Intended: 'I'm looking at two cows in the field.'

I propose that the objects in (52) undergo object shift in nonperfective aspect as well (see also Coon 2010: ex. (30)). Though nonperfective forms are not derived in Coon's (2010) analysis of word order, I propose that DP objects must shift to a position above *nP*, labeled again as AbsP. After the object shifts, the *nP* moves to Spec,IP, as in (53b). The object *majki i-chich* 'whose sister' is in its shifted position in Spec,AbsP, shown in (53b), so extraction of the interrogative possessor *majki* is blocked. Pied-piping of the whole DP is the only available option, shown in (53b) for (53a).²³

- (53) a. [Majki i-chich]_i woli a-k'el t_i ?
 who A3-sister PROG A2-see
 'Whose sister are you looking at?'



²³ I note that instances of VOS word order with a full DP object are possible, as in (i) with the progressive aspect *woli*.

- (i) Woli i-k'ux [_o jiñi waj] [_s x-Wañ(=i)].
 PROG A3-eat DET tortilla NC-Juan(=ENCL)
 'Juan is eating the tortilla.'

For cases like (i), I suggest that the subject is in a right topic because it is marked with the enclitic =i, an intonational enclitic associated with topicalized constituents. Indeed, even with perfective verbs, VOS word order with full DP objects is possible when the subject has this enclitic, as in (ii).

- (ii) Ta' [_v i-juch'-u] [_o jiñi sa'] [_s aj-Rosa*(=ji)].
 PFV A3-grind-TV DET masa NC-Rosa = ENCL
 'Rosa ground the masa.'

A detailed look into the prosody and distribution of the subjects in (i) and (ii) is needed to conclusively determine if they are right topics. Nevertheless, I note these potential instances of VOS word order with DP objects and suggest that the subjects are right topics, as has been argued before for similar data in Tsotsil (Aissen 2016; 2017) and other Mayan languages (Can Pixabaj 2004; Curiel 2007). The main claim remains the same: full DP objects shift in both perfective and nonperfective aspects, blocking left branch extraction.

5.7 Extraction from specifiers

Extraction from an ergative argument or indirect object is subject to variation. I suggest that this is due to a language-specific dispreference on extracting from specifiers in Ch'ol. Unlike absolutive subjects and objects, both ergative subjects and indirect objects are introduced in a specifier position: ergative subjects in Spec,VoiceP and indirect objects in Spec,ApplP (as per standard analyses of ditransitive objects). Under the current proposal, ergative subjects are not *prima facie* islands for extraction, given the Freezing Principle in (41). In fact, there is no evidence that subjects of transitive verbs move from their base position in Spec,VoiceP (Coon 2010; 2013; 2017; Clemens & Coon 2018). Nevertheless, variability in judgements is unsurprising, given crosslinguistic facts on the variability of extraction out of subjects (i.e. Chomsky 2008; Polinsky et al. 2013, *inter alia*). Similarly, indirect objects are introduced in specifier position. It is difficult, or impossible, as in (37), for an extracted numeral to modify an indirect object. Indirect objects therefore provide additional evidence that extraction from specifiers is more difficult in Ch'ol than from complement position. Indeed, Müller (2018: 538) notes that a ban on extraction from specifiers can be a language-specific restriction. In the context of this paper, I conclude that extraction from specifiers is dispreferred and leave the specific reasons for this variability as an open question for future work.

5.8 Another freezing effect

Above, I argued that shifted objects induce freezing effects, subsequently blocking left branch extraction. It may then be expected that movement operations other than object shift may induce freezing effects in Ch'ol. This is borne out in relative clause structures, as in (54).

- (54) ***Majki**_i ta' i-k'el-e-yety [**i-chich** t_i]_k [ta'=bä i-cha'l-e soñ t_k tyi
who PFV A3-see-TV **A3-sister** PFV=REL A3-do-TV dance PREP
 k'inijel]?
 party
 Intended: 'Whose sister that danced at the party saw you?'

Adopting a raising analysis of relative clauses (e.g. Bhatt 2002), the head *majki ichich* 'whose sister' in (54) originates in the relative clause 'that danced at the party' and then moves to the matrix clause.²⁴ It is thus not surprising, based on the analysis proposed here, that the extraction of the interrogative possessor in the matrix clause is not possible for any of the speakers consulted: the relative clause head has been moved and becomes an island for extraction. Freezing effects occur with other moved constituents in Ch'ol—further support for the current proposal.

