

THE STRUCTURE OF JARAI CLAUSES AND NOUN PHRASES

by

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To my wife, who pours her life into the things that matter most.

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And finally, to the one from whom all blessings flow, I offer these borrowed words of thanks:

Thee, God, I come from, to thee go,
All day long I like fountain flow
From thy hand out, swayed about
Mote-like in thy mighty glow.

What I know of thee I bless,
As acknowledging thy stress
On my being and as seeing
Something of thy holiness.

– *Gerard Manley Hopkins*

March 29, 2013

ABSTRACT

THE STRUCTURE OF JARAI CLAUSES AND NOUN PHRASES

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This dissertation provides a syntactic account for the Jarai noun phrase and for the three regions of the Jarai clause: the operator domain, the inflectional domain, and the theta domain. Within the noun phrase, I argue that demonstrative-final word order involves phrasal movement of the demonstrative's complement into Spec,D, where it identifies null definite D. Jarai classifiers, rather than being heads in the functional spine of the DP, are shown to form a constituent with numerals, and this classifier-numeral phrase merges as the specifier of a number (plurality) head.

In the operator domain, three head positions can be identified: a finiteness head, evident in non-finite complement clauses; a focus head, whose specifier position is the landing site of focus-movement (which subsumes *wh*-movement); and a force head, which in questions is spelled out as a question particle. In addition to having standard *wh*-movement (or, as I argue, focus-movement of *wh*-phrases) and *wh*-in-situ, Jarai also has a pseudocleft strategy for forming *wh*-questions; variations in the word order of *wh*-pseudoclefts arise from different combinations of topic-movement to Spec,T and focus-movement to Spec,Foc.

In the inflectional domain, I analyze the variable position of negation in terms of optional Aux-to-T raising. I also put forward two arguments that surface subjects in Jarai sit in Spec,T at spellout.

In the theta domain, I show that the verb phrase comprises three head positions: v , sometimes overtly realized by a causative prefix; iAsp, an inner aspect head position sometimes realized by the telicity-related particle *hĩ*; and V, where the verbal root usually merges. Additionally, Jarai distinguishes between unaccusatives and unergatives, correlating to a difference between state-denoting roots and manner-denoting roots. Finally, Jarai has various types of serial verb constructions (SVCs). I examine four classes of SVCs, focusing on the status of shared arguments. I argue that SVCs in Jarai involve (i) the merging of a verbal root directly into v_{CAUSE} , the first verb of the construction, and (ii) the merging of a VP or vP , containing the second verb, with the higher v . Apparent agent sharing is mediated by a controlled PRO in the specifier of the lower v . Apparent theme sharing is merely an interpretive effect of the causal relation between the two verbs; in fact, the higher verb, because it is a light verb, does not assign a theme theta role.

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GLOSSING CONVENTIONS

1	First person	MED	Medial
2	Second person	NEG	Negative
3	Third person	NHUM	Non-human
4	Fourth person	NMLZ	Nominalizer
CAUS	Causative	PL	Plural
CLF	Classifier	POL	Polar
COMP	Complementizer	PROG	Progressive
COP	Copula	PROX	Proximal
DAT	Dative	PRT	Particle
DEM	Demonstrative	Q	Question particle
DET	Determiner	RECP	Reciprocal
DIST	Distal	RED	Reduplicant
EXCL	Exclusive	SG	Singular
FOC	Focus	WH	Wh
FUT	Future		
HUM	Human		
IMP	Imperative		
INCL	Inclusive		
INDF	Indefinite		
LOC	Locative		

CHAPTER 1

INTRODUCTION

This dissertation is a formal account of certain aspects of the syntax of the Jarai language, a member of the Austronesian family spoken by over 300,000 people in Vietnam and Cambodia, as well as by a few thousand members of the Jarai diaspora in the United States.¹ My aim in this dissertation is to describe and analyze the syntax of the Jarai noun phrase and the Jarai clause.

1.1 The noun phrase

The investigation of Jarai syntax begins with the noun phrase in Chapter 3. I adopt the DP hypothesis and argue that demonstrative-final word order in Jarai arises through movement of the demonstrative's complement into Spec,D, where it identifies null definite D (§3.2). I show that Jarai, which has a generalized classifier system (§3.3), also has number morphology (like Indonesian, Chung 2000), apparently counter-exemplifying a prediction of the Nominal Mapping Parameter (Chierchia 1998) (§3.3.3). I argue that possessors merge low in the DP, in Spec,*n*, accounting for both the word order facts and the low scope that possessors take with respect to numerals and the demonstrative (§3.4). I briefly examine adjective phrases, suggesting that they can be accounted for as right-adjoined modifiers to NP, below *n* (§3.5). Jarai has two positions for quantifiers, a low position for cardinal quantifiers (§3.7.1) and a high position (above D) for proportional quantifiers (§3.7.2). These positions correlate with different readings, and a single DP can have quantifiers in both positions. The picture I develop of DPs in Jarai fits within the larger formal-typological project embodied in Cinque (2005),

1. From an Austronesian perspective, however, Jarai is something of an outlier, sharing more in common with the non-Austronesian languages of Southeast Asia than with its Pacific relatives.

which seeks to derive various word order possibilities of DPs cross-linguistically from a single underlying merge order of constituents. Nevertheless, my analysis of the position of classifiers poses a challenge to Cinque's suggestion that the classifier is a head in the functional spine of the noun phrase.

1.2 The clause

My discussion of the clause is divided into three chapters: the operator domain, where C-related heads make their home; the inflectional domain, where T sits; and the theta domain, where the verb associates with its arguments.

Within the operator domain, Chapter 4, I begin with an investigation of three clause types: finite complement clauses (§4.1.1), non-finite complement clauses (§4.1.2), and root interrogative clauses (§4.1.3). I show that an active operator domain is implicated by (i) the selectional properties of clause-selecting V heads, (ii) *wh*-movement, which I analyze as focus movement to Spec,Foc, and (iii) the variable position of Q particles, which I analyze as Force heads (Rizzi 1997). I then examine focus movement in more depth, arguing that only one focus-marked constituent is possible per Jarai clause (§4.2). Finally, I demonstrate in §4.3 that Jarai *wh*-questions can have either a standard verbal clause structure, in which case the *wh*-phrase is merged in its normal subcategorized (or adjoined) position, or a pseudocleft copular structure, in which case the *wh*-phrase is generated in a predicational relation to a headless relative clause. In both structures, the *wh*-phrase may remain *in situ* or may focus-move to the left periphery. Indeed, there are three possible locations for the *wh*-phrase in pseudoclefts: it can remain in the predicate, it can raise to subject position, and it can focus-move to the left periphery.

In the inflectional domain, Chapter 5, I survey tense and aspect heads, arguing from the variable position of negation that T is always null, but an auxiliary (future or progressive) optionally raises past negation into T (§5.2). In §5.3 I investigate the apparent lack of past

tense and perfective aspect auxiliaries in Jarai, considering two possible markers of past and perfective, *lah* and *hɿ*. The former, *lah*, turns out to be an adverbial element with a meaning similar to past perfect, while the latter, *hɿ*, is an inner aspect head with a telic rather than perfective meaning. Finally, I put forward an argument that Jarai subjects sit in Spec,T, rather than appearing in a topic position within the operator domain (§5.4).

Within the theta domain, Chapter 6, I present evidence for three verbal projections in Jarai's verb phrase: a V position, where the verbal root merges and introduces its internal arguments; a little-*v* position, which introduces the agent in its specifier (§6.1); and an inner aspect (iAsp) position between V and *v*, which can be filled with a head that affects the *aktionsart* of the predicate (§6.4). Non-agentive predicates lack a *v* position. I also present evidence that Jarai has two classes of intransitive verbs: unergatives and unaccusatives (§6.2). Because I adopt the position that verbal roots are never directly responsible for introducing their external argument (Kratzer 1996), I discuss what it means for a root to be in one of these classes. I devote a significant portion of the chapter to the description and analysis of multi-verb constructions in Jarai (§6.6.3), which I show to be a special construction type distinct from coordination, clausal embedding, or adjunction. I argue that the best structural analysis for these serial verb constructions (SVCs) involves merging the higher verbal root directly in a v_{CAUSE} position, which then selects the lower verb along with its extended projection. I show that this analysis captures the basic facts while providing a straightforward explanation of the interpretational properties of Jarai SVCs.

1.3 Theoretical approach

The basic syntactic approach of this dissertation is Minimalism (Chomsky 1995, 2000, among many others), although many of the concerns of Minimalism are not central to my analyses. The analyses of noun phrases and the operator domain make use of finely articulated functional projections, situating the work within the Cartographic enterprise (see especially

Cinque 2002; Belletti 2004; Rizzi 2004). My aim throughout is to use the formalisms to give concrete substance to my claims: because they are stated formally, my analyses can be tested and either confirmed (as I hope) or shown to be inadequate.

1.4 Getting started, getting done

In the next chapter, I give a brief overview of Jarai grammar, in addition to reviewing the existing literature on Jarai and outlining my basic methodology and data sources. At the end of the dissertation, I wrap things up by reviewing the central themes of the dissertation and offering prospects for future work.

CHAPTER 2

OVERVIEW OF JARAI LANGUAGE AND METHODOLOGY

The aim of this chapter is to introduce readers to the Jarai language—its sounds, orthography, morphology, and basic word order facts—as well as to the linguistic literature on Jarai. After this introduction to Jarai, I discuss my data sources and elicitation methodology.

2.1 Overview of phonology, orthography, and grammar

In this section I give an overview of Jarai’s phonological inventory (§2.1.1.1), present the orthography I use in the dissertation (§2.1.1.2), and describe word-level stress (§2.1.1.3). I then move on to affixal morphology, which is limited to two productive prefixes (§2.1.2). Finally, I briefly survey a few features of Jarai syntax to prepare the way for the subsequent chapters (§2.1.4).

2.1.1 Phonology sketch and orthography

2.1.1.1 Inventory of phonemes

Several Jarai lexicons include a phoneme inventory,¹ but for the consonant and vowel inventories given here I rely largely on Dournes (1976), which, in my view, is the best published

1. Phạm Xuân Tín (1955); Dournes (1964); Headley (1965); Lafont (1968); Siu (2009) are all Jarai lexicons that contain an overview of the sounds of Jarai. See also Lee (1966), a dissertation reconstructing Proto-Chamic, which adopts the inventory in Phạm Xuân Tín (1955) but with some critical evaluation. Thurgood (1999), which revises and expands Lee’s reconstruction, is dependent on Phạm Xuân Tín (1955) and Lafont (1968) for an inventory of Jarai sounds. Pawley (2011) is a fairly comprehensive (as yet unpublished) discussion of phonology in Jarai as spoken in Cambodia, and most of the Pawley’s findings are true for Jarai in Vietnam. Nguyen (1975), an unpublished MA thesis on Jarai grammar, and Dournes (1976), a linguistic-anthropological account of Jarai oral forms, have the most extensive discussions of the phonology of Jarai as it is spoken in Vietnam. The inventories of Nguyen and Dournes are quite similar.

source, along with Lafont (1968). My redaction of the existing inventories is based on my own work with Jarai speakers.²

Contrastive **consonants** in Jarai are given in Table 2.1. The inventory is drawn from Lafont (1968) and Dournes (1976)—which have some significant differences from each other—with a few changes.³

Table 2.1. Consonant phonemes of Jarai

MANNER	PLACE					
	Labial	Dental-Alveolar	Postalveolar	Palatal	Velar	Glottal
Plosive	p	t	tʃ		k	ʔ
	p ^h	t ^h			k ^h	
	b	d	dʒ		g	
	β	ɖ		ʃ		
Nasal	m	n		ɲ	ŋ	
	ʔm					
Tap		r				
Fricative		s				h
Approximant	w			j		
Lateral		l				

Table 2.2 takes the same consonant inventory and, using distinctive features in place of the IPA's place labels, shows more clearly the organization of the Jarai consonant space into

2. Some of my findings have appeared previously in the Jarai entry of the *About World Languages* website: <http://aboutworldlanguages.com/Jarai/#stru>.

3. The changes are these. (i) I have omitted several phonemes from Lafont's inventory because they likely represent phoneme sequences resulting from apocope of an unstressed vowel: /ʔn, ʔɲ, ʔl, m^h/ (see Dournes (1976) for an argument along these lines); I have retained /ʔm/, however, contra Dournes, because I have encountered it in cases where it cannot be attributed to a phonological process. (ii) Following Dournes (1976) I take Lafont's preglottalized plosives to be implosives. (iii) Dournes includes *jh* in his inventory, which I take to be a voiceless [j]; he notes that it occurs only word finally. It appears that this sound is in free variation with word-final [h] and can thus be analyzed as an allophone of /h/. (iv) Symbols and manner-place labels used by Lafont and Dournes have been recast in terms of the IPA based on my reading of the sources and my own knowledge of Jarai. The full consonant inventories of Lafont (1968) and Dournes (1976), using their own glyphs and terminology, can be found in Appendix A.

essentially five parts: labial, apical, laminal, dorsal, and glottal.⁴ The four regions (excluding glottal) each show four distinctive plosive articulations plus a nasal:

1. **plain unvoiced plosive:** /p, t, tʃ, k/, where the laminal consonant is an affricate
2. **aspirated unvoiced plosive:** /p^h, t^h, k^h/, with no aspirated laminal affricate
3. **plain voiced plosive:** /b, d, dʒ, g/, where the laminal consonant is an affricate
4. **voiced implosives:** /ɓ, ɗ, ʄ/, with no imploded dorsal
5. **plain nasal:** /m, n, ɲ, ŋ/

Additionally, and somewhat extraordinarily, there is a preglottalized nasal /ʔm/, which occurs in only a handful of words.

Table 2.2. Consonant phonemes of Jarai, with distinctive place features

MANNER	PLACE FEATURES				
	[+labial]	[+anterior]	[-anterior]	[+dorsal]	glottis
Plosive	p	t	tʃ	k	ʔ
	p ^h	t ^h		k ^h	
	b	d	dʒ	g	
	ɓ	ɗ	ʄ		
Nasal	m	n	ɲ	ŋ	
	ʔm				
Tap		r			
Fricative		s			h
Approximant	w		j		
Lateral		l			

With respect to /ɓ, ɗ, ʄ/, it is common for these sounds to be labeled PREGLOTTALIZED stops (see, e.g., Lafont 1968) rather than IMPLODED stops (as in Dournes 1976). I choose the label IMPLODED because there is simultaneous closure of the oral cavity and the glottis, with a

4. Finding the appropriate distinctive features for the glottal region would add nothing to the present discussion, hence the column label *glottis*.

concomitant lowering of the larynx prior to release of the oral closure.⁵ Nevertheless, at least /ʔm/ should be regarded as preglottalized rather than imploded, because implosion requires that the air in the oral cavity be rarefied prior to release of the sound. This rarefaction is clearly impossible for a nasal sound, because the nasal cavity is open.

One other comment on these phonemes is warranted. The contrast between voiced and unvoiced plosives is often realized as a register effect on the following vowel that reinforces the (often weak) distinction in voicing on the consonants themselves. Thus the plain voiced plosives condition breathy phonation on the following vowel, whereas all other plosives condition modal (plain) voice.⁶

The inventory of **vowel** phonemes given in Figure 2.1 takes all of the vowels in Dournes (1976) and superimposes them on the IPA vowel chart, with the following difference: Dournes identifies /u/ as a central vowel (though he does use the symbol u), whereas I have given it as back.⁷

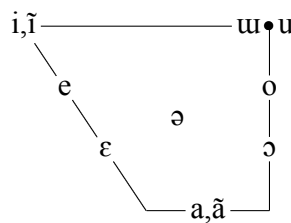


Figure 2.1. Vowel phonemes of Jarai

Note that /a, ã/ have been given a non-standard position in the vowel chart, low central. Impressionistically this vowel is somewhat farther back than a truly front [a], but not nearly as far back as [ɑ].⁸ The phoneme /ɔ/ is considerably less rounded than /u, o/, and for some

5. Thanks to Dr. Jerold Edmondson for observing one of my consultants produce these sounds. He suggests that the difference between preglottals and implosives is a matter of scale rather than category.

6. The role of register in the phonology of Southeast Asian languages is discussed, e.g., in Henderson (1952), Huffman (1976), and Edmondson & Gregerson (1993), among others.

7. I have included Dournes' (1976) vowel chart in Appendix A.

8. Thanks to Dr. Cindy Kilpatrick for listening to one of my consultants and pointing this out to me.

speakers it may be completely unrounded. Phonemic nasalization is rare, but can occasionally distinguish minimal pairs. There also appear to be phonological environments that condition nasalization.

Dournes (1976) claims that there are no vowel length contrasts in Jarai,⁹ but on this point, he is unreliable. Jarai has clear phonemic contrasts in certain environments between /aa/ and /a/, and a few other of the vowel qualities may also have length contrasts, but they are much less pervasive. Length is briefly mentioned in Phạm Xuân Tín (1955) (and marked in the lexical entries). Lafont (1968:iv), who also indicates length in his entries, notes that either a long or a short vowel may precede a word-final glottal stop. My primary consultants have strong intuitions about vowel length in certain cases (particularly /aa/ versus /a/), whereas in other cases the judgments are much less crisp. I suspect that certain vowels have no phonemic length distinctions and that certain phonological environments obliterate the distinction for vowels that do.

2.1.1.2 Orthography

There are at least two (quite similar) Jarai orthographies that are in current use, one that is associated primarily with the Catholic translation of the Bible and another that is associated with the two main Protestant Bible translations as well as materials developed by SIL International. All data in this dissertation will be presented in the “Protestant” Jarai orthography, which is the one adopted in Siu (2009).¹⁰ This orthography is the one that most of my consultants use, and it is also a better orthography from a linguistic standpoint.

9. Dournes says, “...il m’est impossible de dire que la longueur y est pertinente, d’autant plus que tous les Jōrai interrogés sur ce point m’ont répondu qu’elle ne l’était pas et qu’elle varie localement” (pg. 22) (*...it is impossible to say that [vowel] length is relevant, especially since all Jarai who were questioned on this point told me it was not and that it varies locally*).

10. See Siu (2009) also for background information on the development of the Jarai orthography. The author, Lap Siu, is one of my primary consultants.

Jarai consonant letters, capital and lowercase, are presented in Table 2.3 (cf. Table 2.1, pg. 6 for the corresponding values in the IPA).

Table 2.3. Orthography: consonant letters of Jarai

MANNER	PLACE					
	Labial	Dental-Alveolar	Postalveolar	Palatal	Velar	Glottal
Plosive	P p	T t	Č č		K k	ʔ
	Ph ph	Th th			Kh kh	
	B b	D d	J j		G g	
	B̥ b̥	Ḍ ḍ		Dj dj		
Nasal	M m	N n		Ñ ñ	Ng ng	
	–					
Tap		R r				
Fricative		S s				H h
Approximant	W w			Y y		
Lateral		L l				

Two details should be commented on. First, words that contain a preglottalized labial nasal /ʔm/ are typically spelled with either an *am* sequence or with a *ḃ*. More often than not, however, *am* represents /am/, and *ḃ* represents /ḃ/. Second, glottal stop is marked word-finally with a breve (˘) over the preceding vowel (e.g., *mă* /maʔ/ ‘take, grab’). When the glottal stop is word-initial, as is probably the case for all words whose spellings begin with a vowel, it is not marked. A handful of Jarai words have two vowels separated by a glottal stop; in this case, the glottal stop is not indicated (*moak* /məʔak/ ‘happy’). When the breve (˘) occurs on a non-final vowel, it indicates that the vowel is short rather than long (e.g., *prăk* /prak/ ‘money’). The orthography does not distinguish long and short vowels when they are the last letter of the word, because the breve is used there for glottal stop rather than length. Thus *pă* is the spelling for both /paʔ/ ‘where’ and /paaʔ/ ‘four’.

Jarai vowel letters, capital and lowercase, are presented in Figure 2.2 (cf. Figure 2.1, pg. 8 for the corresponding values in the IPA).

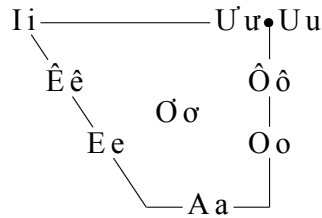


Figure 2.2. Orthography: vowel letters of Jarai

In addition to these characters, the Jarai orthography also has $\hat{A} \hat{a}$, which occurs only before $O o$, as in the pronoun *kâo* /kɔw/ (or perhaps /kaw/) ‘1s’. This grapheme never occurs in any other context.¹¹ Whether or not the first vowel in $\hat{a}o$ is rounded is not obvious to me. If so, then no addition to the vowel phoneme inventory given in Figure 2.1 would be required. When *Ii* and *Oo* follow another vowel, they represent either glides (/j, w/ respectively) or the second component of a diphthong (/i, u/ respectively). Crucially, in this environment, *Oo* does not represent the value [ɔ]. Nasalization is never marked in the orthography.

2.1.1.3 Word-level stress

Like characteristic stress patterns in other Southeast Asian languages (see especially Thurgood 1999; Schiering & Hulst 2010; Zanten et al. 2010), the ultima (rightmost syllable) of every Jarai word bears lexical stress, and usually that syllable bears the only stress in the word. Monosyllabic words are straightforward, since the only syllable is by default the ultima and thus the stress-bearing syllable (1a). In disyllabic words, the penult is stressless and the

11. Jarai speakers, when talking about the letter in isolation, give the pronunciation as [ɔ], due most likely to the pronunciation of \hat{a} in Vietnamese.

final syllable is stressed (1b). Apart from a small number of borrowings, most Jarai words are no larger than two syllables.¹²

(1) a. Monosyllabic Word

σ́

b. Disyllabic Word

σ.σ́

Function words may or may not have a stressed ultima, depending upon facts about the particular word and its prosodic context. For purposes of stress and intonation, the two elements of a compound may be considered separate phonological words, each with a stress-bearing ultima.

2.1.2 Affixal morphology

Jarai's typological profile with regard to morphology can be characterized as strongly isolating (Comrie 1989), with no inflectional morphology and scant derivational morphology. Jarai also has reduplication, which is not very productive. The following discussion of morphology adopts terminology as it is commonly used in descriptive and typological literature without any commitment, at present, to a particular theory about where word-building takes place in the grammar.

Jarai has two affixes that are quite productive, causative *po-* and reciprocal *poro-* (sometimes also simply *po-*), in addition to a few others that, at least in the dialects of my speakers, cannot be used to form new words. A selection of these affixes are summarized in Table 2.4.

12. Two of the diagnostics for ultimate stress can be easily read off of the acoustics of disyllabic Jarai words: (i) The duration of the ultima is substantially longer than the penult; and (ii) the intensity (divergence of waveform from baseline) of the ultima is much greater for the ultima than the penult. Two other diagnostics for ultimate stress are phonological rather than acoustic: (iii) In normal speech, either the vowel in a penult is reduced to schwa (or omitted) or the entire penult is left unpronounced. This kind of radical reduction does not obtain for ultimas. (iv) The vowel of a penult is never the only segment that distinguishes between two otherwise identical words. However, two Jarai words may be minimally distinguished by the vowel in the ultima. It is common for reduced penults in Southeast Asian languages of this sort to be called *presyllables*. See references in text.

Sources for the table are Dournes (1976) (D), Nguyen (1975) (N), and my own data-gathering (JJ).

Table 2.4. Derivational affixes in Jarai

Affix	Gloss	Source	Productive?
<i>pσ-</i>	CAUS	D,N,JJ	yes
<i>bσ-</i>	RECP	D,N	
<i>porσ-</i>	RECP	JJ	yes
<i>pσ-</i>	RECP	JJ	
<i>-on-</i>	NMLZ	D,N	no

The causative prefix is illustrated in (2), where it combines with an adjective (2a) and a motion verb (2b). I discuss this prefix in §6.1, where I analyze it as a v_{CAUSE} head.

- (2) a. Ñu **pσ**-glông hrě-bră amăng sa mět.
 3SG CAUS-long string-RED in one meter
'He lengthened the rope by 1 meter.'
- b. Kâo **pσ**-müt nao braih amăng sang.
 1SG CAUS-enter go husked.rice in house
'I put the rice into the house.'

The reciprocal prefix *porσ-* is illustrated in (3). As Table 2.4 above shows, there is some variability in the pronunciation of this prefix. I do not discuss the reciprocal in the dissertation.

- (3) a. Tre hăng kâo **porσ**-taih.
 Tre and 1SG RECP-strike
'Tre and I struck each other.'
- b. Gomoi **porσ**-čüm.
 1PL.EXCL RECP-kiss
'We kissed each other.'

Apparently the infix *-on-* ‘NMLZ’ is either no longer productive or has fallen out of use among my consultants. Dournes (1976:51) lists several examples of this infix in use, including *kɔnol* ‘(a) knot’ (from *kol* ‘(to) tie’) and *pɔnit* ‘(a) nap’ (from *pit* ‘(to) sleep’).

In addition to affixes, Jarai also has a limited amount of reduplication, although it does not seem to be very productive. In general, reduplication copies a word, but with some phonological change. In the examples in (4) (from Siu 2009), the main vowel and coda have been altered.¹³

- (4) a. *roḍah roḍong* ‘very bright’ (from *roḍah* ‘bright’)
b. *grĩ grañ* ‘very dirty’ (from *grĩ* ‘dirty’)

The normal use of reduplication seems to be a kind of intensification, as indicated by the translations in (4). This may carry over into the rare occasions that it is used to indicate plurality, as illustrated in (5) (these are my only two examples of reduplication used for plurality). Jarai also has two productive (non-affixal) morphemes for plural number, discussed in §3.3.2.

- (5) a. *ană bă* ‘children’ (from *ană* ‘child’)
b. *goyūt goyâo* ‘friends’ (from *goyūt* ‘friend’)

2.1.3 Pronominal system

Jarai has a four-way person distinction in its pronoun system, with singular and plural forms for first through third person, but no gender distinctions. Among first-person plural pronouns, there is a two-way split between exclusive *gɔmɔi*, which does not include the hearer among the people referred to, and inclusive *ta*, which does include the hearer. Jarai’s fourth-person pronoun *gõ* is like the third-person singular *ñu*, except that the pronoun’s reference is treated as more distant in some way. This corresponds to the *obviative* function of fourth person

13. Nguyen (1975:§2.2.2) lists reduplicant forms under the following headings: final C changed/dropped, main V changed, main V and final C changed, main V changed and final C added, main V changed and final C dropped, and presyllable changed to a consonant cluster.

pronouns (see Fleck 2008:§2 for a summary of uses of fourth person pronouns, as well as an overview of the literature). There is no fourth person plural pronoun that I am aware of. Jarai’s pronoun system is summarized in Table 2.5.

Table 2.5. Jarai Pronouns

Person	Number		Inclusivity
	SING	PL	
1 ST	kâo	gɔmɔi ta	EXCL INCL
2 ND	ih	gih	
3 RD	ñu	goñu	
4 TH	gǒ		

2.1.4 Syntax

Because the rest of this dissertation is devoted to the syntax of the Jarai clause and noun phrase, I present only a minimal overview of the syntax here.

Jarai has head-initial word order: verbs always precede their objects (6a), as do prepositions (6b). In general, the only processes that disrupt canonical word order are *wh*-movement and focus movement (§4.2). Prepositions cannot be stranded under any circumstances.

- (6) a. Ty **taih** adoi ñu.
 Ty strike younger.sibling 3sg
‘Ty struck his younger sibling.’
- b. Homâo monũ **amãng** sang ih.
 have chicken in house 2sg
‘There {is a chicken/are chickens} in your house.’

Because there is no inflectional morphology, tense (7a) and aspect (7b) are indicated lexically or inferred from context. (See Chapter 5 for more on tense and aspect.) Third person pronouns

are not specified for gender, as shown in (7b); the gender I choose in translation is typically the gender that my consultant and I used in discussion of the example.

- (7) a. Kâo **amra** ponah roman.
 1SG FUT shoot elephant
'I will shoot {an elephant/the elephant(s)}.'
- b. Amĩ ñu **hlāk** kih sang.
 mother 3SG PROG sweep house
'{His/Her} mother is sweeping the house.'

As illustrated in (6b) and (7a), grammatical number is not marked on the noun, although, as already mentioned, plurality can be indicated by a separate lexeme. Enumeration of nouns is licensed by classifiers (8). Classifiers are always accompanied by a numeral. (See §3.3 for further discussion of classifiers.)

- (8) a. **Dua** *(**čô**) monuih nao pɔ sang sĩ modrô.
 two CLF human go LOC house sell trade
'Two people went to the store.'
- b. Mogañh anai kâo ãuh **roma** *(**droi**) asâo.
 morning DEM.PROX 1SG see five CLF dog
'This morning I saw five dogs.'

As illustrated in (9), negation in Jarai comprises two parts: (i) an element that is obligatorily before the predicate (*bu-djõ* for negating nominal and some prepositional predicates (9a); *bu* for verbal and most other predicates (9b)), and (ii) an adverbial element that comes after the verb or non-verbal predicate (*tah* for '(not) anymore' (9a); *ôh* for general negation (9b)). Both elements are obligatory. In verbal clauses, the second (adverbial) negation element can intervene between the verb and anything that follows the verb (except the aspectual particle *hĩ*), or it can appear clause-finally.

- (9) a. Gomoi pɔ-dõ laih, samõ tả-anai gomoi **bu-djõ** rokoi
 1PL.EXCL RECP-marry already but right.now 1PL.EXCL NEG(DP) husband
 bonai **tah**.
 wife NEG2
'We married (each other), but now we are not husband and wife anymore.'
- b. Nũ **bu** klãõ djõ **õh** droi kão.
 3SG NEG stab hit NEG2 body 1SG
'He didn't stab my body.'

This sums up the overview of Jarai phonology, morphology, and syntax. In the following chapters, aspects of the syntax of Jarai will be explored in much greater detail. I now turn briefly to some additional background on the Jarai language and methodological matters.

2.2 Additional background

In this section I review the linguistics and anthropological literature that discusses the Jarai language (§2.2.1) or includes Jarai texts (§2.2.2); in addition, I summarize sources that give an overview of the languages that Jarai is genetically related to, the Austronesian languages of Asia and Madagascar (§2.2.3), concluding with a short discussion connecting the literature review with my research (§2.2.4).

2.2.1 Linguistic research on Jarai

Previous research on Jarai is sparse, consisting primarily of two unpublished theses on the grammar and several lexicons. The earliest grammatical description of Jarai is a Saigon University master's thesis (Nguyen 1975) of about 100 pages based on the author's original research with a consultant from Phu-Bon, a dialect similar to Pleiku varieties. This thesis is a good source of data and descriptive generalizations, covering Jarai's phonological inventory and basic phonotactics, morphology, clause types, the noun phrase, the verb phrase, and sentence types. The other paper covering aspects of Jarai grammar is an undergraduate honors

thesis (Medcalf 1989), which is a text-based description of the syntax that uses data from a Jarai myth (Dournes 1974, 1975) and a set of Jarai language lessons (Siu Ha Dieu 1976). This thesis covers sentence patterns, negation, valence-changing operations, special sentence types, and phrases (noun, adjective, adverbial, prepositional, and verb).

There are at least nine lexicons of Jarai: Nicolle (1940); Phạm Xuân Tín (1955); Dournes (1964); Headley (1965); Lafont (1968); Leuz et al. (1976); Romah Del (1977); Ksor et al. (2005); Siu (2009). Some of these lexicons include a very brief grammar sketch. In addition to the lexicons, a Jarai wordlist with Thai glosses taken by Thai diplomat Prachakij-karacak Phraya sometime between 1889 and 1893 has been published with English translation in Phraya (1995); this work is of primarily historical interest.

Most other published linguistic discussions of Jarai are concerned with genetic classification and historical reconstruction, with little or no discussion of Jarai grammar (Pittman 1959; Thomas 1963; Lee 1966, 1974; Thurgood 1999). Grant & Sidwell (2005) covers a few grammatical features of Chamic languages, but the bulk of the volume is devoted to language family history and aspects of Chamic languages other than Jarai. Dournes (1976) is a detailed, book-length examination of the Jarai language from an anthropologist's perspective. Although Dournes' goal is not a linguistic description of Jarai, his transcriptions and discussions of Jarai sayings, poems, and stories are linguistically valuable. Everything published by Dournes is in French.

2.2.2 Jarai texts

A few Jarai texts and collections of texts are available in published form. The first is a large collection of transcribed oral common law gathered in Pleiku and Cheo Reo (Lafont 1963b) with line-by-line translation into French. Lafont (1963a) is a substantial collection of transcribed traditional prayers, presented in 3-line interlinear fashion.

Whereas the texts collected by Lafont—including the oral common law—tend to be highly poetic, Dournes (1974, 1975) is an oral narrative, a full-length Jarai myth presented in two parts. The text is in interlinear format, with French glosses beneath the Jarai words, and a free French translation of each section on the facing page.¹⁴ Dournes (1976) includes a very lengthy Jarai myth—over 4000 words—presented in two columns, with Jarai on the left and a free French translation on the right (no interlinear glossing). Fragments of texts and poems also appear in most of Dournes’ other books (1969; 1972; 1987; 1978; 1977).

In addition to transcribed Jarai texts, there is a translation of the New Testament into Jarai (made by protestant missionary Charles Long in the 1970s), and a translation of the entire Bible completed in 2013 by Hendy Siu, an L1 speaker of Jarai. During my research I had access to the Old Testament text in digital format (provided to me by the translator), which I occasionally made use of.

2.2.3 Austronesian languages of Asia and Madagascar

Jarai is firmly established as a member of the Chamic sub-group within the Austronesian family (Pittman 1959; Thomas 1963). The first thorough reconstruction work on Chamic was undertaken by Lee (1966), using data primarily from Eastern Cham, (Northern?) Roglai, Jarai, and Rade. Thurgood (1999) is the most comprehensive historical-comparative work done on Proto-Chamic to date. Figure 2.3 shows the subgrouping proposed by Thurgood (1999), with a few minor modifications.¹⁵

Chamic itself has a close connection to the Malayic languages (see Thurgood 1999 and references therein), and Adelaar (2005a) argues for a configuration in which Chamic is a sister

14. This is the primary text used for Medcalf (1989); see above.

15. Thurgood (1999) uses dotted lines in addition to solid lines for various purposes. In particular, Rade and Jarai are “subgrouped” with dotted lines to indicate their similarity due to intensive contact (but not shared innovations). Additionally, Thurgood does not give a name to the Chru-Northern subgroup, and he omits Southern Roglai and Cagcia Roglai. Instead of *Eastern Cham* Thurgood uses *Phan Rang Cham*. My inclusion of Southern and Cagcia Roglai, use of *Chru-Northern* and of *Eastern Cham*, and charting of Rade and Jarai follows Lewis (2009).

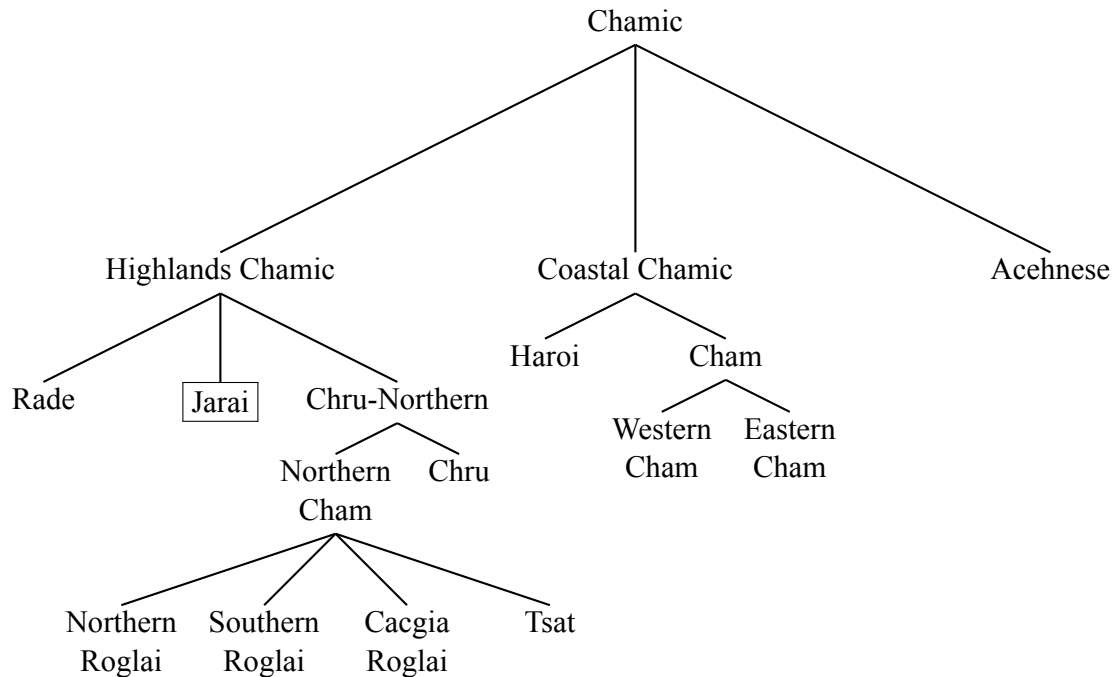


Figure 2.3. Family Tree for Chamic Languages (adapted from Thurgood 1999)

to Malayic (see Figure 2.4). Sidwell (2006) puts the arrival of Malayo-Chamic speakers to Mainland SE Asia at around 500-300 BC, with the Champa kingdom emerging by AD 100-200 (see also Blust 1994). Within the larger context of Austronesian languages, Jarai is among those Malayo-Polynesian languages that are spoken in Asia. (The former genetic subgrouping “Western Malayo-Polynesian” has been abandoned, although it is still useful to refer to these languages as a geographical unit—a group called the “Austronesian Languages of Asia and Madagascar”; see Adelaar & Himmelmann 2005.) Figure 2.4 sketches out the situation of Chamic in the Malayo-Polynesian branch of the Austronesian family.¹⁶

In spite of Jarai’s genetic affiliation with these Austronesian languages, Himmelmann (2005) warns that “the Chamic and Moken-Moklen languages” are “the most important excep-

16. The branch with ellipsis indicates the omission of 21 sister nodes. Note, too, that every terminal node except for *Madurese* and *Sundanese* is a subgrouping rather than a language. I have departed from Adelaar (2005b) by omitting “Proto-” from several subgroup names.

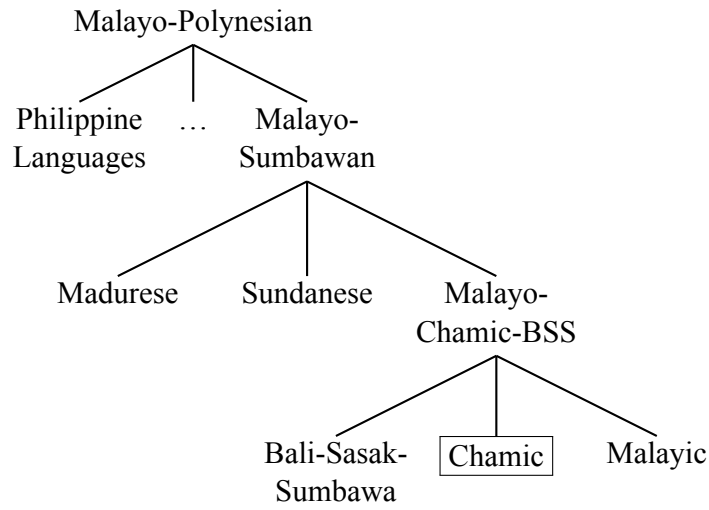


Figure 2.4. Partial Malayo-Polynesian tree (adapted from Adelaar 2005a,b)

tion to almost any typological generalization regarding the Austronesian languages of Asia and Madagascar” (110-111).

2.2.4 The literature and my dissertation research

In the course of my research, especially the early stages, I was sometimes helped by data presented in Nguyen (1975) and Medcalf (1989). Additionally, I made some limited use of the Jarai texts listed in §2.2.2, particularly to explore possible structures of interest in Jarai. However, nearly all of the data cited in this dissertation comes from direct elicitation with consultants or, in a few cases, from narrative texts that I gathered from consultants. Very little in this dissertation connects directly with the academic literature on Jarai and the other Chamic languages, primarily because, as noted above, the majority of that work is either lexical or historical in nature. Additionally, few connections are made with the rather significant formal literature on Austronesian languages, in large part part because Jarai and other Chamic languages are so typologically different from even their closest relatives.

2.3 Data: methodology and population

In this section I discuss the data sources that provide the base for my analysis (§2.3.1) and the Jarai speakers I worked with (§2.3.2).

2.3.1 Data sources and elicitation methods

Although some of the data for my grammatical analysis comes from published texts (listed in §2.2.2) and from transcriptions of stories that I gathered, the vast majority is the result of direct elicitation.¹⁷ Most elicitation sessions were conducted either in the home of the consultant or by Skype. Online sessions involved a combination of voice interaction and instant messaging. I transcribed most of my data—along with notes about grammaticality, acceptable contexts, and other information provided by the consultant—directly into Fieldworks Language Explorer, a language databasing program published by SIL International.

I used a combination of standard methods for elicitation. Initial exploration would often involve having a speaker translate into Jarai a sentence that I proposed in English. We would then discuss various natural ways to communicate the intended meaning, as well as the range of contexts where the sentence would be true (if a statement) and/or appropriate. I would also present Jarai sentences to my speakers, sometimes constructed by myself, sometimes from previously gathered data (modified or not), sometimes from a text, and ask for judgments about its acceptability, both out of the blue and in particular constructed contexts. At other times I would ask speakers to provide appropriate contexts for a sentence I gave.

17. See Matthewson (2004) for the defense of the elicitation method, properly conducted.

2.3.2 Population and sample

Over the course of my research I have worked with a number of Jarai speakers, all of them currently living in the United States (either in the Dallas, Texas, area or in North Carolina).¹⁸ The speakers whose voices are represented in this dissertation are originally from the Cheo Reo and Pleiku districts in Gai Lai Province, Vietnam. Although there are variations among the speakers, they all speak similar dialects of Jarai.¹⁹ My two primary consultants are Lap Siu and Hendy Siu, both of them fluent speakers of both Jarai and English.²⁰ Both grew up in Vietnam and immigrated to the States in their late teens or later; both have graduate degrees earned in the United States. Early on I worked regularly with Ty Rudy Ksor and Mik Ksor (brothers), both of whom came to the United States after childhood, and both of whom can also speak English. Work with other Jarai speakers was facilitated by Lap Siu, who has fairly extensive experience translating between Jarai and English. All of the speakers I worked with except Lap Siu live near other Jarai with whom they gather and speak regularly.

In addition to the work done with the four speakers discussed above, I also did elicitation work with Thai Nay, Sar Rmah, Hiom Ro, Luch H. Rocham, Ê Siu, and H'Jok Siu. I gathered texts from Pren Kpa, Hyech Ksor, Ty Rudy Ksor, Thai Nay, Dun Siu, Ê Siu, H'He Siu, H'Jok Siu, Hendy Siu, Lap Siu, Phel Siu, and Thuy Viet Ksor Siu.

This concludes the introductory portion of my dissertation. In the chapters that follow I aim to make good use of the data contributed by my many patient consultants.

18. My work with consultants is conducted under UTA IRB Protocol # 08.030s, first approved on 29 April 2008. Travel to Vietnam for fieldwork was not possible, primarily because the Vietnamese government grants very little access for foreigners to the Central Highlands where Jarai is spoken.

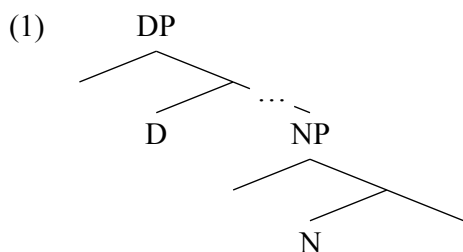
19. I had to eliminate data from a couple speakers whose dialects were significantly different from the rest of the speakers I worked with.

20. Lap and Hendy are not related, though they share the same clan name. There are about 8 clan names that are common among Jarai.

CHAPTER 3
NOUN PHRASES

3.1 Some background assumptions

In approaching the structure of noun phrases in Jarai, I accept the widely held view that the immediate maximal projection of a noun, NP, is embedded in an extended projection headed by a functional head D(eterminer) (see, among many others, Abney 1987), with additional functional projections along the “spine” of the extended noun phrase between D and NP. The tree in (1) sketches this structure.



I further assume that in Jarai, NP is always dominated by DP, at least for noun phrases in an argument position. (My discussion will not extend to predicate noun phrases.) Thus, differences related to specificity and definiteness are due not to the presence or absence of a D position but instead are due to differences in what, if anything, fills D in a particular DP. As we will see, Jarai lacks any overt D heads. (See especially Vergnaud & Zubizarreta 1992 for a discussion of empty D positions; Ghomeshi et al. 2009 is a helpful overview of the issues.) Like Abney, I use *noun phrase* to refer to the entire nominal constituent (=DP), and I refer to the immediate projection of N as NP.

My exploration of Jarai noun phrase structure in the pages that follow is primarily concerned with the identity and hierarchical structure of the material between D and NP (the el-

lipses in (1)). Before looking at Jarai, however, it is worth pausing to consider an influential approach to noun phrase typology, one that exerts considerable influence on my approach to Jarai. In his formal assessment of noun phrase components, Cinque (2005) argues that the attested orderings for Dem(onstrative), Num(eral), Adj(ective), and N can all be derived from the underlying hierarchical ordering in (2), where “>” indicates asymmetric c-command.

(2) Dem > Num > Adj > N

Cinque’s proposal assumes the restrictions of Kayne’s (1994) LINEAR CORRESPONDENCE AXIOM (LCA), deriving attested variations in word order by means of standard movement operations. As Cinque notes, this ordering covers only a small number of DP constituents. He suggests that folding in other DP elements might yield a hierarchy as in (3).

(3) Q_{univ} > Dem > Num_{ord} > Rel.Clause > Num_{card} > Clf > Adj > NP

My own analysis of Jarai noun phrases will also be carried out within the general strictures of the LCA, which holds that linear precedence corresponds to c-command relations, and apparent mismatches are due to (leftward/upward) movement. However, I treat the adjectives as right-adjoined. The analysis of Jarai noun phrases that I argue for in this chapter will ultimately resemble the hierarchy in Cinque (2005), but with some important differences that become clear as the discussion progresses.

The empirical arguments I put forward for my structural analysis of Jarai noun phrases reduce primarily to matters of SCOPE and CONSTITUENCY. With respect to scope, I treat semantic scope as an indicator of syntactic dominance. Constituency tests that help probe DP structure in Jarai are generally inconclusive,¹ but in at least a couple cases, constituency diagnostics such as displacement turn out to be fruitful.

1. For example, coordination is severely limited within the DP, for reasons that remain unclear.

In the following subsections, I cover demonstratives (§3.2); numerals, classifiers, and number markers (§3.3); possessor DPs (§3.4); adjective phrases (§3.5); and finally quantifiers (§3.7). An interim summary of the DP is given in §3.6, and §3.8 provides a general summary of Jarai noun phrases.

3.2 Demonstratives

I begin my analysis of Jarai DPs by examining the DEMONSTRATIVE element. Jarai’s three DEMONSTRATIVES, given in (4), are organized by their distance from the deictic center. When used for physical referents, proximal *anai* is used to point at something immediately adjacent to the deictic center, medial *anũn* to point at something visible but not adjacent, and distal *adih* to point at something quite distant, perhaps even out of visual range.

- (4) DEMONSTRATIVES
- | | | |
|-------------|----------|-------------------------|
| <i>anai</i> | proximal | ‘this’ |
| <i>anũn</i> | medial | ‘that’ |
| <i>adih</i> | distal | ‘that (way over there)’ |

For anaphoric reference, medial *anũn* is the most frequently used demonstrative for indicating that the referent of the noun phrase is definite (previous mention or shared knowledge); proximal *anai* is also occasionally used for this purpose.

Jarai lacks ARTICLES, so demonstratives functionally cover much of the ground that definite articles often cover in other languages. In direct translation, speakers invariably choose *anũn* for English *the*, and when speakers spontaneously produce definite noun phrases, it is quite common for them to use *anũn*, although a definite interpretation is possible with no demonstrative.² These facts are illustrated in (5), both taken from a narrative text. Just before these sentences, the protagonist has lost her ax head. In (5a), the lost ax is referred to anaphorically using a noun phrase containing *anũn*, but a few sentences later, in (5b), the same

2. Because *anũn* can be used in a way analogous to the English definite article, my free translations in this chapter and throughout the dissertation vary between ‘the’ and ‘that/those’ for representing its meaning.

ax is referred to by the bare noun, though it is still clearly definite, indicated by the fact that the protagonist is asking for her ax specifically.

- (5) a. *thào buh tah jông anũn.*
 know see NEG2 ax DEM.MED
 ‘... (she) wasn’t able to find the ax anymore.’
- b. *Dah pơ-buh broi jông, todah đah-bonai đố kơ anã kâu đah-røkoi.*
 if CAUS-see give ax if female marry DAT child 1SG male
 ‘If (you) show (me) the ax, if (you) are female, (you) will marry my son.’

Given the fact that Jarai lacks articles and sometimes uses Dem as an article-like element, it is tempting to analyze Dem as a spellout of Jarai’s D head. However, given the existence of languages like Spanish in which articles and demonstratives can co-occur, as shown in (6), I will treat Dem as distinct from D. (Bernstein (1997) cites Romanian, Hungarian, and Javanese as other languages in which D and Dem can co-occur.³)

- (6) a. *el libro este/ese/aquel* [from ex.1 in Brugè (2002)]
 the book this/that/that
 ‘this/that book’
- b. *los libros estos/esos/aquellos*
 the books these/those/those
 ‘these/those books’

Jarai demonstratives are linearly the final item in the noun phrase, following the head noun (as seen above in (5a)) and any material after the noun, including adjectives (7a), possessor DPs (7b), and relative clauses (7c).

3. In addition to the possibility of their co-occurrence, Bernstein (1997) offers two other reasons supporting the distinction between D and Dem: (i) definite articles do not occur alone, whereas demonstratives typically can; and (ii) demonstratives in many languages show adjective-like qualities (see discussion and citations at Bernstein 1997:93).

- (7) a. Je p̄-robuh hĩ [tomeh (*anũn) prong (anũn)].
 Je CAUS-fall PRT pole DEM.MED big DEM.MED
'Je knocked over that big pole.'
- b. H'Len djru k̄ [pã ố (*anũn) anã (*anũn) Je (anũn)].
 H'Len help DAT four CLF DEM.MED child DEM.MED Je DEM.MED
'H'Len helped those four children of Je.'
- c. K̄o bup [đah-komoi (?anũn) [RC th̄o ih] (anũn)].
 1SG meet female DEM.MED know 2SG DEM.MED
'I met that woman who knows you.'

As the previous examples show, the demonstrative cannot intervene between a noun and an adjectival modifier (7a), between a numeral classifier and the noun (7b), or between a noun and a possessor DP (7b). Placing a demonstrative before a relative clause is degraded but not ungrammatical (7c). It is also impossible for the demonstrative to occur at the beginning of the noun phrase, as shown in (8).

- (8) K̄o b̄uh [(*)anũn] b̄ing monuih (anũn)].
 1SG see DEM.MED PL.HUM human DEM.MED
('I saw those people / people there.')

A few distinct analytical possibilities exist for the phrase structural position of the demonstrative vis-à-vis the rest of the noun phrase, but discussion to follow will be restricted to two central issues. The first issue is whether the demonstrative is a head in the DP's extended functional projection or instead a modifier more like an adjective phrase. The second issue is whether the surface word order is a transparent linearization of the initial merge order or is instead derived by movement.

Regarding the first question, I argue that demonstratives have a syntactic distribution that is distinct from that of adjectives. First, a bare demonstrative can stand in an argument (referring) position (9a), but adjectives cannot in general stand on their own as arguments (9b).

This contrast falls out naturally if N-ellipsis is freer when it is licensed by the presence of a c-commanding functional head.

- (9) a. H'Len khăp kơ **anũn**.
 H'Len love DAT DEM.MED
 'H'Len loves that (one).'
- b. *H'Len khăp kơ **glông**.
 H'Len love DAT tall
 ('H'Len loves a tall one / tall ones.')

Second, when adjectives co-occur with demonstratives and possessors, the order of elements is fixed, as in (10). This ordering requirement is expected if adjectives, possessors, and demonstratives are all associated with different positions in the DP syntax. On the other hand, to maintain that demonstratives distribute as adjectival modifiers would suggest (i) that possessors, too, are adjectival modifiers, and (ii) that the relative order observed among adjectives, possessors, and demonstratives is stipulated in the grammar.

- (10) phũn potoi moda Tre anũn
 tree banana young Tre DEM.MED
 'those young banana trees of Tre's'

Third, unlike attributive adjectives, which can be modified by an intensifier (11a), demonstratives are never modified (11b).⁴ This restriction is as expected if the demonstrative is a functional head but not if it is simply an adjoined modifier.

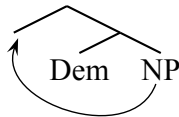
- (11) a. Kâu bũh [sa droi ala [AP **prõng biã-mã**]].
 1SG see one CLF snake big very-RED
 'I saw a very big snake!'
- b. *Kâu bũh [sa droi ala [DemP? **anũn biã-mã**]].
 1SG see one CLF snake DEM.MED very-RED
 ('I saw a very that snake!')

4. What (11b) would mean, if possible, is not at all clear to me. Perhaps *biã-mã* 'very' would intensify the pointing function of the demonstrative in some way.

For these reasons, I take the demonstrative to be in a position distinct from that of the adjective, an unsurprising claim in light of typical analyses of demonstratives in other languages. I further propose that Dem is relatively high in the DP, in keeping with most of the formal literature on noun phrases cross-linguistically (e.g., Cinque 2005, but somewhat at odds with Brugè 2002, which analyzes Dem in languages such as Spanish as quite low in the noun phrase, below adjectives). Because demonstratives are never accompanied by modifying dependents, I analyze them as functional heads.⁵

But if demonstratives are heads, why would they be DP-final in a language that is otherwise head-initial? We would expect the demonstrative at the very least to precede the head noun, and perhaps to be DP-initial (if the demonstrative sits in D or close to D). I propose that the demonstrative is indeed high in the DP, but a movement operation targets the demonstrative's complement, moving it above the demonstrative. This is illustrated in (12), where NP represents the entire complement of Dem (in §3.3 I argue that the complement of Dem is actually NumP, which itself contains NP).

(12)

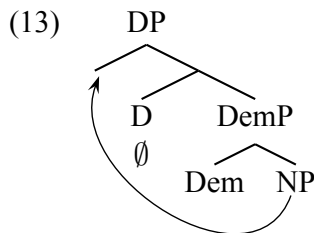


The landing site of the moved NP could be either the specifier of the DemP or some position higher than DemP. Because nothing intervenes between the moved constituent and Dem, there is no direct evidence for one position over another. Let us suppose that Dem and D are separate positions in the noun phrase extended projection, with D selecting as its sister a nominal complement sometimes headed by Dem. The proposal that D and Dem are separate heads in the syntax is consistent with the semantics typically associated with the two heads: D,

5. It is common in cartographic approaches such as Cinque's to analyze Dem as the specifier of a demonstrative-related functional projection, but I see no reason for doing this in Jari.

when semantically contentful, is concerned with domain restriction (Matthewson 2001),⁶ while Dem is concerned with deixis. What I mean by *domain restriction* is that D narrows down the members of the set denoted by NP, or provides a way for picking a member or members out of that set (by means of a choice function, for example). In spite of being separate heads, however, the presence of Dem always implicates definite D.⁷

My proposal for Jarai is that when null D is definite, it must be morphologically “identified,” meaning that its presence is overtly signaled in some way. This identification is accomplished by movement of Dem’s complement into Spec,D. The motivation for moving NP to Spec,D is very much in the spirit of proposals involving head-movement of N to D which have been made for Hebrew (see, e.g., Borer 1994; Siloni 1996) and Romance languages (Longobardi 1994), among others. Although the details of these proposals differ, a common thread is that definite D must be overtly identified in some way, either by a pronounced D or by movement of N into D. Jarai differs from these proposals in that a maximal projection rather than a head moves. Consequently, Spec,D is the closest position that the moved constituent can reach in order to identify D. This movement is illustrated in (13).



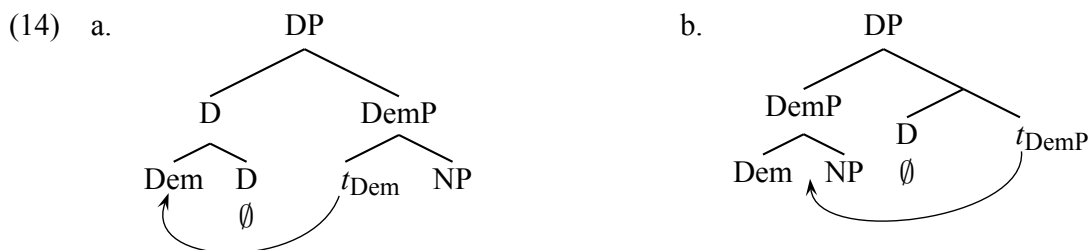
6. Matthewson (2001) is concerned primarily with the domain of quantification, arguing that quantifiers always quantify over a domain that has already been restricted by a determiner. Although I do not analyze all quantifiers as higher than D, I follow Matthewson in assuming that D has this basic function of, in her words, “domain narrowing.”

7. See Bernstein (1997) for an excellent summary of evidence that cross-linguistically, demonstratives do not originate as D-heads, though they sometimes move to D. For Bernstein Dem-to-D yields a deictic interpretation for Dem, while in-situ Dem has an indefinite specific interpretation, as in (i).

(i) So [**this** woman at the store] says to me, “Do I know you?”

In Jarai, the movement of Dem’s complement to Spec,D seems to perform essentially the same function as Dem-to-D movement. Jarai demonstratives never allow for indefinite readings.

But if null definite D must be identified in Jarai, why would Jarai not simply employ Dem-to-D or DemP-to-Spec,D movement? I suggest that if Dem or DemP were the target of movement, there would be no phonological evidence of the movement's ever happening. For both Dem-to-D, illustrated in (14a) and DemP-to-Spec,D, illustrated in (14b), the movement operations move some element with respect to a null item (D), leading to an identical linearization as the initial merge order.



From a language acquisition standpoint, the state of affairs under either option in (14) is undesirable, because the language learner would never have evidence from which to infer that a movement operation had taken place. The movement of NP-to-Spec,D is thus the most economical way to satisfy the requirement that definite D be overtly identified.⁸

This is not to say, however, that the movement of Dem's complement is always visible. When a DP receives a definite interpretation but no Dem is present, as illustrated in (5b), the same movement takes place, but silently. Presumably, if the motivation for the movement is to identify null definite D, no such movement occurs when D is indefinite. However, at present I know of no way to test this claim.

A movement analysis in which the complement of Dem obligatorily moves to Spec,D accounts for the head-like qualities of Dem on the one hand and the linear order facts on the other hand. Additionally, such an analysis is consistent with formal accounts of the cross-linguistic facts as proposed, for example, in Cinque (2005).

8. We might also wonder why we do not see N-to-D movement in Jarai. The simplest answer is that there are intervening heads, at least Dem and sometimes (as discussed in §3.3.2) overt Num. When neither Dem nor Num is overt, it is of course plausible that N by itself raises to D.

3.3 Numerals, classifiers, and number marking

I begin my discussion of noun phrase enumeration in §3.3.1 with an overview of numerals and classifiers in Jarai, showing that enumeration of most count nouns in Jarai requires a classifier between the numeral and head noun. I then argue in §3.3.2 that the numeral and classifier form a constituent to the exclusion of the head noun. Finally, in §3.3.3 I consider Jarai's nominal system in light of Chierchia's (1998) NOMINAL MAPPING PARAMETER (NMP), arguing that, like Indonesian (Chung 2000), Jarai counter-exemplifies one of the predictions of the NMP.

3.3.1 Overview of numerals and classifiers

For most count nouns, enumeration by a cardinal number requires the presence of a classifier after the number and before the head N as illustrated in (15).

- (15) a. [Klâo *(**hě**) tomeh anũn] amũn kɔ kâo buč đĩ.
three CLF pole DEM.MED easy DAT 1SG uproot go.up
'Those three poles were easy for me to pull out.'
- b. Kâo toña kiăng kɔ bɔnai kâo pɔ-djai [sa *(**droi**) monũ].
1SG ask want DAT wife 1SG CAUS-die one CLF chicken
'I asked my wife to kill a chicken.'

Before looking at classifiers in more depth, we should observe that there are many nouns in Jarai that never occur with a classifier. Non-classified nouns include all mass nouns and a handful of count nouns. Among count nouns in Jarai that never require a classifier are time nominals such as *hroi* 'day' in (16a) and money nominals such as *prăk* '(unit of) money' in (16b).⁹

9. Note, however, that when *prăk* 'money' refers to paper bills rather than units of currency, *pők*, the classifier for small flat things, is used, as in *roma pők prăk* 'five bills of currency'. Time and money nouns do not combine with classifiers in Thai, either. In Thai, some nouns are used as their own classifier (the noun is repeated), but for time and money nouns, there is no overt classifier at all (Jenks 2011).

- (16) a. pluh (*bôh/bě/...) hroi
 ten CLF day
 ‘ten days’
- b. roma (*bôh/bě/...) prāk
 five CLF money
 ‘five (units of) currency’

Mass nouns never combine with classifiers and consequently cannot be counted directly. As in English, however, they can be measured using container words such as *čeh* ‘jar’ in (17a), or measurement terms such as *kī* ‘kilogram’ in (17b).

- (17) a. sa **čeh** topai
 one jar alcohol
 ‘one jar of alcohol’
- b. pã **kī** braih
 four kilogram husked.rice
 ‘four kilograms of rice’

Numeral classifiers as illustrated in (15) perform a distinct function from measure terms such as those in (17). Bisang (1999) observes that classifiers “actualize the semantic boundaries which already belong to the concept of a given noun,” whereas measure terms (what he calls, somewhat confusingly, *quantifiers*) “‘create’ the unit to be counted” (121; see also Croft 1994:162, which is cited by Bisang). Because of this difference in function, I will deal only with numeral classifiers proper in what follows. Whether or not the syntax of measure terms is identical to that of classifiers will for now remain an open question for Jarai.¹⁰

Returning to numeral classifiers, note that Jarai has a relatively small, apparently closed class of classifiers. The choice of a particular classifier is determined by the semantics of the noun that is being counted. Table 3.1 summarizes the classifiers of Jarai and the salient

10. Bisang (1999) includes classifiers as a type of NUMERATIVE; the other four types of numeratives are MEASURES and INTRINSIC QUANTIFIERS (as discussed above under the label *measure term*), COLLECTIVES such as *brood (of)* or *flock (of)*, and KINDS such as *type (of)*. Jarai has all five types of numeratives, but I discuss only classifiers.

semantic features shared by the nouns that each classifier combines with, along with examples of those nouns.¹¹

Table 3.1. Jarai Classifiers

Classifier	Categorizes for	Examples of Categorized N
<i>arăt (arǎ)</i>	short things extended in 1 dimension	<i>brǒm</i> ‘arrow’, <i>rotǎ</i> ‘bean (pod)’
<i>asar (sar)</i>	eggs	<i>bôh</i> ‘egg’
<i>blah</i>	large areas extended in 2 dimensions	<i>homa</i> ‘field’
<i>bôh (boh)</i>	things extended in 3 dimensions	<i>rodêh</i> ‘car’, <i>sang</i> ‘house’, <i>roi</i> ‘basket’
<i>bě</i>	things extended in 1 dimension	<i>koyáo</i> ‘tree’, <i>gai</i> ‘stick’, <i>tomeh</i> ‘pole’
<i>čô</i>	people	<i>monuih</i> ‘human’, <i>točô</i> ‘grandchild’, <i>đah-komoi</i> ‘female (person)’
<i>djuai (djoï)</i>	long things extended in 1 dimension	<i>hrě</i> ‘string’
<i>droi</i>	animals	<i>asáo</i> ‘dog’, <i>čim</i> ‘bird’, <i>kobao</i> ‘water buffalo’, <i>wang-wai</i> ‘spider’
<i>pők</i>	small object extended in 2 dimensions	<i>hrǎ</i> ‘paper, book’, <i>rup</i> ‘picture’, <i>hla</i> ‘flag’

When a cardinal number is used to enumerate a count noun, the classifier is typically obligatory, and in general the numeral cannot be omitted either.¹² The restriction of classifiers to noun phrases with overt numerals distinguishes Jarai from languages such as Mandarin (and Cantonese), Thai, and Vietnamese, which use classifiers in a broader range of constructions, not just with (overt) cardinal numbers. In Mandarin and Cantonese, Clf–N can occur with no numeral, receiving an obligatorily singular interpretation (Cheng & Sybesma 1999). The same is true for Vietnamese (Nguyen 2004). In Thai, classifiers (without numerals) optionally occur with demonstratives, adjectives, and other elements, and their presence signals reference to

11. These are classifiers that are part of my own elicitation-based data set. Headley (1965) also includes *bit* and *roh*, both used for paths and watercourses, and *gai* for minutes. I do not find these in my data, although one of my speakers recognizes *roh* (or *rôh*) as a rarely-used classifier for channels of water.

12. I have a few examples example from texts like (i), where the numeral ‘one’ is omitted. One of my consultants tells me that he hears this in stories but one cannot say this in normal conversation.

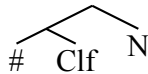
(i) Hma djǎ [∅ bě gǎ], táo djǎ [∅ bě gǎ], nao.
parent-in-law hold CLF machete son-in-law hold CLF machete go
‘The father-in-law held (a) machete, the son-in-law held (a) machete; they went.’

“quantitatively specifiable objects” through the formation of “implicit counting constructions” (Hundius & Kölver 1983:177). Because the distribution of classifiers in Jarai is restricted to cardinal enumeration, there is no reason to posit non-enumerative uses for Jarai classifiers.¹³ In particular, there is no reason to think that Jarai classifiers play a role in referentiality (as proposed for Chinese by Cheng & Sybesma 1999) or discourse salience (as proposed for Vietnamese in Daley 1998).

3.3.2 Phrase structure

A critical issue in determining the structure of the sequence [# – Clf – N] (where # represents a cardinal number) is the matter of constituency: does the classifier form a constituent with the numeral to the exclusion of N, as illustrated in (18a), or with N to the exclusion of the numeral, as in (18b)? I will argue for the structure in (a): the numeral and classifier form a constituent to the exclusion of the N.¹⁴

(18) a.



b.



The first argument for the structure in (18a) has to do with displacement. If #–Clf forms a constituent, then displacement, if possible, should move N by itself or #–Clf together, but never Clf–N apart from #. This prediction is borne out: the head N can precede [#–Clf] (with no apparent change in meaning), as shown in (19a).¹⁵ However, it is not possible for both the

13. As we will see in §3.7, classifiers can also co-occur with other quantifiers, but that does not affect the point being made here.

14. In the formal literature, something along the lines of (18b) is the dominant approach to Chinese enumerative expressions, taking Clf to be a complement-taking head that dominates N(P), with # either as a specifier to Clf or as the specifier of a #-related head above ClfP. See, e.g., Li (1999); Cheng & Sybesma (1999). Similar accounts are found for Japanese (Watanabe 2006), Vietnamese (Nguyen 2004), and Thai (Jenks 2011), among others.

15. There is speaker variation on this point, but crucially, speakers who allow (19a) disallow (19b). In fact, no speakers allow (19b).

classifier and the head N to precede the numeral, as in (19b). Together, these two facts suggest that #–Clf form an inseparable constituent, whereas Clf–N do not.

- (19) a. Loi mã [akan tojuh droi].
 Loi seize fish seven CLF
 ‘Loi seized seven fish.’
- b. *Loi mã [droi akan tojuh].
 Loi seize CLF fish seven
 (‘Loi seized seven fish.’)

The second argument involves coordination. The prediction is this: if #–Clf is a constituent, then it should be possible to coordinate #–Clf to the exclusion of N, as in (20a), but it should be impossible to coordinate Clf–N to the exclusion of #, as in (20b). Neither analysis makes a prediction about whether individual lexical items can be coordinated. (That is to say, both analyses should allow for a coordinate structure such as [_{&P} # & #].)

- (20) a. [_{&P}[# Clf] & [# Clf]] N
 b. # [_{&P}[Clf N] & [Clf N]]

As predicted, it is possible to conjoin #–Clf pairs, followed by a single head noun, as illustrated in (21a). (In this example, the coordinator *budah* ‘or’ is used, because a coordinator meaning *and* would be difficult to interpret.) And as (21b) shows, it is impossible to coordinate two Clf–N pairs under a single numeral, even when the intended meaning is clear.

- (21) a. Kào kiäng [dua čô] budah [kláo čô] ană.
 1SG want two CLF OR three CLF child
 ‘I want two or three children.’
- b. *H’Lui homâo duapăn [čô ană đah-rokoi] hăng [čô ană đah-komoi].
 H’Lui have nine CLF child male and CLF child female
 (‘H’Lui has nine sons and daughters.’)

An alternative interpretation of (21a) is that two full noun phrases are being conjoined, with an elided N head in the first conjunct. This parsing is shown in (22). Obviously, if this were the case, then the example tells us nothing about the constituency of the # and Clf with respect to the head N.

- (22) Kâo kiăng [dua ố̂ ∅] ấ̂dạh [klâu ố̂ ană].
 1SG want two CLF or three CLF child
'I want two or three children.'

Nevertheless, I believe we can rule out the parsing in (22) where the first of two Ns in a conjoined noun phrase is elided. A way to test this is by adding an adjective to restrict each (purported) occurrence of the noun. I set the test up with the licit structure in (23). I have bolded the head Ns, each of which is preceded by a numeral and classifier and followed by an adjective. The possessor at the end is interpreted as restricting both conjuncts.

- (23) Phu kiăng [[&P [dua blah **abăn** moraih] ấ̂dạh [klâu blah **abăn** jũ]]
 Phu want two CLF blanket red or three CLF blanket black
 Je].
 Je
'Phu wants Je's two red blankets or three black blankets.'

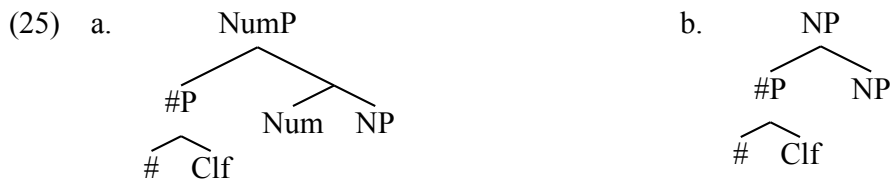
As the unacceptable structure in (24a) shows, eliding the first of the two Ns is not possible in this case. The unacceptable (24b), which lacks the numerals and classifiers, as well as the final possessor, shows that none of these other elements are confounding factors.

- (24) a. *Phu kiăng [DP[&P [dua blah ∅ moraih] ấ̂dạh [klâu blah **abăn** jũ]]
 Phu want two CLF red or three CLF blanket black
 Je].
 Je
('Phu wants Je's two red or three black blankets.')
- b. *Amĩ kâo kiăng kơ bloy [&P[∅ moraih] ấ̂dạh [**abăn** jũ]].
 mother 1SG want DAT buy red or blanket black
('My mother wants to buy a red or black blanket.')

Having ruled out the possibility that the first N of a conjoined noun phrase can be elided, I conclude that (21a) provides strong evidence from constituency that # and Clf phrase together to the exclusion of N.

Granted, then, that # and Clf are sisters, which is the head and which the dependent? I will tentatively assume that the numeral is the head, projecting to #P. It is not obvious that anything critical hinges on this decision at this point. In §3.7.1 I argue that other cardinal quantifiers have the same distribution as the numeral, but these generally do not co-occur with a classifier. It seems reasonable then to suppose that it is not a classifier that licenses the presence of quantifiers when classifiers typically surface only with numerals.

If, as I have argued, #–Clf forms a constituent to the exclusion of NP, what is the relation between #–Clf and NP? One possibility is that #–Clf sits in the specifier position of a number-related head that takes NP as its complement, as sketched in (25a), where “Num” labels the node of the number-related head. Another possibility is that the #–Clf phrase is adjoined to NP, as illustrated in (25b).



I argue that the structure in (25a) is the best account of how #–Clf is integrated into the noun phrase. The strongest reason for thinking so involves the optional occurrence of a number-related morpheme between the classifier and the nominal head. When the nominal head has a plural human referent, the lexeme *bing* ‘PL.HUM’ can occur immediately before N, as in (26a). For plural non-human referents, *khul* ‘PL.NHUM’ may appear just before N, as in (26b).¹⁶

16. The word *khul* (but not *bing*) can also mean ‘group’, and there is some variation among speakers about which meaning is more accessible. I assume that the two meanings reflect two different positions in the syntax, with *khul* ‘group’ perhaps merging as an N head.

- (26) a. roma čô (**bing**) čôđai
 five CLF PL.HUM child
 ‘five children’
- b. roma bĕ (**khul**) koyáo anŭn
 five CLF PL.NHUM tree DEM.MED
 ‘those five trees’

Both *bing* and *khul* can appear with or without preceding #–Clf, so long as the noun phrase has a plural interpretation. This is illustrated in (27).

- (27) a. Li toña kiäng kơ **bing** ană ñu djru oi goñu.
 Li ask want DAT PL.HUM child 3SG help grandfather 3PL
 ‘Li asked his children (≠child) to help their grandfather.’
- b. **Khul** phŭn potoi moraih čă pral biă-mă.
 PL.NHUM tree banana red grow fast very-RED
 ‘Red banana trees (≠tree) grow very fast.’

Apart from being compatible only with a plural interpretation, these words add nothing to the meaning of the noun phrase.¹⁷ I therefore analyze them as number morphology sitting in the Num head position.

This analysis predicts that a Num head cannot form a constituent with #–Clf to the exclusion of N. We can repeat the coordination test used earlier, this time adding *bing* after each #–Clf, but with the head N only after the second string of #–Clf–Num. As predicted, the result

17. A possible singular counterpart to *bing* is *pô* ‘SG.HUM’. Although not normally used with a numeral, *pô* occurs immediately before the head N (only with singular human referents), as shown in (ia); the noun phrase translated ‘that child’ in (ia) has the same meaning with or without *pô*. Its position and inability to co-occur with *bing*, (ib), suggest that it, too, is a functional element in Num position. (I have one oral narrative example of *bing* and *pô* co-occurring, but this combination is rejected by my consultants.) I know of no singular counterpart to *khul* ‘PL.NHUM’.

- (i) a. Kào buh [(pô) čôđai anŭn] boi sang Je tòm-broi.
 1SG see SG.HUM child DEM.MED at house Je yesterday
 ‘I saw that kid at Je’s house yesterday.’
- b. ***bing** **pô** čôđai anŭn
 PL.HUM SG.HUM child DEM.MED
 (‘those children’)

is unacceptable (28a). It is perfectly acceptable, however, to include *bing* once, immediately before the N, as expected if Num and N(P) form a constituent to the exclusion of #–Clf (28b).

- (28) a. *Homâo [năm c̣ô **bing** budah juh c̣ô **bing** c̣odai ruă] amăng
 have six CLF PL.HUM OR seven CLF PL.HUM child sick in
 ploi anŭn.
 village DEM.MED
 ('There are six or seven children who are sick in that village.')
- b. Homâo [năm c̣ô budah juh c̣ô (**bing**) c̣odai ruă] amăng ploi
 have six CLF OR seven CLF PL.HUM child sick in village
 anŭn.
 DEM.MED
 'There are six or seven children who are sick in that village.'

The analysis also predicts that Num–NP should be a possible target for coordination, to the exclusion of #–Clf. This prediction, too, is correct (29).

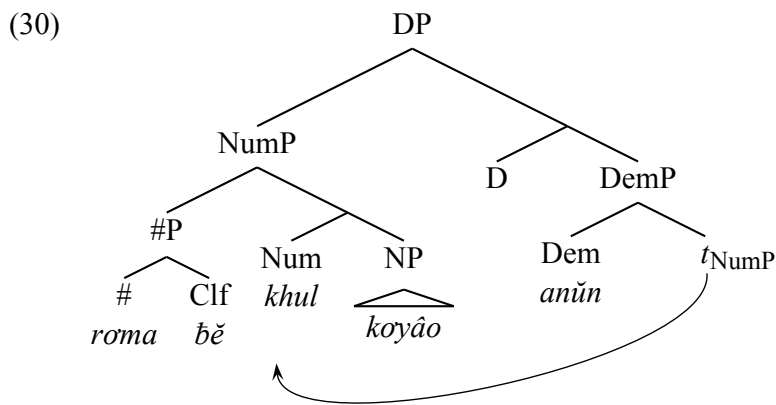
- (29) a. Ṇu burp [pluh c̣ô [**bing** goyut] lai-h-anŭn [**bing** r̄oh ayăt]].
 3SG meet ten CLF PL.HUM friend and PL.HUM enemy enemy
 'He met 10 friends and enemies (total).'
- b. Kâo kiăng [dua c̣ô [**bing** ană đah-r̄okoi] budah [**bing** ană
 1SG want two CLF PL.HUM child male OR PL.HUM child
 đah-komoi]].
 female
 'I want two sons or (two) daughters.'

Quite crucially for the analysis offered here, *bing* and *khul* as used in these examples do not create a group reading.¹⁸ If that were the case, the numeral and classifier would then obligatorily give either a partitive reading (e.g., 'five of (some) group of children' in (26a)) or a number-of-groups reading (e.g., 'five groups of children'). Instead, the plural markers do not change the denotation of the noun phrases in a discernible way, except in forcing a plural

18. This is in contrast to the analysis of (non-reduplicative) plural marking in Thai, as analyzed in Jenks (2011).

reading.¹⁹ The structure in (25a) provides a straightforward account for the position of these number-related words. Under the adjunction analysis in (25b), it is not obvious where they would merge, and their connection to the numbering function of the #–Clf would fail to be represented syntactically.²⁰

The picture of Jarai noun phrases that I have developed so far assigns the structure in (30) to the DP in (26b). The head noun (here shown as NP) is complement to a Num head, the specifier of which is the phrase containing the numeral and classifier. The entire NumP is complement to the demonstrative but has vacated its merge position in order to identify the definite (but null) D from Spec,D.



3.3.3 Jarai nouns and reference to kinds

The fact that Jarai employs numeral classifiers for counting nominals raises a typological–theoretical issue with respect to Jarai’s nominal system. Chierchia (1998) proposes a typology of noun denotations based on whether bare nouns are fundamentally arguments, predicates, or

19. The situation is similar to what is noted by Chung (2000) for plural marking by reduplication in Indonesian, which is also a classifier language.

20. We might expect that the configuration in (25a), the one I have argued for, would fail to account for the selection relationship between the classifier and the noun. That is, we may think that because a classifier can only combine with a sub-class of Ns, then Clf and N must be in a head-complement configuration. However, such a configuration is by no means necessary if the selectional properties of Clf are represented in the formal denotation of Clf as a (prepositional) restriction on its domain. Under such an approach, there is no need to be concerned about what syntactic configurations are most amenable to, say, agreement relations. This is in contrast to the syntactic position of the number-related words *bĩng* and *khul*, which appear to be straightforward examples of agreement-related heads. As such, we expect them to be in a configuration such as (25a).

potentially both. In some languages, bare nouns are $[-arg, +pred]$: they can only serve as predicates, unless a determiner combines with them to yield a suitable denotation for an argument. Romance languages such as French and Spanish are of this type. The examples in (31) (ex. (22), p. 355 in Chierchia 1998) illustrate the impossibility of bare plural arguments in French. In order for French nouns to serve as arguments, they must combine first with an overt determiner. Other Romance languages, like Spanish, presumably have null determiners subject to various licensing conditions.

- (31) a. *Enfants sont venus chez nous.
 ‘Kids have come by us.’
 b. *J’ai mangé biscuits dans mon lait.
 ‘I ate cookies with my milk.’

In other languages such as Chinese, all nouns are basically $[+arg, -pred]$: bare nouns can serve as arguments right out of the lexicon without first combining with a determiner. On the other hand, type-shifting or some other conversion mechanism must be available in order for nouns to serve as predicates in such a language. Crucially for Chierchia, the denotation of out-of-the-lexicon nouns is reference to a kind rather than to, say, an atomic instantiation of a kind. Thus, the Chinese noun *zhuōzi* refers to the table *kind* and cannot directly refer to any particular table. A table *kind* is a plural individual that includes all instances of individual tables. In order to count individual tables (or anything else), $[+arg, -pred]$ languages require classifiers to convert the denotation of a noun to something countable.²¹ Chierchia does not discuss the interpretive mechanism by which unenumerated bare nouns in Chinese-type languages manage to pick out individual instances of things like tables. (The focus of the article is not $[+arg, -pred]$ languages, so this omission is perhaps understandable.)

Finally, some languages are $[+arg, +pred]$: bare nouns can be both arguments and predicates. Germanic and Slavic languages, including English, pattern like this. In these mixed

21. More specifically, the kind-referring noun must first be converted into a predicate, and the classifier then provides the semantics for individuating that predicate.

languages, (bare) plurals and mass nouns act like nouns in [+arg,-pred] languages (Chinese-type), while singular count nouns act like nouns in [-arg,+pred] languages (Romance-type). The division of languages based on the features [arg,pred] constitutes the NOMINAL MAPPING PARAMETER (NMP).²²

The bulk of Chierchia’s presentation focuses on the properties of [+pred] languages (Romance and Germanic/Slavic). Nevertheless, Chierchia is quite explicit that the NMP makes specific predications about [+arg,-pred] languages. These predictions are given in (32).

- (32) NP [+ARG,-PRED] LANGUAGES [=Chierchia p.354 (20)]
- a. Generalized bare arguments
 - b. The extension of all nouns is mass
 - c. No PL²³
 - d. Generalized classifier system

An additional prediction, highlighted by Chung (2000), is that bare nouns in a [+arg,-pred] language should always have narrow scope under operators like negation. This prediction emerges from Chierchia’s argument that English bare plurals are “scopally inert” (368), that is, have narrow scope. The inability of English bare plurals to scope higher in the clause is predicted if, as Chierchia claims, English bare plurals refer to KINDS (type ⟨e⟩) rather than PROPERTIES (type ⟨e,t⟩). English bare plurals are thus like bare nouns in [+arg,-pred] languages (Chinese-type languages).

As Chung (2000) does for Indonesian, I will show that Jarai patterns with Chinese-type languages as [+arg,-pred] except in one respect: Jarai has plural marking. I begin with the

22. In the discussion to follow I critique a particular aspect of the NMP as it relates to Jarai. However, there are other problems with the NMP, such as the fact that it fails to account for bare singular count nouns in English (see especially Stvan 1998, 2007, 2009; Carlson 2003). I leave these other problems to the side.

23. “PL” is an operation that applies to a predicate (the denotation of a [+pred] noun) and returns all non-atomic individuals in the set denoted by that predicate. PL applied to the English predicate-denoting *table* (i.e., *tables*) denotes all groupings of individuals within the denotation of *table* but no singular individuals. Note here that a “grouping of individuals” is actually a plural individual, so I am using the term *individual* loosely. (See the discussion at Chierchia 1998:345-346.)

prediction in (32b), namely, that the extension of all nouns in [+arg, $-$ pred] languages is mass. It turns out, however, that this prediction cannot be tested independently of the next two. It is exactly the mass-like denotation of nouns in [+arg, $-$ pred] languages that is responsible for the lack of plural marking and for obligatory classifiers.

So let us consider the prediction in (32d), that [+arg, $-$ pred] languages will be general classifier languages. In general classifier languages, numerals are not able to combine directly with nouns; instead, enumeration must be mediated by a classifier. There is no need to dwell on this point. As has already been shown, with a few exceptions, Jarai nouns never combine directly with numerals. In fact, Jarai is much clearer in this than Indonesian. Chung (2000) has to argue at length that Indonesian has a generalized classifier system in spite of the fact that classifiers are usually optional with numerals greater than one. No such optionality holds in Jarai, suggesting that Jarai patterns unambiguously as a [+arg, $-$ pred] language.

Consider now another characteristic of [+arg, $-$ pred] languages, which is that bare nouns can occur quite generally in argument positions (32a). This is the case in Jarai, as illustrated in (33). Bare nouns can occur in object position (33a) and in subject position (33b)—and in any other argument position, for that matter. In these examples, the bare nouns can be interpreted as definite or indefinite, singular or plural. These facts are just as predicted if Jarai is [+arg, $-$ pred].

- (33) a. Thũn tǒm adih kâo ngă **sang**.
 year previous DEM.DIST 1SG make house
 ‘Last year I built (a/the) house(s).’
- b. **Tǒmeh** pǒđông amăng ia donao.
 pole float in water lake
 ‘(A/The) pole(s) floated in the lake.’

Finally, with regard to scope, bare nouns in Jarai allow only a narrow scope reading under an operator. This is illustrated in (34). The sentence was presented for a situation in which the subject (H’Ddir) is going to a zoo that has 20 elephants spread out in different locations, and

she hopes to see all of them. This sentence is a true description of a situation in which she did not see any elephants at all (NEG > NP). However, if she sees nineteen but fails to see the twentieth elephant (which would be a possible reading if the scope NP > NEG were available), this sentence is judged as inappropriate. In other words, the bare noun cannot scope higher than the negative operator, which is just as predicted if Jarai is [+arg,-pred].

- (34) H'Dir bu buh roman ôh
 H'Ddir NEG see elephant NEG2
 'H'Ddir didn't see any elephant.'
 (≠ 'There was an elephant that H'Ddir didn't see.')

The preceding discussion has demonstrated that for three of the four directly testable predictions of the NMP, Jarai clearly patterns with [+arg,-pred] languages. (Recall that the prediction of (32b) is not obviously testable apart from plural marking and enumeration.) However, as we saw in §3.3.2, Jarai has at least two plural markers, *bing* for human-denoting nouns and *khul* for non-human. These markers directly counterexemplify the prediction in (32c). As noted earlier, these plural markers indicate a plurality of individuals rather than a plurality of groups or, more relevantly here, of kinds. However, if Jarai nouns are kind-denoting with essentially mass-like extensions, it should be impossible for plural markers to combine directly with them.

It is worthwhile at this point to consider a corollary of (32b) and (32d) that ought to be predicted by the NMP, although it is not explicitly mentioned in Chierchia (1998). In a language where the extension of nouns is mass and the counting of individuals is necessarily mediated by classifiers, we would expect that numerals could sometimes combine directly with nouns, yielding a number-of-kinds meaning. This is exactly what we find in English, where mass nouns can be pluralized and enumerated, as in *five rices* or *six oils*, giving rise to an interpretation where different *kinds* of rice and oil are under discussion. This is not possible in Jarai, however. Combining a numeral directly with a noun which normally requires a classifier

gives rise to a judgment of unacceptability rather than a number-of-kinds reading, as illustrated in (35). To get the number-of-kinds reading, the word *djuai* ‘kind’ must come before the head N.

- (35) a. roma *(djuai) koyâo
five kind tree
‘five kinds of trees’
- b. roma *(djuai) kobao
five kind water.buffalo
‘five kinds of water buffalo’

Jarai’s nominal system stands alongside Indonesian as a counterexample to the predictions of Chierchia’s NMP that the characteristics in (32) should always co-occur in a language. Chung (2000) observes that it is far from clear how the NMP might be modified to allow for languages such as Indonesian and Jarai. One way forward, however, might be to propose that plural morphemes in languages like Jarai (and Indonesian?) are not identical to English pluralization but instead involve an extra step. We already know that classifier languages have a way of getting from a kind to a (mass) predicate to a countable instance of the predicate’s denotation: this is exactly what classifiers do. So we might want plural morphology in Jarai to do essentially the same work as a classifier, getting from a kind to a (mass) predicate to countable instances of that predicate. However, we would be left wondering why classifiers are still needed to enumerate already plural-marked nouns, if the plural morphology has done the work of shifting the noun’s denotation to individuated instances. The resolution to this problem is not obvious, but neither is it necessarily the case that languages like Jarai and Indonesian completely undermine the NMP.

3.4 Possessor DPs

Within the Generative tradition, English noun phrase possessors have often been analyzed as “subjects” of the noun phrase: for Jackendoff (1977) this meant that the possessor was sister to N^{''}, while Abney (1987) placed possessors in Spec,D (with the possessive *-s* in D). Whatever the details of particular analyses, possessors are generally taken to be very high in the noun phrase. However, as early as Szabolcsi (1983) (working on Hungarian), it has been suggested that there might be lower positions for a possessor within the noun phrase. I will argue for a combination of these approaches, analyzing the Jarai possessor as a subject, but one that is merged—and remains—low in the noun phrase.

In Jarai, possessors occur after N and before Dem, as in (36a). Adjectives, which are always after N, typically precede the possessor, as in (36b). Possessors never precede N or follow Dem (36c).

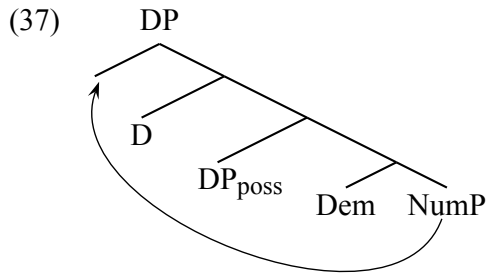
- (36) a. pã cõ anã **Je** anũn
 four CLF child Je DEM.MED
‘those four children of Je’
- b. klão bõh sang prõng **kão** anũn
 three CLF house big 1SG DEM.MED
‘those three big houses of mine’
- c. Lãng (*H’Lũ) rodêh (H’Lũ) anũn (*H’Lũ).
 look H’Lu car H’Lu DEM.MED H’Lu
‘Look at that car of H’Lu’s!’