5.9 Summary

Taking VSO word order and the distribution of adjuncts as indications of object shift, we see that the left branch extraction asymmetries follow naturally from the restrictions on VOS objects. When objects shift, they become frozen. For objects with overt interrogative possessors, object shift always occurs, which means that extraction from the object is always blocked. For objects with numerals, extraction of the numeral is only blocked if

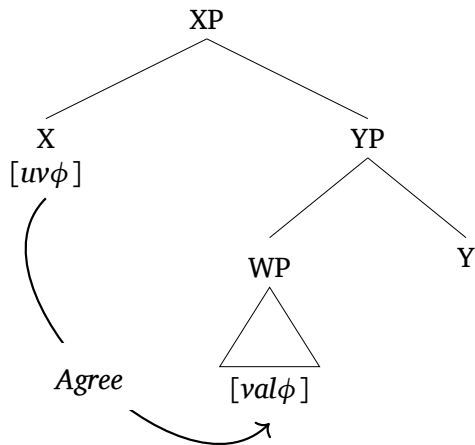
²⁴ A reviewer notes that for Bhatt (2002), the raised head in English is an NP not a DP. As detailed in Section 3, nominals with overt possessors pattern with DPs in Ch'ol. While a detailed look into the structure of relative clauses in Ch'ol is outside the scope of the present paper, I suggest that there may be variation across languages as to what raises. For example, Erlewine & Gould (2016) argue for a DP head-raising analysis of Japanese relative clauses. The point of (54) is simply that freezing effects seem to be exhibited elsewhere in the language.

the object has moved. I suggested that demonstratives may not extract from any position due to a ban on the A'-movement of heads. I further argued that non-interrogative possessors may not extract out, as they cannot move close enough to the edge of the DP to do so. Nonperfective aspects exhibit the same left branch extraction asymmetries. I argued that object shift, too, occurs within nominalized complements of nonperfective aspects. I also suggested that extraction from specifiers is dispreferred in Ch'ol, explaining why extraction from subjects and indirect objects is more difficult or impossible. I ended this section with another instance of a freezing effect in Ch'ol.

6 Implications for theories of extraction

The proposal detailed in this article has implications for recent Agree-based approaches to extraction. Under those analyses, Agree, in the sense of Chomsky (2000; 2001), with a nominal unlocks that nominal for extraction (i.e. Rackowski & Richards 2005; van Urk & Richards 2015; Branan 2018). Agreement morphemes in this context are taken to be the result of an Agree relation between a probe with unvalued ϕ features and a goal (an NP or DP) with valued ϕ features. This is modeled in (55). The probe on X in (55) searches in its domain and finds a nominal (WP) with valued ϕ features. An agreement morpheme is then spelled out on X.

(55) Agree (Chomsky 2000)



A reviewer notes that the proposal laid out here may be in conflict with Rackowski & Richards's (2005) proposal of extraction. Using evidence from Tagalog, Rackowski & Richards (2005) propose that shifted nominals are indicative of Agree and only then is extraction licensed. In other words, for Rackowski & Richards (2005), object shift feeds extraction, whereas for the present claim, object shift bleeds extraction.

Nevertheless, I argue that the proposal here is compatible with Rackowski & Richards (2005) if the ordering of object shift and Agree is taken into account. Though Rackowski & Richards (2005) concentrate on extraction patterns in Tagalog and not left branch extraction, I extend their proposal to left branch extraction. To illustrate with an example from Tagalog, take (56), where the possessor 'buffalo' has extracted out. For Rackowski & Richards (2005), 'the buffalo's horn' moves to Spec, ν P indicative that ν has Agreed with the object.²⁵ The verb Agrees with the whole nominal 'the buffalo's horn', indicated by the agreement affix *in* (the object voice marker) on the verb. Agree consequently unlocks the DP, and the possessor may then extract out. In (56), Agree takes place with *shifted* nominals to license extraction.

²⁵ See Kaufman (2017) for alternative proposals for the Austronesian voice system.