Because possessors can be proper names, I treat them as full DPs, inasmuch as proper names have the distribution of DPs in Jarai.²⁴

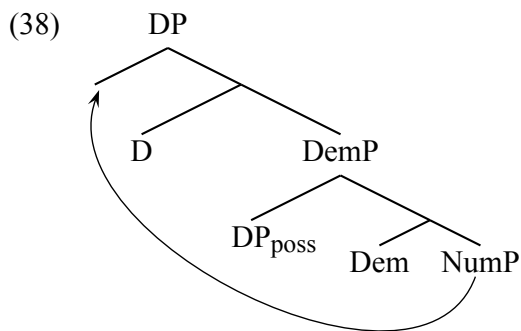
24. Pronouns can also be possessors, but this does not necessarily count for much, as it may be the case that pronouns are NPs rather than DPs. One reason to think so is that they can be restricted by numerals and demonstratives, as in (i).

- (i) [Dua cõ **gõũ** anũn] kiãng poro-čũm.
 two CLF 3PL DEM.MED want RECP-kiss
‘Those two want to kiss.’

Given the structure already proposed for noun phrases, where Dem is a high functional head, and Dem-final order in DP is derived by raising Dem's complement (NumP) around Dem, it would be attractive to place the possessor high: above Dem, but below D, with NumP moving past both, as in (37).



I reject a high merge position for the possessor for two reasons: first, it is not clear where the possessor could merge, and second, this account makes false predictions. I begin with the problem of where the possessor merges. Given that possessors are full-blown phrases (DPs), they must merge in a specifier rather than a head position in the extended projection. The two (high) heads that might provide a specifier position for the possessor are D and Dem. If we took the possessor to be in Spec, Dem, then we derive NumP–Poss–Dem word order in a fairly straightforward way, as a glance at the tree in (38) shows.



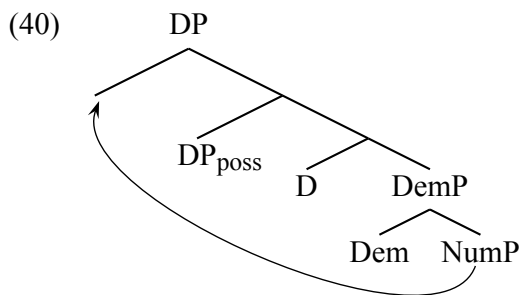
However, it is not at all clear why the possessor would merge in Spec, Dem: the demonstrative provides deictic information, whereas possession is not deixis-related. Even more damaging to this analysis is a false prediction it makes about word order. Given my account of why NumP

moves to Spec,D—to identify a null definite D head—we predict that when D is not definite, NumP will fail to raise, giving rise to Poss–NP word order. The examples in (39) show that even when the DP is indefinite, a possessor phrase cannot precede the head noun. In both examples, a generic statement is made that applies to all members of the relevant class denoted by the DP: not only are the DPs indefinite, they are also generic. To ensure that the *Mi* ‘American’ and *Jarai* ‘Jarai’ are interpreted as possessors rather than adjectival modifiers, I included *bing*, the human plural marker, so that the possessor phrase can only mean ‘Americans’ and ‘Jarai (people)’, respectively.

- (39) a. [DP (**bing* Mi) *ană* (*bing* Mi)] *homar*.
 PL.HUM American child PL.HUM American fast
 ‘*American people’s children are fast.*’
- b. [DP (**bing* Jarai) *sang* (*bing* Jarai)] *glông*.
 PL.HUM Jarai house PL.HUM Jarai tall
 ‘*Jarai’s houses are tall.*’

I conclude that the possessor does not merge in Spec, Dem.

An alternative account of the high possessor story merges it in Spec,D. In this case, NumP must raise to a higher specifier of D in order to give rise to the correct word order. This is illustrated in (40).



Under this account, it becomes much harder to motivate the movement of NumP into Spec,D. If null definite D must be identified by means of something occupying its specifier, the possessor satisfies that requirement without NumP raising.

Both possible high positions for the possessor—Spec,Dem and Spec,D—suffer from another problem. They predict that nothing originating in the NumP should ever intervene between the possessor and the demonstrative. The reason is that NumP raises as a unit into Spec,D. However, this prediction turns out to be false. As (41) illustrates, it is possible for adjectives to follow the possessor but precede the demonstrative. (In (41a) I label this as an AP constituent, but it probably involves additional structure.)

- (41) a. Kào buh [DP romô Je [AP prong jũ] anũn].
 1SG see cow Je big black DEM.MED
'I saw that big black cow of Je's.'
- b. Kào buh [DP ala H'Li [AP prǒng] anũn]
 1SG see snake H'Li big DEM.MED
'I saw that big snake of H'Li's.'

As I argue in the next section, Jarai adjectives originate low in the DP, below NumP, so their appearance above Dem, below the possessor, is a mystery if the possessor is high. As we will see in the next section, however, this word order is easy to derive if the possessor is low, and the NP raises past it inside NumP. Assuming that APs are adjoined to NP, then the alternation between NP–Poss–AP and NP–AP–Poss is simply a matter of whether the minimal or maximal NP raises.

My final reason for rejecting a high merge position of the possessor is that it makes a prediction about scope: if the possessor is higher than the NumP (either in Spec,D or Spec,Dem), then it should scope over cardinal numbers, yielding an exhaustive reading for the numeral, as in English, illustrated in (42).²⁵

25. English lacks a construction corresponding to (42) but minimally different in that the possessor is lower than the numeral. Possibilities include *I saw three of Maud's kittens* and *I saw three kittens of Maud's*; in both cases one can follow the statement by saying *but the other two kittens were hiding* with no sense of contradiction. Nevertheless, in both of these cases, what accounts for the non-exhaustivity is the fact that a partitive structure is being used, and English partitives have a restriction against exhaustive readings (see Barker 1998). Partitive structures do not directly bear on my argument at present, because I analyze partitive numerals and quantifiers as standing above the DP, whereas I am concerned with the DP-internal structure at present.

(42) a. I saw Maud’s three kittens (#but the other two kittens were hiding).

However, this prediction is not correct for Jarai. Consider (43), which has a DP containing both a #–Clf phrase and a possessor DP (*Mik*). Speakers judge this sentence to be underdetermined with regard to whether Mik has more than five children or not: it could either have a reading where the children under discussion are a proper subset of the total number of Mik’s children, or a reading where the children under discussion are all the children Mik has.

(43) [Roma čô ană **Mik**] glông.
five CLF child Mik tall
‘Five children of Mik are tall.’
‘Mik’s five children are tall.’

We might be able to maintain a high position for the possessor by claiming that in (43), the #–Clf is above the DP, in a partitive position (like in the English DP *five of my friends*), so that the scope interaction tells us nothing about the position of the possessor vis-à-vis the position of the (cardinality) Num head. However, this explanation is not tenable, as the following example illustrates. When a demonstrative is added, as in (44), the total number of children Mik has is still ambiguous, but crucially, this sentence requires that the demonstrative have scope over the numeral. In other words, the number of people that the demonstrative “points” at must be five (*those five*, Dem > #) rather than some larger group out of which five are referred to (*five of those*, # > Dem). This provides evidence that the #–Clf is inside the DP rather than above it, even when it picks out a proper subset of the possessor’s children.

(44) [Roma čô ană Mik **anŭn**] glông.
five CLF child Mik DEM.MED tall
‘Those five of Mik’s children are tall.’

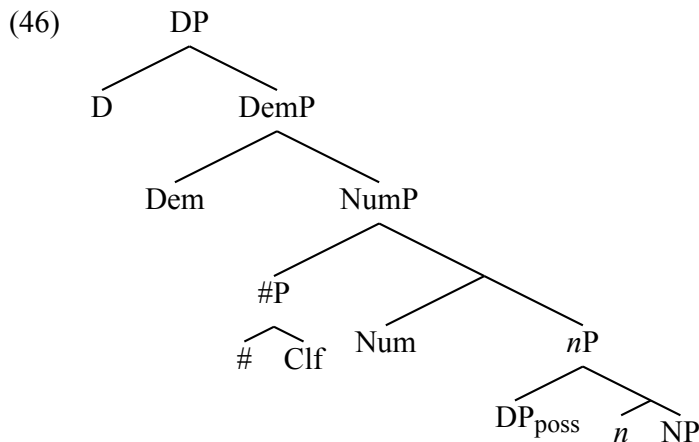
The argument that scope tells us something about the merge position of Poss has a potential weakness, however. If possessors really do merge high, but NumP subsequently raises past

the possessor, then the observed $\# > \text{Poss}$ scope might simply reflect the fact that scope inside DPs is calculated at the surface rather than under reconstruction. (The initial merge order—if Poss is high—would be $\text{Poss} > \#$, but once NumP moves, we get a surface order yielding $\# > \text{Poss}$.) This counter-argument is defeasible, however. If Dem scopes over $\#$, as argued here, and $\#$ scopes over the possessor, then by transitivity, $\text{Dem} > \text{Poss}$. But $\text{Dem} > \text{Poss}$ should be impossible under the high possessor story, because at no stage of the derivation is Dem higher than Poss if Poss originates in Spec,Dem or Spec,D. I conclude, then, that the scope facts point to a low initial merge position of the possessor. Taking into account the other considerations put forward above—including the difficulty of finding an appropriate high position for Poss to merge into and the prediction that a high Poss makes about NumP raising in indefinites—the best account of possessors in Jarai is that they are relatively low in the DP.

Folding possessors into our hierarchy of noun phrase projections, we have (45), where the possessor sits below the Num head ($\#$ -Clf is in Spec,Num) and above the N.

(45) $D > \text{Dem} > \text{Num} > \text{DP}_{\text{poss}} > \text{N}$

Where exactly does the possessor merge, then? As already noted, there is a long tradition of treating possessors as subjects of the noun phrase, parallel to external arguments of verbs. It seems quite reasonable, then, to suppose that possessors are generated in the specifier of a noun-categorizing head n , just as external arguments of the verb are introduced by the verb-categorizing head v (see, for example, Carstens 2001; Alexiadou 2005). Before anything has raised, the Jarai noun phrase would then look like (46). (NP includes the N head, and perhaps complements of N. Adjectives will be folded into the structure in the next section.)



The structure in (46) accounts for the scope interactions—in a way that is consistent with analyses of noun phrases in other languages—but the word order is still problematic: even after movement of NumP to Spec,D, the possessor is in the wrong place. What is needed is for the syntactic material below the possessor (or at least N) to raise past it, but not past the Num head. I will take up the specifics of this movement in the next section in my discussion of adjective phrases.²⁶

3.5 Adjective phrases

Linearly, adjectives in Jarai follow the head noun, typically preceding the possessor and always preceding the demonstrative, as in (47a), repeated from (36b). As (47b) illustrates, the adjective cannot precede N.

26. A potential challenge to this analysis comes from the word order of noun phrases containing a nominalizer. Example (i) has a DP containing a nominalizer, a (normally verbal) root, an adjective, and a possessor. On the reasonable assumption that the nominalizer is an *n* head, it appears that what has moved past the possessor is *n'* (the node dominating both *n* and NP), not NP alone.

(i) Anai kâo ruai [tɔlɔi akhan Jarai mɔi].
 DEM.PROX 1SG recount NMLZ tell.legend Jarai 1PL.EXCL
 'Now I (will) recount our Jarai legend.'

There are two possibilities that would allow us to maintain the picture sketched above. One is that the nominalizer is not in fact an *n* head but instead a root that takes a verbal root as its complement. The other possibility is that the nominalizer is an *n* head but lowers into the NP before movement. The reason for lowering is to remain adjacent to the deverbal root at the surface, perhaps for the sake of easier processing. Because the facts about nominalization in Jarai are not determined, I leave for later research their contribution to noun phrase structure.

- (47) a. klâu bôh sang **prǒng** kâo anũn
 three CLF house big 1SG DEM.MED
'those three big houses of mine'
- b. roma droi (*romǒng) kobao (**romǒng**)
 five CLF fat water.buffalo fat
'five fat water buffalo'

As I discussed in the previous section, adjectives may also follow a possessor (48), repeated from (41).

- (48) a. Kâo bũh romô Je **prong jũ** anũn.
 1SG see cow Je big black DEM.MED
'I saw that big black cow of Je's.'
- b. Kâo bũh ala H'Li **prǒng** anũn.
 1SG see snake H'Li big DEM.MED
'I saw that big snake of H'Li's.'

Attributive adjectives can be modified by the intensifier *biã* 'very' (which frequently occurs in a reduplicated form *biã-mã*), as illustrated in (49).

- (49) Laih-anũn kâo bũh [sa droi ala prǒng **biã-mã**].
 and 1SG see one CLF snake big very-RED
'And then I saw a very big snake.'

Multiple adjectives modifying a single head noun sometimes result in a degraded structure, as in (50a), although in some noun phrases two adjectives are possible (50b) (see also (48a) above). The two adjectives in (50b) can also occur in the reversed order.

- (50) a. ?[Rodêh **prǒng prǎl** anũn] homâo đũaĩ rǒgao sang Je.
 car big fast DEM.MED have run past house Je.
'That big fast car drove past Je's house.'
- b. Gomoi ċi pǝ-djai [kobao **jũ romǒng** anũn].
 1SG.EXCL will CAUS-die water.buffalo black fat DEM.MED
'We will kill the black fat buffalo.'

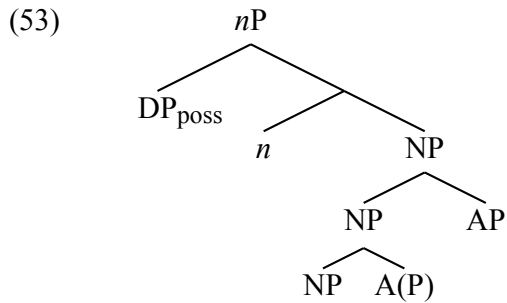
The constraints on what adjectives may occur together—and with which head nouns—are not clear to me. When a noun phrase permits modification by two adjectives, the first adjective resists combining with an intensifier, as illustrated in (51).

- (51) a. H'Li sǐ [rɔdeh [so (*biǎ-mǎ)] grǐ ñu].
 H'Li sell car old very-RED dirty 3SG
'H'Li sold her very old dirty car.'
- b. Kào buh [romô Je [prɔŋ (*biǎ-mǎ)] jũ].
 1SG see cow Je big very-RED black
'I saw Je's very big black cow.'

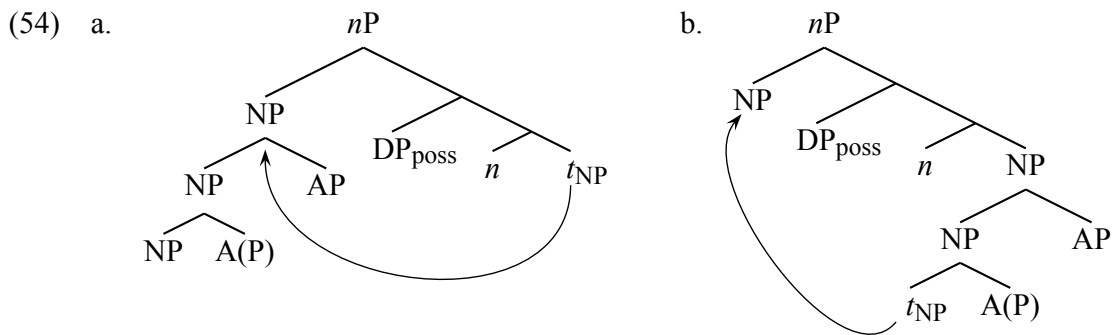
However, it is at least sometimes possible to intensify the second adjective, as illustrated in (52). (The acceptability of these structures is subject to speaker variation, and the same speaker will sometimes give different judgments.)

- (52) a. Kào buh [romô prɔŋ jũ **biǎ-mǎ** Je].
 1SG see cow big black very-RED Je
'I saw Je's big very black cow.'
- b. Gomoi ěi pɔ-djai [kobao jũ romǒŋ (?biǎ-mǎ) anũn].
 1SG.EXCL will CAUS-die water.buffalo black fat very-RED DEM.MED
'We will kill the black very fat buffalo.'

Just as I treat adverbials in the clause as adjuncts in subsequent chapters, I will treat adjectives (and adjective phrases) as adjuncts in the DP, right-adjoined to NP. This approach is considerably less complicated than an approach in which each AP is in the specifier of a null functional projection, and N or NP raises past all of these projections (Cinque 2005 among many others). A DP with two adjectives, then, would have a merge structure as in (53). Because the first of the two adjectives resists intensification, I remain tentative about whether the lower of two adjoined adjectives projects a full AP.

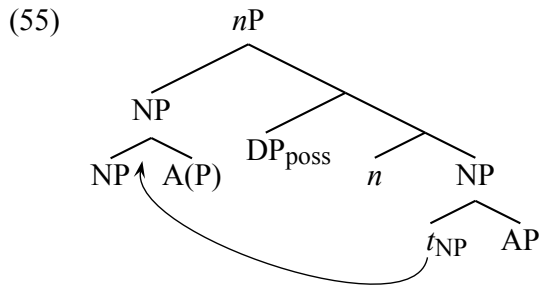


In order to derive the two possible orderings between Poss and AP, I propose that either the minimal or maximal NP is targeted for movement past Poss. Following Carstens (2001), I assume that *n* projects both an inner and an outer specifier, and NP raises into the outer specifier.²⁷ The tree in (54a) illustrates the derivation that gives rise to N–AP–Poss order, and (54b) shows how N–Poss–AP order arises.



The optionality in NP movement—that is, the possibility of raising either the minimal or maximal NP—raises the question of whether the intermediate projection, the NP containing just one AP, might also be targeted for movement, giving rise to N–A(P)–Poss–AP. A derivation like this is sketched in (55).

27. I have no compelling story to tell about the motivation for this movement—at least, none better than the one offered in Carstens (2001): an EPP feature on *n*. However, if we assume that the order in which elements initially merge is consistent across derivations, then we need movement to account, at the very least, for the variable position of AP vis-à-vis Poss.



As the following examples demonstrate, this derivation is impossible. In (56a), the possessor *Je* intervenes between two adjectives (both in boldface) that independently can modify *romô* ‘cow’ together, cf. (48a) and (51b). Even if the second adjective is intensified—which sometimes makes Poss–AP order more likely—as in (56b), it is impossible for just that AP to appear to the right of the possessor (*ñu* ‘her’ in this example), while the other adjective appears to the left of the possessor.

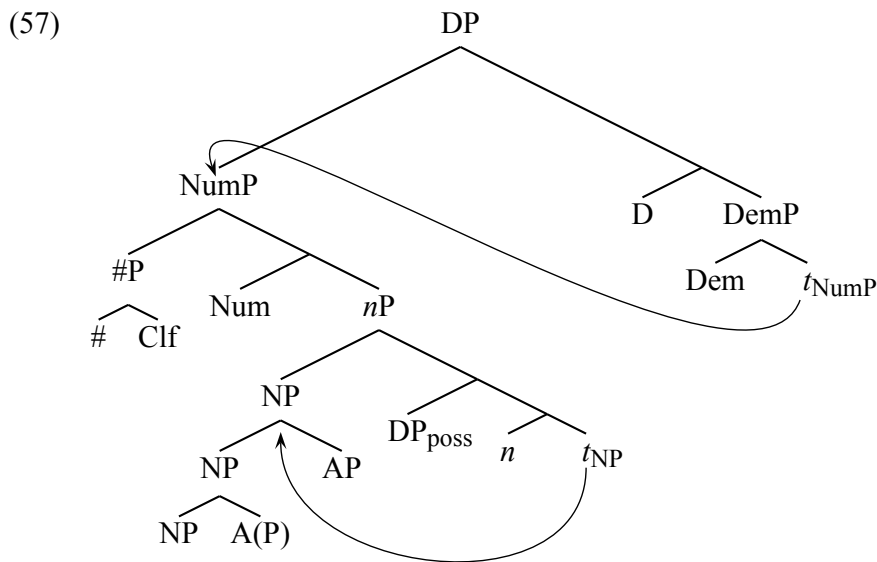
- (56) a. *Kâo ðuh [romô **prong** Je **jũ**].
 1SG see cow big Je black
 (‘I see Je’s big black cow.’)
- b. *H’Li sĩ [rðdeh so ñu **grĩ** **biã-mã**].
 H’Li sell car old 3SG dirty very-RED
 (‘H’Li sold her old very dirty car.’)

This restriction against A(P)–Poss–AP ordering also bears on another potential analysis of the variable position of AP relative to Poss. In some analyses of noun phrases that show optionality in the ordering relation between Poss and AP, a pre-Poss AP is analyzed as a true adjectival modifier, while the post-Poss AP is analyzed as a relative clause (see, e.g., Ishizuka 2007 on Javanese, where the post-Poss AP is preceded by a relative clause marker). If that were the analysis for Poss–AP ordering, however, we would expect the DPs in (56) to be grammatical: the pre-Poss A(P) is adjoined to NP, while the post-Poss AP is in a relative clause. I conclude, based on these examples, that a relative clause analysis of post-Poss adjectives is not tenable, at least for the examples we have examined here.

Coming back to the restrictions on (i) how many adjectives can be present in a noun phrase and (ii) the co-occurrence of an intensifier with an adjective when another adjective is present, I do not see an obvious phrase structural reason for these patterns. I take these to be idiosyncratic restrictions, perhaps not even strictly syntactic. Similar (although not identical) restrictions have been reported for Javanese (Ishizuka 2007; Vander Klok 2009) and Indonesian (Sneddon 1996:146-47; Kroeger 2005:241-43). I leave this to later research.

3.6 Interim summary: the DP so far

In the preceding sections, I have argued that the Jarai DP has a structure as in (57). The first movement operation is of NP into the outer Spec,*n* (in this tree I show the movement of the maximal NP). The second movement operation is of the entire NumP (the complement of Dem) to the specifier of D.



In the next section, I expand on this picture by introducing quantifiers. I claim that some quantifiers are low in the DP, in the specifier of the Num head (like #P), while others are above the DP as specifiers of a partitive head.

3.7 Quantifiers and partitives

In addition to cardinal numbers, Jarai has a handful of other quantifiers, which are listed in (58).²⁸

(58) JARAI QUANTIFIERS²⁹

<i>abih(-bang)</i>	‘all’
<i>biã abih(-bang)</i>	‘almost all, most’
<i>biã</i>	‘a few, a little’ (less than half)
<i>biã-biã (bõbiã)</i>	‘a very few, a very little’
<i>hõdum (hõdõm)</i>	‘how many?, indefinite number’
<i>lu</i>	‘many, much’
<i>rĩm</i>	‘each’
<i>sa-mõkrah</i>	‘(one) half’
<i>sa, dua, klão, ...</i>	‘1, 2, 3, ...’

Jarai quantifiers pattern in two ways: with CARDINALITY readings, like the typical use of cardinal numbers, and with PROPORTIONAL OR PARTITIVE readings. I argue that cardinal uses of quantifiers reflect a low position of the quantifier, whereas proportional readings arise when quantifiers are merged above DP. As we will see, some Jarai quantifiers can have both a proportional and a cardinal reading (not simultaneously, of course). Consequently, when I use the term *cardinal quantifier* I intend it as shorthand for the wordier *cardinal use of a quantifier*, and similarly for my use of the term *proportional quantifier*.

In discussions of quantifiers, it is common to distinguish between WEAK and STRONG quantifiers. Weak quantifiers (or quantifiers under weak readings) are generally good in existential constructions, as illustrated for English in (59). Strong quantifiers are generally degraded in existential constructions, as illustrated in (60).

28. There may well be others, but these are the ones that I have investigated.

29. A few explanatory comments are in order. The quantifier *abih* alternates with *abih-bang*, and they can generally be substituted for each other, but not always. The quantifier *biã* has an adverbial use as ‘almost’, which is its contribution in *biã abih* ‘almost all, most’. *Sa-mõkrah* is clearly a compound of the numeral *sa* ‘one’ and *mõkrah* ‘half’; in some dialects it is pronounced *samkrah*, and some dialects drop the *sa*.

- (59) a. There were **few** Marines there.
 b. There were **two** Marines there.
- (60) a. #There were **all** (of the) Marines there.
 b. #There was **every** Marine there.
 c. #There were **few** of the Marines there.

Weak quantifiers are generally those with a cardinality reading, while strong quantifiers are those with a proportional reading. Note the contrast between (59a) and (60c), both of which have the quantifier *few*: when it is weak (licit in an existential), it is being used cardinally; when it is strong (degraded), it is being used proportionally.

In Jarai, the existential test for weak versus strong quantifiers is not nearly as clear as it is in English. In general, existential constructions show differences between weak (cardinality) quantifier readings in contrast to strong (proportional) ones, but the judgments are uncertain, so I do not include them in the discussion that follows.

3.7.1 Cardinal quantifiers

The most obvious of the cardinal quantifiers are the cardinal numbers, discussed and illustrated in §3.3. All the quantifiers that can have a cardinal reading are listed in (61). I include cardinal numbers in the list, but I will often use *cardinal quantifier* to refer specifically to the items in the list other than numbers; I do this mainly when comparing cardinal numbers to the other items in the list, so no confusion should arise.

- (61) JARAI CARDINAL QUANTIFIERS
- | | |
|---------------------------|--------------------------------|
| <i>biă</i> | ‘a few, a little’ |
| <i>biă-biă (bobiă)</i> | ‘a very few, a very little’ |
| <i>hodum (hodôm)</i> | ‘how many?, indefinite number’ |
| <i>lu</i> | ‘many, much’ |
| <i>sa, dua, klâo, ...</i> | ‘1, 2, 3, ...’ |

Absent from the list are *abih* ‘all’, *biã abih* ‘almost all, most’, *rĩm* ‘each’, and *sa-mokrah* ‘half’. It is not clear whether the first two can have cardinal readings, but in most cases, they take scope over a specific quantity. *Rĩm* ‘each’ is somewhat resistant to appearing in existential constructions, characteristic of strong quantifiers (which corresponds to proportional readings). With regard to *sa-mokrah* ‘half’, it is intuitively clear that it can restrict only a specified quantity (and is thus most naturally analyzed as higher than D). Additionally, when ‘half’ is used in conjunction with a cardinal number, it must follow N, as in (62a), but when it is used alone, it precedes N, as in (62b). A plausible explanation for this is that *dua* ‘two’ is functioning as a cardinal quantifier in (62a) and, because *ha-mokrah* ‘one-half’ is a proportional quantifier, the two cannot be conjoined before N. Consequently, *dua* ‘two’ precedes the head N, and *ha-mokrah* ‘one-half’ follows, perhaps restricting an elided N.

- (62) a. *dua hroi ha-mokrah*
 two day one-half
 ‘two and a half days’
- b. *sa-mokrah hroi*
 one-half day
 ‘half a day’

The two sentences in (63) illustrate *lu* ‘many’. When the noun phrase containing *lu* refers to what is judged as a large number, the description is appropriate, even if that number is a relatively small proportion of the contextually salient domain of objects that the noun phrase selects from. Thus, 20 sick children out of 100 total (contextually salient) children is *lu* ‘many’, even though it is only one-fifth (63a). Likewise, 100 rotten trees out of 1000 total trees is *lu* (63b). On the other hand, a small number cannot be quantified with *lu*, even if it is a high proportion of the contextually salient domain of objects: three out of five children is not *lu* (63a). (A comparable situation is difficult to construct based on (63b) because a forest necessarily contains a large number of trees.)

- (63) a. Je buh [lu čodai ruă] amăng ploi.
 Je see many child sick in village
'Je saw many sick children in the village.'

Appropriate Context: In a village with 100 children, 20 are sick. (The proportion is small, but the total number is large.)

Inappropriate Context: In a village with 5 children, 3 of them are sick. (The proportion is greater than half, but the total number is small.)

- b. Amăng glai anŭn, homăo [lu koyăo brŭ].
 in forest DEM.MED have many tree rotten
'In that forest there are many rotten trees.'

Appropriate Context: In a forest with 1000 trees, 100 are rotten. (The proportion is small, but the total number is large.)

For *biă* 'few', the judgments are somewhat different, as shown in (64).³⁰ Essentially, if a speaker/hearer knows the size of the contextually salient reference group (total children in the village or total trees in the forest), then *biă* is inappropriate for referring to a group that is more than half, even if that number is small. On the other hand, *biă* seems to be acceptable for referring to a small quantity apart from a contextual standard.

- (64) a. Je buh [biă čodai ruă] amăng ploi.
 He see few child sick in village
'Je saw a few sick children in the village.'

If sentence is presented out of the blue (with no context to establish reference group), the hearer judges it to be a small number. But if a reference group is established, say 5 children, then the judgment is that Je saw fewer than half.

- b. Amăng glai anŭn, homăo [biă koyăo brŭ].
 in forest DEM.MED have few tree rotten
'In that forest there are a few rotten trees.'

This sentence is appropriate for an absolutely small number or for a small proportion (say, 100 out of 1000 trees) if the reference group size is known.

30. In my discussion of quantifiers, I will treat *biă* 'a few, a little' and *biă-biă* (*bobiă*) 'a very few, a very little' as essentially identical. In general, *biă* is appropriate to indicate a relatively small number, and *biă-biă* a very small number.

I conclude that *lu* ‘many’ is unambiguously a cardinality quantifier, giving a non-proportional reading in contexts like the ones presented above. The quantifier *biă* ‘few’ is less clear. When a contextually salient reference group is known, *biă* strongly implicates a proportional reading. However, the fact that *biă* can be used when no reference group size is known leads me to believe that it has a cardinality reading as well.

Another cardinality quantifier is the *wh*-word *hodum*, which can be used to question the cardinality of the noun phrase’s referent, as in (65a). Outside of questions *hodum* can indicate a cardinality that is unspecified for size, as in (65b).³¹

- (65) a. Je mă [**hodŭm** droi akan] lě?
 Je seize how.many CLF fish Q.WH
 ‘How many fish did Je seize?’
- b. Hobia H’Rotang hōmāo [**hodôm** boh rodêh].
 princess H’Rotang have INDF.quantity CLF car
 ‘Princess H’Rotang has some (unspecified number of) cars.’

In addition to occurring with count nouns, both *biă* ‘a few, a little’ and *lu* ‘many, much’ can also quantify over mass nouns, as illustrated in (66).

- (66) a. Homāo [**biă** ia] hōk amăng atur.
 have little water fall on floor.
 ‘There’s a little water that spilled on the floor.’
- b. Ńu hōmāo [**lu** tōlōi klă].
 3SG have much NMLZ good
 ‘He has much goodness.’

The *wh*-word *hodŭm* ‘how many’ can only quantify over count nouns. In order to combine with a mass noun, a countable container or measurement word has to precede the mass noun, as in (67).

31. The difference in spelling between *hodŭm* in (65a) and *hodôm* in (65b) is a matter of dialectal variation and does not correspond to the difference between a question and non-question clausal context.

- (67) Ih homâo hõdurm *(rõ'i) monõng kobao?
 2SG have how.many basket meat water.buffalo
'How many baskets of water buffalo meat do you have?'
(but not 'How much water buffalo meat do you have?')

My claim is that when quantifiers are used cardinally, they occur in the same syntactic position as #–Clf phrases, namely, the specifier of the cardinality head Num. In addition to having a comparable semantics to cardinal numbers—i.e., restricting or questioning cardinality—cardinal quantifiers share certain distributional characteristics.

First, cardinal quantifiers with count nouns either require a classifier, as *hodiřm* 'how many?' in (65a), or are best with a classifier, as indefinite *hodiřm* 'unspecified number' in (65b), or permit a classifier, as *biã* 'few' in (68a) and *lu* 'many' in (68b). Although classifiers are less preferred with *biã* and *lu*, what is crucial is that they are permitted.³²

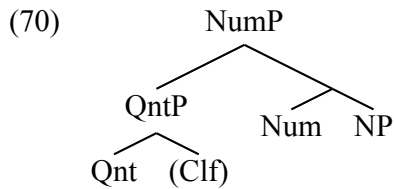
- (68) a. Kâo homâo [biã (**droi**) monũ].
 1SG have few CLF chicken
'I have a few chickens.'
- b. Ama Je homâo [lu (**čõ**) anã].
 father Je have many CLF child
'Je's father has many children.'

Second, a cardinal quantifier can sometimes occur after the head noun, as in (69a), just as #–Clf sometimes can (69b).

- (69) a. Põ anũn homâo [hrě **boiã**].
 LOC DEM.MED have string very.few
'Over there there are a few strings.'
- b. Loi mã [akan **tojuh droi**]. [=(19a)]
 Loi seize fish seven CLF
'Loi seized seven fish.'

32. What the semantic implications of this are, I am not certain. It may be that *biã* and *lu* have the semantics of classifiers built in already. Alternatively, the way that quantifiers restrict cardinality may not require the same counting semantics as cardinal numbers.

The tree in (70) shows the position I have argued for: cardinal numbers are no different from other cardinal quantifiers: all of them merge first with a classifier as required or allowed, then the quantifier (and classifier) merge into the specifier position of the cardinality-associated Num head. Consequently, I dispense with the label #P used in the tree in (25a), using instead the more general QntP.



3.7.2 Proportional quantifiers

Proportional quantifiers are distinguished from cardinal ones in that they specify a proportion of a specific quantity, whereas cardinal quantifiers pick out what is more or less an absolute quantity, a number or portion that is not interpreted in relation to some other quantity denoted by the DP. It seems that every quantifier listed in (58) can have a proportional reading.³³ Because the bulk of my examples involve proportions of specific noun phrases, I do not deal with the position of quantifiers that appear to take predicates as their domain. Thus, I am not dealing in this section with the Jarai equivalents of *every man* or *all girls*. Instead, my concern is with quantifiers that quantify over the denotation of specific noun phrases, which I take to be DPs.

The examples in (71) illustrate proportional uses of quantifiers with count nouns, where the noun phrase denotes a specific (possibly plural) entity that the quantifier picks out a part of, up to all of it. Although cardinal numbers can also be used proportionally, I postpone discussion of those facts until later.

33. There is speaker disagreement about whether *lu* ‘many, much’ can have a proportional reading. It is certainly the case that *lu* is very rarely used proportionally, and for that reason I do not include examples of *lu* in this section.

- (71) a. [**Abih-bang** čodai anũn] nao laih pơ Cheo Reo.
 all child DEM.MED go alraedy LOC Cheo Reo
'All of the children went to Cheo Reo.'
- b. [**Biã abih** khul monũ anai] kơ kâu.
 almost all PL.NHUM chicken DEM.PROX DAT 1SG
'Almost all of these chickens belong to me.'
- c. Kâu bup [**biã** goyut kâu] pơ ăar Kur.
 1SG meet few friend 1SG LOC country Cambodia
'I met a few of my friends in Cambodia.'
- d. [**Rĩm** khul koyâu anũn] brũ laih.
 each PL.NHUM tree DEM.MED rot already
'Each of those trees is rotten.'
- e. Pô anũn dõp [**sa-mokrah** khul roman kâu].
 PRT DEM.MED steal one-half PL.NHUM elephant 1SG
'That person stole half of my elephants.'
- f. [**Hodũm** bõh rodêh anai] kơ Hobia H'Rotang?
 how.many CLF car DEM.PROX DAT princess H'Rotang
'How many of these cars belong to Princess Rotang?'
- g. [**Hodũm** droi monũ anai] kơ kâu.
 how.many CLF chicken DEM.PROX DAT 1SG
'This many of these chickens are mine.'

Proportional quantifiers can also quantify over the denotation of mass nouns. A few examples are given in (72). For obvious reasons, *rĩm* 'each' and cardinal numbers cannot quantify over mass denotations unless a measure term like 'jar' or 'kilogram' first combines with the mass noun (see the examples in (17)).

- (72) a. **biã abih** aĩam kobao anũn
 almost all meat water.buffalo DEM.MED
'almost all of that water buffalo meat'
- b. Kâu bõng [**biã** aĩam kobao anũn].
 1SG eat little meat water.buffalo DEM.MED
'I ate a little of that water buffalo meat.'

- c. Pha broi bẽ kơ ñu [sǎ-mokrah pɔdai anũn].
 give give IMP DAT 3SG one-half rice DEM.MED
 ‘Give her half of that rice.’

As the examples above show, the semantic domain of proportional quantifiers is the denotation of specific noun phrases. Syntactically, I propose that this semantic fact correlates with a high position of proportional quantifiers, higher than D, which is involved in the calculation of specificity.³⁴ Evidence in favor of a high position for proportional quantifiers is the fact that it is possible to embed quantifiers with a cardinal meaning under quantifiers with a proportional meaning. This embedding is illustrated for proportional *abih* ‘all’ in (73a) and proportional *biǎ abih* ‘almost all’ in (73b), both of which precede cardinal numbers and indicate a proportion of the cardinality denoted by the numerals.³⁵

- (73) a. [Abih pluh droi monũ] kơ kào.
 all ten CLF chicken DAT 1SG
 ‘All ten chickens belong to me.’
- b. Lek bởng [biǎ abih rɔma bôh motor anũn].
 Lek eat almost all five CLF banana DEM.MED
 ‘Lek ate almost all of those five bananas.’

Other proportional quantifiers can also co-occur with lower cardinal quantifiers, including *sa-mokrah* ‘half’ in (74a), *rĩm* ‘each’ in (74b), and a cardinal number in (74c). In all of these examples, *amǎng*, a preposition usually meaning ‘in’ or ‘on’, is possible—and in (74b) and (74c) it is required for the meaning given.

34. More accurately, the determiner position is the place where the domain of the noun phrase’s denotation is restricted, along the lines of Matthewson (2001).

35. It might be argued that the quantifiers in (73) are simply adjoined modifiers to the numerals. It seems that such an analysis would yield the same meaning in (73a), that is, no fewer than 10 chickens. But in (73b), a modificational parsing of *almost all 5* would most likely give a real number cardinality (3 or, more likely, 4). However, the actual interpretation is compatible with a situation where Lek eats most of each banana, or more than 4 but less than 5, which is more likely with a high proportional quantifier taking scope over the plural entity ‘those 5 bananas’.

- (74) a. [**Sa-mokrah** (amǎng) pluh droi monũ anai] kơ kào.
 half in ten CLF chicken DEM.PROX DAT 1SG
'Half of these ten chickens belong to me.'
- b. [**Rim** amǎng pluh bẽ koyâo anũn] brũ lai.h.
 each in ten CLF tree DEM.MED rot already
'Each of those ten trees is rotten.'
- c. Kào mã [**roma** amǎng pluh asãr bôh monũ]
 1SG take five in ten CLF egg chicken
'I took 5 of the 10 chicken eggs.'
- d. [**Abih-bang** (amǎng) pluh droi monũ anai] kơ kào.
 all in ten CLF chicken DEM.PROX DAT 1SG
'All (of) these ten chickens belong to me.'

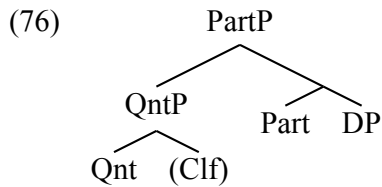
The presence of *amǎng* is also possible in some cases when a proportional quantifier does not precede a cardinal number, as with *sa-mokrah* 'half' in (75a). Other quantifiers such as *biã* 'a few' and *abih* 'all' do not permit *amǎng* in such cases, although there is some speaker variation in when *amǎng* is permitted.

- (75) a. [**Sã-mokrah** (amǎng) bing goyut kào] dỏ pơ ớar Kur.
 one-half in PL.HUM friend 1SG stay LOC country Cambodia
'Half of my friends live in Cambodia.'
- b. [**Biã** / **abih-bang** (*amǎng) goyut kào] dỏ pơ ớar Kur.
 few all in friend 1SG stay LOC country Cambodia
'A few/all of my friends live in Cambodia.'

I propose that Jarai proportional quantifiers merge as specifiers of a functional head that selects a DP as its complement, as in (76). This functional head may sometimes be realized as *amǎng* and sometimes be phonologically null, much as the English partitive *of* is sometimes required and sometimes absent.³⁶ Although I label the head Part(itive), I do so for convenience, and it seems plausible that, like the D position, Part can be occupied by different heads with

36. As the tree in (76) suggests, a classifier is sometimes optionally present in a high QntP (accompanying cardinal numbers), but unlike low QntP in Spec,Num with a cardinal number, the classifier is rarely if ever obligatory here.

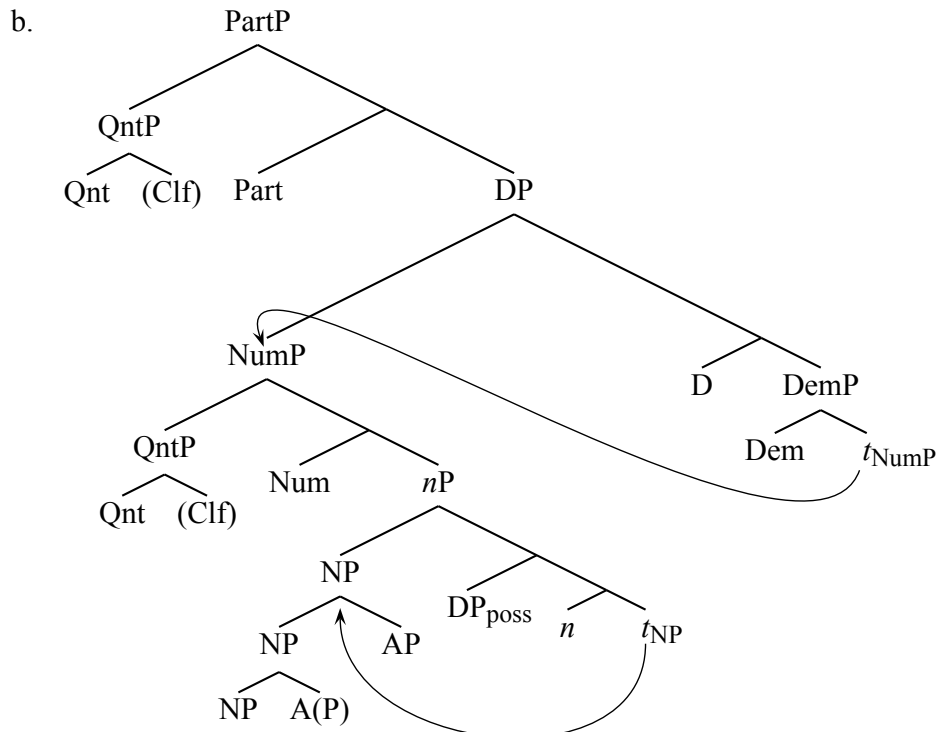
different semantics. In fact, given the variety of proportional quantifiers that can merge into Spec,Part, it seems almost inevitable that different Part heads would be necessary for mediating between the denotation of the DP and the quantifier phrase.



3.8 DP wrap-up

The hierarchy of heads in (77a) and the tree in (77b) represent my conclusions about the merge order and final position of the DP elements examined in the preceding sections. As is clear from the tree, high quantifiers merge in Spec,Part, low quantifiers and classifiers in Spec,Num, and possessors in Spec,*n*, while adjectives right-adjoin to NP.

(77) a. Part (Qnt) > D > Dem > Num (Qnt-Clf) > *n* (Poss) > N (AP)



Although aspects of this ordering are similar to the universal merge order suggested by Cinque (2005), given in (78), certain details of my analysis have departed from Cinque's proposal.³⁷

(78) $Q_{\text{univ}} > \text{Dem} > \text{Num}_{\text{ord}} > \text{Rel. Clause} > \text{Num}_{\text{card}} > \text{Clf} > \text{Adj} > \text{NP}$ [= (3)]

In particular, I have not treated adjectives as specifiers of functional projections, and I have analyzed the classifier as a specifier of a Num projection rather than being a head in the DP's functional spine. This latter departure, in particular, is well-motivated by the Jarai constituency data, and if DP structure really is identical across languages, the Jarai facts call for a reanalysis of other languages where the classifier has been analyzed as a head.

37. In Jarai, the relative clause follows adjectives and usually precedes the demonstrative. Typically a possessor and relative clause do not co-occur, so it is difficult to assess the ordering relation between the two. Integrating the relative clause into the structure given in (77) is a task I leave for later research.

CHAPTER 4

OPERATOR DOMAIN

This chapter is concerned with the operator domain of the clause, the left periphery above the inflectional heads. In §4.1 I argue that Jarai has an active operator domain and that at least three head positions can be identified there: a Fin projection that selects for (non)finiteness on T, a Foc projection where focus-marked constituents sometimes move, and a Force projection that types the clause as, for example, a question or statement. Of these three, only Fin and Force are ever spelled out overtly. In §4.2 I explore the properties of focus in Jarai, arguing that *in situ* focus and focus-fronting have the same properties with respect to exhaustivity. I also show that Jarai permits only one focus-marked constituent per clause. Finally, in §4.3 I show that in addition to having *wh*-in-situ and *wh*-fronting (which I argue to be focus-fronting), Jarai can also form *wh*-questions with a pseudocleft copular construction involving a *wh*-DP and a headless relative clause (HRC). These *wh*-pseudoclefts show various word order possibilities depending on which DP—the *wh*-DP or the HRC—raises to subject position and whether the *wh*-DP focus-fronts.

4.1 Projections in the operator domain

In the following subsections, I take a somewhat indirect approach to probing the operator domain: I focus on three different types of clauses, asking what we can discover from each one about the properties of the left periphery. I begin in §4.1.1 with finite embedded clauses, which implicate a null C head by their distribution and by *wh*-movement. In §4.1.2 I explore non-finite complement clauses, arguing that *ko*—normally a dative-marking preposition—sits in a C head position when it appears before a non-finite clause. More specifically, I suggest that

kɔ is the optional spellout of a Fin head. Finally, I present interrogative clauses in §4.1.3, both polar (yes–no) and *wh*, with a focus on two question particles that normally occur clause-finally. I analyze these particles as heads in the left periphery that induce movement of a constituent, usually the entire FocP, into their specifier position.

4.1.1 Finite complement clauses

The Jarai verbs *thào* ‘know’, *lǎi* ‘say’, and *pomĩn* ‘think, wonder’ all select for a finite clausal complement. Example (1a) shows that the future tense auxiliary *amra* can occur in a complement clause under *thào* ‘know’. Examples (1b) and (1c)—with the matrix verbs *lǎi* ‘say’ and *pomĩn* ‘think’, respectively—illustrate complement clauses containing the past perfect adverbial *laih*, which cannot occur in non-finite clauses. As evidence that the tense-marking element is truly part of the embedded clauses rather than scoping out of the embedded domain, note that in each example the time references of the matrix and embedded clauses are different: the matrix clause is present tense, whereas the embedded clause picks up its tense from the embedded tense-bearing element (future or past).

- (1) a. Blǎl phrào thào [anǎ ñu **amra** dǔ kɔ Poi].
 Blal new know child 3SG FUT marry DAT Poi
 ‘Blal just found out his daughter will marry Poi.’
- b. Je lǎi [ñu nao **laih** pɔ anih sĩ monia].
 Je say 3SG go already LOC place sell trade.
 ‘Je says he went to the market.’
- c. H’Nin pomĩn [Waih ðuh hĩ ñu **laih**].
 H’Nin think Waih see PRT 3SG already.
 ‘H’Nin thinks Waih saw her.’

We can rule out a quotative analysis for the embedded clauses in (1) by noting the pronoun reference in each example. When a verb of cognition selects a direct quote, any pronouns in the quote that refer to the matrix subject must be first person, as illustrated by English in the (a)

examples below. However, for indirect quotes (finite CP complements), pronouns co-indexed with the matrix subject must be in the third person, as the (b) examples show.

- (2) a. Mary_i realized, “Those are my_i/*her_i shoes!”
 b. Mary_i realized those were her_i/*my_i shoes.
- (3) a. Ahab_i said, “I_i/*he_i would like that vineyard.”
 b. Ahab_i said that he_i/*I_i would like that vineyard.

In the examples in (1), the pronouns in the lower clause are third person, and in each case they are co-referent with the matrix subject, confirming that we are dealing with genuine finite CP embedding rather than direct quotation.

Observe now that finite complement clauses always appear bare, as illustrated in the examples in (4) for *thăo* ‘know’ (and its negation). In sentences such as these, no overt morpheme can appear—even optionally—to mark the lower clause as a complement.

- (4) a. Kâo thâo [dua ốo nao pơ sang H’Yit].
 1SG know two CLF go LOC house H’Yit
 ‘I know that two people went to H’Yit’s house.’
- b. Kâo ừ thâo ôh [ñu truh laih ha aka].
 1SG NEG know NEG2 3SG arrive already or yet
 ‘I don’t know whether he arrived or not.’

The same holds true for finite complement clauses selected by *lăi* ‘say’ (5a) and *pomĩn* ‘think’ (5b): nothing overtly marks the left edge of the complement clause, nor can it.

- (5) a. Amai ih lăi (kơ kâo) [ih akă laih rômô].
 older.sister 2SG say DAT 1SG 2SG tie already cow
 ‘Your older sister said (to me) that you tethered the cow.’
- b. Waih pomĩn [ñu ừ laih H’Nin].
 Waih think 3SG see already H’Nin
 ‘Waih thinks he saw H’Nin.’

In English, the complementizer *that*, which is often optional before complement clauses, becomes obligatory (or strongly preferred) when a phrase that is part of the matrix clause intervenes between the matrix verb and the complement clause, as illustrated in (6). (Specifically, this phenomenon relates to the embedded CP being extraposed to the right edge of the clause.)

- (6) a. Becca saw (that) Isaiah was grumpy.
 b. Becca saw **this morning** ??(that) Isaiah was grumpy.

So in Jarai we should check whether the introduction of a clause-level adverb between the matrix verb and the complement clause—which would indicate that the complement clause has been extraposed—licenses an overt complementizer. This turns out not to be the case, as illustrated in (7). In this example, the adverbial *tõm-broi* ‘yesterday’ can only be interpreted with the matrix clause (the sentence does not assert that the marriage was yesterday, only that the discovery of it was), so we know that the intervention is genuine. However, no complementizer is possible here. Note, as well, (5a) above, where a dative phrase in the matrix clause occurs immediately before the complement clause, but no complementizer is possible.¹

- (7) Bläl phrâo thâo **tõm-broi** [anã ñu dõ kσ Poi].
 Blal new know yesterday child 3SG marry DAT Poi
 ‘Blal just found out yesterday that his daughter married Poi.’

Although Jarai apparently lacks an overt complementizer for finite complement clauses, there is indirect evidence for the existence of a C position. This evidence comes from the selectional restrictions imposed by a matrix verb on the complement clause (this line of argumentation goes back to Bresnan 1970). It is well known that in English, verbs that select a finite CP complement, including verbs of cognition and speaking, differ as to whether or not their complement clause can be an indirect question.

1. Another context in English where the complementizer is obligatory before a finite complement clause is with sentential subjects, as in *That she married Bob surprised us all*, where *that* is obligatory. Jarai apparently does not allow sentential subjects. One is tempted to speculate that the lack of sentential subjects might be correlated with the lack of an overt complementizer for finite clauses, but this is an issue I will not pursue.

- (8) a. * We thought/claimed [+Q who would win the election]. *wh*-question
 b. * We thought/claimed [+Q whether Maxi would win the election]. polar question
 c. We thought/claimed [-Q (that) Maxi would win the election]. declarative
- (9) a. We wondered/asked [+Q who would win the election]. *wh*-question
 b. We wondered/asked [+Q whether Maxi would win the election]. polar question
 c. * We wondered/asked [-Q (that) Maxi would win the election]. declarative

Facts such as these are commonly taken to indicate that the selectional properties of verbs like *think*, *claim*, *wonder*, and *ask* make reference to a feature such as [Q] on their complement. Furthermore, this feature must be high enough in the embedded clause to be visible to the selecting verb: specifically, [Q] must be on the head of the complement clause. If *whether* and *that* are both C heads, then these are straightforward instantiations of [+Q] and [-Q] complementizers, respectively. It is reasonable to suppose that the null complementizer which *that* varies with is also [-Q]. In instances of *wh*-movement, such as (9a), a null complementizer bears the [+Q] feature and attracts the *wh*-phrase into its specifier.

Jarai has at least one pair of verbs that show a contrast in the restrictions they place on their clausal complement: *laĩ* ‘say’ and *toĩa* ‘ask’.² As we see in (10), a clausal complement of *laĩ* ‘say’ can be a declarative finite clause (see also (5a)).

- (10) Kào laĩ kơ H’Jit [kào hil kơ gố].
 1SG say DAT H’Jit 1SG angry DAT 4SG
 ‘I said to H’Jit (that) I was angry at him/her.’

However, when a question rather than a declarative is embedded under *laĩ*, it is obligatorily interpreted as a direct quote rather than as a complement clause.³ Evidence for this comes from

2. The verbs of cognition *thào* ‘know’ and *pomĩn* ‘think, wonder’ can both take either an indirect question or declarative clausal complement.

3. My assumption here is that direct quotations—which can be full clauses, phrases, ungrammatical utterances, and even non-linguistic demonstrations—are instances of “mention” rather than language “use” (Church 1964; Quine 1951) and are thus integrated into the clause differently from indirect quotes, which are linguistically structured uses of language.

the interpretation of a pronoun in the embedded domain: a third person pronoun is interpreted as being distinct from the matrix subject (11a), whereas a first person pronoun is interpreted as being anaphoric to the matrix subject (11b).⁴

- (11) a. H'Sa_i laĩ [hoget ñu_{j/*i} dui ngã].
 H'Sa say what 3SG be.able do
 'H'Sa said, What can s/he do?'
- b. H'Sa_i laĩ [hoget kâo_{i/*j} dui ngã].
 H'Sa say what 1SG be.able do
 'H'Sa said, What can I do?'

Additional confirmation comes from the interpretation of *ta*, an inclusive first person plural pronoun.⁵ When *ta* is in a question embedded under *laĩ*, it necessarily includes the matrix subject (the subject of *laĩ*), showing that the question is a direct quote rather than a finite complement clause.

- (12) H'Dua_i laĩ [pɔpã ta_{i+j} nao].
 H'Dua say where 1PL.INCL go
 'H'Dua said, Where are we going?'

The verb *toña* 'ask', on the other hand, selects for a question complement clause, as shown in (13).⁶ When a question is embedded under *toña*, a first person pronoun is *not* interpreted as anaphoric to the matrix subject of *toña* (13a). Instead, the first person pronoun is interpreted as picking out the speaker of the entire sentence (not *H'Sa*). On the other hand, when a third person pronoun is in the embedded question, it can be co-referent with the matrix

4. Additionally, the speaker these examples came from suggested that there be a comma after *laĩ* and the Q particle *lě* at the end, which is used with root clause *wh*-questions but not with embedded indirect questions.

5. An inclusive first person plural includes the hearer in the group. This detail is not important here because what is important is whether the speaker is included.

6. Because embedded polar (yes–no) questions have a more complex structure, I restrict my discussion to embedded *wh*-questions.

subject, though it need not be (13b). These facts demonstrate that *toña* can embed an indirect question in the form of a finite complement clause.⁷

- (13) a. H'Sa_i toña [høget kâo_{j/*i} dui ngã].
 H'Sa ask what 1SG be.able do
 'H'Sa asked what I could do.'
- b. H'Sa_i toña [høget ñu_{i/j} dui ngã].
 H'Sa ask what 3SG be.able do
 'H'Sa asked what she could do.'

When a first person plural pronoun is in the complement clause under *toña* 'ask', the group picked out by the pronoun may include the matrix subject but need not do so. However, it must include the speaker of the entire sentence.

- (14) H'Dua_i toña [popã ta_{j(+i)} nao].
 H'Dua ask where 1PL.INCL go
 'H'Dua asked where we are going.'

As evidence that *toña* embeds a finite complement clause, rather than a non-finite clause, note that tense can be marked separately in the two clauses, as illustrated by (15), where the past-tense adverbial *laih* occurs in both the matrix and the embedded clause.

- (15) H'Lai toña **laih** [hloi kâo bup **laih**].
 H'Lai ask already who 1SG meet already
 'H'Lai asked who I had met.'

These examples suggest that some (null) head must be present in order to bear the feature [Q], thus satisfying the selectional restrictions of the matrix verb. The verb *lai* 'say' selects a CP with the value [-Q], and *toña* 'ask' selects a CP with a value [+Q]. (Both verbs may also select a direct quote.⁸)

7. As in English, *toña* 'ask' can also introduce a direct quotation, but what is important here is that indirect questions are possible under *toña* but not under *lai*.

8. Presumably, a direct quote does not have formal syntactic features accessible to the matrix clause. This is not to say, of course, that there are no restrictions on embedded direct quotes. These restrictions, however, should probably be formulated in terms of relevance rather than syntactic features.

In addition to providing evidence based on the selectional properties of matrix verbs, the examples we have seen implicate a C head position in another way, namely, through the observed *wh*-movement. If *wh*-fronting always involves movement of a *wh*-phrase to the specifier position of a head—as is standardly assumed—*wh*-movement in embedded finite clauses suggests that some (null) head exists to the left of the embedded subject, providing a landing site for the moved *wh*-phrase. A null C provides a landing site for movement: Spec,C.

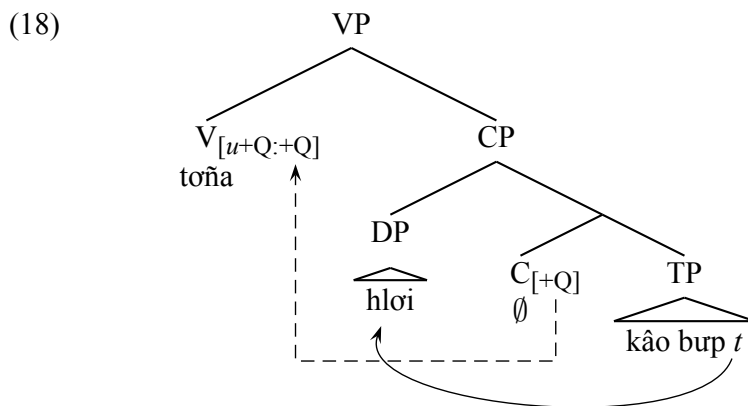
Evidence for C from *wh*-movement is not restricted to examples such as (14) and (15), where the *wh*-phrase has moved to the left edge of an embedded indirect question. We also find evidence of C in embedded clauses when the matrix clause is a *wh*-question, and the *wh*-phrase originates in the embedded clause. Example (16a) shows just such a construction, where the *in-situ wh*-questioned constituent is the object in the embedded clause. Note that the embedded clause is not itself a question, but the root clause is. Now observe (16b), where the *wh*-phrase has moved out of the embedded clause to the left edge of the matrix clause. If *wh*-movement is necessarily successive-cyclic, then there must be a position at the left edge of the embedded clause to provide a stopping-off point for the *wh*-phrase: Spec,C provides this position. In fact, Jarai gives even stronger evidence for this position: as (16c) shows, the *wh*-phrase can be pronounced in this intermediate position, at the left edge of the embedded clause, even though the root clause rather than the embedded clause is the question.

- (16) a. Li pómĩn [CP [C' \emptyset bĩng anǎ ñũ ʔũ djru hloĩ ôh]]?
 Li think COMP PL.HUM child 3SG NEG help who NEG2
 'Who does Li think his children didn't help?'
- b. **Hloĩ** Li pómĩn [CP [C' \emptyset bĩng anǎ ñũ ʔũ djru ôh]]?
 who Li think COMP PL.HUM child 3SG NEG help NEG2
 'Who does Li think his children didn't help?'
- c. Li pómĩn [CP **hloĩ** [C' \emptyset bĩng anǎ ñũ ʔũ djru ôh]]?
 Li think who COMP PL.HUM child 3SG NEG help NEG2
 'Who does Li think his children didn't help?'

Additional support for this picture comes from quantifier float. As (17b) illustrates, it is possible for a quantifier that is interpreted with a moved *wh*-item to be pronounced in the initial (pre-moved) merge position of the *wh*-item. (Example (17a) shows that the quantifier can move with the *wh*-phrase, which is the most common situation.) Now observe that the quantifier can also be pronounced at the left edge of the embedded clause (17c), suggesting that the *wh*-phrase passed through the embedded clause's Spec,C on its way to the left edge of the root clause, leaving the quantifier in the intermediate position.

- (17) a. **Abih-bang** bing hloi Je laĩ [CP [C' \emptyset kãu bũh ____]] (lẽ)?
 all PL.HUM who Je say COMP 1SG see Q.WH
 'Who all did Je say I saw?'
- b. Bĩng hloi Je laĩ [CP [C' \emptyset kãu bũh **abih-bang** ____]] (lẽ)?
 PL.HUM who Je say COMP 1SG see all Q.WH
 'Who all did Je say I saw?'
- c. Bĩng hloi Je laĩ [CP **abih-bang** [C' \emptyset kãu bũh ____]] (lẽ)?
 PL.HUM who Je say all COMP 1SG see Q.WH
 'Who all did Je say I saw?'

I conclude, then, that the structure of the verb phrase headed by *toĩa* 'ask' in (15) is as in (18). (I ignore both occurrences of the tense adverbial *lahi*.) This is a case where the embedded clause is an indirect *wh*-question. Under my analysis, the verb *toĩa* selects as its sister a CP whose head is valued as [+Q].



The null C serves two functions: it provides a landing site (Spec,C) for the moved *wh*-phrase, and it provides the featural value needed for checking the selectional feature [*u*+Q:] on the matrix verb. This checking relation is illustrated in the tree diagram by the dashed arrow. Following the notation of Adger (2003, among many others), I enclose features in square brackets. An italicized *u* stands for “uninterpretable”: an uninterpretable feature is one that must be checked and eliminated in the narrow syntax before interpretation. Thus, the feature [*u*+Q:] must be checked by an interpretable [+Q] feature. The head bearing [*u*+Q:] must be in an appropriate syntactic configuration with a head bearing a [+Q] feature, so that the [+Q] feature can check [*u*+Q:] by providing a +Q value. Once checked, [*u*+Q:+Q] is eliminated. This feature checking gives a formal explanation to what is meant by saying that C “selects” a question clause as its complement.

As the discussion progresses, I will slightly revise my claims about the identity of the head we are dealing with here: specifically, I will claim that the C head involved in *wh*-movement is in fact a Foc(us) head. However, I examine another embedded clause type—non-finite clauses—before returning to *wh*-questions and focus.

4.1.2 Non-finite complement clauses

I now turn to non-finite complement clauses, with a focus on those embedded under the verb *kiǎng* ‘want’. The embedded clause in (19a) lacks an overt subject (the lower subject is identical to the overt matrix subject), and the word *kσ* is optional before the embedded clause. In (19b), the embedded clause has an overt subject, and again *kσ* is optional. The bracketing here and in the examples to follow is meant to delineate the non-finite TP. (I argue later for a TP rather than a VP analysis of the lower clause. Further, I will ultimately argue that *kσ* itself is part of the embedded clause, which is a full CP.)

- (19) a. Kào kiǎng (**kɔ̃**) [___ moñum ia dǒng].
 1SG want DAT drink water more
 ‘I want to drink more water.’
- b. Djang kiǎng (**kɔ̃**) [H’Jok huǎ asoi].
 Djang want DAT H’Jok eat.rice cooked.rice
 ‘Djang wants H’Jok to eat rice.’

The verb *kiǎng* (along with *kɔ̃*) can also be involved in a more complicated complement structure, where it intervenes between a complement-taking verb (to its left) and the complement clause (to its right). As the examples in (20) illustrate, *kiǎng kɔ̃* is typically optional in cases like these.

- (20) a. H’Dua jač (**kiǎng kɔ̃**) [nao sang hrǎ].
 H’Dua hurry want DAT go house paper
 ‘H’Dua was in a hurry to go to school.’
- b. Jok wor-robit (**kiǎng kɔ̃**) [nao čuǎ amǐ ñu].
 Jok forget want DAT go visit mother 3SG
 ‘Jok forgot to visit his mother.’

As example (20b) demonstrates, *kiǎng* does not carry its normal semantics of wanting in a case like this; if *kiǎng* literally meant ‘want’ here, then (20b) would mean that Jok forgot *to want* to visit his mother, which borders on nonsense.⁹

Examples of the sort given in (19) and (20) raise several questions, among them the status of *kɔ̃*, which I have glossed as DAT (dative). My suggestion is that *kɔ̃* is a complementizer when it stands before a non-finite clause. At the outset, I wish to make clear that I do claim that every non-finite complement clause must be introduced by *kɔ̃*; instead my claim is that when *kɔ̃* precedes a non-finite clause, it is a functional head in the C-domain of that clause.

Before showing its use as a complementizer, I will briefly illustrate three other common uses of *kɔ̃*, uses that motivate the gloss DAT. First, *kɔ̃* marks indirect objects, as shown in (21).

9. Compare *aoj* ‘give’ in Khmer, which has acquired a use that is similar to *kiǎng* in many ways (Haiman 2011).

In (21a), *kɔ* precedes the recipient of the money-giving. In (21b), *kɔ* precedes the beneficiary of the harvesting; note that in this example, *broi* ‘give’ optionally occurs before *kɔ* with no apparent change in meaning.¹⁰

- (21) a. H’Len broi prāk ñu kɔ Poi.
 H’Len give money 3SG DAT Poi
 ‘H’Len gave her money to Poi.’
- b. Poi pĕ-hopuă gonam-tăm (broi) kɔ ama ñu.
 Poi harvest produce.and.grain give DAT father 3SG
 ‘Poi harvested the produce and grain for his father.’

Additionally, certain verbs select for objects preceded by *kɔ*, verbs such as *khăp* ‘love’ in (22a), *dố* ‘marry’ in (22b), and *kiăng* ‘want’ in (22c).¹¹ The verbs that can select a *kɔ*-marked object pattern with the class of verbs that cross-linguistically take a dative-marked object.¹²

- (22) a. H’Len khăp kɔ ayông ñu.
 H’Len love DAT older.brother 3SG
 ‘H’Len loves her older brother.’
- b. Ñu dố kɔ amai kâo.
 3SG marry DAT older.sister 1SG
 ‘He married my older sister.’
- c. Kâo kiăng kɔ akan.
 1SG want DAT fish
 ‘I want fish.’

(Note that in (22c), *akan* ‘fish’ can only be a noun, not a verb, so the sentence cannot mean ‘I want to fish.’)

10. When *broi* ‘give’ is present in (21b), it does not mean that the subject gave the harvested produce and grain to his father; instead, the sentence means only that the act of harvesting was done for the benefit of the father. See §6.6.3 for a brief discussion of the benefactive serial verb construction.

11. For certain of these verbs, there is variation in when *kɔ* is obligatory (or even allowed). I think the primary factor is whether or not the object is human. For non-human objects, the *kɔ* is optional (or in some cases, for some speakers, simply unacceptable). For human objects, *kɔ* is generally obligatory. More data are needed, however, to clarify this picture.

12. Dative direct objects are a topic of considerable interest in Germanic linguistics (see, e.g., Maling 2002 and references cited therein on dative objects in Icelandic).

Finally, *kɔ* can be used in a non-verbal possessive construction, where the subject is said to belong to a possessor in the predicate marked with *kɔ*. This use is illustrated by the examples in (23).

- (23) a. Sa mɔkrah homa anai **kɔ** ama kâo.
 one half field DEM.PROX DAT father 1SG
 ‘One half of this field belongs to my father.’
- b. Abih pluh droi monũ anai **kɔ** kâo.
 all ten CLF chicken DEM.PROX DAT 1SG
 ‘All ten of these chickens belong to me.’

A fairly straightforward analysis of *kɔ*’s use in (21)–(23) is to treat it as a prepositional dative-marker, as I have done in my glossing.

So then, if *kɔ* is a preposition that assigns dative case, what is its role when it precedes an embedded clause? Before exploring that question, I first present additional instances of *kɔ* preceding a non-finite complement clause. In the examples at the beginning of this section, *kɔ* followed *kiăng* ‘want’, both in cases where *kiăng* was the main verb of the matrix clause (19) and when *kiăng* intervened between the main verb and the non-finite clause (20). The following examples illustrate *kɔ* preceding non-finite clauses when the matrix clause lacks *kiăng*.

The two sentences in (24) are periphrastic causative constructions.¹³ In both cases, including *kɔ* is sometimes preferred, but speakers permit its omission.

- (24) a. Kâo ngă (**kɔ**) [ñu djai].
 1SG make DAT 3SG die
 ‘I make him die.’
- b. Kâo ngă (**kɔ**) [ñu pomăng ñăk].
 1SG make DAT 3SG listen music
 ‘I make him listen to music.’

13. By calling these sentences *causatives* I do not mean to suggest that they have a different structural analysis from the other examples of non-finite clausal embedding in this section. Instead, I am using *causative* as a merely descriptive term.

The next two instances of *kɔ* before a non-finite clause involve expectation and coercion, respectively. In (25a), the matrix verb is *čang* ‘expect’, with *kɔ* optionally preceding the embedding non-finite clause. In (25b), the matrix verb is *pogǔ* ‘force’, and *kɔ* optionally precedes the lower clause.

- (25) a. Kâo čang (**kɔ**) [ñu rai pɔ anai bɔi dua mông].
 1SG expect DAT 3SG come LOC DEM.PROX at two time
 ‘I expect him to come here at 2 o’clock.’
- b. Kâo pogǔ (**kɔ**) [ñu pomǎng ñǎk].
 1SG force DAT 3SG listen music
 ‘I forced him to listen to the music.’

What we see from the preceding examples is that the presence of *kɔ* before non-finite clauses is not merely an isolated fact about *kiǎng* ‘want’ but instead a more general—though certainly not completely general—fact about non-finite complement clauses in Jarai. Some verbs that take non-finite complements allow that complement to be preceded by *kɔ*, whereas others do not.¹⁴

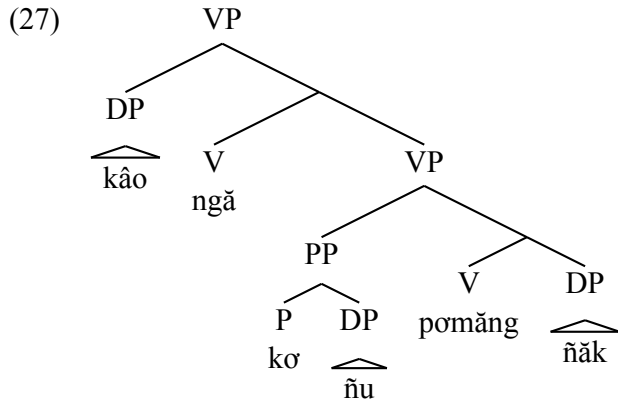
One way to analyze the examples we have seen so far is to take the *kɔ* as a simple dative-marking preposition, merging with a DP that serves as its object. Although I ultimately reject this approach, it is made at least plausible by two considerations: (i) *kɔ* is unambiguously a dative-marking preposition in other constructions; and (ii) in causative constructions cross-linguistically, it is common for the lower agent—the causee—to be demoted to dative case. Under this approach, we might give the sentence in (26), repeated from (24b), the analysis in (27).

14. An example of a verb that does not allow *kɔ* before a non-finite complement is *broi* ‘give’ when it is used as the matrix verb in a permissive causative (having the meaning ‘allow’). Such a construction is judged as deviant with *kɔ*, as illustrated in (i).

- (i) Kâo broi (??**kɔ**) [ñu pomǎng ñǎk].
 1SG give DAT 3SG listen music
 ‘I allowed him to listen to the music.’

This fact may be due to a blocking effect: *broi kɔ* can be used to introduce a benefactive DP, so including *kɔ* in a permissive construction creates confusion.

- (26) Kào ngǎ kơ ñu pomǎng ñăk.
 1SG make DAT 3SG listen music
 ‘I make him listen to music.’

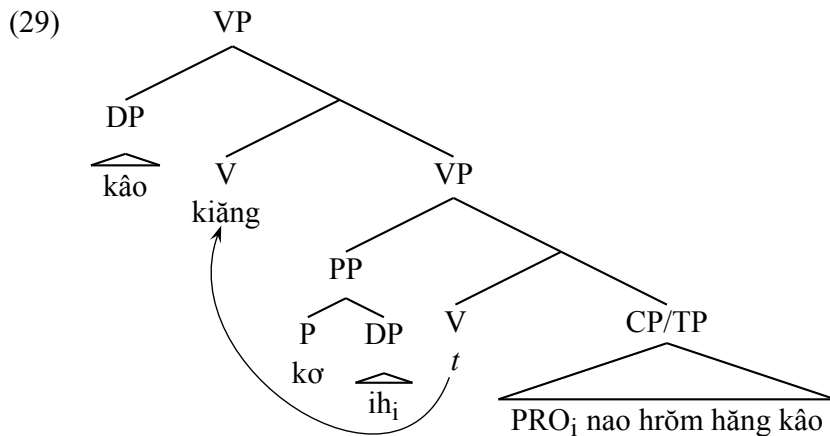


This particular implementation assumes that subjects originate in the verb phrase, but abstracts away from the possibility of a split-VP. The matrix subject, *kào*, will ultimately receive case by raising to Spec,T (not shown), but the lower subject, *ñu*, has no mechanism for getting structural case, so it is consequently merged in a PP, and that PP merges in the subject position of the lower verb phrase (which is essentially a small clause).¹⁵

Even if we wish to maintain that the lower verb and its arguments constitute a clause (TP or CP), we might still hold onto the analysis of *kơ* as a simple preposition. Such an analysis is sketched out for (28), where the matrix verb is *kiǎng* ‘want’, in (29).

- (28) Kào kiǎng [kơ ih] [nao hrôm hǎng kào].
 1SG want DAT 2SG go together with 1SG
 ‘I want you to go with me.’

15. Alternatively, the matrix verb *ngǎ*, which assigns accusative case to a DP sister, assigns dative case to the specifier of a VP sister.



Under this parsing, we assume a split-VP (Larson 1988), where the PP headed by *kσ* is specifier of the lower V projection, with the embedded clause as the complement of the lower V. The true subject of the lower clause is PRO, which is controlled by *ih*.¹⁶

Both of these possible analyses treat *kσ* as a P that is present in order to license an overt DP—the lower subject—which is otherwise unlicensed.¹⁷ Consequently, both analyses predict that when no overt DP is present in the lower clause, no *kσ* would be needed. More than that, *kσ* is predicted to be impossible in such cases, because it would serve no syntactic function at all.

In fact, there are plenty of cases in which *kσ* directly precedes another verb, with no intervening (overt) DP, as illustrated by the two examples in (30). In both sentences, the notional subject of the lower verb is the matrix subject, which I take to indicate subject control of PRO in the lower clause. (See also the earlier example in (19a).)

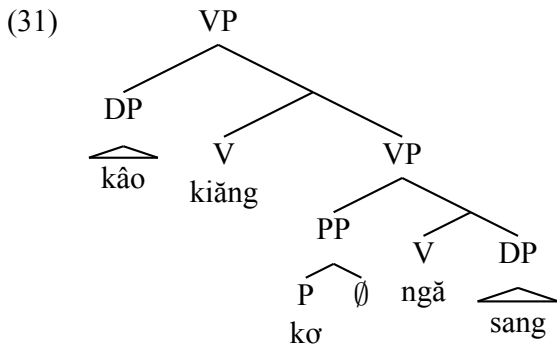
- (30) a. H'Drôm kiăng (**kσ**) [sĩ hĩ sang ñu].
 H'Drom want DAT sell PRT house 3SG
 'H'Drom wants to sell her house.'

16. We could also take the approach shown in (27), where the PP containing the lower subject is truly inside the lower clause, perhaps in Spec,V. In this case the motivation for *kσ* would be that non-finite T is unable to assign case, so the subject must occur in a PP.

17. A problem with (29) is that a Larson-style split-VP would have the lower rather than the higher internal argument marked with the dative. Whether or not this would be an insurmountable problem is not clear to me. Because this is not the approach I adopt, I leave the question to the side.

- b. Kâo kiäng (kσ) [ngă sang].
 1SG want DAT make house
 'I want to build a house.'

If we persist in analyzing *kσ* as a dative-marking P, then we need to figure out the identity of *kσ*'s object in these examples. Under the assumption that the lower verb is part of a small clause (just a VP), as in (27), the sentence in (30) should have a tree structure as in (31). The two best options for the identity of the null category, labeled here simply as \emptyset , are (i) a trace of A-movement and (ii) a null pronominal, *pro*.



The first option, an A-trace, is easy to rule out given the motivation for analyzing *kσ* as a preposition in the first place. The story so far has it that the purpose of *kσ* is to provide dative case to its object. However, by the Chain Condition of Chomsky & Lasnik (1993), a trace of A-movement cannot be in a case position.¹⁸ The second option, analyzing the empty category as *pro*, is attractive based on the fact that Jarai allows null pronominals in argument positions. Crucially, however, *pro* is not permitted as the object of *kσ*, as demonstrated in the following examples. In (32a,b), the verb *broi* 'give' selects both a theme and a recipient. The recipient is normally in a PP headed by *kσ*, immediately following the theme (32a). As example (32b) shows, it is possible to omit the recipient, and the recipient's identity can be recovered; but crucially, *kσ* is not possible in such a case. Example (32c) shows the same thing, but for a

18. Under Minimalism, the Chain Condition can be understood in terms of a principle of Last Resort. Because the object of *kσ* is already licensed in the PP, there is no reason for it to raise out of the PP.

dative direct object rather than a dative recipient. As we saw in (22a), the verb *khăp* ‘love’ selects a PP headed by *kɔ*. However, when the object of *khăp* is *pro*, *kɔ* cannot be present.

- (32) a. Tɔdang kâo ðuh ñu_i, kâo broi pɔk kɔ ñu_i.
 when 1SG see 3SG 1SG give money DAT 3SG
 ‘When I saw him, I gave money to him.’
- b. Tɔdang kâo ðuh ñu_i, kâo broi pɔk (*kɔ) pro_i.
 when 1SG see 3SG 1SG give money DAT
 ‘When I saw him, I gave money to (him).’
- c. Pô anñ H’Li_i. Je khăp (*kɔ) pro_i.
 PRT DEM.MED H’Li Je love DAT
 That person is H’Li. Je loves (her).

From these data, it is reasonable to conclude that *pro* simply cannot be marked with dative case. Thus, we have good reason to doubt an analysis of non-finite clausal embedding in which *kɔ*’s sole purpose is to provide dative case. Because \emptyset in (31) cannot be an A-trace or *pro*, I conclude that the structure in (31) is not the right account for *kɔ* when it precedes an embedded clause.

Turning now to the structure in (29), where the embedded clause is taken to be at least a full TP (rather than a VP/small clause), we can add one more option to the list of possibilities for the empty category: it may also be PRO. (In (29), the *kɔ*-headed PP is outside the embedded clause; but we can easily imagine it in Spec,T in the lower clause. Then PRO would be in the lower subject position.) However, PRO cannot be assigned case (Chomsky 1981), so we run into the problem of how PRO can be the object of dative-case assigning *kɔ*. The lack of a suitable characterization of the empty category selected by *kɔ* in sentences like those in (30) argues against an analysis of *kɔ* as a dative preposition when it precedes a verb-initial complement clause.

Another argument against analyzing non-finite *kɔ* as a dative-marking preposition—whether under a small-clause or full clause analysis—relates to pied-piping. In cases where *kɔ* is clearly a dative-marking preposition, it obligatorily pied-pipes when its complement DP

wh-raises. In (33), *kɔ* marks an indirect object. As (33a) shows, when the DP following *kɔ* is *wh*-fronted, *kɔ* cannot remain in situ; it must be pied-piped along with the *wh*-phrase, as in (33b).

- (33) a. *Hlɔi H'Nin broi prāk **kɔ** ___ lě?
 who H'Nin give money DAT Q.WH
 ('Who did H'Nin give money to?')
- b. **Kɔ** hlɔi H'Nin broi prāk ___ lě?
 DAT who H'Nin give money Q.WH
 'To whom did H'Nin give money?'

The same fact holds true when *kɔ* marks a dative direct object, as illustrated in (34).

- (34) a. *Hlɔi amĩ ñu khăp **kɔ** ___?
 who mother 3SG love DAT
 ('Who does his mother love?')
- b. **Kɔ** hlɔi amĩ ñu khăp ___?
 DAT who mother 3SG love
 'Who does his mother love?'

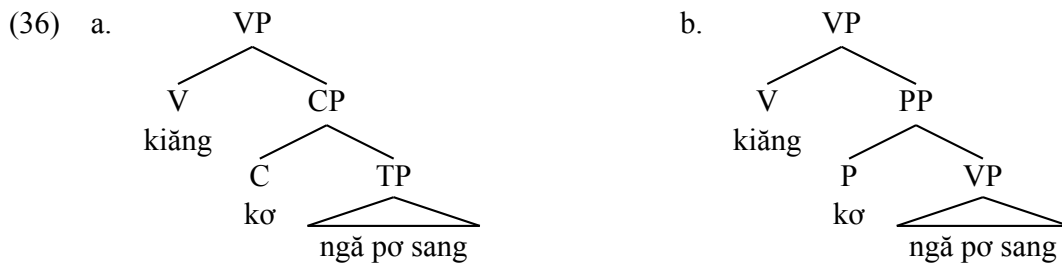
In contrast to cases in which *kɔ* is a dative-marking preposition (and thus is obligatorily pied-piped), *kɔ*-stranding is fully acceptable when *kɔ* precedes the subject DP of an embedded clause. This fact is illustrated in (35a).¹⁹

- (35) a. Hlɔi Je kiăng **kɔ** ___ nao hrôm hăng ñu?
 who Je want DAT go together with 3SG
 'Who does Je want to go with him?'
- b. %**Kɔ** hlɔi Je kiăng ___ nao hrôm hăng ñu?
 DAT who Je want go together with 3SG
 ('Who does Je want to go with him?')

19. I do not understand the split judgments on (35b). However, the crucial fact is that *kɔ*-stranding is possible here, in stark contrast to cases where *kɔ* is a P.

I conclude, then, that *kσ* cannot be a dative-marking preposition when it precedes an embedded non-finite clause.

However, we are still left with two other possible analyses of pre-clausal *kσ*. It could be that *kσ* is a head in the C-domain (as I argue), and the lower verb and its arguments are part of a full TP, as sketched in (36a) (from the example in (30)). On the other hand, the lower verb may not be part of a full TP but simply a VP, and *kσ* is a preposition that selects for complement VPs, as in (36b).



One piece of evidence in favor of the full TP (and thus CP) analysis of the embedded material comes from the interpretation of tense. A prediction of the *kσ*-VP analysis (36b) is that the tense of the lower verb should be identical to the tense of the higher verb. In apparent confirmation of this prediction, observe that the future tense marker *amra* cannot occur in the downstairs clause below *kiǎng*, as illustrated in (37a). This fact suggests that there are no head positions (T or Asp) in which *amra* can merge, demonstrating that *kσ* precedes a mere VP. But consider (37b), which is identical to (37a) except that it lacks *amra*. In (37b), the event denoted by the matrix verb ('ask') is interpreted as past, but the event denoted by the embedded verb ('marry') is interpreted as future. Thus, the time reference of the two clauses can be quite different.²⁰ (Example (37c) shows the possibility of leaving the time reference of the embedded clause unspecified, in which case the interpretation is simply that the marrying

20. In fact, in this case, the time references are not even directly dependent on each other. Instead, both are dependent on the interpretation of the utterance time.

would be subsequent to the asking. For obvious reasons, it is impossible for the embedded clause in this case to have a time reference prior to that of the matrix clause.)

- (37) a. *Hroi tǒm-broi Jek rokâo laih kiăng kơ [ană đah-komoi ñu **amra**
 day yesterday Jek ask already want DAT child female 3SG FUT
 dǒ kơ Tam amăng hroi pogi].
 marry DAT Tam in day tomorrow
 ('Yesterday, Jek asked his daughter to marry Tam tomorrow.')
- b. Hroi tǒm-broi Jek rokâo laih kiăng kơ [ană đah-komoi ñu dǒ
 day yesterday Jek ask already want DAT child female 3SG marry
 kơ Tam amăng hroi pogi].
 DAT Tam in day tomorrow
 'Yesterday, Jek asked his daughter to marry Tam tomorrow.'
- c. Hroi tǒm-broi Jek rokâo laih kiăng kơ [ană đah-komoi ñu dǒ
 day yesterday Jek ask already want DAT child female 3SG marry
 kơ Tam].
 DAT Tam
 'Yesterday, Jek asked his daughter to marry Tam.'

The two facts requiring explanation are these: (i) overt tense-marking is impossible in the embedded domain, and (ii) the time reference of the embedded domain can be distinct from that of the matrix clause. We might conclude that time-reference is not co-extensive with the presence of T, so that an embedded VP—which lacks a T node—might have a different time reference from the time reference of the matrix verb. After all, in English we can say things like (38), where the two verbs (under the same T) have distinct time references: in this case, the event of the second V being at least an hour subsequent to the event of the first V.

- (38) By the time the comet arrived, they [_{T'} had [_{VP} [feasted] and, [after an hour-long purification rite, donned their pink robes]]].

But crucially, the time references of both events are dependent on the shared past (perfect) tense. What we do not find is a case of two verbs embedded under the same T node but con-

trasting with each other with respect to the past–present–future distinction, which is the level of granularity we find encoded by English tense (see Klein 1994, among many others). Thus, differences in time reference can be quite fine-grained, but when those differences cross the past–present–future boundaries, they implicate tense differences. Returning to the time contrast between the events in (37b), we see that it is not a fine-grained time reference distinction, but instead a difference between past and future, implicating a T node in the embedded domain. Nevertheless, the T in the embedded domain cannot be spelled out overtly (37a).

Thus, I propose that the difference between finite and non-finite T in Jarai is that finite T may be overt, but non-finite T is necessarily null. However, both finite and non-finite T can independently denote past, present, or future tense.²¹

As additional evidence for the existence of (non-finite) T under *kiǎng*, we can compare the case at hand to tense in the multi-verb constructions in (39). In Chapter 6 I identify these as serial verb constructions (SVCs) and argue that SVCs are monoclausal, having only one T node. (Specifically, they involve the embedding of a verb phrase under a higher verb phrase, which is itself dominated by TP.) Note that the translations here are idiomatic: in Jarai, both words in boldface are unambiguously verbal.

- (39) a. Tǝm-broi Set **pǝnah** roman **djai**.
 yesterday Set shoot elephant die.
 ‘Yesterday Set shot an elephant dead.’
- b. Tǝm-broi Rok **tolǝ** tomeh **robuh**.
 yesterday Rok push pole fall.
 ‘Yesterday Rok pushed a pole down.’

Now observe in (40) what happens when *pogi* ‘tomorrow’ is placed after the second verb: the sentences become unacceptable, in spite of the fact that the sequence of events is plausible (albeit a bit strange).

21. Whether there are semantic differences between finite and non-finite T, as I expect there are, is an open question.

- (40) a. *Tõm-broi Set **ponah** roman **djai** pogi.
 yesterday Set shoot elephant die tomorrow.
 ‘Yesterday Set shot an elephant (and it will) die tomorrow.’
- b. *Tõm-broi Rok **tolũ** to meh **robuh** pogi.
 yesterday Rok push pole fall tomorrow.
 ‘Yesterday Rok pushed a pole (and it will) fall tomorrow.’

SVCs like these are the most likely exemplars of VP-embedding in Jarai. And we find that disjoint (past/future) time reference for the two verbal events is impossible. I conclude, then, that the time reference difference between the verbs in (37b) really does implicate the presence of a T node in the embedded domain.

An additional argument for a clausal analysis of the embedded domain comes from facts about pronoun reference. The crucial background is this: A (non-reflexive) pronoun cannot be co-indexed with a c-commanding DP in the same clause, as illustrated in (41). In other words, Jarai conforms to Principle B of Binding theory (Chomsky 1981).

- (41) a. Je_i buh ñu_{j/*i}.
 Je see 3SG
 ‘Je saw him.’
- b. Đun_i djru ñu_{j/*i}.
 Dun help 3SG
 ‘Ddun helped him.’

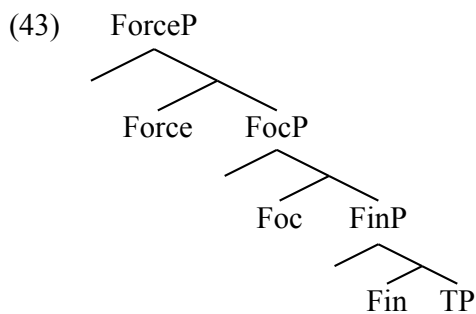
However, in the embedded domain selected by *kiǎng* ‘want’, it is possible for the third person pronoun *ñu* to be co-indexed with the matrix subject, demonstrating that a clause boundary intervenes between the two. (The possibility of disjoint reference—indicated by the ‘j’ subscript—is as expected for non-reflexive pronouns and included here for completeness.)

- (42) a. H’Li_i kiǎng kơ Je buh ñu_{i/j}.
 H’Li want DAT Je see 3SG
 ‘H’Li wants Je to notice her.’

- b. Đun_i kiăng kσ kâo djru ñu_{i/j}.
 Ddun want DAT 1SG help 3SG
 ‘Ddun wants me to help him.’