- (56) *Tagalog* (Kroeger 1991: 31) (my bolding added)
Ang = **kalabaw**, p < **in** > utul ng = magsaka ang = sungay.
NOM = **buffalo** PERF-cut-**OV** GEN = farmer NOM = horn.
 'The buffalo, the farmer cut off the (i.e. its) horn.'

In Ch'ol, on the other hand, Agree takes place with *unshifted* objects. Coon (2013; 2017) for Ch'ol and Preminger (2014) for other Mayan languages argue that an Agree relation is established between ν and the object in the complement of V. Though these works do not explicitly discuss object shift and its relation to Agree, in the context of this paper, this means that Agree takes place *before* object shift. Shifting the object after Agree is what bleeds left branch extraction.²⁶ Put another way, as long as the Agree configuration is maintained, the nominal is unlocked and extraction is possible. For Ch'ol, this means that as long as the object remains within ν P, where ν can license it, left branch extraction is possible. This Agree-based proposal of extraction also can explain why objects within fronted ν Ps are not islands for extraction. As the object is still within the domain of its licenser, ν , the Agree configuration is maintained, allowing extraction. Once the object moves from the ν P via object shift, I suggest that the unlocking effects of Agree are reversed so left branch extraction is no longer permitted.

On the surface, there seems to be a clash with Rackowski & Richards (2005). However, if the ordering of Agree and object shift is taken into account, the present proposal and that of Rackowski & Richards's (2005) are not at odds. For Ch'ol, Agree takes place before object shift. For Tagalog, object shift is indicative of Agree. I therefore propose that the ordering of Agree and object shift can parametrically vary across languages. Given this variation on Agree and movement operations in Tagalog and Ch'ol, it is predicted, and even expected, that there exist different patterns with respect to left branch extraction crosslinguistically.²⁷

7 Conclusion

This paper contributes new empirical data on left branch extraction in a less studied language. I argued that restrictions on VOS objects can capture asymmetries exhibited in left branch extraction. I adopted Coon's (2010) proposal for word order, in which VSO word order is derived from VOS word order, in part, via object shift. Overt possessors always trigger object shift, which is why interrogative possessors may never extract from object position. Numerals, on the other hand, do not obligatorily trigger object shift and may extract from *unshifted* objects, but not from shifted ones. This follows from the Freezing Principle (Ross 1974; Wexler & Culicover 1977), or a ban on extracting from a moved constituent.

I ended with some of the current proposal's implications for theories of extraction. While, at first blush, there seems to be a clash with Rackowski & Richards's (2005) analysis of Agree and object shift in Tagalog, I argue that the current proposal is not at odds with theirs. If the ordering of Agree and object shift is taken into account, variation with respect to extraction is expected.

²⁶ As argued for by Coon (2017), absolutive subjects and objects have different licensers. Absolutive objects are licensed by ν , while absolutive subjects are licensed by INFL/T. For the present paper, both ν and INFL/T license the absolutive argument before object shift, or movement of the absolutive subject. Adopting phase theory (Chomsky 2000; 2001; 2008), CPs and transitive ν Ps are phases. Intransitive ν Ps are not phases and for this reason, INFL/T probes into the complement of the verb to license the absolutive subject, in turn licensing extraction.

²⁷ For more on the relative order of operations as a point of cross-linguistic variation see Obata et al. (2015). I thank a reviewer for pointing this reference out to me.

Abbreviations

1 = first person, 2 = second person, 3 = third person, A = Set A markers (ergative/possessive), APPL = applicative, B = Set B markers (absolutive), CLF = classifier, DEM = demonstrative, DET = determiner, DO = direct object, ENCL = enclitic, GEN = genitive, IO = indirect object, IPFV = imperfective, IV = intransitive verb, NC = name classifier, NOM = nominative, OV = object voice, PERF = perfect, PFV = perfective aspect, PL = plural, PREP = preposition, PROG = progressive, RED = reduplication, TV = transitive verb. Ch'ol uses a Spanish-based orthography: ' = [ʔ]; ä = [i]; b = [b]; ch = [tʃ]; j = [h]; ñ = [ɲ]; ty = [t̪]; x = [ʃ]; y = [j]; C' = ejective consonant.

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