Taken together, the facts about the interpretation of tense and the Principle B facts lead naturally to the conclusion that the domain embedded under verbs such as *kiăng* ‘want’ is a clause, which is minimally a TP. The most plausible analysis of *kσ*, then, is as a complementizer, somewhat like the English complementizer *for*. In contrast to *for*, however, *kσ* can select non-finite clauses whether or not they have an overt subject. What this means is that the distribution of *kσ* cannot be accounted for solely in terms of case. That is, we cannot say that non-finite clauses take an overt complementizer (*kσ*) whenever the subject of the embedded clause is overt and consequently in need of case. As we have seen, there are plenty of examples of non-finite clauses with overt subjects where *kσ* is absent or optional.²²

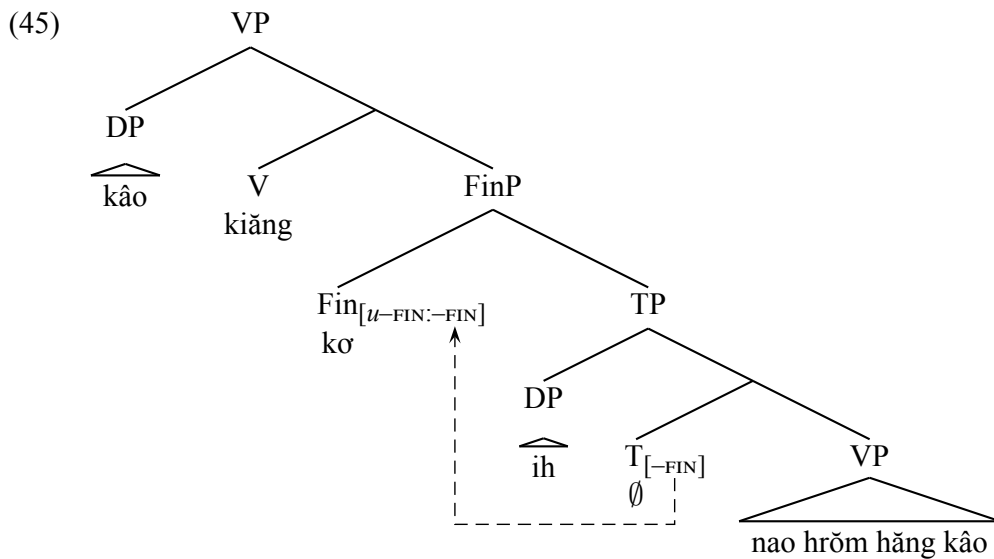
Having established *kσ* as a complementizer, I wish to go further and suggest that we can identify *kσ* with a particular head in Rizzi’s (1997) articulated C-domain. Rizzi argues that the region of the clause associated with C has at least four distinct heads, Force (for clause type information), Top (for topic), Foc (for focus), and Fin (for finiteness). The structure is shown in (43) (adapted from Rizzi 1997:297, ex. (41)). (In this tree I omit Rizzi’s Top(ic) projections—one just above and one just below FocP—because they do not come into play in my analysis of Jarai’s operator domain.)



22. From this point onward, I will gloss *kσ* as *COMP* when it is used as a complementizer.

Foc provides a landing site for focused constituents (in Spec,Foc), and Fin determines, among other things, the finiteness of the TP that it selects. Because *kɔ* precedes only non-finite TPs, it is reasonable to suppose that it is one possible spellout of a Fin head with a [u -FIN:] feature (the other possible spellout being null); the [u -FIN:] feature must be checked by the relevant [-FIN] (non-finite) feature on T, accounting for the selectional properties of *kɔ*. Jarai [-FIN] T is null, and with respect to time reference, it is underdetermined. Consequently, time adverbials in a non-finite clause can provide a time reference that is different from the time of the matrix tense, as discussed above. Thus, (44), repeated from (28), has the partial analysis shown in (45).

- (44) Kâo kiăng kɔ ih nao hrôm hăng kâo.
 1SG want COMP 2SG go together with 1SG
 'I want you to go with me.'



Whether non-finite clauses in Jarai involve more structure above FinP I leave as an open question for now.²³

23. Before leaving non-finite clauses, I wish to address a puzzling fact noted at the beginning of this section, namely, that *kiăng* is often sandwiched between a complement-taking matrix verb and an embedded CP. In order

4.1.3 Interrogative clauses

I turn now to root interrogative clauses, with a focus on two question particles that optionally occur in questions. Each of these particles typically occurs clause-finally, but as we will see, they can also occur non-finally. Polar questions can include the particle *hǎ*, shown in (46a). *Wh*-questions optionally include the particle *lě*, shown in (46b). Note as well that *wh*-movement is fully optional in Jarai and does not depend on the presence or absence of a

to demonstrate what a pervasive phenomenon this is, I present a number of examples in (i). Note that in nearly every case, *kiǎng kơ* can be omitted without changing the meaning.

- (i) a. Nũ **hur-har** (kiǎng kơ) pě gông.
 3SG be.eager-RED want COMP pluck guitar
 ‘He is eager to play the guitar.’
- b. Kào **posūt** (kiǎng kơ) H’Len taih Tre.
 1SG incite want COMP H’Len hit Tre
 ‘I incited H’Len to hit Tre.’
- c. Kào **potă** (kiǎng kơ) ană kào nao pơ sang hră.
 1SG instruct want COMP child 1SG go LOC house paper
 ‘I told my child to go to school.’
- d. H’Bia **poğǒ** kiǎng kơ adoī ñũ dǒ kơ Phoi.
 H’Bia force want COMP younger.sibling 3SG marry DAT Phoi
 ‘H’Bia forced her younger sister to marry Phoi.’
- e. H’Dua **jač** (kiǎng kơ) nao sang hră.
 H’Dua hurry want COMP go house paper
 ‘H’Dua was in a hurry to go to school.’
- f. Nũ **wor-bit** (kiǎng kơ) nao mã hră.
 3SG forget want COMP go seize paper
 ‘He forgot to get the mail.’

I also have examples of *kiǎng* after *po-hodor* ‘CAUS-remember, remind’, *rokáo* ‘make request’, *lai* ‘tell (someone) to’, *ngă* ‘make, cause’, and *potrūt* ‘encourage’.

I will not attempt a detailed analysis of this phenomenon, but I will suggest a possible explanation. Perhaps at some stage in its historical development, Jarai had a severely limited number of verbal roots that could select a non-finite clausal complement; indeed, perhaps *kiǎng* was the only such verb. However, Jarai has a fairly productive serial verb construction which allows a verb phrase to be directly embedded within another (see Chapter 6). Consequently, verbs other than *kiǎng* could not select a CP, but they could merge with a VP headed by *kiǎng*, which itself could embed a CP; this strategy allowed an indirect, mediated route to clausal embedding. Over time, various verbal roots were reanalyzed with respect to their selectional properties, so that in present-day Jarai they can directly select a non-finite CP. However, the mediating use of *kiǎng* is still possible and persists into modern usage. This is presumably what happened with the benefactive use of *broi* ‘give’: dative-marked DPs were not licensed by most verbal roots, so adding a benefactive argument required an SVC in which *broi* introduces the benefactee. Over time, the situation changed so that dative arguments could quite generally be added to a VP without the mediation of *broi*, but the benefactive SVC still alternates with the non-verbal benefactive strategy.

question particle. Example (46b) shows both the *wh*-moved and in-situ positions of the questioned object. The object cannot be overt in both positions at spellout.

- (46) a. Je pioh asoi b̄oi k̄obang (**hǎ**)?
 Je put cooked.rice on table Q.POL
 ‘*Did Je put the rice on the table?*’
- b. (hoget) Je pioh (hoget) b̄oi k̄obang (**l̄e**)?
 what Je put what on table Q.WH
 ‘*What did Je put on the table?*’

Additional examples of the polar question particle *hǎ* are given in (47). The contrast between the positions of *hǎ* in (47b) shows that the question particle can follow but not precede the past perfect tense adverbial *laih*, which itself often occurs clause-finally.

- (47) a. Mik broi abăn k̄o yǎ ñu (**hǎ**)?
 Mik give blanket DAT grandmother 3SG Q.POL
 ‘*Did Mik give a blanket to his grandmother?*’
- b. Dam nao p̄o homa ñu (***hǎ**) laih (**hǎ**)?
 Dam go LOC field 3SG Q.POL already Q.POL
 ‘*Has Dam gone to the field already?*’

The questions in (46a), (47a), and (47b) are all perfectly acceptable without *hǎ*, in which case intonation alone carries the burden of indicating that the sentence is a polar question. For one of my consultants, including *hǎ* adds the suggestion that the speaker suspects the answer to be yes.²⁴

24. Another particle/adverbial, *m̄õn* (or simply *m̄õ*), sometimes accompanies *hǎ*. My data only shows the order *m̄õ(n) hǎ* (as illustrated below), and it is not clear what difference *m̄õ(n)* makes. Because *m̄õn* also occurs in non-question clauses, I will ignore this particle for the purposes of the present discussion.

- (i) Ia h̄õk amǎng atur lu **m̄õn hǎ**?
 water fall on floor much Q Q.POL
 ‘*Did much water spill on the floor?*’

The following three pairs of examples provide additional illustration of *lě*, the Q particle used in *wh*-questions. In (48), the direct object is questioned. As already pointed out, both *wh*-in-situ (48a) and *wh*-fronting (48b) are possible.

- (48) a. Je mǎ [hōdǔrm droi akan] (lě)?
 Je seize how.many CLF fish Q.WH
 ‘How many fish did Je catch?’
- b. [Hōdǔrm droi akan] Je mǎ ____ (lě)?
 how.many CLF fish Je seize Q.WH
 ‘How many fish did Je catch?’

The questioned constituent in (49) is the indirect object. Again, the questioned phrase can be either in-situ (49a) or fronted (49b), although my consultant indicated a preference for in-situ for this sentence.

- (49) a. Amǐ ama H’Nam pha broi klāo droi monǔ [kɔ hloi] (lě)?
 mother father H’Nam give give three CLF chicken DAT who Q.WH
 ‘Who did H’Nam’s parents give three chickens to?’
- b. [Kɔ hloi] amǐ ama H’Nam pha broi klāo droi monǔ ____ (lě)?
 DAT who mother father H’Nam give give three CLF chicken Q.WH
 ‘Who did H’Nam’s parents give three chickens to?’

Finally, (50) illustrates a questioned locative PP, both in-situ (50a) and *wh*-fronted (50b).

- (50) a. Je pioh asoi [popǎ] (lě)?
 Je put cooked.rice where Q.WH
 ‘Where did Je put the rice?’
- b. [Popǎ] Je pioh asoi ____ (lě)?
 where Je put cooked.rice Q.WH
 ‘Where did Je put the rice?’

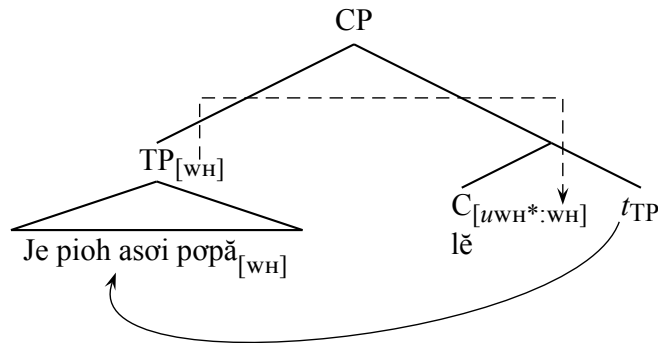
In all of the examples above, *lě* is optional, and its presence or absence does not correlate with any semantic difference.

My claim is that the function of Jarai’s question particles is to identify or encode the type of clause they appear in: *hǎ* identifies a clause as a polar question, and *lě* identifies a clause as a *wh*-question. Additionally, I suggest that these particles are actually C heads, merging high in the left periphery. The connection between clause typing and complementizers is developed by Bresnan (1972), who identifies English complementizers as “those S-initial morphemes which distinguish clause types” (6).

Analyzing *hǎ* and *lě* as C heads gives rise to an obvious objection, however: why would a language that is strongly head-initial have clause-final complementizers? We have seen that verbs and prepositions precede their complements, and the complementizer *ko* precedes non-finite clauses. Why would the highest head in the Jarai clause be linearized at the far right of everything else? A fairly straightforward explanation is that Jarai question particles have a strong feature that attracts the minimal clause (the TP) into its specifier position.

Adopting the approach of Adger (2003) with respect to the mechanics of feature checking, let us suppose that the C head spelled out optionally as *lě* has an uninterpretable $_{WH}$ feature (represented as [$_{uWH}$]) that must be checked by the interpretable feature [$_{WH}$]. (Once checked, this [$_{uWH}$] deletes so as not to be visible at the conceptual-intentional interface.) Let us suppose further that this uninterpretable feature is strong (indicated with an asterisk: [$_{uWH}^*$]), meaning that the constituent bearing the feature that checks it must move into the specifier of C. The constituent which bears the interpretable [$_{WH}$] feature is the *wh*-word itself, but [$_{WH}$] is also passed up from node to node, so that any node dominating the *wh*-word inherits [$_{WH}$]. (This last suggestion will be revisited later.) Thus, TP will have the [$_{WH}$] feature and moves into Spec,C to check [$_{uWH}^*$]. The sentence in (50a), then, would have a structure as in (51).

(51)



This derivation gets the word order right for (50a) using fairly standard theoretical mechanisms: the notion of feature-checking and the distinction between weak and strong features, where strong features induce movement (a *strong* feature is essentially an EPP feature).

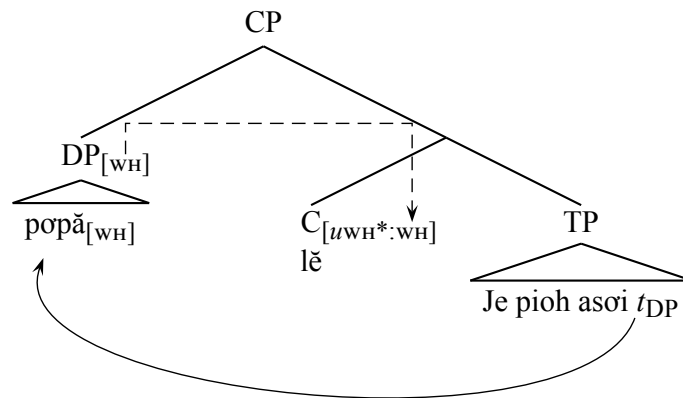
This approach also situates Jarai within the cross-linguistic typology of clause typing developed in Cheng (1991), which correlates the presence of overt question particles in a language with the possibility of *wh*-in-situ. One of Cheng's central claims is that Q particles are C heads that type the clause as a question. Cheng argues that *wh*-in-situ is only possible in a language with overt Q particles, because in the absence of such particles, *wh*-movement is required for typing the clauses. This connection between overt Q and *wh*-in-situ holds for Jarai, so long as *lě* and *hă* really are C heads involved in clause typing.

However, the account I have just sketched does not give us an obvious account of (50b), repeated as (52). Here the *wh*-word has moved to the left edge of the clause, but apparently the entire clause has also moved leftward, because the Q particle is still clause-final.

- (52) [Popă] Je pioh asoi ___ lě?
 where Je put cooked.rice Q.WH
 ‘Where did Je put the rice?’

If the feature-motivated movement in (51) is correct, then we might expect that, instead of the entire TP moving, the *wh*-phrase (which bears the [WH] feature) could vacate the TP and move to Spec,C, as in (53). But in that case, there would be no motivation for the remnant TP to move.

(53)



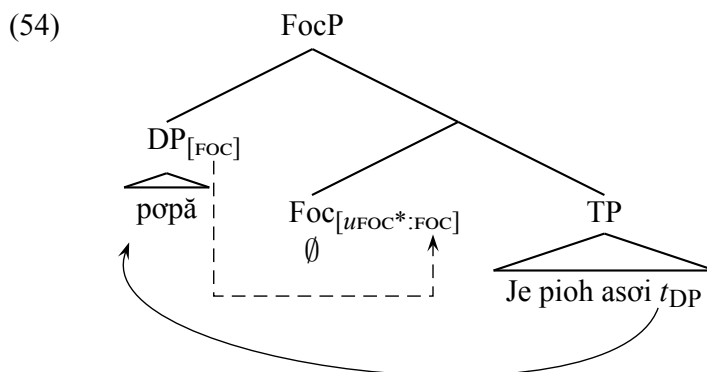
In order to get the word order in (52), we need two movement operations: one that gets *popă* before the TP, and another that gets the TP before *lě* (but after *popă*). We might do this by first moving *popă* to Spec,C, then moving TP to another Spec,C position below the position where *popă* moved (here the TP would be “tucked in” below the higher specifier along the lines of Richards 1997). Alternatively, the TP might first move into Spec,C, followed by movement of *popă* into a higher specifier of C. Against both of these possibilities is the fact that only one movement operation is needed to check the strong feature on C: the additional movement is superfluous.

There is, however, another option involving two instances of movement. So far I have assumed that *wh*-movement is essentially raising into Spec,C, and C is realized, in the case of *wh*-questions, by *lě*. However, in the previous section we considered Rizzi’s (1997) proposal that the operator domain is more articulated than just a single C head. Anticipating arguments I make in the section on focus movement (§4.2), let us suppose that movement of the *wh*-phrase is not actually *wh*-movement but instead focus movement. In that case, the movement of the clause and the movement of the *wh*-phrase are related to two different heads.

Before spelling out the details of such an account, I will outline its elements. First, I propose that accounting for questions that are *wh*-first, *lě*-last involves two separate movement operations, each motivated by a different Agree operation. The *wh*-first word order arises from the need to check a [FOC] (focus) feature. The *lě*-last word order arises from the need to check

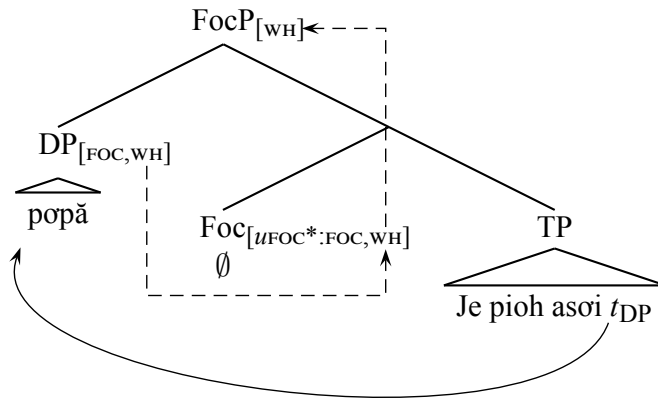
a [WH] feature. The first operation, which is potentially non-overt, is simply focus-movement. The second operation, which is obligatorily overt, is connected to clause typing.

Concretely, the proposal would look like this. First, the *wh*-word *popă* (as well as any other *wh*-word) is associated in the syntax with the interpretable focus feature [FOC]. Foc, a head in the operator domain, bears a strong uninterpretable [*u*FOC*:] feature, which must be valued as FOC and eliminated by a constituent bearing a [FOC] feature. When [FOC] is on a *wh*-phrase, that phrase moves into Spec,Foc, where an Agree relation is established between [FOC] on the *wh*-phrase and [*u*FOC*:] on Foc, eliminating the uninterpretable feature. In cases of *wh-in-situ*, I propose that the focus-marked constituent has moved, but the lower copy is pronounced (cf. Pesetsky 2000). (For the proposal that at least some *wh*-movement is focus movement, see, e.g., Stjepanovic 1999; Bošković 2002). This movement and feature valuing is illustrated in (54). (The DP bears the [FOC] because it is the maximal projection of *popă*, which itself bears the feature, a detail I omit in the tree.)



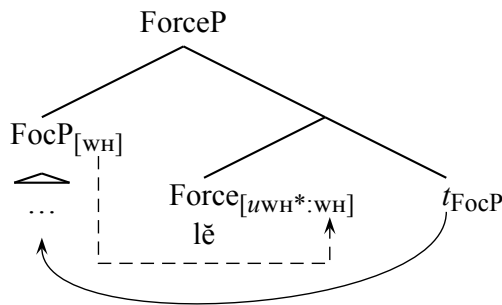
In addition to being associated with a [FOC] feature, *popă* is also lexically endowed with a [WH] feature. Once *popă* is in the specifier of Foc, that feature can also be passed on to Foc through spec-head agreement (Chomsky 1981, 1995). Naturally, the maximal projection of Foc will then share its [WH] feature, because any projection of a node copies all of that node's features. The passing of the [WH] feature to FocP is shown in (55). (Presumably [FOC] also gets passed up to FocP, but I ignore that detail as irrelevant for present purposes.)

(55)



Now let us suppose that the *q* particle *lě* is a Force head. (Force is the top-most head in Rizzi's articulated C domain, the head that determines the clause's type.) Specifically, I hypothesize that *lě* is the optional phonetic spellout of Force just in case Force has a strong uninterpretable [*u_{WH}**:] feature on it. What this means is that *lě* (and its null counterpart) need to be checked by a [*WH*] feature, and whatever bears that [*WH*] feature must move into the specifier position of Force in order for the Agree relation to take place. Because FocP now bears a [*WH*] feature, the entire clause can move into Spec,ForceP and check the feature on Force, as shown in (56).²⁵

(56)



We now have a principled account for cases in which the *wh*-word has fronted and the *q* particle is clause final: the *wh*-word has moved to Spec,Foc (focus movement), checking the uninterpretable [*u_{FOC}**:] feature on the Foc head and passing a [*WH*] to Foc at the same time. The [*WH*] feature is automatically registered on the maximal projection, FocP. FocP then

25. Whether or not movement into Spec,Force is required when Force is null is a question that I leave open at present.

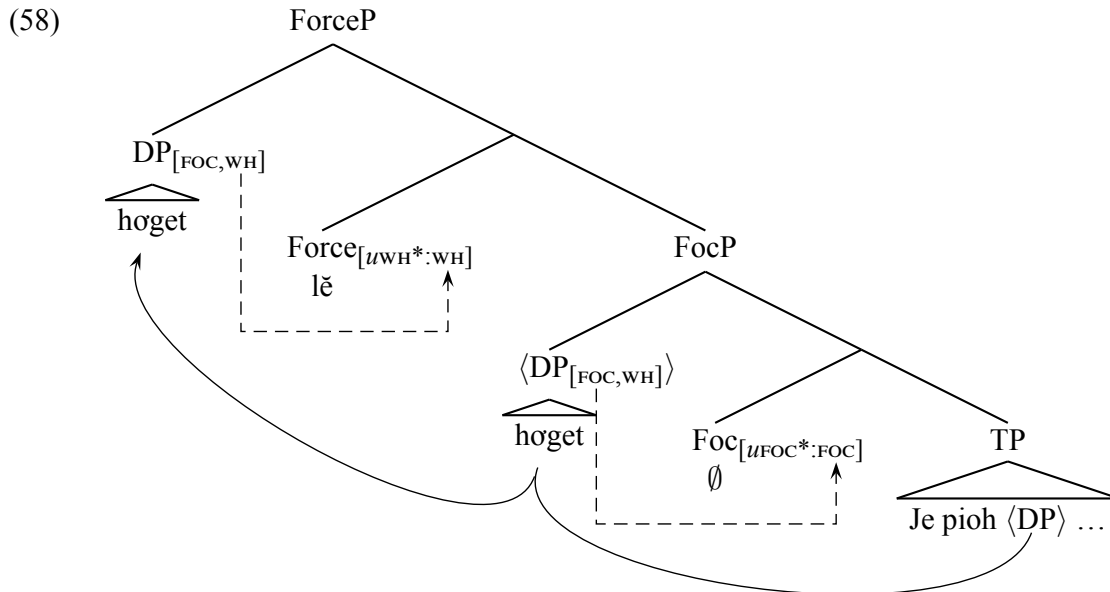
merges with a Force (optionally pronounced as *lě*) that selects for a *wh*-question clause. This selectional feature is instantiated as a strong [*u*_{WH*}:] feature. FocP bears a [_{WH}] feature and can thus move into the specifier of the Force head, giving rise to *lě*-final word order.

An important way to verify (or invalidate) the story just sketched out for the question particle *lě* is to see whether *lě* can occur anywhere in a clause besides at the right edge. In fact, there are two other positions where *lě* can occur: after a clause-initial *wh*-phrase and after an *in situ* direct object *wh*-phrase. I begin with the first of these. As the following examples show, *lě* can occur immediately after a *wh*-fronted constituent, whether that constituent is a subject (57a), direct object (57b), or indirect object (57c).²⁶

- (57) a. [Hloi] (**lě**) ___ pha broi klào droi monũ kɔ̃ khua ploi?
 who Q.WH give give three CLF chicken DAT boss village
 ‘Who gave three chickens to the village chief?’
- b. [Hoget] (**lě**) Je pioh ___ bɔi kɔ̃bang?
 what Q.WH Je put on table
 ‘What did Je put on the table?’
- c. [Kɔ̃ hloi] (**lě**) ñu pɔ-čũt ao ___?
 DAT who Q.WH 3SG CAUS-put.on shirt
 ‘Who did he put the shirt on?’

I take cases like these to be a variation on the derivation in which *wh*-fronting is following by the movement of the clause (FocP) into Spec,Force. Instead of the entire clause moving above the Force head *lě*, just the *wh*-phrase does. This is illustrated in (58), where I have used angled brackets to show a moved element in a non-terminal position. This convention allows me to explicitly show the feature-checking relations that drive the two stages of movement.

26. I merely assume without arguments that the subject in (57a) has moved, on analogy with the other two examples.



A prediction of my analysis is that *lě* should never occur twice in a clause: once after the *wh*-moved constituent and again clause-finally. This prediction is borne out: only one *lě* is permitted in a clause.

A question that arises from this hypothesis is why sometimes the entire FocP moves into Spec,Force, whereas at other times only the *wh*-fronted constituent does so. Is one closer to Force than the other? The answer is no. Although a phrasal projection (here FocP) dominates its specifier (Spec,Foc), Pesetsky & Torrego (2001) argue that c-command rather than domination is the relevant factor in determining how close a goal is to a probe. (In the present discussion, the uninterpretable feature [*u*_{WH*}:] on Force is the probe, and the [_{WH}] that is on both the *wh*-phrase and the Foc/FocP is the goal.) Pesetsky & Torrego’s notion of closeness is defined as follows: “Y is closer to K than X if K c-commands Y and Y c-commands X” (362). Because a specifier and a head mutually c-command each other, they are equidistant from a higher c-commanding head. As a consequence, this works out such that “[I]n a simple clause ... both TP and Spec,TP count as equally close to C” (406). In the case I am investigating, we can say that both FocP and Spec,Foc are equally close to Force.²⁷

27. It is worth noting that clause-final *lě* is generally preferred to *lě* showing up after a fronted constituent. At present it is not clear how to account for this preference.

The other possible position of *lě* is more problematic to my analysis, though it is by no means fatal. When a direct object is *in situ*, *lě* can immediately follow the object, preceding a locative PP. This is illustrated in (59).

- (59) a. Hê lui hoget (**lě**) pơ glai?
 He leave what Q.WH LOC forest
 ‘What did He leave in the forest?’
- b. Je pioh hoget (**lě**) bời kơbang?
 Je put what Q.WH on table
 ‘What did Je put on the table?’

One way to handle the data in (59) is to abandon the idea that *lě* is a Force head, treating it instead as a right-adjoining adverbial particle. One reason for rejecting an analysis of that sort is that if *lě* is an adverbial, we would expect its distribution to mirror that of other right-adjoining adverbials. As the following examples show, the time adverbial *laih* ‘already’ and the negation element *õh* can both occur immediately after a verb, in addition to clause-finally. (These are not the only positions where they can occur, but these are the most relevant to our discussion. Neither one can occur pre-verbally.)

- (60) a. Thũn hlào, adoi kào (***laih**) adõh (**laih**) toloi adõh
 year before younger.sibling 1SG already sing already NMLZ sing
 anũn (**laih**).
 DEM.MED already
 ‘My younger sibling already sang that song last year.’
- b. Kào bu (***õh**) ponah pơ-djai (**õh**) romung (**õh**).
 1SG NEG NEG2 shoot CAUS-die NEG2 tiger NEG2
 ‘I didn’t shoot and kill the tiger.’

It is not possible, however, to place *lě* after the verb but before the *wh*-phrase, as illustrated in (61).

- (61) a. Hê lui (*lě) hoget?
 He leave Q.WH what
 ‘What did He leave?’
- b. Je pioh (*lě) hoget boi koḅang?
 Je put Q.WH what on table
 ‘What did Je put on the table?’

Note as well that unlike *laih*, *lě* can precede the verb, as we saw in the examples in (57), where *lě* immediately follows a fronted *wh*-phrase.

I propose that instead, the solution to the problem posed by the examples in (59) is to posit that the entire TP (actually, the entire FocP) has moved into Spec,ForceP as in (56), but the locative PP has undergone rightward displacement out of the TP, presumably right adjoining to ForceP. This explanation is plausible given the fact that indirect objects and source PPs can be displaced from their normal position outside the context of *wh*-questions. These facts are discussed in §6.5. We then have a straightforward account of the facts in (61), where *lě* cannot follow the verb but precede the direct object: this follows from the fact that direct objects do not freely displace.²⁸

A prediction of the analysis I have offered is that when a constituent in a complement clause is *wh*-questioned by the root clause, the entire complement clause should be permitted to move into the root clause’s Spec,Force. The configuration I have in mind is a sentence such as (62), where a finite (non-question) clause is embedded inside a *wh*-question, and the *wh*-

28. What I predict is that we should also find this displacement in cases where the *wh*-phrase has fronted, as in (i). However, my consultant reports that these are “almost bad.”

- (i) a. (?)Hoget Je pioh lě boi koḅang?
 what Je put Q.WH on table
 ‘What did Je put on the table?’
- b. (?)Hoget Hê lui lě pḥ glai?
 what He leave Q.WH LOC forest
 ‘What did He leave in the forest?’

This may be due to a restriction on extraction when *wh*-movement has already taken place. Rather than pursue this question, I will simply note that the structure is not wholly unacceptable and leave the problem for later investigation.

constituent is inside the embedded domain—which I represent as a FocP, ignoring the higher ForceP layer.

- (62) Jok laĩ [FocP H'Sa bǒng hoget] lǎ?
 Jok say H'Sa eat what Q.WH
 'What did Jok say that H'Sa ate?'

My analysis predicts that the embedded clause should have the features [WH] and [FOC] because of the *wh*-word's obligatory movement into Spec,Foc (whether overt or covert is irrelevant). Consequently, the embedded FocP, which has the features [WH] and [FOC], should be able to move up *in toto* into the main clause's Spec,Foc and then into Spec,Force. This is, in fact, marginally possible, as the examples in (63) show. In (63a), the *wh*-phrase remains *in situ*, but covertly raises to Spec,Foc in the embedded clause. This marks the embedded FocP as [WH,FOC], allowing it to raise and check the matrix clause's uninterpretable [u_{FOC}^*] and [u_{WH}^*] features on Foc and Force (*lǎ*) respectively. Example (63b) is identical except that the *wh*-phrase has overtly moved to the edge of the embedded clause. Example (63c) involves movement of the lower FocP to the matrix clause's Spec,Foc, followed by raising of the *wh*-phrase into the matrix clause's Spec,Force, placing *lǎ* after *hoget* but before the left-displaced embedded clause.

- (63) a. ?[FocP H'Sa bǒng hoget] lǎ Jok laĩ?
 H'Sa eat what Q.WH Jok say
 'What did Jok say that H'Sa ate?'
- b. ?[FocP Hoget H'Sa bǒng] lǎ Jok laĩ?
 what H'Sa eat Q.WH Jok say
 'What did Jok say that H'Sa ate?'
- c. ?Hoget lǎ [FocP H'Sa bǒng] Jok laĩ?
 what Q.WH H'Sa eat Jok say
 'What did Jok say that H'Sa ate?'

I suspect that the reason these sentences are degraded has to do with information structure. Rizzi (1997) claims that Spec,Foc is a position for non-presupposed material, whereas the complement of Foc is for presupposed information. In the examples above, all of the embedded clause is presupposed except the *wh*-phrase, so moving the entire embedded clause into the matrix clause's Spec,Foc creates an information structure problem: that position should normally be filled with non-presupposed information. Nevertheless, the fact that the displacement is possible at all supports the syntactic account that I have sketched for *lě*.

Having considered the more complicated case of the *wh*-question particle *lě*, I now return to the polar question particle *hǎ*. As we saw previously, the normal position of *hǎ* is clause-final. In line with the proposal I put forward for *lě*, I take *hǎ* to be a Force head that types the clause as a yes–no question. Additionally, *hǎ* has an EPP feature requiring a specifier. In the normal case, the entire clause (at least TP) moves into Spec,Force to satisfy this EPP feature. However, as with *lě*, *hǎ* can also appear in non-final position, as illustrated by the following examples. In these examples *hǎ* follows a focus-fronted element: the subject in (64a), the object in (64b), and a locative PP in (64c).²⁹ (To highlight the focused nature of these constituents, I use a cleft structure in my English translation, although I am not claiming the Jarai clauses are clefts.)

- (64) a. Je (**hǎ**) ___ pioh asoi bɔi koʔbang?
 Je Q.POL put cooked.rice on table
 ‘Was it Je that put the rice on the table?’
- b. Abǎn (**hǎ**) Mik broi ___ kɔ̃ yǎ ñu?
 blanket Q.POL Mik give DAT grandmother 3SG
 ‘Was it a blanket that Mik gave his grandmother?’

29. One of my consultants judges (64a), where *hǎ* follows a subject, to be acceptable but not very good. I suspect that the reason is that this is the one case where the element preceding *hǎ* is not obviously displaced with respect to the rest of the clause.

- c. B*oi* k*o*bang (**h*ă***) J*e* p*io*h a*so*i _____?
 on table Q.POL J*e* put cooked.rice
 ‘Was it on the table that J*e* put rice?’

As (65a) shows, *hă* can occur after an *in situ* object, although this is a less preferred position. This possibility is predicted given the facts presented for *lě*, where a locative PP can rightward displace, leaving the question particle apparently clause-medial. However, *hă* cannot intervene between a verb and its object (65b).

- (65) a. J*e* p*io*h a*so*i (b*o*i) (**h*ă***) b*o*i k*o*bang?
 J*e* put cooked.rice Q.POL on table
 ‘Did J*e* put rice on the table?’
- b. M*ik* b*ro*i (***h*ă***) a**ă**n k*o* y*ă* ñ*u*?
 M*ik* give Q.POL blanket DAT grandmother 3SG
 ‘Did M*ik* give a blanket to his grandmother?’

The unacceptability of (65b) follows straightforwardly if *hă* is a head in the left periphery, and the reason that it appears non-initially is that a constituent has moved into its specifier: either the entire clause (47) or a focus-fronted constituent. Under these circumstances, we would not expect *hă* to occur inside the VP, although the rightward displacement of a locative PP might give the appearance of a VP-medial *hă* (65a).

Unlike with the *wh*-questions, it is not immediately apparent how the feature checking is accomplished in polar questions. One possibility is that the polar-Q Force head needs to be checked by a [foc] feature. Intuitively, this makes sense, given the fact that polar questions do not presuppose the questioned material, which generally corresponds to the entire clause. In other words, when nothing inside the question is contrastively focused, then the entire question is in focus (it is non-presupposed), so the entire clause bears a [FOC] feature. Consequently, the entire clause is targeted by a strong [*u*FOC*:] feature on Force. On the other hand, when a yes–no question has a focused constituent in it, as in the examples in (64), then the non-focused

portion of the clause is presupposed and only the focused item is being questioned. This item, then is the goal of the Agree relation initiated by the Force head.³⁰

4.2 Focus movement

In this section I turn to focus in non-question clauses, providing further justification for my claim in the previous section that at least some constituent-fronting can be accounted for in terms of focus. Furthermore, I show that Jarai has both focus-movement and focus-*in-situ*. A comparison of the two strategies suggests that they cannot be distinguished in terms of contrastive versus information focus; instead, both interpretations are available for both strategies. Finally, I show that Jarai does not permit the same clause to independently focus and *wh*-question different constituents in the clause, providing evidence that *wh*-movement and focus movement are the same phenomenon.

As the following examples illustrate, a focused element can be fronted before the subject. In (66a) a direct object appears clause-initially, in (66b) an indirect object has been fronted, and in (66c) a goal PP has moved. The final example also shows that the focus particle *yoh* can follow a focus-fronted element. (As we will see, *yoh* can also follow *in situ* focused items.)

- (66) a. [Ia mɔ̃num] kâo broi ___ kɔ H'Yit.
 water drink 1SG give DAT H'Yit
 '*It was drinking water that I gave to H'Yit.*'

30. Although I will not develop it here, a phonological account of the position of question particles may also be possible. Under such an account, *Q* is a head in the operator domain but it is prosodically light. Let us suppose that the Jarai prosodic constituent corresponding to the clause, the Intonational Phrase, is subject to a requirement that it begin with a strong prosodic constituent, and consequently *Q* is banned from the left edge of Intonational Phrases. As a repair, *Q* would have to be pronounced at the right edge of an Intonational Phrase. Under normal circumstances, the first eligible right edge is at the end of the clause. But suppose that focus-fronted elements can optionally be parsed into their own Intonational Phrase: then *Q* could right-adjoin to the focus-fronted constituent. In the exceptional cases where a *Q* occurs after an *in situ* focused item (65a), we would be forced to conclude that *in situ* focus can also optionally create an Intonational Phrase boundary. In order to put a prosodic account of *Q* particles on a sure footing, we would need to know far more about the intonational properties of Jarai clauses than I do at this point. Consequently, I only mention this possibility as a potential topic of future work.

- b. [**Ko̤ H'Yit**] kâo broi ia moñum ____.
 DAT H'Yit 1SG give water drink
'It was to H'Yit that I gave drinking water.'
- c. [**Po̤ sang hrã**] yoh, kâo nao ____ tǝm-broi.
 LOC house paper FOC 1SG go yesterday
'It was to school that I went yesterday.'

As (67) shows, it is not possible to focus-front the entire predicate (with or without a filler “do” after the subject).³¹

- (67) * [**Nao po̤ sang hrã**] yoh kâo (ngã) ____ tǝm-broi.
 go LOC house paper FOC 1SG do yesterday
('Go to school is what I did yesterday.')

As the next examples show, an argument can be focus-moved out of an embedded non-finite clause, as well.

- (68) a. [**Amĩ ñu**] yoh ñu konang kiãng [_{FinP} ko̤ kâo djru ____].
 mother 3SG FOC 3SG rely want COMP 1SG help
'It is his mother that he relies on me to help.'
- b. [**Phĩm Mi**] yoh goñu hur-har kiãng [_{FinP} ko̤ nao lãng ____].
 film American FOC 3PL eager-RED want COMP go look
'It is an American film that they are eager to go see.'

Focus can also be assigned to a constituent that remains *in situ*. An *in-situ* focused constituent can be either intonationally emphasized, or it can be followed by the focus adverbial

31. For a couple speakers—but not for my primary consultants—it is possible to front both the direct object and indirect object together, as illustrated in (i).

- (i) % [**Ia moñum ko̤ H'Yit**] kâo broi ____.
 water drink DAT H'Yit 1SG give
'It was drinking water to H'Yit that I gave.'

I argue in §6.5.1 that Jarai verb phrases have a Larsonian VP shell structure (Larson 1988), where the DO is in Spec,V, the IO is complement to V, and the verb has moved out of the VP into v. Under such an analysis, (i) would represent VP-fronting. What is apparently banned in (67) is vP-fronting. However, because my primary consultants reject the structure in (i), I will leave it to the side.

particle *yoh* (in which case *yoh* receives the marked intonation). As the following *in situ* examples illustrate, *yoh* can follow a focused locative (69a), a direct object (69b), or a subject (69c). (For *in situ* focus, I will place the focused constituent in all caps in the free translation rather than using a cleft.)

- (69) a. Je pioh asoi **boi kõbang** yoh.
 Je put cooked.rice on table FOC
 ‘Je put rice **ON THE TABLE.**’
- b. Je pioh **asoi** yoh boi kõbang.
 Je put cooked.rice FOC on table
 ‘Je put **RICE** on the table.’
- c. **Je** yoh pioh asoi boi kõbang.
 Je FOC put cooked.rice on table
 ‘**JE** put rice on the table.’

It is possible for *yoh* to follow the verb (70), in which case the focus is either on the action of the verb (as indicated in the first translation) or on the past time completion (as in the second translation).³²

- (70) Tam **kõn** yoh akan anũn.
 Tam weigh FOC fish DEM.MED
 ‘Tam already **WEIGHED** the fish.’
 ‘Tam **ALREADY** weighed the fish.’

It is not possible, however, to front a focused verb, as shown in (71). (The construction cannot be rescued by nominalizing the fronted verb or adding a dummy verb such as *ngǎ* ‘do’ in the gapped site.)

- (71) ***Kõn** yoh, Tam ____ akan anũn.
 weigh FOC Tam fish DEM.MED
 (‘*Weighing is what Tam did to the fish.*’)

32. How exactly *yoh* can focus the tense without an overt tense marker—the second interpretation in (70)—is not clear to me.

In cases where a constituent can be either focus-fronted or focused *in situ*, speakers say that the two options have the same meaning. However, it has been argued that at least in some languages, fronting versus *in situ* correlates with two different kinds of focus: the first is CONTRASTIVE FOCUS, whereas the second is INFORMATION FOCUS. The two primary characteristics of contrastive focus are: (i) *contrast*: the focused item is set in contrast to other potential candidates; (ii) *exhaustivity*: whatever holds of the focused element holds only of that element (in the relevant context). Information focus, on the other hand, is (nearly) always present in a declarative clause: any new or non-discourse old information is information focused. (See especially Halliday 1967; Rochemont 1986, among others.) Kiss (1998), on whose work this discussion is based, presents tests to distinguish between contrastive focus (what she calls IDENTIFICATIONAL FOCUS) and information focus in English and Hungarian. Of the tests presented in Kiss (1998), there are two that can be applied in Jarai: an exhaustivity test and one involving universal quantifiers.³³

Testing for exhaustivity, a common characteristic of contrastive focus, can be carried out in various ways. I explore two. The first way to test exhaustivity is to imagine a dialog such as the following (from ex. (15) in Kiss 1998, based on a suggestion by Donka Farkas). In (72), the first speaker asserts that Mary picked something, and the object Mary picked is fronted in a cleft construction. Because clefted focus in English involves exhaustivity, it is appropriate for speaker B to contradict the statement, not because Mary did not pick a hat, but because that is not all she picked.

- (72) a. A: It was **a hat** that Mary picked for herself.
b. B: No, she picked a coat, too.

33. Kiss also has a diagnostic that is scope-related, but I have been unable to construct a similar test in Jarai.

However, when the focused item is *in situ* and merely intonationally focused, it is inappropriate for the second speaker to contradict the statement on the basis that Mary picked more than just a hat.

- (73) a. A: Mary picked herself **a hat**.
 b. B: % No, she picked a coat, too.

This test shows that a cleft-focused element is exhaustive and thus contrastive, whereas an *in situ* focused element is non-exhaustive and thus information focus.

Applying this test to Jarai, I begin with the focus-fronting construction in (74). Here, the ‘water container’, the object of ‘weigh’, is focus-fronted (74a). As the reply in (74b) shows, it is possible to contradict the statement with ‘no’ based on the fact that speaker A omitted to mention one of the items weighed by Tam. This looks like contrastive focus.

- (74) a. A: [**Kothũng ia**] yoh Tam kǝn ____.
 container water FOC Tam weigh
 A: ‘A water container is what Tam weighed.’
 b. B: Ǒ-oh, Tam kǝn kothũng ia hǎng akan.
 No Tam weigh container water and fish
 B: ‘No, Tam weighed a water container and fish.’

However, as (75) shows, the contradiction is also possible when the focused element is left *in situ*.

- (75) a. A: Tam kǝn [**kothũng ia**] yoh.
 Tam weigh container water FOC
 A: ‘Tam weighed a CONTAINER OF WATER.’
 b. B: Ǒ-oh, Tam kǝn kothũng ia hǎng akan.
 No Tam weigh container water and fish
 B: ‘No, Tam weighed a water container and fish.’

Although the fronting strategy in (74a) strikes my speaker as “stronger” than the *in situ* strategy in (75a), they both come out the same in this test, suggesting that both can be instances of contrastive focus.

Another way to test exhaustivity is by constructing a situation in which a speaker makes an assertion using a focused element, and then follows the assertion with another statement that makes it clear that the previously focused element is not exhaustive. If the focused element was contrastively focused, the follow-up statement should sound inappropriate.³⁴ This is illustrated in (76).

(76) A: *Pointing to a book situated among others:*

It was **that book** that I read. # I read the blue one as well.

Under information focus, however, there is no sense of oddness about the follow-up statement, as seen in (77).

(77) A: *Pointing to a book situated among others:*

I read **that book**. I read the blue one as well.

The following example in Jarai involves a situation in which the speaker is visiting his grandmother, who was recently sent a lot of gifts, all of which are spread around her on the floor. She asks if he, the speaker, sent her any of the gifts. Two possible replies are given: one with a focus-fronted constituent (78a), and the other with an *in situ* focused element (78b). In both cases, the focused element is an object sent by the speaker to his grandmother. And in both cases, the first sentence is followed by a second that adds another element to the set of things that the speaker sent. Crucially, in neither case is there any sense of contradiction or oddness. Both focus strategies are considered equally good.

34. Horn (1981) argues that the exhaustive interpretation of a clefted constituent in English arises via conversational implicature rather than semantic entailment (or conventional implicature). It seems that the Jarai exhaustivity facts can also be handled in this way, but further work is needed.

- (78) a. [Ao anũn] yoh k̄o moit k̄o ih. K̄o moit ab̄n anũn hoi.
 shirt DEM.MED FOC 1SG send DAT 2SG 1SG send blanket DEM.MED also
'It was that shirt is that I sent to you. I also sent that blanket.'
- b. K̄o moit [ao anũn] yoh k̄o ih. K̄o moit ab̄n anũn hoi.
 1SG send shirt DEM.MED FOC DAT 2SG 1SG send blanket DEM.MED also
'I sent THAT SHIRT to you. I also sent that blanket.'

The exhaustivity tests, then, fail to distinguish fronted from *in situ* focus. Based on these situations (and others I proposed in elicitation), whether or not a focused element is interpreted exhaustively apparently depends more on context than on the focused element's position in the clause.

The second diagnostic for different kinds of focus involves universal quantifiers. In Hungarian and English, a universal quantifier is unacceptable under contrastive focus (79a) but perfectly acceptable under information focus (79b).³⁵

- (79) a. *It was every book that Ben read.
 b. Ben read **every book**.

Applied to Jarai, we get the results in (80). For both focus-fronting (80a) and *in situ* focus (80b), using the universal quantifier *rĩm* 'each' in the focused DP sounds strange. (Note in (80c) that without any focus, *rĩm* is just fine in the object DP.) There is a slight contrast between the fronted and the *in situ* constructions, but it is very small (represented by “??” versus “?”).

- (80) a. ??**Rĩm droi akan** yoh, Tam k̄n.
 each CLF fish FOC Tam weigh
'Every fish, Tam weighed.'
- b. ?Tam k̄n **rĩm droi akan** yoh.
 Tam weigh each CLF fish FOC
'Tam weighed every fish.'

35. An alternative explanation for the fact that (79) is unacceptable is that a strong quantifier *every book* is in predicate position (see Keenan 1987). If that is the actual problem, then it is not clear that the diagnostic has anything to say about focus.

- c. Tam kǒn rǐm droi akan.
 Tam weigh each CLF fish
 ‘*Tam weighed every fish.*’

Based on the data I have available, it is not obvious that either of the two focusing strategies in Jarai correlates exclusively with either contrastive or information focus. I conclude that either interpretation is available in either position. The universal quantifier facts suggest that there is always at least a mild implication of exhaustivity, making it strange to assert that everything of the relevant set belongs in the focused subset. However, the data are not clear enough to make a strong judgment on this question.

I turn finally to the relationship between focused elements and *wh*-phrases. In the previous section, I suggested that apparent *wh*-movement is in fact focus-movement, where the *wh*-phrase has a [FOC] feature and moves into Spec,Foc to check an uninterpretable [*u*FOC*:] feature Foc. We have already observed the fact that both *wh*-items and non-*wh* focus items can leftward displace. Additionally, both *wh*-phrases and focus-phrases are subject to a restriction permitting only one such element per clause. The following examples demonstrate that only one focus-marked (non-*wh*) constituent is permitted in a clause, whether both are *in situ* (81a) or one has fronted and the other is *in situ* (81b).

- (81) a. ?? Ñũ broi **monũ** yoh kơ **amĩ** **kào** yoh.
 3SG give chicken FOC DAT mother 1SG FOC
 (‘*He gave A CHICKEN to MY MOTHER.*’)
- b. ?? **Monũ** yoh ñũ broi kơ **amĩ** **kào** yoh.
 chicken FOC 3SG give DAT mother 1SG FOC
 (‘*It was A CHICKEN he gave to MY MOTHER.*’)

Similarly, it is not possible to have two *wh*-phrases in a single clause, as illustrated in (82).

- (82) a. ?? **Hloi** ngă **hoget**?
 who do what
 ('Who did what?')
- b. ?? **Hloi** broi **hoget** kơ Bom?
 who give what DAT Bom
 ('Who gave what to Bom?')

As the examples in (83) show, combining a *wh*-phrase (fronted or *in situ*) with an *in situ* focused phrase results in degraded structures (in these examples I underline the *wh*-phrase and boldface the focused item). Note that the facts would be the same if *lě* were to appear immediately after the fronted *wh*-items.

- (83) a. ?? (Hoget) ih broi (hoget) kơ **amĩ** **kâo** yoh tom-broi (lě)?
 what 2SG give what DAT mother 1SG FOC yesterday Q.WH
 ('What did you give to MY MOTHER yesterday?')
- b. ?? (Kơ hloi) ih broi **monũ** yoh (kơ hloi) tom-broi (lě)?
 DAT who 2SG give chicken FOC DAT who yesterday Q.WH
 ('Who did you give A CHICKEN to yesterday?')

Finally, as the examples in (84) demonstrate, it is also impossible to front both a *wh*-phrase and a focused non-*wh* constituent, whether the *wh*-phrase is before the focused phrase (84a) or after the focused phrase (84b). (Again, the position of *lě* does not affect the judgments.)

- (84) a. *Kơ hloi **monũ** yoh ih broi tom-broi (lě)?
 DAT who chicken FOC 2SG give yesterday Q.WH
 ('It was a chicken, to whom did you give yesterday?')
- b. ***Monũ** yoh kơ hloi ih broi tom-broi (lě)?
 chicken FOC DAT who 2SG give yesterday Q.WH
 ('It was a chicken, to whom did you give yesterday?')

All of these restrictions can be accounted for under the following assumptions. First, Jarai's Foc in the left periphery has a strong [*u*Foc*:] feature on it, so that a focused constituent (with an interpretable [*foc*] feature) must move into Spec,Foc. Second, Jarai Foc does not

permit multiple specifier positions, so only one focused constituent can move into Spec,Foc. (It is possible for this movement to be covert. I take this to mean that either copy of the moved constituent can be pronounced at spellout.) These two assumptions rule out the examples in (84), where two phrases with a [FOC] feature have moved into Spec,Foc, which permits only one specifier position.³⁶

But because it is the feature on Foc rather than on the focused phrase that induces movement, why are the examples in (81) and (83) bad? We would expect that the higher phrase with [FOC] would move to Spec,Foc, satisfying Foc's strong [u_{FOC^*}] feature, and the lower phrase with [FOC] could remain *in situ*, because there is no reason for it to move, even covertly. The reason that these examples are degraded is that the configuration of elements in FocP imposes an information structure on the clause such that an element in Spec,Foc must be focused, and the complement of Foc must be presupposed (Rizzi 1997). However, if a phrase with [FOC] on it remains *in situ* (without even covert movement to Spec,Foc), then a problem of interpretation arises, because focused information is found where presupposed information is expected.

I conclude, then, that we can capture the range of Jarai facts by collapsing focus-movement and *wh*-movement into a single operation in which the moved element bears a [FOC] feature that must move to Spec,Foc in order to check [u_{FOC^*}] on the Foc head. This gives us a principled explanation for the two possible positions of Q particles (which I take to be Force heads) and it explains the impossibility of having *wh*-items and non-*wh* focus-items in the same clause.

4.3 Pseudocleft *wh*-questions

As we have seen in the previous two sections, Jarai has both *wh*-in-situ and *wh*-fronting.

In this section I argue that Jarai has *three* structural possibilities for *wh*-questions: (i) *wh*-

36. Pesetsky (2000) proposes a typology in which there are three varieties of C: one that allows no specifiers, a second that permits only one and a third that allows multiple specifiers. Bulgarian has both the second and third types, whereas German has only the second type. In this way, Jarai patterns with German. (This assumes that the relevant C-head in German is actually Foc, as in Jarai.)

FRONTING, where the *wh*-phrase moves out of its subcategorized argument position to Spec,Foc; (ii) *WH-IN-SITU*, which is simply covert *wh*-fronting; and (iii) (PSEUDO)CLEFT, where the *wh*-phrase and the remainder—everything other than the *wh*-phrase—are separate constituents in a copular construction.³⁷

Several Austronesian languages—e.g., Tagalog (Kroeger 1993), Malagasy (Potsdam 2006), Malay (Cole et al. 1999), among others (see Potsdam 2009:745)—have been argued to have a pseudocleft structure for at least some *wh*-questions. In a question with a pseudocleft analysis, the *wh*-phrase is typically analyzed as a DP in predicate position, while the remainder is taken to be a subject DP, specifically, a headless relative clause (HRC). The Malagasy *wh*-question given in (85a) illustrates this structure, with a parse sketched in (85b). (Note that Malagasy is a predicate-initial language.)

(85) MALAGASY PSEUDOCLEFT QUESTION

- a. iza no nihomehy? [= (5b) in Potsdam (2006)]
 who PRT laugh
 ‘Who laughed?’ (lit. ‘The one that laughed is who?’)
- b. [IP [predicate iza] [DP/headless rel. no nihomehy]]? [= (7) in Potsdam (2006)]

Before proceeding to the discussion of pseudocleft questions, I illustrate the Jarai copular construction as well as headless relative clauses, because pseudoclefts involve both of these. First, I give two examples of (non-pseudocleft) copular clauses in (86). As illustrated here, clauses whose main predicate is an AP, as in (86a), or a DP, as in (86b), are subject initial. Copular clauses with a DP predicate can contain an optional copula, *jing*, shown in (86b). (Before an adjectival predicate, *jing* is generally interpreted as ‘become’; hence it is not shown

37. The material in this section is an expanded version of a presentation I gave at the Annual Meeting of the Linguistic Society of America, 07 January 2011. This discussion is limited to *wh*-phrases with a human referent (where *hloi* ‘who’ is used), in which the gapped position is an argument. I do not have clear data on whether pseudocleft structures are available for *wh*-questions in which a non-human referent is questioned (*hoget* ‘what’) or an adjunct is questioned (*popã* ‘where’, *yua hoget* ‘why’). I do, however, have several examples of ‘what’ and (adjunct) ‘where’ questions that at least appear to fit into the picture developed in this section of pseudocleft *hloi* ‘who’ questions.

in (86a). Before a nominal predicate, *jing* can mean either ‘be’ or ‘become’: the ‘be’ meaning is illustrated in (86b).)

- (86) a. Kâo [AP roõt biă-mă].
 1SG cold very-RED
‘I’m very cold.’
- b. Ñũ anũn (**jing**) [DP đah-komoi tuai].
 3SG DEM.MED COP woman visitor
‘She’s a foreigner.’

The next examples show Jarai headless relatives clauses (HRC). The HRC in (87a) is the predicate of a copular clause, while the HRC in (87b) is part of an existential construction. Jarai HRCs referring to a person generally begin with *pô*.

- (87) a. Kâo [HRC pô nao pơ sang Ty].
 1SG PRT go LOC house Ty
‘I am the one who went to Ty’s house.’
- b. Homâo [HRC pô kiăng kơ bup ih pơ sang apui].
 have PRT want COMP meet 2SG LOC house fire
‘There is a person who wants to meet you in the kitchen.’

I discuss *pô* further in §4.3.1, but at this point it is worthwhile to note that even though *pô* can often be translated as ‘person’, it is not in fact a noun that can stand in a head position. The evidence for this comes from the fact that it is impossible for *pô* to occur alone after a numeral and classifier, as shown in (88a). As we see in (88b), the ungrammaticality of (88a) cannot be attributed to a restriction on *pô* that forbids a preceding classifier. In the grammatical (88b), *pô* precedes a verb, creating an HRC, which can be enumerated.

- (88) a. *Kâo bũh [sa cõ **pô**] bõi sang Je tãm-broi.
 1SG see one CLF PRT at house Je yesterday
‘I saw a/one person at Je’s house yesterday.’

- b. Đah-bonai anũn taih pɔ-roka [sa ʧô pô dôp].
 female DEM.MED hit CAUS-be.injured one CLF PRT steal
 ‘That woman hit and injured a robber.’

I now illustrate the phenomena that will be the topic of this section. In the following examples, we see the three ways that a *wh*-question can be formed when the *wh*-phrase corresponds to the object. Constituent questions in Jarai that have the form *Hloi pô...?*, as in (89a), have a pseudocleft structure. Specifically, they are copula clauses in which both the *wh*-phrase and the remainder are DPs, and the remainder DP takes the form of an HRC. Constituent questions with fronted *hloi* but lacking *pô* (89b) do not have a pseudocleft structure but involve fronting of the *wh*-phrase from a subcategorized argument position. Examples such as (89c) exhibit neither a pseudocleft structure nor overt *wh*-movement.³⁸

- (89) a. **Hloi pô** H’He lui ____ (lě)? pseudocleft
 who PRT H’He leave Q.WH
 ‘Who did H’He leave?’
- b. **Hloi** H’He lui ____ (lě)? *wh*-movement
 who H’He leave Q.WH
 ‘Who did H’He leave?’
- c. H’He lui **hloi** (lě)? *wh*-in-situ
 H’He leave who Q.WH
 ‘Who did H’He leave?’

I develop two lines of argumentation for the claim that questions containing *pô* have a pseudocleft structure: (i) the remainder (*pô...*, excluding *hloi* ‘who’) constitutes a DP; and (ii) the clause constitutes a copular construction. In contrast, *wh*-questions without *pô* do not show these characteristics. In what follows, I will generally ignore *wh*-in-situ questions.

38. Note that the question particle *lě* is optional (as discussed in §4.1.3), so in many examples throughout this section, it is absent. The presence or absence of *lě* does not correlate to any interpretational differences or to the (un-)acceptability of various *wh*-question structures.

4.3.1 In questions with *pô* the remainder is a DP

Here I present five pieces of evidence that the remainder in *wh*-questions containing *pô* constitutes a DP (rather than being merely a TP vacated by a *wh*-phrase). The first piece of evidence concerns the distribution of the word *pô*. If the remainder (*pô*...) constitutes a headless relative clause (and thus a DP), then we expect to find that *pô* can stand at the left edge of relative clauses (and DPs) outside of *wh*-questions. As (90a) and (90b) illustrate, *pô* can stand at the left edge of headless relative clauses.

- (90) a. Lap jing [DP **pô** ngă sang anai].
 Lap COP PRT make house DEM.PROX
'Lap is the one who made this house.'
- b. ñu anŭn jing đah-komoi tuai, [DP **pô** rai mǒng lõn-čar
 3SG DEM.MED COP woman foreign PRT come from land-country
 Môab]
 Moab
'She is a foreigner, who came from the land of Moab...'

Pô can also occur at the left edge of DPs with null N heads, as (91a) and (91b) show.

- (91) a. [DP **Pô** anŭn] rongiă hĩ dua-klâo bĕ čodeng tongan.
 PRT DEM.MED lose PRT two-three CLF digit hand
'That person lost a few fingers.'
- b. Kâo bŭh [DP **pô** anŭn].
 1SG see PRT DEM.MED
'I saw that person.'

Finally, *pô* can stand at the left edge of a DP with an overt N head, as in (92).

- (92) Kâo bŭh [DP **pô** čodai anŭn] bŕoi sang Je tǒm-broi.
 1SG see PRT child DEM.MED at house Je yesterday
'I saw that kid at Je's house yesterday.'

So what exactly is *pô*? I argued in §3.3.2 that Jarai possesses overt number marking, and this number morphology occurs in a functional head position to the left of the noun (N) inside the DP. Most likely, *pô* is a DP-internal number morpheme which registers that the DP has a singular interpretation and is human (see fn. 17, pg. 40).³⁹ Whether or not this is the right categorial analysis of *pô*, it is at least clear that *pô* is always part of a DP, coming before the N head (null or overt). Thus, we can conclude that in *wh*-questions, *pô* marks the left edge of a DP, specifically, a headless relative clause.

A second argument in favor of the pseudocleft analysis of *wh*-questions containing *pô* relates to the right edge of the remainder. As discussed in §3.2, the right-most element in Jarai DPs is the demonstrative. The most common demonstrative for indicating definiteness is *anün* (the MED(IAL) demonstrative). I predict two things: (i) If the remainder (*pô*...) constitutes a DP, then it should be possible to have a demonstrative at the right edge of the remainder. (ii) A demonstrative should not be possible at the right edge of the remainder in questions lacking *pô*.

The first prediction is borne out by (93a), where the subject is questioned, and (94a), where the object is questioned. In both cases, *anün* ‘DEM.MED’ is possible at the right edge of the remainder. The second prediction—that the demonstrative is (comparatively) bad in non-*pô* questions—is confirmed when a subject is questioned by (93b) and when an object is questioned by (94b).⁴⁰

39. Analyzing *pô* as a singular number morpheme predicts that it should never co-occur with plural *bing*. In general this is the case: speakers reject their co-occurrence. However, I have two examples, one elicited and one from a text, with *bing pô*. In the elicited example, it is possible to interpret *pô* as a reflexive marker—which is another attested use of *pô*. I am not sure how *pô* is being used in the text example, but given the various functions of *pô* apart from number-marking—all of them DP-related—I do not believe that the basic generalization is in serious jeopardy.

40. The fact that the (b) examples are not completely unacceptable relates to an alternative parsing for these sentences. In order for these sentences to be judged as acceptable, there must be a pause before *anün*, and *anün* is understood to be used in conjunction with pointing, with the interpretation of ‘Who returned: that (one)?’ or ‘Who did Je see: that (one)?’.

- (93) a. Hloi [pô ___ wõt glaĩ **anũn**]?
 who PRT swing return DEM.MED
 ‘Who returned?’
- b. Hloi ___ wõt glaĩ (??**anũn**)?
 who swing return DEM.MED
 ‘Who returned: that (one)?’
- (94) a. Hloi [pô Je ðuh ___ **anũn**]?
 who PRT Je see DEM.MED
 ‘Who did Je see?’
- b. Hloi Je ðuh ___ (?**anũn**)?
 who Je see DEM.MED
 ‘Who did Je see: that (one)?’

Inasmuch as the demonstrative *anũn* implicates the right edge of DPs, these examples provide evidence that Jarai has both *wh*-pseudoclefts (where everything after the *wh*-phrase is a DP) and standard *wh*-fronted questions (where everything after the *wh*-phrase is not a DP).

A third argument that the remainder in *wh*-questions containing *pô* constitutes a DP relates to negation. Jarai has two forms used for negation, one for clausal/verbal negation (*bu*), and another for constituent (usually DP) negation (*bu-djõ*). Only the negator *bu* is appropriate for negating verbal clauses, as illustrated in (95a). When *bu-djõ* is used to negate a verbal clause, the sentence is unacceptable, as shown in (95b).

- (95) a. Yã kâo **bu** [VP klao] ôh.
 grandmother 1SG NEG smile NEG2
 ‘My grandmother doesn’t smile.’
- b. *Yã kâo **bu-djõ** [VP klao] ôh.
 grandmother 1SG NEG(DP) smile NEG2
 (‘My grandmother doesn’t smile.’)

On the other hand, the negator *bu-djõ* negates DPs, as in (96a), whereas *bu* cannot negate a DP, as show in (96b).

- (96) a. H'Bláč **bu-djǒ** [DP amĩ kâo] ôh.
 H'Blach NEG(DP) mother 1SG NEG2
 'H'Blach is not my mother.'
- b. *H'Bláč **bu** [DP amĩ kâo] ôh.
 H'Blach NEG mother 1SG NEG2
 ('H'Blach is not my mother.')

With regard to *wh*-questions, the prediction that emerges is that if the remainder of a purported pseudocleft (*pô*...) constitutes a DP, then it should be possible to negate it with the DP-negator *bu-djǒ*, but not with the verbal negator. On the other hand, the DP negator *bu-djǒ* should be impossible before the remainder in questions lacking *pô*, but the verbal negator should be fine. The first of these predictions is borne out by the examples in (97), which include *pô*: the DP negator is possible before the remainder (97a), and the verbal negator is unacceptable (97b). The degraded nature of (97a) is parallel to the oddness in English of asking who didn't do something (or worse, who is not the one who did something). When I created a plausible context for (97a), my consultant felt that it was more appropriate.⁴¹

- (97) a. #?Hloi **bu-djǒ** [pô ___ wǒt glaĩ pσ Čeo Reo ôh]?
 who NEG(DP) PRT swing return LOC Cheo Reo NEG2
 'Who didn't return from Cheo Reo?'
- b. *Hloi **bu** [pô ___ wǒt glaĩ pσ Čeo Reo ôh]?
 who NEG PRT swing return LOC Cheo Reo NEG2
 ('Who didn't return from Cheo Reo?')

The second prediction, that the non-*pô* question should disallow the DP negator but allow the verbal negator is substantiated by the two examples in (98), where (98a) shows that the verbal negator is permitted, and (98b) shows that the DP negator is not possible. Again,

41. The context was this: the speaker and hearer are watching a murder mystery on TV. The two suspects are from Cheo Reo, but both of them left two days before the murder. It comes to light that one of the suspects returned to Cheo Reo and the other didn't, but the identities of both remain concealed. More information is then given about the suspect who did **not** return to Cheo Reo, but just as his identity is revealed, there's a distraction, so you don't hear who didn't return. Now the screen shows both suspects on the screen and you turn to your wife, asking the question in (97a), because that will be the innocent suspect.

the degraded nature of (98a) is probably due to the pragmatic oddness of asking who did not do something.

- (98) a. #?Hloi **bu** wõt glaĩ pσ Čeo Reo ôh?
 who NEG swing return LOC Cheo Reo NEG2
 ‘Who didn’t return from Cheo Reo?’
- b. *Hloi **bu-djõ** wõt glaĩ pσ Čeo Reo ôh?
 who NEG(DP) swing return LOC Cheo Reo NEG2
 (‘Who didn’t return from Cheo Reo?’)

The evidence from negation, then, strengthens the case for analyzing *wh*-questions containing *pô* as pseudoclefts, while *wh*-questions with a displaced *wh*-phrase but no *pô* do not involve a pseudocleft structure.

The final two pieces of evidence that the remainder is a DP when *pô* is present come from constituency. The pseudocleft analysis predicts that if the remainder (*pô*...) constitutes a DP to the exclusion of *hloi* ‘who’, then the remainder and *hloi* ‘who’ should behave as separate constituents. On the other hand, if we reject a pseudocleft analysis, it might be the case that *hloi* and *pô* together form a constituent. The reason for thinking so is that *pô* sometimes does form a lexical unit with a nominal element. For example, in combination with pronouns, such as *kâo pô* ‘1SG PRT’, the result is a reflexive or emphatic pronoun (‘myself’) that acts like a single lexical item.

The first constituency test relates to the position of *hloi* with respect to the remainder, which I have identified as an HRC. The examples in (99) show that in a non-question copular clause with an HRC, the HRC can either precede (99a) or follow (99b) the other DP.

- (99) a. [HRC Pô krah] H’Tam.
 PRT faint H’Tam
 ‘The one who fainted is H’Tam.’

- b. H'Tam [HRC pô krah].
 H'Tam PRT faint
 'H'Tam is the one who fainted.'

As the following examples show—(100a) for a questioned subject and (101a) for a questioned object—*hloi* 'who' can occur clause-finally (in a non-argument position), leaving *pô* in a clause initial position, suggesting that the remainder (starting with *pô*) is a syntactic constituent. On the other hand, *hloi* cannot occur clause-finally when no *pô* precedes the remainder, as shown by the (b) examples in (100) and (101).⁴²

- (100) a. [Pô ___ wõt glaĩ pσ Čeo Reo] **hloi** (lě)?
 PRT swing return LOC Cheo Reo who Q.WH
 'Who returned to Cheo Reo?'
- b. * ___ Wõt glaĩ pσ Čeo Reo **hloi** (lě)?
 swing return LOC Cheo Reo who Q.WH
 ('Who returned to Cheo Reo?')
- (101) a. [Pô Je bup ___ tǝm broi] **hloi** (lě)?
 PRT Je meet yesterday who Q.WH
 'Who did Je meet yesterday?'
- b. * Je bup ___ tǝm broi **hloi** (lě)?
 Je meet yesterday who Q.WH
 ('Who did Je meet yesterday?')

These data show that when *pô* is present, the *wh*-phrase can be on either side of the HRC, which is expected if they are separate constituents in a copular construction. But when there is no *pô*, the *wh*-phrase is not in a copular relation to the remainder; instead, it originates inside the remainder, and the only way for it to get out is through leftward *wh*-movement, rendering the (b) examples above ungrammatical.

42. There are mixed judgments on whether *lě* must follow *hloi* or instead might optionally precede it. Because the facts are undetermined, I will pursue the analysis assuming that only clause-final *lě* is possible, as this is the position that is uncontroversial.

The second constituency test relies on the fact that the optional Q particle *lě*, which typically occurs clause-finally (if at all), can also occur after a *wh*-fronted phrase as in (102), repeated from (57a).

- (102) Hloi (**lě**) ___ pha broi klào droi monũ kσ khua ploi?
 who Q.WH give give three CLF chicken DAT boss village
 ‘Who gave three chickens to the village chief?’

My claim in §4.1.3 was that *lě* is a Force head, the highest head position in the left periphery, and the *wh*-phrase has first focus-moved into Spec,Foc (just below Force) and then raised into Spec,Force. The prediction with respect to pseudocleft structures, then, is that the sequence *hloi lě pô* should be possible at the beginning of a clause, but not the sequence *hloi pô lě*, because *hloi pô* is not a constituent that can move together into the specifier of *lě*, the Force head. As illustrated here, this is exactly the case: *lě* can follow *hloi* and precede *pô*, but it cannot follow *pô*. This is shown for a questioned subject (103a) and a questioned indirect object (103b).

- (103) a. Hloi (**lě**) [pô (***lě**) ___ jač čĩ nao pσ sang hrã]?
 who Q.WH PRT Q.WH hurry want go LOC house paper
 ‘Who was in a hurry to go to school?’
- b. Kσ hloi (**lě**) [pô (***lě**) ñu pσ-čũt ao ___]?
 DAT who Q.WH PRT Q.WH 3SG CAUS-put.on shirt
 ‘Who did he put a shirt on?’

So far, then, we have five pieces of evidence for the pseudocleft analysis of *pô*-containing *wh*-questions: the identity of *pô*, the presence of the demonstrative *anũn*, the contrast between clausal and DP negation, the variable position of *hloi* with respect to the remainder, and the possibility of *lě* intervening between *hloi* and *pô*.

4.3.2 Questions containing *pô* are copular

My final argument that *wh*-questions with *pô* are pseudoclefts comes from comparing them with unambiguously copular questions. If questions with *pô* really are pseudoclefts, they should behave like questions whose status as copular constructions is not in doubt. On the other hand, *wh*-questions without *pô* should not pattern with copular constructions.

In the following non-pseudocleft copular *wh*-questions, *hloi* originates after the (optional) copula, (104a), and can then front via *wh*-movement to clause-initial position, leaving the copula behind, (104b).

- (104) a. Ih (jing) **hloi**?
2SG COP who
'Who are you?'
- b. **Hloi** ih (jing) ___?
who 2SG COP
'Who are you?'

The questions in (105) match this pattern exactly. In (105a), *hloi* 'who' is clause-final, and the copula may optionally occur before it. (105b) is essentially the same structure, except that *hloi* has fronted, leaving the (optional) copula clause-final.

- (105) a. [Pô wõt glaĩ pσ Čeo Reo] (jing) **hloi**?
PRT swing return LOC Cheo Reo COP who
'Who came back to Cheo Reo?'
- b. **Hloi** [pô wõt glaĩ pσ Čeo Reo] (jing) ___?
who PRT swing return LOC Cheo Reo COP
'Who came back to Cheo Reo?'

In contrast, including the copula when no *pô* is present is degraded (106a) or ungrammatical (106b).

- (106) a. ?Wõt glaĩ pσ Čeo Reo jing **hloi**?
 swing return LOC Cheo Reo COP who
 ‘Who came back to Cheo Reo?’
- b. ***Hloi** wõt glaĩ pσ Čeo Reo jing?
 who swing return LOC Cheo Reo COP
 (‘Who came back to Cheo Reo?’)

These data suggest that for questions with *pô*, the *hloi* ‘who’ is not a subcategorized argument of the verb but a DP in a copular construction. On the other hand, *wh*-questions without *pô* do not behave like copular constructions and are thus better analyzed as instances of simple *wh*-fronting out of a subcategorized argument position.⁴³

The six arguments presented above give strong support to analyzing certain *wh*-questions in Jarai as pseudoclefts. But the variation in word order within pseudocleft *wh*-questions raises an analytical question: if the remainder and the *wh*-phrase are elements in a copular construction, which is the subject and which the predicate? In other Austronesian languages with pseudocleft questions, the *wh*-phrase is typically analyzed as a predicate and the headless relative clause as the subject. The next section addresses this question.

4.3.3 The structure of pseudocleft questions

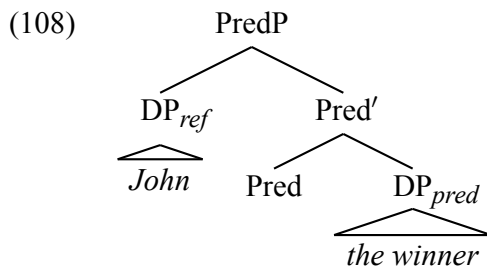
My claim about pseudocleft questions in Jarai is that they are copular constructions with two primary elements: a *wh*-phrase and a headless relative clause (HRC). When the copula is present, it sometimes follows the HRC, as in (105). This word order suggests that the HRC is the subject and the *wh*-phrase is part of the predicate. However, semantically the HRC is the predicative element: it denotes a property (in (105), roughly the property of *coming back from Cheo Reo*). Which DP, then, is the syntactic subject, and which the predicate?

43. I do not have an explanation for why (106a) is merely degraded when I would predict it to be as unacceptable as (106b). Attributing it to the ability of speakers to coerce a pseudocleft structure in the absence of *pô* is problematic because there are many instances, (106b) for example, in which coercion is not possible. Whatever the explanation, the crucial issue is the clear contrast between (106a) and (105a), which contains *pô* and is perfectly acceptable.

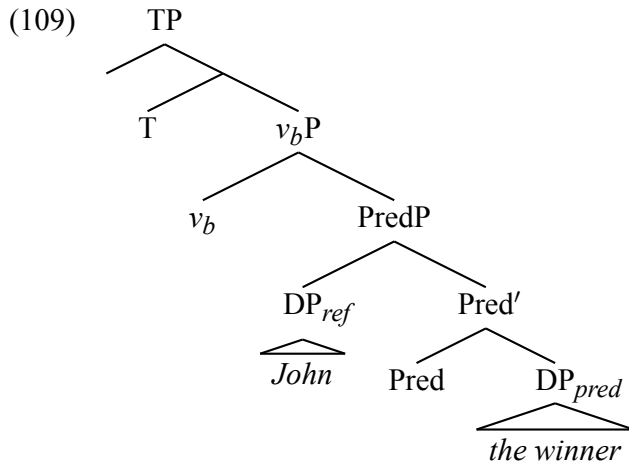
I will seek to answer this question in light of work by Mikkelsen (2005), who investigates two types of copular constructions: PREDICATIONAL, where the predicative DP is part of the syntactic predicate (107a), and SPECIFICATIONAL, where the predicative DP is the syntactic subject (107b).

- (107) a. PREDICATIONAL CLAUSE
 [John]_{DP_{ref}} is [the winner]_{DP_{pred}}.
 b. SPECIFICATIONAL CLAUSE
 [The winner]_{DP_{pred}} is [John]_{DP_{ref}}.

Mikkelsen proposes that both (107a) and (107b) have the same structure when the DPs first merge, the structure shown in (108). The predicative DP merges first as sister (complement) to a Pred(ication)al head, and the referential DP then merges as sister to the resulting phrase (as specifier).



The PredP is then embedded under a copula (which is a *v* head, specifically, *v_b*), and *v_b*P merges as sister to T. The resulting structure is shown in (109).

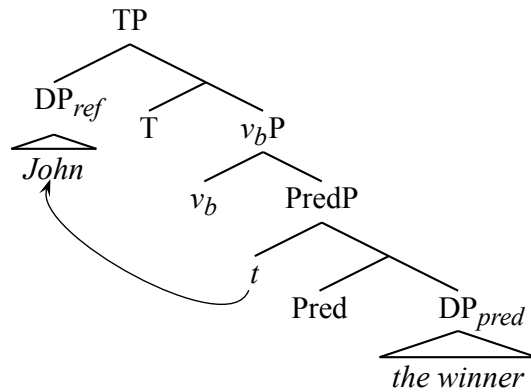


To fulfill the EPP features on T, one or the other of the DPs in the PredP must move to Spec,T, yielding either a Predicational clause or a Specificational clause. In general, the referential DP is targeted for movement because it is the closer goal, being in Spec,Pred. However, there may be instances when T is probing for a DP with a particular feature, and if the DP_{ref} lacks it while the DP_{pred} has it, then the lower DP can raise into subject position.⁴⁴

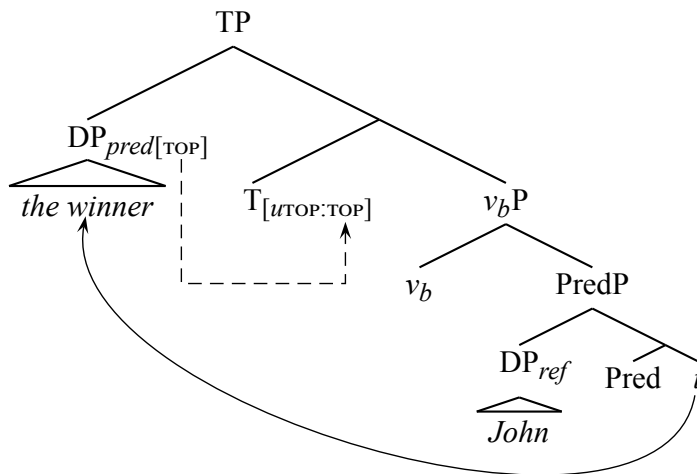
In Predicational clauses (107a), T has no special requirements for the DP it Agrees with, so the closer DP raises, the referential one, as shown in (110a). In Specificational clauses (107b), T has an uninterpretable [u_{TOP}] (topic) feature on it, requiring the DP it Agrees with to have an interpretable [TOP] feature. If the lower DP, the predicational one, has the [TOP] feature, then it is the DP that raises, giving rise to a Specificational clause, as shown in (110b).

44. Mikkelsen (2005) entertains and then rejects the idea that both DPs in the PredP are equidistant from the probing T (Chomsky 2000). If the DPs were equidistant, then we would expect the two structures—Predicational and Specificational—to have the same distribution. They do not. Instead, the Predicational clause is always available, whereas the Specificational clause is only available when the lower (predicative) DP is topical, making it eligible to move to Spec,T.

(110) a. Predicational



b. Specificational



The relevance of topicality is seen in the following question–answer pairs. In (111), the question established *John* as the topic. Consequently, *John* can be the subject of the copular clause answer. But *the winner* cannot be, because it is non-topical.

(111) Who is *John*?

a. *John* is the winner. Predicational

b. # The winner is *John*. Specificational

Before leaving this example, note that the referential DP is automatically targeted for movement whether or not it has a [TOP] feature, because it is the closer goal to T. T may have a [u_{TOP} :] feature (in which case the referential DP must have [TOP]) or it may not (in which case the referential DP need not have a [TOP] feature). Either way, the referential DP is the one that has to raise.

In (112), the question establishes *the winner* as topical. Consequently, the Specificational structure—where the predicative DP *the winner* is subject—is now appropriate. This is explained if the T has a [u_{TOP}] feature, and the DP_{pred} has a [TOP] feature to check it.

(112) Who is the winner?

- | | |
|------------------------|-----------------|
| a. John is the winner. | Predicational |
| b. The winner is John. | Specificational |

But why would the Predicational clause also be possible? The answer is that T need not have a [u_{TOP}] feature. Sometimes it does, and sometimes it does not. When it does, then the DP_{pred} is targeted for movement (if that DP is topical). When T has no [u_{TOP}] feature, then it does not matter whether either of the DPs is topical: the closer one will raise. Thus, Mikkelsen is able to derive the impossibility of the Specificational answer in (111) and the possibility of either answer in (112) using the interpretable feature [TOP] on DPs (matching our intuitions about topicality) and the optional feature [u_{TOP}] on T (accounting for the fact that the topical DP need not be in subject position).

The facts in Jarai pattern just like the English facts. When a question establishes a name (a referential DP) as the topic, then the Predicational clause is a good answer (113a): the DP_{ref} *H'Tam* has raised into Spec,TP as the closer of the two DPs inside the PredP. The Specificational clause, on the other hand, sounds decidedly odd in response to the question (113b): presumably this is because the only way for the lower DP in PredP—the DP_{pred} *pô kraih*—to raise into T is for T to have an uninterpretable [u_{TOP}] feature and for the DP_{pred} to have an interpretable [TOP] feature. But the predicative DP is clearly not topical based on the minimal question–answer context.

(113) Hloi H'Tam jing?
 who H'Tam COP
 'Who is H'Tam?'

- a. H'Tam pô kraih. Predicational
 H'Tam PRT faint
 'H'Tam is the one who fainted.'
- b. #Pô kraih H'Tam. Specificational
 PRT faint H'Tam
 'The one who fainted is H'Tam.'

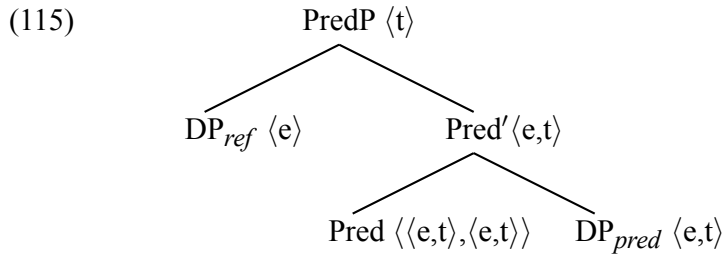
When a Jarai question establishes a predicate rather than an individual as a topic, as in (114), then both responses are possible.

- (114) Hloi kraih?
 who faint
 'Who fainted?'
- a. H'Tam pô kraih. Predicational
 H'Tam PRT faint
 'H'Tam is the one who fainted.'
- b. Pô kraih H'Tam. Specificational
 PRT faint H'Tam
 'The one who fainted is H'Tam.'

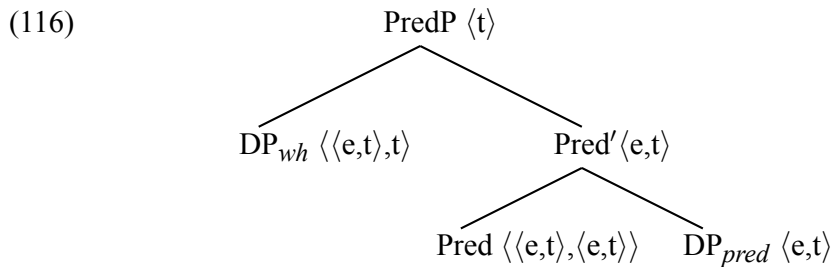
What I propose is that a predication structure like that in Mikkelsen (2005) is possible for Jarai pseudocleft questions, as well, with the *wh*-phrase (DP_{wh}) replacing the DP_{ref} that would correspond to it in Spec,Pred.⁴⁵ Why would the *wh*-phrase merge in Spec,Pred rather than as the complement of Pred? Intuitively, we might say that the *wh*-phrase is questioning that constituent: the answer to the question will be a referential DP that could stand in Spec,Pred. However, we can make the claim stronger by considering the semantic composition of a PredP (thanks to Line Mikkelsen, p.c., for suggesting this answer). If we make the reasonable assumption that a referential DP is of type $\langle e \rangle$ (the type of individuals) and a predicative DP is of type $\langle e,t \rangle$ (the type of one-place predicates), then the Pred head itself must be of type $\langle \langle e,t \rangle, \langle e,t \rangle \rangle$ in order to for the PredP to return a truth value, as illustrated in (115). (Ob-

45. See Potsdam (2007) for a similar proposal for pseudocleft *wh*-questions in Malagasy.

vously this picture involves simplifications, but type-wise this is just what Mikkelsen (2005) proposes.)



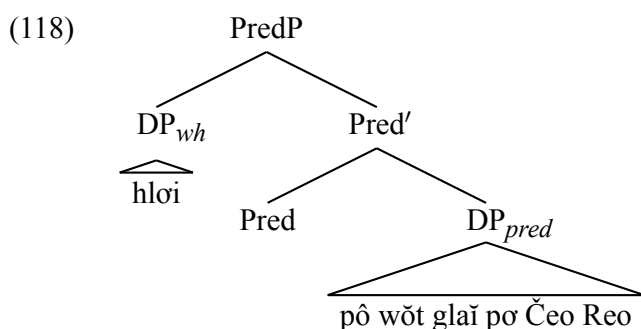
Turning to *wh*-pseudoclefts, if we take a *wh*-phrase to be a quantificational DP, of the semantic type of a generalized quantifier $\langle\langle e,t \rangle, \langle t \rangle\rangle$, then there is only one place where the *wh*-phrase could merge in a PredP, and that is in the specifier position. To see why, consider what would happen if the *wh*-phrase merged as the complement of Pred. Pred is of type $\langle\langle e,t \rangle, \langle e,t \rangle\rangle$, and the *wh*-phrase is of type $\langle\langle e,t \rangle, \langle t \rangle\rangle$, so neither can take the other as an input (because the Pred wants to compose with something of type $\langle e,t \rangle$, and so does the *wh*-phrase). However, once Pred composes with a predicative DP, the new projection, Pred', is of type $\langle e,t \rangle$, which is the type that the *wh*-phrase takes as its input. This is illustrated in (116).



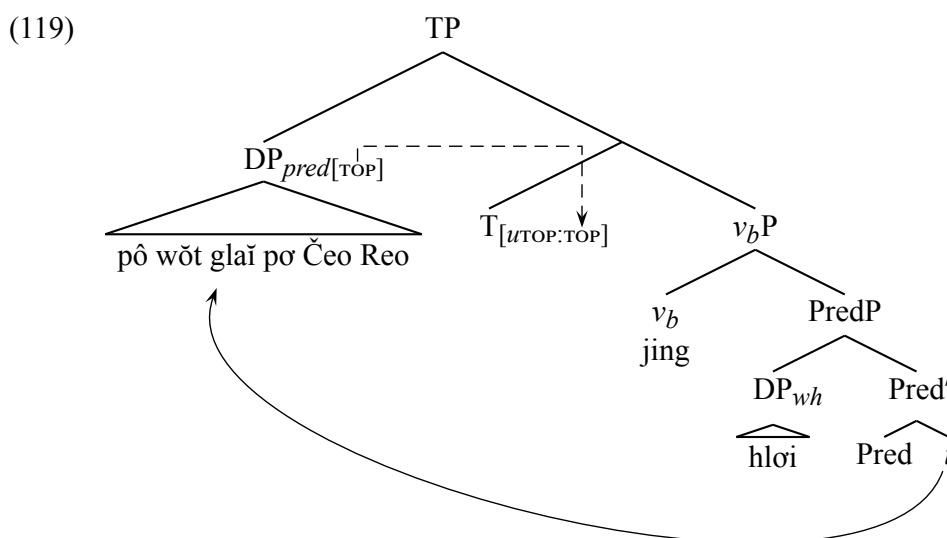
Consider now (117), where *pô* is initial and *hloi* ‘who’ is final, preceded by an optional *jing* ‘COP’.

- (117) [DP_{pred} Pô wõt glaĩ pσ Čeo Reo] (jing) [DP_{wh} hloi]? [= (105a)]
 pô swing return LOC Cheo Reo cop who
 ‘Who came back to Cheo Reo?’

The initial merge order is given in (118), where the predicative DP is sister to the (null) Pred head, and the *wh*-phrase merges in Spec,Pred.



This PredP will next be selected as the complement of v_b (optionally realized as the copula *jing*), and the v_b P merges as sister to T. Because Jarai has a subject requirement, Spec,T must be filled. Because the copula appears after the HRC but before the *wh*-phrase in (117), we can conclude that the HRC (the DP_{pred}) has raised out of the PredP into Spec,T. Because this DP is further from T than the *wh*-phrase, we must assume that T has a $[u_{TOP}]$ feature, and the DP_{pred} has a $[TOP]$ feature. This derivation is illustrated in (119).



Before proceeding, we should pause to consider what it means for the HRC to be topical (which is syntactically cashed out here in terms of a $[TOP]$ feature). We can begin with

the standard view of *wh*-phrases that treats them as focus items (Bresnan & Mchombo 1987; Lambrecht 1994) (see also my arguments in §4.2 that *wh*-phrases bear a [FOC] feature). If *wh*-phrases are focus-items, then they are necessarily non-topical (Bresnan & Mchombo 1987; Kroeger 2004), and the remainder—the part of the clause that is not focused—is presupposed (Lambrecht 1994), or at least treated by the speaker as such. If a topic feature is a way to register presupposed information within the clause, then the HRC in a pseudocleft structure will always have a [TOP] feature, or at least always be eligible for one.⁴⁶

At this point, the structure is complete, and we have the word order in (117): the headless relative clause is initial, followed by the optional copula, followed by the *wh*-phrase, which remains in the predicate (PredP). The resulting clause is a Specificational clause: the predicative DP (the HRC) has moved to subject position for information structural reasons.⁴⁷

However, more work is needed to derive the word order in (120), where the *wh*-phrase is initial, followed by the headless relative clause, followed (optionally) by the copula.

- (120) [DP_{wh} Hloi] [DP_{pred} pō wōt glaī pō Čeo Reo] (jing)? [= (105b)]
 who PRT swing return LOC Cheo Reo COP
 ‘Who came back to Cheo Reo?’

This word order receives a straightforward account under the assumption that the *wh*-phrase undergoes fronting via *wh*-movement (which I recast as focus-movement in §§4.1.3,4.2) to a

46. This is not to say that pseudocleft questions are only possible in contexts where previous discussion has established the predicate denoted by the HRC as topical. It is enough that speakers can treat the HRC as representing discourse-familiar information.

47. Note that it is a quantificational DP—the *wh*-phrase—that remains in the PredP. Line Mikkelsen (p.c.) points out that in English, a quantificational DP in the predicate is not acceptable, as shown by (i).

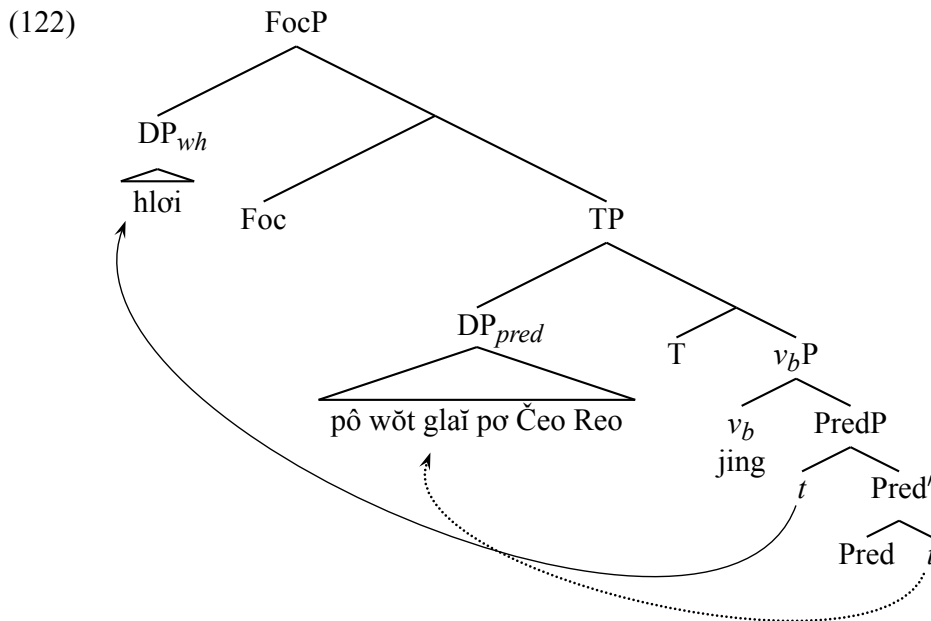
- (i) a. #The winner is no one.
 b. #The winner is everyone.

However, there are independent reasons that *no one* and *everyone* are bad in the predicates illustrated here. In (ia) *no one* is ruled out because the only way for predicative *the winner* to raise into Spec,T is by virtue of being topical. However, topicality includes a presupposition of existence, so specifying that *the winner* is *no one* leads to presupposition failure. In (ib) the fact that the predicative DP is definite and singular leads to a uniqueness presupposition, and *everyone* clashes with that presupposition. A *wh*-phrase does not violate either of these conditions and is thus acceptable.

projection above TP. One reason to think that this is the correct explanation comes from considering the unacceptable word order in (121), where the headless relative is leftmost, followed by the *wh*-phrase, followed by the copular (HRC-*wh*-COP). Supposing that the *wh*-phrase in (120) reached its leftmost position via some scrambling operation other than *wh*-movement, we would expect that the headless relative could undergo the same sort of scrambling (after the *wh*-phrase has moved into Spec,T). However, the impossibility of (121) argues against such an alternative.

- (121) * $[\text{DP}_{pred}$ Pô wõt glaĩ pơ Čeo Reo] $[\text{DP}_{wh}$ hloi] (jing)?
 PRT swing return LOC Cheo Reo who COP
 ('Who came back to Cheo Reo?')

The proposed movement of *wh* out of PredP to Spec,Foc is shown in (122). (For simplicity I omit the features [FOC] and [TOP], as well as their corresponding uninterpretable counterparts on Foc and T.)



We can now account for both word orders using operations that are independently attested in the language: movement to Spec,T (which every subject in Jarai undergoes) and focus-movement to Spec,Foc (which *wh*-phrases undergo in other *wh*-questions).

The question now arises: do we ever find examples of the *wh*-phrase raising to Spec,T, leaving the HRC in the predicate? In that case, we would find *wh*-COP-HRC word order, where the COP before HRC shows that it has remained in the PredP, and the *wh*-phrase has raised past the copula into Spec,T. The examples in (123) show just this configuration.

- (123) a. [DP_{wh} Hloi] (jing) [DP_{pred} pō broi prāk kō Waih] (lě)?
 who COP PRT give money DAT Waih Q.WH
 ‘Who gave money to Waih?’
- b. [DP_{wh} Hloi] (jing) [DP_{pred} pō H’He lui]?
 who COP PRT H’He abandon
 ‘Who did H’He abandon?’

We might wonder how the word order in (123) would be possible if the HRC is always topical in some sense. But recall that under the theory put forward by Mikkelsen (2005), the [TOP] feature on a DP is relevant for movement only when T has an uninterpretable [*u*TOP:] feature on it: only in that case will the [TOP]-marked DP be singled out for movement to Spec,T. Otherwise the closer DP moves. Apparently that is what has happened in (123): T has no [*u*TOP:], so the closer DP, the *wh*-phrase, has moved into Spec,T.

If you are troubled by this optionality in T’s features, think of it in terms of an option speakers have for organizing the information structure of a sentence. If a speaker chooses to privilege topicality, he can use a clause with a T that carries [*u*TOP:]: in that case, a topical DP must appear in subject position. On the other hand, if topicality is less important, then a T with no [*u*TOP:] can be used, and the result, at least for pseudocleft questions, is what we find in (123).

So then, all three word orders possible for *wh*-pseudoclefts, HRC–COP–*wh*, *wh*–HRC–COP, and *wh*–COP–HRC, can be accounted for with features that capture the topic and focus properties of *wh*-questions, along with movement operations that are related to those features. Additionally, both features, [FOC] and [TOP], along with the movement operations that target those features, are independently needed to account for non-*wh* clauses: [FOC] is needed for standard focus-fronting, and [TOP] is needed to account for the distribution of Predicational and Specificational copular clauses (as in English). We can also account for the ungrammaticality of HRC–*wh*–COP under the proposed analysis, because that word order would require the HRC to be focus-marked; however, Jarai allows only one focus item per clause, and *wh*-phrases are always focus-marked.

Having established that Jarai has more than one strategy for forming *wh*-questions, we would hope to find a semantic or pragmatic difference between *wh*-questions that do and do not have a pseudocleft structure. Somewhat surprisingly, speakers do not show a preference for one or the other, even in context pairs where one context strongly presupposes the existence of people who “fit the description” of the question and in the other context it is completely unknown whether anyone fits the description.⁴⁸ Additionally, the answer “no one” is equally appropriate as an answer to either type of *wh*-question, again suggesting that neither one nor the other more strongly presupposes the existence of someone who matches the description. Perhaps the existence of various *wh*-strategies side-by-side in Jarai is simply a historical accident. But one hopes that further research will uncover synchronic reasons for the multiple structural possibilities.

48. For example, I proposed the following two situations to a consultant. (i) A bus driver pulls up to a crowd and wants to know who is going to Cambodia. He does not know beforehand whether anyone in the crowd intends to go to Cambodia. (ii) The same situation, but the bus driver knows ahead of time that there is a group of travelers in the crowd who are heading for Cambodia. In (i) the existence of anyone to whom the predicate “going to Cambodia” applies is unknown, whereas in (ii) it is known that there are people to whom the predicate applies. In neither of these cases is one structure preferred over the other. None of my consultants ever express a preference for pseudocleft versus non-pseudocleft *wh*-questions in any constructed pair of situations like the one described above.

CHAPTER 5

INFLECTIONAL DOMAIN

In this chapter I give an overview of the inflectional domain, the locus of tense and aspect. I argue that pre-verbal auxiliaries are positioned below the operator (C) domain and above the verb phrase. I then consider two curious gaps in Jarai’s inventory of auxiliaries—past tense and perfective aspect—examining two lexical items that at first glance appear to encode one or both of these meanings. Finally, I argue that subjects are in Spec,T at surface structure.

5.1 Inflectional elements

Auxiliaries associated with tense, aspect, mood, and modality (TAMM) are quite commonly found in pre-verbal position in SVO languages, and a standard view is that they sit in head positions that dominate the verb phrase. The inventory of TAMM related words in Jarai is summarized in Table 5.1.¹ I will generally use the term *auxiliary* for the pre-verbal items in the list, and *adverb* or *particle* for the post-verbal elements. The *Category* column reflects tentative claims about syntactic category based in part on the semantics of the words and in part on the words’ positions in the clause. Because the pre-verbal elements have a relatively fixed position, I analyze them as heads. In the two cases that I have used parentheses (for *laih* and *bě*), it is my judgment that these words are in fact adverbials or particles rather than heads; nevertheless, their meanings correspond to ASPECT and MOOD respectively.

The mood-related items *hǎ* and *lě* are discussed extensively in §4.1.3 of the previous chapter, where I analyze them as Force heads in the operator domain. I do not examine the

1. This table represents most TAMM words that I find in my data. However, I omit *homáo* ‘have’ (past or perfective?), because judgments are unclear on its use, and it is rarely used outside formal writing. I also omit a couple possible question particles such as *mǒ*, which I have little data on.

Table 5.1. Tense, Aspect, Mood, & Modality

Word	Meaning	Category	Position
<i>amra</i>	‘FUTURE’	tense	pre-verbal
<i>či</i>	‘about to’	aspect	pre-verbal
<i>glāk (hlāk)</i>	‘PROGRESSIVE’	aspect	pre-verbal
<i>phrâo</i>	‘just; new’	aspect	pre-verbal
<i>laih</i>	‘already’	(aspect)	post-verbal
<i>khôm</i>	‘must’	modal	pre-verbal
<i>broi</i>	‘may, should; give’	modal	pre-verbal
<i>anām</i>	‘ought not, must not’	modal	pre-verbal
<i>nāng</i>	‘should’	modal	pre-verbal
<i>dri (dui)</i>	‘be able, may, ought’	modal	pre-verbal
<i>hĩ</i>	‘TELIC’	inner aspect	immediately post-verbal
<i>bě</i>	‘IMPERATIVE’	(mood)	post-verbal
<i>hã</i>	‘polar Q’	mood	post-verbal
<i>lě</i>	‘wh Q’	mood	post-verbal

properties or distribution of *bě* in this work. I do discuss, however, the aspect-related *laih* ‘already’, not because it is in a head position above the verb phrase, but because of its connection to the tense and aspectual interpretation of the clause. The modality auxiliaries are included in the table for the sake of completeness. Their translation and pre-verbal position suggest that they belong in the region of the clause immediately above the verb phrase, but I do not examine them in the present work.

The bulk of my discussion will center on *amra* ‘FUTURE’ and *glāk* ‘PROGRESSIVE’, the best attested auxiliaries in my data.

5.2 Ordering and phrase structural position

The only clear example of a tense-bearing element I have found in Jarai is *amra*, used for future tense.² As illustrated in (1), *amra* follows the subject and precedes the verb in the clause.

- (1) a. Bôh monũ anũn **amra** pɔ̃ch.
egg chicken DEM.MED FUT break
'That chicken egg will break.'
- b. Blan anăp, kâo **amra** nao pɔ̃ Pleiku.
month front 1SG FUT go LOC Pleiku
'Next month I will go to Pleiku.'

There are differences among speakers about the best position for clausal negation in relation to *amra*. However, it appears that both Neg–Fut and Fut–Neg ordering are generally possible, as illustrated in (2). Which ordering is preferred may be subject to dialect and speaker variation.³

- (2) Jok (**bu**) amra (**bu**) sĩ sang ñu ôh.
Jok NEG FUT NEG sell house 3SG NEG2
'Jok will not sell his house.'

The variable position of negation is not without limits, however: most importantly, *bu* never precedes the subject, as shown in (3).

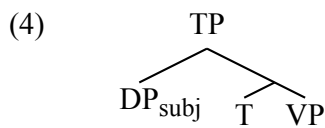
2. The word *çi* has a meaning similar to *amra*, and they are often interchangeable. However, *çi* suggests greater immediacy than *amra*, so I tentatively label it as an aspect head with the meaning 'about to'. I have one example of the two words co-occurring, given in (i). The relative ordering of *amra* and *çi* is consistent with an analysis of the first as a tense head and the second as aspect. The auxiliary *çi* cannot co-occur with *glăk* 'PROGRESSIVE'.

- (i) Hroi pogi kâo **amra** **çi** romet-set sang kâo.
day tomorrow 1SG FUT about.to clean-RED house 1SG
'Tomorrow I'll clean my house.'

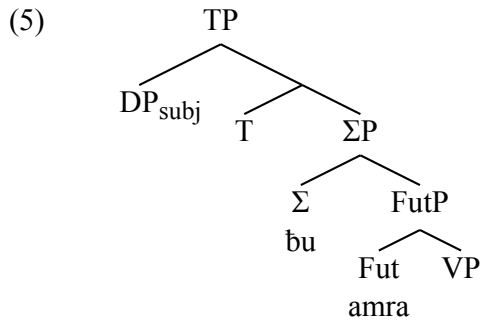
3. Of my three primary consultants, two accept both orders, and all of them accept Neg–Fut order. One rejects Fut–Neg. However, Fut–Neg is the order I find in Nguyen's (1975) description of Jarai grammar. Nguyen does not report on the possibility of Neg–Fut order.

- (3) a. (***bu**) Je (**bu**) amra kih sang ôh.
 NEG Je NEG FUT sweep house NEG2
 ‘*Je will not sweep the house.*’
- b. (***bu**) romô (**bu**) djai ôh.
 NEG COW NEG die NEG2
 ‘*The cow didn’t die.*’

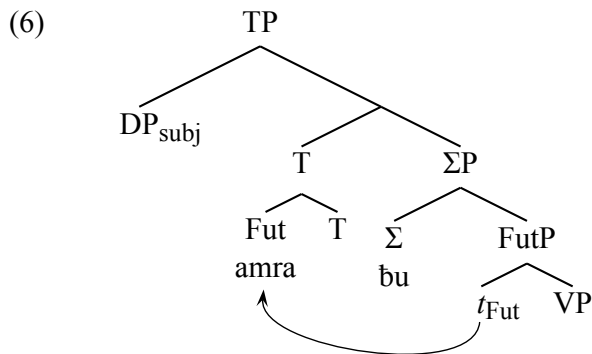
The variable location of negation vis-à-vis *amra* is something of an analytical problem. To see why, consider the tree in (4). If we take *amra* to sit in T and the subject to be in Spec,T (as I argue in §5.4), then it is not immediately obvious where negation merges (or moves) so that it precedes *amra* but follows the subject.



However, it is not necessary to take *amra* ‘FUT’ to be a T head. Instead, we can treat *amra* as the spellout of a head below T—and crucially, below negation. I will label this head as Fut. Now suppose, following Laka (1990), that the negator *bu* is the spellout of Σ , a head that encodes polarity in the clause. The initial merge structure of a clause with both *bu* and *amra* is shown in (5). (I argue in §6.3 that subjects originate in the verb phrase, but I leave that detail to the side for now.) In the structure in (5), the head encoding future tense, Fut, merges with the verb phrase, forming FutP. FutP then merges as sister to the polarity head Σ (spelled out as *bu*), forming Σ P, which merges as sister to T (which is null). T projects a specifier position, where the clause’s subject sits.



The variability in the ordering of *bu* and *amra* is due to an Aux-to-T movement operation that head-raises *amra* into T, as illustrated in (6). I propose that for speakers who allow both Neg–Fut and Fut–Neg orders, either this movement is optional or, alternatively, either copy of the moved Fut head can be pronounced at the surface. For the speaker having only Neg–Fut ordering, either there is no raising rule, or only the lower copy of movement can be pronounced.



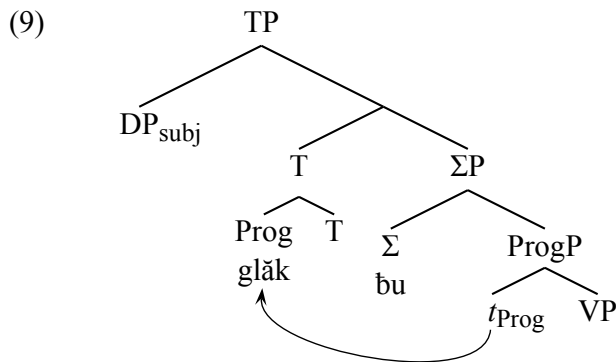
Turning to the progressive aspect marker *glāk* (*hlāk* for many speakers), we find a similar situation. The progressive always precedes the verb and follows the subject, as illustrated in (7).

- (7) a. Bɔi H'Yak rai, kâo **glāk** mã-bruă.
 when H'Yak come 1SG PROG work
 'When H'Yak came, I was working.'
- b. Kâo bɔh koyâo **glāk** rɔbuh.
 1SG see tree PROG fall
 'I see a tree falling.'

As with *amra*, negation can appear on either side of Prog, without a clear preference one way or the other.⁴

- (8) Kào (**bu**) hlāk (**bu**) glaĩ pσ sang ôh.
 1SG NEG PROG NEG return LOC house NEG2
 ‘I am not returning home.’

I suggest that the two locations of Neg in relation to *glāk* reflect an optional movement rule that raises the progressive auxiliary into T, along the lines of the analysis proposed for the future auxiliary *amra*. The tree in (9) illustrates this movement.⁵



A question that now arises is whether *amra* and *glāk* merge into the same head position or instead instantiate separate heads in the inflectional domain. I have tacitly assumed so far that they are separate head positions. However, speakers reject the co-occurrence of the two auxiliaries, with either Fut–Prog (10a) order or Prog–Fut order (10b).

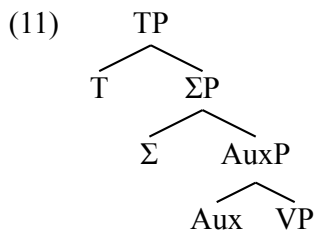
4. Nguyen (1975) only has Prog–Neg order, and as with *amra* ‘FUTURE’, he says nothing about the acceptability of Neg–Prog order. One of my speakers uses the constituent/DP negator (*b̄u-djǒ*) rather than the clausal negator (*b̄u*) with *glāk*, and that speaker rejects Prog–Neg order, as shown in (i). I do not explore that complication here.

(i) Jok **b̄u-djǒ** glāk (***b̄u-djǒ**) moñam suai ôh.
 Jok NEG(DP) PROG NEG(DP) weave trap NEG2
 ‘Jok is not weaving a bamboo fishing trap.’

5. The movement of Prog to T appears to violate the Head Movement Constraint (HMC) of Travis (1984), but see Roberts (1994), among many others, for a reformulation of the HMC intended to account for, among other things, the fact that Aux-to-T can skip negation.

- (10) a. ??Pogi todang ih truh, kâo **amra hlăk** mă-bruă.
tomorrow when 2SG arrive 1SG FUT PROG work
'Tomorrow when you arrive, I will be working.'
- b. ??Pogi todang ih truh, kâo **hlăk amra** mă-bruă.
tomorrow when 2SG arrive 1SG PROG FUT work
'Tomorrow when you arrive, I will be working.'

Speakers do not regard these sentences as absolutely unacceptable (hence the ‘??’ judgment marks). Instead they respond to them by saying things like “I’ve never heard anyone say that before. I don’t think we say that.” How exactly to account for this judgment is not clear to me. I tentatively suggest that Jarai has only one head position for an auxiliary, which may be filled by either *amra* or *glăk*. This structure is given in (11). Nevertheless, it may be that the restriction on co-occurrence is semantic rather than syntactic. I leave this question for later research.



The resulting picture is a fairly truncated inflectional domain (at least from a Cartographic perspective), with a T that is always null and an Aux that can be filled with either the future tense auxiliary or the progressive aspect auxiliary. This auxiliary can raise to T, although this raising is apparently optional in Jarai, in addition to being subject to speaker or dialect variation.⁶

The analysis here does not preclude the possibility that there are in fact several positions for tense-bearing and aspect-bearing auxiliaries in the inflectional domain, along the lines of

6. Jason Kandybowicz points out the possibility that the word order options for negation may involve prosodic inversion of negation with its adjacent auxiliary. I leave this as an open question. It is my hope that future work will examine the prosody of Jarai, shedding light on this suggestion.

Cinque (1999). However, in the absence of direct evidence, the tree in (11) is adequate (but see fn. 2, pg. 147, regarding *čĩ* ‘about.to’, which can co-occur with *amra*).

5.3 Excursus: (missing) tense and aspect

A glance at the tense and aspect portions of Table 5.1 reveals a couple surprising gaps. First, Jarai has a clear future tense auxiliary, but no past tense auxiliary. Second, Jarai has a progressive marker, but no perfective marker.⁷ Potential candidates for both of these gaps are the post-verbal *laih* ‘already’ and the immediately post-verbal *hĩ*. I briefly discuss these two items in turn.

5.3.1 *laih* ‘already’

The word *laih* ‘already’ occurs post-verbally, and its position is relatively free, as long as constituent boundaries are respected. It can occur clause-finally, as in (12a,b), and it can intervene between a verb and its complement, whether the complement is a DP object, as in (12a) or a PP locative argument, as in (12b). It cannot, however, interpose between a verb and the particle *hĩ*, as shown in (12b).

- (12) a. Glik bloi (laih) sa bôh potoi (laih).
 Glik buy already one CLF banana already
 ‘Glik bought a banana.’
- b. Kâo robot nao (*laih) hĩ (laih) pơ sang hră (laih).
 1SG walk go already PRT already LOC house paper already
 ‘I walked to school.’

7. PERFECTIVE must be distinguished from PERFECT. The former is incompatible with IMPERFECTIVE (which includes PROGRESSIVE). PERFECT on the other hand is compatible with progressive, as in the English *He has been running a Marathon*. See, e.g., Klein (1994) on the contrast between perfect and perfective. See Comrie (1976) on the basic distinction between perfective and imperfective.

In polar questions (13a) and *wh*-questions (13b) *laih* precedes rather than follows the clause-final question particle.⁸ *Laih* cannot occur preverbally.⁹

- (13) a. Dam nao pơ homa ñu (laih) hă (*laih)?
 Dam go LOC field 3SG already Q.POL already
 ‘Has Dam already gone to his field?’
- b. Pô pã wốt glaĩ (laih) lě (*laih)?
 PRT which swing return already Q.WH already
 ‘Which one came back?’

Quite commonly, *laih* ‘already’ occurs in clauses with what appears to be a simple past meaning; this is illustrated in (14a). Example (14b) has a predicate (*sing a song*) for which duration is more salient than in (14a): that is, it is an accomplishment rather than achievement predicate. Here all of the action occurs in the past: this sentence is not appropriate if the singing is ongoing, such that only part of it is in the past. The predicates in these two examples are an achievement and accomplishment, respectively. Note that in neither of these examples does *laih* carry any sense of contrasting the actual situation with what might have been anticipated by the speaker or hearer, as English *already* does.¹⁰

8. Two other post-verbal particles, *ôh* and *tah*, each occur as the second element of clausal negation. *Laih* appears to be semantically incompatible with these, because the expected meaning is covered by *aka ... ôh/tah* ‘not yet’. Thus, figuring out the position of *laih* vis-à-vis these particles is not possible.

9. Actually, *laih* can occur as a preposition with the meaning ‘after’, in which case it can select a clausal complement, forming an embedded temporal clause, as in (ia). *Laih* ‘after’ can also select a DP; this is illustrated in (ib), where a time noun phrase is complement to *laih*.

- (i) a. **Laih** ajĩ djai abih mơi tuh ia poiã anũn
 after frog die finish 1PL.EXCL pour water hot DEM.MED
 ‘After the frogs all die, we pour out the hot water.’
- b. **Laih** klào mông ih dui rai.
 after three time 2SG be.able come
 ‘After 3 o’clock you can come.’

10. This is, of course, a simplification of what English *already* conveys. For a fuller descriptive account and analysis of English *already*, see Michaelis (1992). It does not appear that anything so complicated is involved with *laih*.

- (14) a. Amai kâo dǒ **laih** rokoi Mi.
 older.sister 1SG marry already husband American
 ‘My older sister married an American (already).’
- b. Adoi kâo adôh **laih** t’oloi adôh anũn.
 younger.sibling 1SG sing already NMLZ sing DEM.MED
 ‘My younger sibling sang that song (already).’

When *laih* accompanies an achievement-type predicate such as *dǒ* ‘marry’, as in (14a), it is infelicitous to follow up the statement with the claim that they are no longer married (15).

- (15) Adoi kâo dǒ k’ô p’ô anũn **laih** (# samǒ adoi
 younger.sibling 1SG marry DAT PRT DEM.MED already but younger.sibling
 kâo bu dǒ k’ô ñu tah).
 1SG NEG marry DAT 3SG any.more
 ‘My younger sibling married that person (already) (# but my younger sibling is no longer married to him).’

We find the same thing for a predicate like *jur* ‘boil’, which has both a stative (‘be boiling’) and an achievement (‘start to boil’) interpretation. The first part of the following example, (16a), is a question, and the second part, (16b), is the normal affirmative response to that question. The sentence in (16b), which contains *laih*, does not mean that the boiling has already come to an end, but rather that the boiling state has been achieved and is (presumably) still ongoing.

- (16) a. Ia jur **laih** aka?
 water boil already not.yet
 ‘Is the water boiling yet?’
- b. (Ia) jur **laih**.
 water boil already
 ‘The water is boiling.’

With simple activity predicates, however, the presence of *laih* indicates that the activity has already come to an end, as illustrated in the following two examples, one with the activity *kih* ‘sweep’ (17a) and the other with the activity *robat* ‘walk’ (17b). In both cases, the sentence

claims that the activity (sweeping/walking) has come to an end. For example, if a mother asks her son whether he has done the sweeping, he cannot truthfully utter (17a) if he is still in the process of sweeping.

- (17) a. Kâo kih laih.
 1SG sweep already
'I (already) swept.'
- b. Ñu robot laih.
 3SG walk already
'He (already) walked.'

What we find, then, is that with accomplishments (14b) and activities (17), *lahi* places the entire event in the past: it must have come to an end before the time of utterance. With achievement predicates (15,16b), on the other hand, *lahi* indicates that the achievement is in the past but the resulting state still holds.

When a sentence contains a time reference, *lahi* situates the action prior to the time reference. Example (18a) illustrates the impact of *lahi*, in contrast to a sentence with no *lahi*, where the action occurs simultaneous to the time reference.

- (18) a. Bôi klâu mông hroi dua, kâo cũa ngui sang potao **lahi**.
 at three time day two 1SG visit visit house king already
'At three o'clock on Tuesday, I had (already) visited the king's house.'
- b. Bôi klâu mông hroi dua, kâo cũa ngui sang potao.
 at three time day two 1SG visit visit house king
'At three o'clock on Tuesday, I visited / was visiting the king's house.'

When we turn to states with *lahi* where a time reference is explicitly given, the state modified by *lahi* has started prior to the given time, but, as we would expect from (16), the state is still “active” at the overtly stated time (19). (Given the preceding discussion, *glêh* ‘tired’ in this sentence may well have an achievement reading, so that ‘had gotten tired’ might be the appropriate translation.)

- (19) Boi kâo kočum mã-bruă, kâo glêh **laih**.
 at 1SG start work 1SG tired already
 ‘By the time I started to work, I was (already) tired.’

So then, the function of *laih* is to situate one time in relation to another (see Reichenbach 1947; Klein 1994): specifically, it situates the time of the predicate (the situation described) prior to a reference time. When no explicit time is mentioned, the time of the predicate simply precedes the speech time (which counts as the reference time). When an explicit time is mentioned, the time of the predicate precedes that time.¹¹ When the predicate is a state, *laih* situates the beginning of the state before the relevant time, but the state still holds at the reference time. It seems, then, that *laih* is somewhat like the English perfect. However, *laih* has an additional restriction: it cannot occur with a future time reference, as shown in (20).

- (20) *Pogi boi sa mông neh kâo amra truh **laih** pơ
 tomorrow at one time parent’s.younger.sister 1SG FUT arrive already LOC
 anai.
 DEM.PROX
 (‘Tomorrow at 1 o’clock my aunt will have arrived here.’)

Thus, *laih* encodes both aspect-like and tense-like elements: in terms of aspect, it situates a predicate before a reference time and, if the situation is an activity, accomplishment or achievement, it indicates that the event is over. However, if the situation is a state, it indicates that the state still holds at the reference time, in contrast to what a simple perfective marker would be expected to do. In terms of tense, it necessarily indicates that the predicate occurred (at least partially) in the past. However, the linear position of *laih* shows that it patterns with VP-level adverbs rather than with auxiliaries, which are fixed in their preverbal position. Thus, one explanation for Jarai’s lack of a past tense marker is that the past-perfect adverbial *laih* covers some of the same functional ground.

11. The data are actually somewhat complex on this point, but this characterization generally holds true.

5.3.2 *hĩ*, telicity particle

The particle *hĩ* is another element that seems to encode both tense and aspect related information. With regard to linear order, *hĩ* is always immediately after the verb (as the following examples all show); like *lah* ‘already’ it cannot precede the verb, but unlike *lah*, it never follows the complements of the verb or adverbial adjuncts.

One reason to suspect that *hĩ* is a tense indicator is that activity predicates that can have either a past or future interpretation, as in (21a), can have only a past interpretation with *hĩ*, as shown in (21b).

- (21) a. Mɔguah anai kâo robat.
morning DEM.PROX 1SG walk
‘This morning I walked/will walk.’
- b. Mɔguah anai kâo robat **hĩ**.
morning DEM.PROX 1SG walk PRT
‘This morning I walked (≠will walk).’

When an activity otherwise has a default present (progressive) interpretation, as (22a) does, the addition of *hĩ*, (22b), requires a past completive interpretation, where the activity is no longer ongoing.

- (22) a. Kâo hiu lua ajĩ.
1SG wander hunt frog
‘I am hunting frogs.’
- b. Kâo hiu lua **hĩ** ajĩ.
1SG wander hunt PRT frog
‘I hunted frogs.’

However, *hĩ* cannot be analyzed as a past tense marker for the simple reason that it can co-occur with the future auxiliary *amra* without any contradiction. In both (23a) and (23b), the addition of *hĩ* to a future-marked clause strengthens or emphasizes the claim being made.¹²

12. Although emphasis is not the primary contribution of *hĩ* in non-future clauses, this seems to be an aspect or implication of *hĩ* even in past clauses. Additionally, speakers do not seem to regard *hĩ* in the future as a different

- (23) a. Kào **amra** pɔ-djai **hĩ** bui.
 1SG FUT CAUS-die PRT pig
'I will (certainly) kill a pig.'
- b. Ñu **amra** jing **hĩ** bɔnai kào.
 3SG FUT COP PRT wife 1SG
'She will (certainly) become my wife.'

Excluding past tense as the meaning of *hĩ* does not, however, eliminate the possibility that *hĩ* encodes perfective aspect. In fact, it might be expected that if *hĩ* is a perfective marker, clauses containing it would have a default past interpretation. Why should this be? The reason is that many clauses that are unmarked for tense and aspect have two fairly accessible interpretations: past and present—with present typically carrying along with it a progressive aspectual interpretation. So if *hĩ* is perfective, it rules out progressive aspect and hence present tense, leaving past as the most accessible tense.

So is there evidence that *hĩ* is, in fact, a perfective marker? The strongest evidence comes from the interpretation of clauses with potentially culminating predicates. For example, in a clause such as (24a) with a creation accomplishment predicate, culmination can be denied without any sense of contradiction, even when the clause is construed as having past time reference. However, the addition of *hĩ* requires the predicate to culminate, with the house-building reaching completion. These data have a straightforward explanation if the aspectually unmarked clause in (a) has a past progressive interpretation, so that the assertion does not include all the predicate's runtime (and crucially, does not include the final interval); then, when perfective *hĩ* is added in (b), the entire runtime (including the final interval) is necessarily part of the assertion.¹³

hĩ from the one in past clauses. For these reasons, I do not analyze the *hĩ* in (23) as a separate, homophonous particle.

13. For a semantics of imperfective and perfective and how they can impinge on telicity, see, among many others, Filip (2004).

- (24) a. Kào pòkra sang kào (samǒ bu giǒng ôh).
 1SG make house 1SG but NEG finish NEG2
'I made/was making my house (but it didn't get finished).'
- b. Kào pòkra hĩ sang kào (# samǒ bu giǒng ôh).
 1SG make PRT house 1SG but NEG finish NEG2
'I made my house (# but it didn't get finished).'

We see the same contrast with certain change of state verbs, such as *lik* 'melt', illustrated in (25): there is no contradiction in asserting that the ice melted but did not melt all the way, as in (25a). However, adding *hĩ*, in (25b), requires that the melting progress all the way to its natural culmination. Again, this contrast is expected if the difference between (a) and (b) is that the first has a progressive interpretation, while the latter is perfective.

- (25) a. Đã anai lik (samǒ bu lik abih ôh).
 ice DEM.PROX melt but NEG melt run.out.of NEG2
'This ice melted/was melting (but it didn't melt all the way).'
- b. Đã anai lik hĩ (# samǒ bu lik abih ôh).
 ice DEM.PROX melt PRT but NEG melt run.out.of NEG2
'This ice melted (# but it didn't melt all the way).'

However, there are data from motion predicates suggesting that *hĩ* does not enforce culmination simply by adding a perfective meaning. Motion predicates such as in (26a) have non-culmination as an interpretive option in past time clauses, just as in (24a) and (25a). However, when *hĩ* is added in (26b), the culmination requirement is not nearly so strong as in (24b) and (25b), which are (non-motion) predicates with *hĩ*. Quite often, speakers acknowledge that something is odd about the denial of culmination in a motion event with *hĩ*, but they resist calling it a contradiction (hence the ?# rather than # judgment mark in (26b)).

- (26) a. Kào robot nao pơ sang hrã lai h (samǒ bu truh ôh).
 1SG walk go LOC house paper already but NEG arrive NEG2
'I walked to school (but didn't arrive).'

- b. Kào robot nao **hĩ** pơ sang hră lai*h* (?# samǒ ̄ bu truh ôh).
 1SG walk go PRT LOC house paper already but NEG arrive NEG2
'I walked to school (?# but didn't arrive).'

If *hĩ* were simply a perfective marker, then it should have exactly the same impact on the culmination of motion clauses as it has on other potentially non-culminating clauses. It is not clear how we would account for this contrast between motion predicates on the one hand and creation accomplishments and change of state predicates on the other hand, if culmination were simply read off of perfectivity.

What I propose as an alternative to the perfective view of *hĩ* is that it does not directly encode perfective viewpoint aspect at all. Instead, it is an inner aspect head (Travis 2010), modifying the *aktionsart* of the predicate. The way it does this differentiates between different kinds of predicates, giving rise to the contrasts we see above.¹⁴ Any viewpoint (outer) aspectual effects that we observe are simply the effects of a change to the inner aspect. Thus, *hĩ* sometimes gives a strong implication of perfectivity, but without directly encoding perfectivity. For this reason, *hĩ* may often be used like a perfective marker would be, partially filling the gap left by the absence of a true perfective auxiliary.

A final argument against *hĩ* as either a past tense or perfective aspect marker is that, unlike tense and aspect markers, it can occur in non-finite embedded clauses. (27) illustrates *hĩ* in clauses embedded under *kiǎng* ‘want’. (See Chapter 4, §4.1.2 for extensive discussion of embedded clauses like this.)

14. I develop this idea in Jensen (2013) in terms of scales, following Hay et al. (1999); Kennedy & Levin (2008); Kennedy (2012). The basic idea is that non-culmination arises in creation/consumption accomplishments and change of states when the change denoted by a predicate does not have to reach an “all the way” point on the scale that measures out that change. Instead, it can simply reach some “more than 0” point. The particle *hĩ* restricts the possible standards for evaluating the change, eliminating the merely “more than 0” standard and effectively requiring an “all the way” standard. However motion predicates are different. Although they, too, measure change on a scale (the path of motion), the way they compare progress against the scale involves an “at most” relation where the change must simply *approach* the goal. When *hĩ* combine with a motion predicate, then, its contribution—eliminating the “more than 0” standard—has no impact, because that is not how non-culmination arises in motion predicates.

- (27) a. Amai ih laĩ kiäng [kɔ ih akã hĩ romô].
 older.sister 2SG say want COMP 2SG tie PRT COW
 ‘Your older sister said for you to tether the cow.’
- b. Kâo kiäng [kɔ pɔ-robuh hĩ toměh].
 1SG want COMP CAUS-fall PRT post
 ‘I want to knock over the post.’

As the following examples show, however, it is not possible for the tense marker *amra* ‘FUT’ (28a), the tense-aspect adverbial *laih* ‘already’ (28b), or the aspect marker *glăk* ‘PROG’ (28c) to appear in an embedded non-finite clause.

- (28) a. Amai ih laĩ kiäng [kɔ ih (*amra) akã romô].
 older.sister 2SG say want COMP 2SG FUT tie COW
 ‘Your older sister said for you to tether the cow.’
- b. Kâo potã anã kâo kiäng [kɔ robot nao (*laih) sang hrã].
 1SG instruct child 1SG want COMP walk go already house paper
 ‘I told my children to walk to school.’
- c. Jek potrut anã đah-komoi ñu kiäng [kɔ (*glăk) đố kɔ Tam
 Jek encourage child female 3SG want COMP PROG marry DAT Tam
 bɔi dua mông hroi pɔgi].
 at two time day tomorrow
 ‘Jek encouraged his daughter to (be) marry(ing) Tam at 2 o’clock tomorrow.’

In combination with the other arguments presented above, I take this as strong evidence that *hĩ* is not in the inflectional domain, nor (like *laih*) is it dependent on anything in the inflectional domain.

What we find, then, is that Jarai does not have a dedicated morpheme for either past tense or perfective aspect. Instead, it possesses words that give rise to either past time or perfective aspect interpretations (or both) without necessarily encoding those meanings directly.¹⁵

15. As noted above, it does appear that *laih* ‘already’ does require that its containing clause have a past time interpretation, but even here, tense is only part of the encoded meaning.

Yet another source of perfective interpretations are COMPLETIVE SERIAL VERB CONSTRUCTIONS, which are not examined here.¹⁶

We now turn from tense and aspect heads—and lexical items with tense or aspectual implications—to something else in the inflectional domain, the sentence subject.

5.4 Subject position

In the previous discussion I expressed concern that Subj–Neg–Aux word order left us in a bit of a hot spot with regard to Neg’s position. My solution was to propose an embedding hierarchy of T > Neg > Aux, where Aux optionally raised to T, and the clause’s subject sits in Spec,T. An alternative that I did not consider was that Spec,T may not be the surface position of subjects at all. Instead, they might sit in a specifier position in the left periphery, that is, in the operator domain.¹⁷ A likely candidate is Spec,Top(ic), where topical DPs can raise. This is, for example, the position claimed by Pearson (2001) for external arguments in Malagasy. Using two arguments put forward by Chung (2008) regarding subjects in standard Indonesian, I claim that Jarai subjects are not in fact higher than TP.¹⁸

The first argument relates to intervention effects. A standard account of *wh*-islands appeals to intervention to explain why a *wh*-phrase cannot raise to an A’ position when it otherwise would be expected to. Specifically, given two potential targets of (A’) movement, the target that is further away from the landing site cannot move past the closer target, which is a barrier to the movement (Chomsky 1986; Rizzi 1990). The closer of the two intervenes. This is illustrated for English in (29), where *who* intervenes between the lower target *how* and the left-peripheral landing site.

16. Note that *hĩ* is clearly not the second verb of a COMPLETIVE SVC. First, *hĩ* does not have an independent use as a verb. Second, *hĩ* cannot follow the object, but the second verb of a COMPLETIVE SVC can.

17. I assume without argument that the surface subject does not remain in the verb phrase, for the simple reason that it invariably precedes tense and aspect auxiliaries. Consequently, the subject must be either in the inflectional (T) or operator (C) domain. For arguments that the surface subject originates in the verb phrase, see §6.3.

18. If Jarai’s clausal negator *bu* sits in Σ , as I suggest in §5.2, then Jarai subjects cannot be in Spec, Σ for the simple reason that sometimes auxiliaries intervene between the subject and *bu*.

(29) *How do you wonder who could solve this problem <how>? [= (3b) in Rizzi (2001:90)]

As noted by Chung (2008), because Top is a head position in the operator domain, Spec,Top is an A' position. If the landing site for *wh*-movement is above TopP, then anything in Spec,Top should block the movement, as it does in Malagasy (Pearson 2001). In Jarai, *wh*-questions allow two positions for the *wh*-word: clause-initial and *in situ* (see discussion in §4.3). What is crucial here is that when a *wh*-object fronts, it moves past the subject DP freely, as illustrated by the examples in (30).

- (30) a. **Asão hloi** ih taih pσ-roka hĩ ___ lě?
 dog who 2SG hit CAUS-injure PRT Q.WH
 'Whose dog did you hit and injure?'
 b. **Hoget** H'Lai bloi ___ kσ monũ ñu lě?
 what H'Lai buy DAT chicken 3SG Q.WH
 'What did H'Lai buy for her chickens?'

This movement suggests that Jarai subjects are not in an A' position—where they should block *wh*-movement to a higher specifier—but are instead inside the clause proper, specifically, in Spec,T.

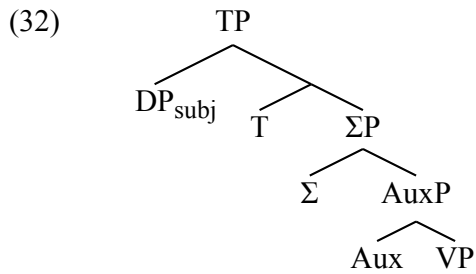
Another way to check whether Jarai subjects are in Spec,Top is to ask whether they consistently show topic-like characteristics: in particular, must the DP in Spec,Top be known from previous discourse? Although subjects in Jarai are often topic-like, this is not a requirement. Example (31a) shows that an indefinite can occur in subject position (and this is apparently quite free).¹⁹ Example (31b) is the first sentence of an oral narrative, but the as-yet unfamiliar rabbit (*pai*) is in sentence-subject position.²⁰

19. In a process text that I recorded about growing cassava, almost every clause has the indefinite pronoun *arǎng* as its subject.

20. The first word of the sentence, *anai* 'this' is a discourse marker used by the narrator throughout the story, regardless of whether the subject that follows is familiar or not. Note that stories in Jarai, much like in English, typically do not use subject position for the first mention of a character. Nevertheless, what is critical here is that subject position *can* be used for a clearly non-topical DP, even if it is not common.

- (31) a. **Arăng** klě rodeh kâo, samõ kâo ßu thâu hloi ôh.
 INDF steal car 1SG but 1SG NEG know who NEG2
'Someone stole my car, but I don't know who.'
- b. Anai **pai** laĩ kơ kruč, Hiũm õng đõ nao
 DEM.PROX rabbit say DAT turtle how 2SG.young stay go
 tomũp tui honai.
 still.with.head.down follow like.this
'So, a rabbit said to a turtle, "Hey, boy, how is it that you stay (there), going on resting with your head bowed, like this?"'

I conclude that Jarai subjects are inside TP proper rather than in the operator domain at spellout. Given the fact that subjects invariably occur before negation and pre-verbal auxiliaries, I analyze them as occurring in Spec,T. The picture I have developed is sketched in (32).



CHAPTER 6

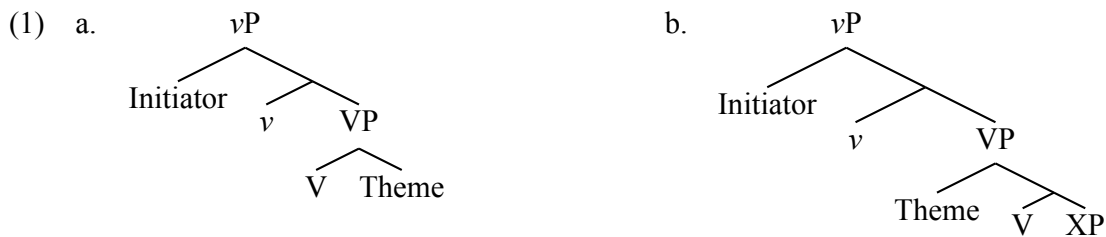
THETA DOMAIN

In this chapter I discuss the theta domain, the region of the clause defined by the verb and its arguments. I argue for an articulated VP structure involving v and V , in addition to an Inner Aspect head. I also argue that Jarai has a class of unaccusative verbs distinct from unergatives. I then present arguments that all subjects—not just subjects of unaccusatives—originate inside the verb phrase before raising to Spec,T. Moving deeper into the verb phrase, I examine asymmetries between direct and indirect objects, as well as between goal and source locative PPs. Finally, I introduce serial verb constructions, arguing that they involve verb phrase complementation.

6.1 Splitting up the verb: V and v

Over the last few decades, it has become common to claim that the verb phrase is layered, with two or more verbal head positions. Larson (1988) accounts for asymmetries between objects in the double object construction by proposing that the verb starts below the theme and raises to an empty V position above the theme. Hale & Keyser (1993) put forward an analysis of denominal verbs in which the root raises into an empty V position—and they suggest that their proposal can extend to other types of verbs as well. Following up on these proposals, Chomsky (1995) suggests that the highest empty V position is a causative light verb (labeled v), whose specifier is the external argument. Similarly, Kratzer (1996) argues on semantic grounds that the agentive argument of verbs is not introduced by the verb itself but by a head above the verb that Kratzer calls Voice.

I adopt this approach as essentially correct and assume that the verb phrase is made up of at least two head positions, shown by the two structures in (1): a lower V, where the verbal root initially merges and where the theme and other internal arguments are introduced; and a higher *v* (Kratzer’s Voice) that encodes the initiation of the event denoted by the verb and introduces the initiator of the action (Ramchand 2008), if any.¹



In addition, I will argue, following Folli & Harley (2005), that Jarai has at least two varieties of *v*: *v*_{CAUSE} and *v*_{DO} (see Hale & Keyser 1993 on a light verb meaning DO). The *v*_{CAUSE} head is sometimes realized overtly as the causative prefix *pσ-* and is otherwise null, whereas *v*_{DO} is always null. The differences between these two heads will be explored below.

Before launching into a discussion of the causative prefix *pσ-*, I wish to emphasize the fact that sometimes a causative meaning is present without the prefix *pσ-*. For example, *pők* ‘open’ can be used in both an inchoative sense (2a), where the change in the door’s state is not externally caused, and in a causative sense (2b), where an external force—in this case an agent—brings about the change in state. The same holds for *krǔ* ‘close’, which can be inchoative (3a) or causative (3b).

- (2) a. Bôh-amăng **pők** hǐ.
 door open PRT
 ‘The door opened.’

1. I assume that when a verb has only one internal argument, that argument is complement to the root, as in (1a). The tree in (1b) represents the structure when two internal arguments are associated with the root: this is essentially a small clause structure. See §6.5.1 on direct and indirect objects.

b. Ñũ (***pσ-**)pők bôh-amăng.
 3SG (CAUS-)open door
 ‘He opened the door.’

(3) a. Bôh-amăng glăk krŭ.
 door PROG close
 ‘The door is closing.’

b. Ñũ (***pσ-**)krŭ bôh-amăng.
 3SG (CAUS-)close door
 ‘He closed the door.’

My assumption throughout this section is that the prefix *pσ-* alternates with a null exponent having the same meaning. However, I focus on the distribution of *pσ-* to make my argument for a v_{CAUSE} head for the simple reason that *pσ-* is visible.

I begin with an overview of the distribution of the morphological causative prefix *pσ-*. Table 6.1 shows a representative list of roots that *pσ-* can combine with, organized according to the class of the roots: intransitive verbs that involve a STATE (OR CHANGE OF STATE), DIRECTED MOTION verbs, and (non-agentive) PSYCH verbs.²

The following two pairs of sentences illustrate *pσ-* in combination with stative or change of state roots. The pair of sentences in (4) are taken from a text: the first is a prediction of a character’s death (spoken directly to the character), using the inchoative *djai* ‘die’ (4a), and the second reports the fulfillment of that prediction using *pσ-djai* ‘kill’ (4b). Note that, as expected, the surface subject in (4a), the person who will die, is demoted to object when the causative form is used in (4b).

2. *Pσ-hiăp* ‘talk’ is the only causative form that I am aware of with a nominal root (*hiăp* ‘sound, voice’). In general *pσ-* cannot combine with nouns. For example, *bonai* ‘wife’ cannot be causativized as *pσ-bonai* to yield something like ‘marry off (a woman)’. Note, too, that in Table 6.1, the relation between the base form and the causative is quite transparent. There are a few apparent causative pairs where the relationship is more oblique. For example, *blang* ‘open’ can be used of straightforward opening (as in *a flower opens* or *I open my hand*), but *pσ-blang* ‘explain’ cannot bear the meaning ‘make open’.

Table 6.1. Causatives formed with *pɔ-*

Root Class	Root	Causative
STATE	<i>bǎ</i> ‘(be) full’	<i>pɔ-bǎ</i> ‘fill’
	<i>djai</i> ‘die’	<i>pɔ-djai</i> ‘kill’
	<i>jing</i> ‘COP’	<i>pɔ-jing</i> ‘cause to be (in state); create’
	<i>ruǎ</i> ‘(be) hurt’	<i>pɔ-ruǎ</i> ‘hurt (smt.)’
DIRECTED MOTION	<i>đĩ</i> ‘go up’	<i>pɔ-đĩ</i> ‘raise up’
	<i>glai</i> ‘return’	<i>pɔ-glai</i> ‘return (smt.)’
PSYCH	<i>ḅuh</i> ‘see’	<i>pɔ-ḅuh</i> ‘show’
	<i>hodor</i> ‘remember’	<i>pɔ-hodor</i> ‘remind’
	<i>thào</i> ‘know’	<i>pɔ-thào</i> ‘make known’

- (4) a. *lh* *çi* ***djai***.
 2SG about.to die
 ‘You will die.’
- b. *Arǎng* ***pɔ-djai*** *ñu*.
 INDF CAUS-die 3SG
 ‘They killed him.’

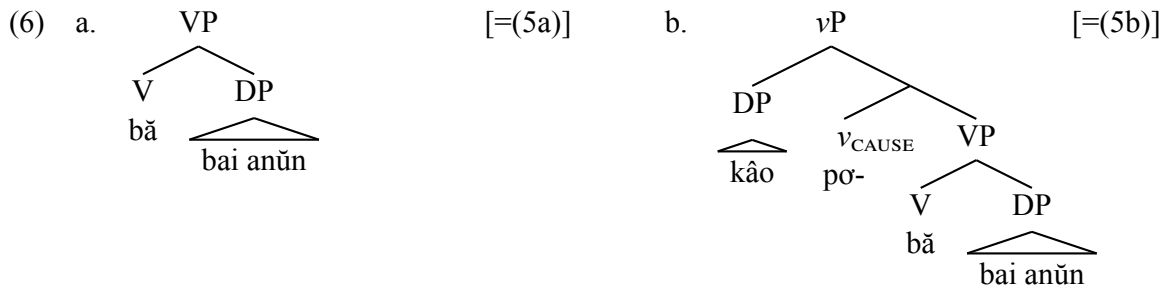
A causativized stative is illustrated in (5). *Bǎ* ‘(be) full’ can be predicated of a subject, the holder of the state, as (5a) illustrates. When the root is causativized in (5b), the holder of the state is demoted to direct object, and the substance filling the basket (in this case, rice) can participate in an adjunct phrase.

- (5) a. *Bai* *anũn* ***bǎ***.
 basket DEM.MED full
 ‘That basket is full.’
- b. *Kào* ***pɔ-bǎ*** *bai* *anũn* (*hǎng* *braih*).
 1SG CAUS-full basket DEM.MED with husked.rice
 ‘I fill the basket (with rice).’

The roots in (4a) and (5a) are non-agentive (in some sense yet to be made precise): except when combined with *pɔ-*, they can appear with only one direct argument, a theme. What *pɔ-*

is doing is introducing a participant that initiates the event encoded by the root; specifically, *po-* introduces a causer, an argument that causes the theme to undergo a state change, where the resulting state is encoded in the V root.

In terms of the structure, let us suppose that intransitive *bǎ* ‘full’ in (5a) merges in V, which then combines with its theme, *bai anǔn* ‘that basket’. The VP can now be merged with a head in the inflectional domain. For the causative construction in (5b), *bǎ* ‘full’ combines with its theme in the same way, but the resulting VP then merges as sister of the causer-introducing *v*-head *po-*.³ I take the *v* spelled out by *po-* to encode the meaning CAUSE, and *v*_{CAUSE} introduces a causer argument in its specifier position. (Once the VP in (a) and the *v*P in (b) combine with aspect and tense, the highest argument raises to Spec,T.)



So far, nothing about my analysis makes a strong predication about the range of roots that *po-* can combine with. Having just considered stative and inchoative intransitives, we might ask whether *po-* can combine with “intransitive” verbal roots that do not denote a state. (These are the roots that I identify as unergative in the next section.⁴) The answer is no. Note the impossibility of the morphological causatives in (7).

3. I ignore the oblique/adjunct *hǎng braih* ‘with husked rice’ in (5b). This appears to be licensed by the *po-* as well, inasmuch it is at best awkward in a clause with bare *bǎ*. For now I focus only on the causer-introducing aspect of *po-*.

4. Of course, all roots are intransitive, in the sense that external arguments are always introduced by a *v* head. What I mean by “intransitive” root is any root that can appear in a structure that contains only one argument.

- (7) *Kâo **pσ-suang** / **pσ-robat** / **pσ-luai** ñu.
 1SG CAUS-dance CAUS-walk CAUS-swim 3SG
 ('I made her dance/walk/swim.')

Although it is not possible to causativize these roots with *pσ-*, the morphological causative, there are periphrastic causatives that they can be part of.⁵ This is illustrated in the next examples. In (8a), *suang* 'dance' is part of a coercive causative construction involving *ngă* 'make', and in (8b), it is in a permissive causative construction with *broi* 'give, allow'.

- (8) a. Kâo **ngă** ñu suang.
 1SG make 3SG dance
 'I made her dance.'
 b. Kâo **broi** ñu suang.
 1SG allow 3SG dance
 'I allowed her to dance.'

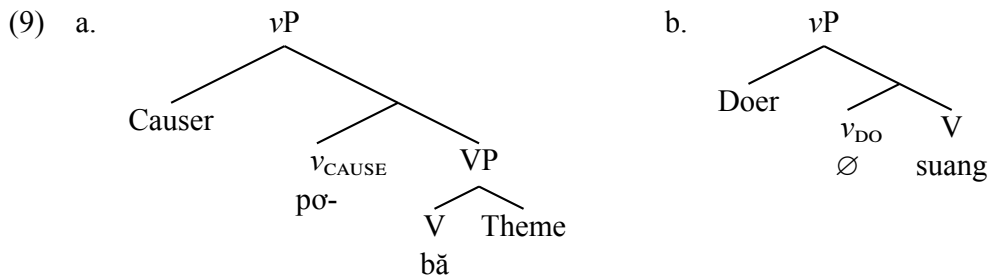
What we see with the periphrastic causative constructions is that the causativized verb (*suang* 'dance' in this case) is associated with its own agent, separate from the external argument of the causativizer (*ngă* or *broi*). In contrast, the morphological causative construction contains only one external argument, the one introduced by *pσ-*.

How, then, do we account for this pattern? The answer involves two elements: (i) the semantics of the roots, and (ii) the properties of different types of *v*. Regarding the roots themselves, we have already observed that those which combine with *pσ-* are STATE-denoting. (We will come back to the other two categories of roots listed in Table 6.1 momentarily.) On the other hand, those that do not combine with *pσ-* are activities that involve a specification of the MANNER (see especially Levin & Rappaport Hovav 1991, 1995 on this quite pervasive distinc-

5. Under the analysis I give of *pσ-*, even so-called morphological causatives are constructed in the syntax. Thus, "morphological" versus "periphrastic" is not a theoretically meaningful distinction. However, for ease of exposition, I adopt the familiar terminology found in descriptive and typological literature.

tion between verbs).⁶ Thus, *suang* ‘dance’ is not a state or a change in state but instead an activity that is carried out in a particular manner. Likewise, *robat* ‘walk’ and *luai* ‘swim’ in (7) do not indicate states but instead modes of moving about. Thus, at a first pass, it appears that *po-* combines only with roots that can denote a state, introducing a participant that brings about a change in that state.⁷

But why shouldn’t *po-* also combine with manner verbs, as in (the ungrammatical) *po-suang* ‘CAUS dance’? After all, if *v* is responsible for introducing agents, then the root *suang* is non-agentive when it enters the syntax. It needs to combine with an agent-introducing *v* in order to be interpreted as agentive. So why would *po-* be unable to introduce the agent of dancing? The answer is that there are different kinds of agents: minimally, there are *causing* agents and *doing* agents. A causing agent brings about a state change, and a doing agent engages in an activity with no necessary change of state occurring. My claim about *po-* is that it introduces a causing agent, not a doing agent. However, dancing is not a state but an activity, so *suang* must combine with a *v* that introduces a doing agent. Another way of talking about this is to say that *po-* selects for a root that denotes a state, automatically ruling out MANNER-type roots. Thus, v_{CAUSE} , sometimes spelled out as *po-* and sometimes null, selects for STATE-denoting roots, whereas v_{DO} selects for MANNER-denoting roots. The two structures are shown in (9).

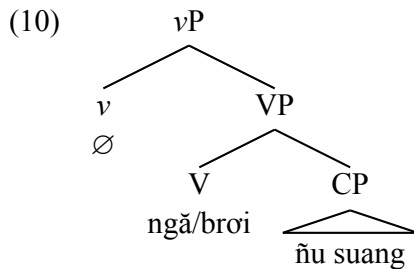


6. In the work of Levin and Rappaport Hovav, the first class of verbs are called RESULT verbs rather than STATE verbs. But when talking about roots, it is best to use the term STATE, because the roots can be used statively, not just to indicate a result state.

7. Or more accurately, the causer brings about a change in the theme along the dimension denoted by the root: thus, *hlor* ‘(be) hot’ really denotes a scale of hotness, and the causer of *po-hlor* brings about a positive change in the theme along the dimension of hotness—that is, the causer brings it about that the theme becomes hotter, whether or not the theme ends up being ‘hot’ at the end of the event.

The other way in which we can imagine *po-* combining with a root like *suang* ‘dance’ is parallel to the periphrastic causative, where a causer brings it about that an agent (a “doer”) dances. However, this is no longer a live option, if it is true that v_{CAUSE} selects for a root that denotes a state. It is also possible that each verbal root can be associated with just a single v head. Either of these explanations—the selectional properties of v_{CAUSE} or the ban on two v heads per root—is sufficient to rule out the use of *po-* for introducing a causer above an agent.

Returning briefly to the periphrastic causatives in (8), I propose that *ngǎ* ‘make’ and *broi* ‘allow’ are verbal roots rather than v heads, in contrast to *po-*. A full non-finite CP merges as complement of this V, as illustrated in (10).⁸ (Probably the higher v is of the DO type, and the element of causation comes from the root itself. However, this is a question I do not pursue.)



So far I have considered *po-* in combination with the first class of roots listed in Table 6.1, those involving a state. What about the DIRECTED MOTION verbs? Notice that these are verbs that do not specify a MANNER OR MODE of motion; instead, they denote something about the direction of motion (‘up’, for example). We can then tentatively assume that DIRECTED MOTION verbs are basically CHANGE OF STATE verbs in some sense, enabling them to combine with v_{CAUSE} . (Crucially, they both involve scalar change. Thus, we might be able to recast the generalization about v_{CAUSE} in terms of scales of change instead of states.)

8. See example (24) in §4.1.2, where I treat the causative construction with *ngǎ* as a case of non-finite complementation. I assume that the permissive construction with *broi* ‘give’ has a parallel analysis, but it may be that the construction with *broi* is a serial verb construction. I leave this as an open question.

Consider now the final class of roots in Table 6.1, the PSYCH verbs. One thing to note about these is that when they appear bare (without *po-*), they are transitive, in contrast to STATE and DIRECTED MOTION roots. Does my analysis so far rule out the possibility of *po-* combining with a transitive verb? The answer is no, and we can see why by noting that *buh* ‘see’, *hodor* ‘remember’, and *thào* ‘know’ are all non-agentive PSYCH verbs. In fact, agentive PSYCH transitives such as *lang* ‘look, watch’, are barred from combining with *po-*, just as predicted. Although the PSYCH roots in Table 6.1 are transitive, the two arguments are an experiencer and a stimulus. Thus, they fall under the generalization already worked out for v_{CAUSE} , that it must combine with a state-denoting root, and it cannot combine with a verbal structure that already contains a *v*.⁹

A structural question arises when we consider the fact that a clause with a PSYCH verb has both a subject (the experiencer) and a non-oblique object (the stimulus), as illustrated below in (11a). What happens to these arguments when the PSYCH verb combines with *po-*? One possibility is shown in (11b): the arguments of the PSYCH verb are demoted in a rather drastic way: they are expressed as arguments of a new verb, *broi* ‘give’. Note that *broi* in (11b) does not mean that the young man gave the ax to the speaker; instead, *broi* is functioning as it does in BENEFACTIVE SERIAL VERB CONSTRUCTIONS: to introduce a dative argument. (See §6.6.3.) So when *buh* ‘see’ is embedded under *po-*, the experiencer, which would otherwise be in subject position, must be demoted to an oblique, dative-marked argument.

- (11) a. **Kào** *buh jông*.
 1SG see ax
 ‘I see the ax.’

9. There are a few instances in my data of what looks like *po-* plus an agentive root. For example, we find *po-bông* ‘pay restitution’, apparently containing agentive *bông* ‘eat’. However, unlike the causatives we have been examining, these have fairly oblique meanings, and it is possible that they are frozen forms, perhaps even built from a different prefix.

- b. todam **po-buh** broi **jông** kơ **kâo**.
 young.male CAUS-see give ax DAT 1SG
 ‘... a young man showed the ax to me.’

We see essentially the same thing in (12) with *thào* ‘know’. When *thào* occurs bare in (12a), the experiencer is subject and the stimulus is object. When *thào* is causativized in (12b), the experiencer is demoted to a dative-marked oblique argument, and the stimulus remains a bare (direct) object.

- (12) a. Kâo **thào** tơlơi anai.
 1SG know matter DEM.PROX
 ‘I know this matter.’
- b. Kâo **po-thào** kơ ih tơlơi anai.
 1SG CAUS-know DAT 2SG matter DEM.PROX
 ‘I let you know this matter.’

The contrast between (11b) and (12b) is that the former uses a serial verb construction containing *broi* to demote the experiencer, whereas the latter has the experiencer as a dative argument of the PSYCH verb, with no *broi*. This variation is not surprising, as it reflects a more general pattern in Jarai with regard to dative arguments. Beneficiaries and recipients, which are typically dative-marked, can be introduced into a clause by *broi*, but *broi* is rarely if ever necessary for the inclusion of these arguments. So what is crucial in the examples above is that *po-* forces the experiencer of the PSYCH verb to be demoted to a dative-marked argument; the variation in how that dative argument relates to the PSYCH verb is not a special feature of causative structures. This dative-marking of causees is a pervasive cross-linguistic pattern.

In conclusion, this section has presented an analysis of *po-* as a spellout of a causer-introducing light verb, v_{CAUSE} . (As noted previously, v_{CAUSE} can also be realized by null morphology.) We are justified not only in decomposing the verb into at least two distinct heads (v and V), but also in positing different varieties of v , as proposed by Folli & Harley (2005). In the next section, I investigate further the distinction between intransitive roots that do and do

not combine with *pσ-*, suggesting that Jarai intransitives can be divided along unaccusative–unergative lines.

6.2 Unaccusatives

In the foregoing discussion of *pσ-*, I made a distinction between roots that can merge under the causer-introducing light verb v_{cause} (sometimes realized as *pσ-*) and those that cannot do so. Those that cannot are instead associated with an agent by means of v_{DO} . The verbs that can combine with v_{cause} appear to be UNACCUSATIVE verbs. The Unaccusative Hypothesis of Perlmutter (1978) (see also Burzio 1986; Grimshaw 1987; Levin & Rappaport Hovav 1995, among others), given in (13), defines a class of verbs in terms of what kind of argument is associated with that verb.¹⁰

- (13) UNACCUSATIVE HYPOTHESIS (adapted from Perlmutter 1978)
Before movement, certain intransitive clauses contain an internal argument but no external argument.

Perlmutter distinguishes UNACCUSATIVES, which have an internal argument but no external argument, from UNERGATIVES, which have an external argument but no internal argument. Under the approach I am taking, an external argument is one that is introduced in the specifier of a v head, whereas an internal argument is introduced in a local relation with V. Thus, an unaccusative verb is a root that can appear in a predicate without a v —and thus, is a predicate with no external argument position.¹¹

So is there evidence that Jarai shows the unaccusative–unergative distinction? Apart from the contrast already noted—that is, whether or not *pσ-* can combine with a particular

10. The original formulation of the Unaccusative Hypothesis in Perlmutter (1978) is cast in terms of Relational Grammar: “Certain intransitive clauses have an initial 2 but no initial 1” (160), where “initial” makes reference to a level of representation before any operations have promoted or demoted (roughly speaking, moved) any arguments, “1” refers to the SUBJECT grammatical relation, and “2” refers to the OBJECT grammatical relation. Perlmutter credits Geoffrey Pullum for coining the terms “unaccusative” and “unergative.”

11. Another approach is to assume that there is a class of v heads that do not project a specifier position: v_{become} is a light verb of that sort. See, for example, Folli & Harley (2005).

verb—there is one other piece of evidence suggesting the division, the possibility of floating quantifiers. Consider the placement of the universal quantifier *abih-bang* ‘all’, which normally precedes the head noun in a DP. In the examples in (14), we see that *abih-bang* can occur either before the subject or after the verb with non-agentive intransitive verbs: *djai* ‘die’ (14a), *truh* ‘arrive’ (14b), *lě* ‘fall’ (14c), and *brŭ* ‘rot, (be) rotten’ (14d).¹² The quantifier cannot occur in both positions simultaneously.

- (14) a. (Abih-bang) kobao **djai** (abih-bang).
 all water.buffalo die all
 ‘All the buffalo died.’
- b. (Abih-bang) sang-anō **truh** (abih-bang).
 all house-thing arrive all
 ‘All the relatives arrived.’
- c. (Abih-bang) boh poněh **lě** trŭn (abih-bang) mǒng koyâo.
 all fruit papaya fall go.down all from tree
 ‘All the papaya fell from the tree.’
- d. (Abih-bang) kram **brŭ** (abih-bang).
 all bamboo rot all
 ‘All the bamboo is rotten.’

On the other hand, with agentive intransitives such as *blor* ‘tell a lie’ (15a), *suang* ‘dance’ (15b), *ôr* ‘shout’ (15c), and *robat* ‘walk’ (15d), the quantifier *abih-bang* cannot occur after the verb. (Note that in (15a), *čodai hrām hră* ‘child study paper’ is a DP meaning ‘student’; there is only one verb in the main clause’s predicate.)

- (15) a. (Abih-bang) čodai hrām hră **blor** (*abih-bang).
 all child study paper lie all
 ‘All the students lied.’

12. In (14c), *abih-bang* ‘all’ cannot occur between the two verbs, and there are mixed judgments about whether it can appear clause-finally.

- b. (Abih-bang) dra **suang** (*abih-bang).
 all girl dance all
 ‘All the girls danced.’
- c. (Abih-bang) bing Yuan **ôr** (*abih-bang).
 all PL.HUM Vietnamese shout all
 ‘All the Vietnamese shouted.’
- d. (Abih-bang) goyüt kâo **rôbat** (*abih-bang).
 all friend 1SG walk all
 ‘All my friends walked.’

These facts receive a fairly straightforward explanation if, as Sportiche (1988) claims, floating quantifiers mark the pre-movement position of the noun phrases that they restrict. The subject of an unaccusative verb merges as an internal argument (as sister to V) and subsequently moves to Spec,T. If the floating quantifier remains in the VP, it will follow the verb. However, for unergatives, the single argument originates in Spec,*v* then moves to Spec,T; at no stage in the derivation does it occur after the lexical verb.¹³

Further diagnostics for a class of unaccusatives in Jarai are hard to come by. A fruitful line of research in the literature on unaccusativity going back to Perlmutter (1978) compares the characteristics of passive constructions with clauses containing an unaccusative verb. These are expected to be similar to each other because in both cases, an internal argument has moved into Spec,T. However, Jarai has no passive voice, so the comparison is impossible.

6.3 Verb phrase–internal subjects

Back in §5.4 I argued that at spellout, sentence subjects are pronounced in the inflectional domain—specifically, in Spec,T—rather than inside the theta or operator domain. If subjects were in the verb phrase at spellout, we would expect them to follow auxiliaries rather

13. Even if floating quantifiers are verb phrase adverbial elements (Klein 1976; Dowty & Brody 1984), they nevertheless distinguish between unaccusatives and unergatives in Jarai, perhaps because they have to be in a local relation with the trace of the DP they restrict. For discussion of the relevant issues, see especially Bobaljik (1998).

than precede them; and if subjects moved into the operator domain, we would expect intervention effects vis-à-vis *wh*-movement. So far in the present discussion, I have tacitly assumed that subjects originate in the verb phrase rather than initially merging in Spec,T. One piece of evidence for this concerns unaccusatives: if there really is, as I have argued, an unaccusative–unergative distinction in Jarai, then the best way to account for such a distinction is in terms of the structural relation between the verb and its argument. The evidence from floating quantifiers points to a picture where the subject of unaccusatives starts low and then moves higher. So at least in the case of unaccusatives, we want to posit verb phrase–internal subjects.

But what about for unergatives and other verbs with an external argument? The unaccusative–unergative distinction does not require that both classes of verbs project their argument inside the verb phrase; instead it only requires that the argument of the unaccusative is projected lower than the argument of the unergative. It is plausible that the argument of an unergative verb is initially merged in Spec,T. However, I suggest that this is not the case, basing my argument on (i) a scope interaction between subjects and negation, and (ii) verb phrase coordination facts. The evidence I have is not for unergatives specifically, but for agentive transitives, which are predicted to pattern with unergatives.

Consider the sentence in (16), which has a universally quantified subject, *rĩm cõ dra* ‘every girl’ and clausal negation, *bu*. What is important about this clause is that there are two scope possibilities. The first reflects the surface word order, where $\forall > \text{NEG}$, which we could paraphrase as *it is true of every girl that she does not love you*, i.e., no girl loves you. However, there is another interpretation (as there is in English), where $\text{NEG} > \forall$, paraphrasable as *it is not the case that every girl loves you*, i.e., there is one or more girl who does not love you.

- (16) Rĩm cõ dra bu khăp kơ ih ôh.
 each CLF girl NEG love DAT 2SG NEG2
 ‘Every girl doesn’t love you.’

These facts follow in a straightforward manner from an analysis where the subject originates in the verb phrase, below negation, then raises to Spec,T. All that is required is that scopal relations can be interpreted with regard to initial and final positions of moved elements. As expected, clauses with unaccusatives such as *djai* behave in exactly the same way. Example (17) can mean either that no water buffalos died or that some but not all of them did.¹⁴

- (17) Rīm droi kobao bu djai ôh.
 each CLF water.buffalo NEG die NEG2
 ‘Every water buffalo didn’t die.’

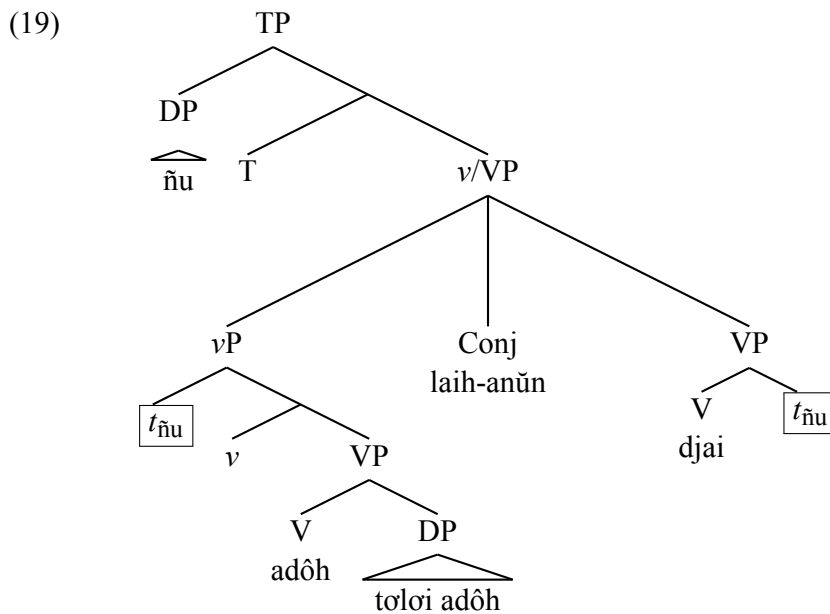
The second argument that even agentive subjects originate verb phrase-internally comes from coordination. McNally (1992) argues that the coordination of an active (and, crucially, agentive) verb phrase with a passive verb phrase is problematic if we assume that the subject of active VPs originates in Spec,T (her Spec,I). The first problem is that the subject of the passive, under standard assumptions, moves to Spec,T from a VP-internal position, where it is theta-marked. But if the subject of the active VP is already in Spec,T, such movement should in principle be blocked. Another problem is related to variable binding. A structure in which the noun phrase in Spec,T binds a variable (the trace of movement) in one conjunct but not the other violates the Coordinate Structure Constraint of Ross (1967) (as reformulated in Williams 1978).

As I have previously observed, Jarai does not have a passive construction. However, if I am right that Jarai has a class of unaccusatives which theta-mark their single argument locally, then we can use essentially the same diagnostic as McNally’s by conjoining an agentive verb phrase with an unaccusative verb phrase. Consider the clauses in (18): in both cases, a full verb phrase has been conjoined with an unaccusative, and the surface subject is interpreted as the agent of the first verb and the theme of the second.

14. Alternatively, the scope facts might arise from covert raising of Neg to a position higher than the TP. However, I know of no other evidence for covert Neg-raising.

- (18) a. Ñu [adôh tɔloi adôh] laih-anün [djai].
 3SG sing NMLZ sing and die
 ‘She sang a song and (then) died.’
- b. Gomoi [rɔbat dua km] laih-anün [truh].
 1PL.EXCL walk two km and arrive
 ‘We walked 2 km and (then) arrived.’

Assuming a flat structure for coordination, the sentence in (18a) has the parse given in (19). In the first conjunct, the DP originates in Spec,v, where it is assigned an agent theta role by v. In the second conjunct, the DP originates in object position as sister of V.¹⁵



If, instead of the structure in (19), we assume that the first conjunct does not contain a position for the subject, then we run into the problems presented in McNally (1992). First, Spec,T would be a theta position containing a base-generated subject associated with the first conjunct. The raised subject of the second conjunct would be blocked. Second, such a structure

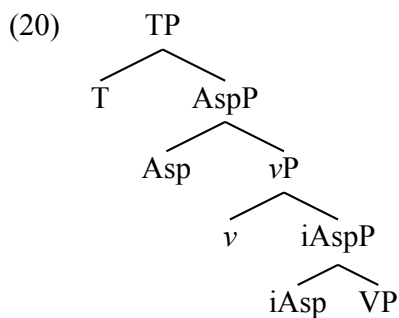
15. It might strike the reader as concerning that the two conjuncts are different kinds of phrases: one is a vP and the other a VP. However, they are both maximal verb phrases, and the difference in the level of projection is simply a matter of how many (and what kind of) arguments each one has. Additionally, both phrases are of the same semantic type. Therefore, conjunction should be no problem.

would violate the Coordinate Structure Constraint with reference to the trace of movement in the second conjunct, missing from the first.

Thus, both scope and verb phrase conjunction provide evidence that all subjects in Jarai originate inside the verb phrase, raising to Spec,T as the syntactic derivation progresses.

6.4 Another split: inner aspect

In §6.1 I argued for the need to split up the verb into at least two parts: *v*, which encodes the initiation of the event and licenses the DP that acts as initiator, and *V*, where the lexical verb initially merges and licenses internal arguments. In this section I propose an additional layer, between *v* and *V*: an aspect projection. Although the idea of an aspect projection inside the verb phrase does not originate with her, Travis (2010) gives perhaps the most vigorous defense of its existence. In the model put forward by Travis, there are two kinds of aspectual projections in the clause: a higher one—“outer aspect”—in the inflectional domain, which encodes viewpoint aspect (perfective versus imperfective aspect, in particular); and a lower one—“inner aspect”—in the theta domain, which encodes so-called lexical aspect (*aktionsart*). This structure is sketched in (20), which suppresses argument positions.¹⁶



Travis argues for an inner aspect projection based on derived object positions, verbal morphology, and *aktionsart* alternations. Regarding the first of these, the specifier of *iAsp*

16. Travis labels inner aspect as “Asp” and outer aspect as “OAsp.” I mark inner aspect distinctively as “*iAsp*” and outer aspect as simply “Asp” because the label Asp is so commonly used in the literature for aspect in the inflectional domain.

provides a natural landing site for derived or raised (but still verb phrase–internal) objects in languages across the world. I leave aside the issue of derived object positions in Jarai until my analysis of SVCs in §6.6.3, at which point I invoke object-raising. The primary evidence for an inner aspect position in Jarai comes from morphology and the interpretation of telicity (*aktionsart*). As discussed in §5.3.2, Jarai possesses a particle *hĩ* which can occur only post-verbally; in fact, *hĩ* can only occur immediately after the lexical verb, preceding any objects, prepositional phrases, or adjuncts. Example (21a) shows that *hĩ* cannot precede the verb or follow the direct object. In (21b) we see that *hĩ* is degraded after a goal PP.¹⁷

- (21) a. Kào (*hĩ) pɔ-djai (hĩ) roman ñu (*hĩ).
 1SG PRT CAUS-die PRT elephant 3SG PRT
'I killed his elephant.'
- b. Anã kào rai (hĩ) pɔ čar Mi (?hĩ).
 child 1SG come PRT LOC country American PRT
'My child came to America.'

As noted in §5.3.2, the distribution of *hĩ* is different from all other post-verbal adverbials, all of which can occur in multiple positions, including between a verb and its object, as illustrated in (22), where the postverbal element of negation *ôh* can occur before the object or clause-finally. (Note that *ôh* cannot intervene between the verb and *hĩ*—as noted above, nothing can.)

- (22) Kào ðu pɔnah pɔ-djai (*ôh) hĩ (ôh) romung (ôh).
 2SG NEG shoot CAUS-die NEG2 PRT NEG2 tiger NEG2
'I don't shoot and kill a tiger.'

If *hĩ* were an adverbial adjunct, we would expect to see a freer distribution in the clause than we actually do. Its fixed position is consistent, however, with its analysis as a head in the

17. Occasionally *hĩ* can also follow an adjective or adverb, but in those cases, the word it follows appears to be used predicatively, so I presume we are still dealing with the same phrase structural position, that is, the position where roots merge into the predicate.

verbal skeleton. But if *hĩ* is a head, why not analyze it as an outer aspect head in the inflectional domain? Against this option is the fact that *hĩ* can never precede the verb, in contrast to every other tense, aspect, or modality head.

In addition to the distributional evidence for identifying *hĩ* as an iAsp head, the semantics of *hĩ* also support this conclusion. I have already shown that *hĩ* does not have the semantic effects we would expect of a perfective (outer) aspect marker. Instead, *hĩ* affects the telicity of predicates in a way that is sensitive to the predicate type, enforcing a telic interpretation for accomplishment-type predicates with incremental themes (creation accomplishments, for example), but merely strengthening the impression of telicity for accomplishment-type motion predicates.

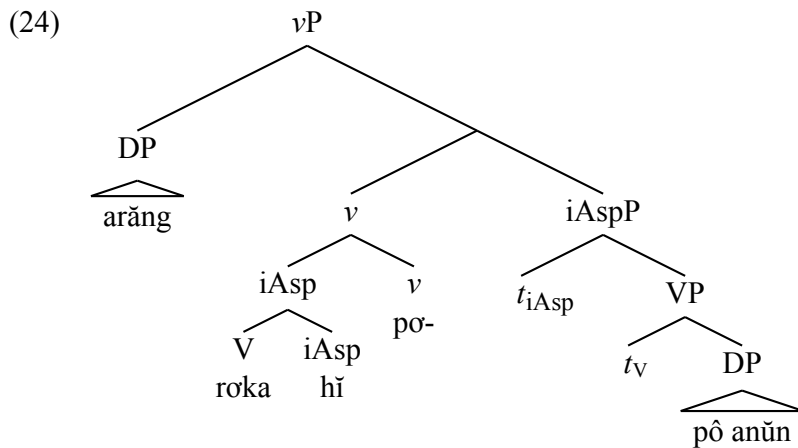
Given that *hĩ* (i) is not in an adjunct but in a head position and (ii) is not above the verb phrase but inside it and (iii) acts directly on the *aktionsart* of the predicate, Jarai provides additional evidence for the existence of an inner aspect position in the verb phrase. But how should we derive the observed word order? If lexical verb roots initially merge into V, then they start out below iAsp; but *hĩ* always follows the verb. So the surface order we want to account for is *v*-V-iAsp, as illustrated in (23).

- (23) Arǎng **po-roka** **hĩ** pô anũn.
 INDF CAUS-be.injured PRT PRT DEM.MED
 ‘They injured that person.’

We might posit V simply raising past iAsp into *v*, where *po-* and *roka* can be pronounced together. But that derivation would violate the Head Movement Constraint of Travis (1984).¹⁸ If, on the other hand, *roka* (V) were to raise and left-adjoin to *hĩ* (iAsp), and the new structure (V-iAsp) were to then raise and left-adjoin to *po-* (*v*), we expect to get the linear order *roka hĩ po-*. But instead we get *po-roka hĩ*. Nevertheless, I propose that this is exactly what happens. We

18. For a recent theoretical implementation of the Head Movement Constraint, see Matushansky (2006), who takes head movement to be a special case of categorial selection.

can account for the unexpected word order by hypothesizing that *po-* has a prosodic constraint requiring it to be pronounced at the left edge of the prosodic word that it is a part of. Thus, the phonological ordering of the elements *v*, *iAsp*, and *V* (when all three are present) does not reflect their syntactic structure: the element we expect to be rightmost (*v*) is pronounced leftmost because of a prosodic factor. Following recent work on the interface between the syntax and phonology (Halle & Marantz 1993, 1994), I take this sort of phonological reordering within a local domain to be unproblematic. The (syntactic) derivation is illustrated in (24).¹⁹



The syntactic movement can be explained along these lines, following Matushansky (2006) with respect to the motivation of head movement. Both *v* and *iAsp* have an uninterpretable V-feature [μV :] that must be checked by a verbal root. Let us say that this c-selection feature is strong on both *iAsp* and *v*: that is, both *iAsp* and *v* attract the head that checks their [μV^* :] feature. Thus, *V* first moves to *iAsp* to check *iAsp*'s [μV^* :] feature, and the new constituent inherits the [V] feature on *V*, enabling it (the *V*-*iAsp*) to raise into *v* to check *v*'s [μV^* :] feature. At present I leave open the question of whether the complement of *V*, the *DP* object, raises out of the *VP*.

19. In Distributed Morphology, of course, there are no lexical items under terminal nodes during the syntactic derivation. Rather, the syntax is concerned only with the manipulation of features, and vocabulary items are inserted post-syntactically. I see no harm, however, in making my trees more perspicuous by including actual vocabulary items under the nodes.

6.5 Asymmetries below the verb

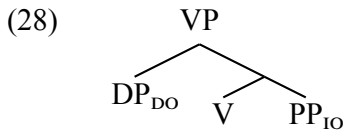
In §6.2 I presented evidence that Jarai makes a distinction between internal and external arguments, between agents and themes. In this section we will look at two additional asymmetries: the distinction between direct and indirect objects, and the distinction between goal and source PPs.

6.5.1 Direct object–indirect object asymmetry

The first asymmetry is between the theme argument—which I will call the direct object—and the beneficiary or recipient argument—which I will refer to as the indirect object. Triadic clauses take a fairly straightforward form, as illustrated in (25). The normal word order for internal arguments in *give*-type clauses is direct object–indirect object, as in (25a). However, the reverse order is also fully acceptable as illustrated in (25b).

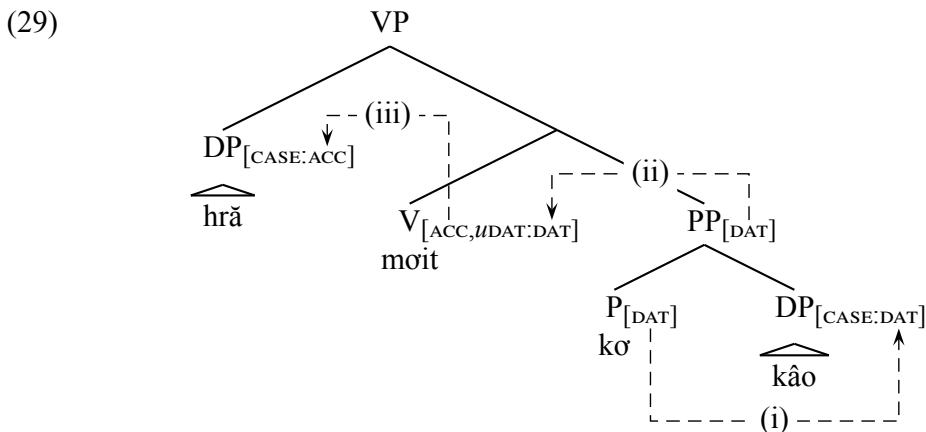
- (25) a. Ōi broi [DO sa bôh poneh lik] [IO *(kø) H'Lem].
grandfather give one CLF papaya ripe DAT H'Lem
'Grandfather gave a ripe papaya to H'Lem.'
- b. Ōi broi [IO ?(kø) H'Lem] [DO sa bôh poneh lik].
grandfather give DAT H'Lem one CLF papaya ripe
'Grandfather gave to H'Lem a ripe papaya.'

The first way in which Jarai treats direct objects differently from indirect objects is that direct objects appear bare, while indirect objects are almost always preceded by dative *kø*. As (25b) shows, the dative marker is sometimes omissible, but typically speakers consider the omission somewhat degraded. When *kø* is omitted from an IO that is post-DO, as in (25a), the result is a judgment of unacceptability. I have not been able to uncover any semantic contrasts between the orders in (25a) and (25b), except perhaps in terms of information structure. In particular, if the DO or IO is questioned, speakers sometimes prefer the answer to have the questioned constituent clause-final. I assume that this is different from focus-marking as discussed in §4.2,



This is essentially the structure argued for in Larson (1988) for the structure of English datives. I propose that Case is assigned in the follow ways: First, each DP has a [CASE:] feature that needs to be valued. Second, the verbal root *broi* has two featural requirements: it assigns [ACC] to a DP, and it selects for a constituent having the case value [DAT]; I will treat selectional requirements as uninterpretable features, in this case a [*u*DAT:] feature on V. Finally, the preposition *kσ* has a [DAT] feature that is assigned to its DP complement.

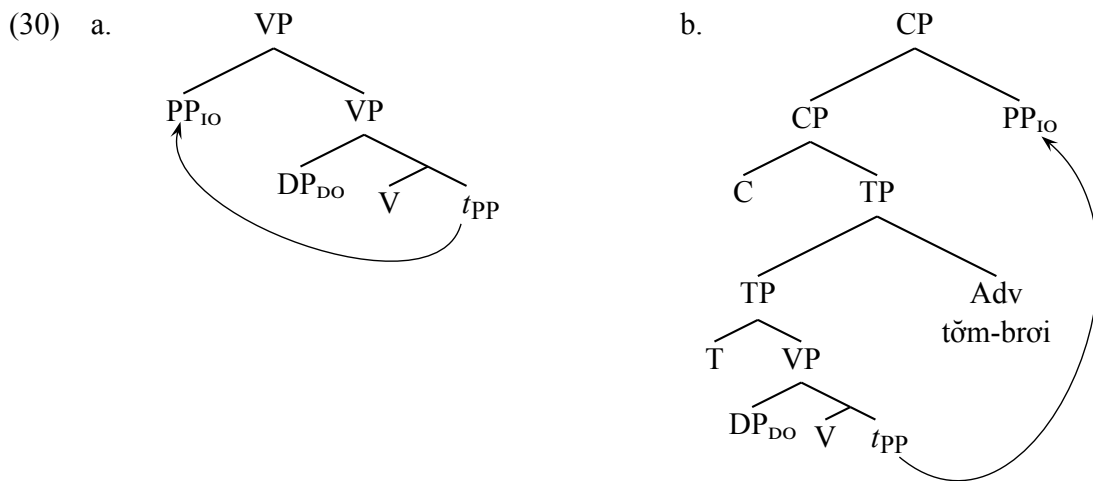
The derivation is as follows, starting from the bottom up (see (29)). First, the P and indirect object DP merge, and the P values DP's [CASE:] feature with [DAT], shown in (i). Next, V merges with PP, and PP's [DAT] feature (which comes from the head P) values the uninterpretable (selectional) [*u*DAT:] feature on V, shown in (ii). Finally, V' merges with the object DP, and the [ACC] feature on V values the DP's [CASE:] feature.



Note that in terms of Agree relations, there is a contrast between Dative and Accusative case. The verb selects a constituent that is already Dative-valued (the preposition *kσ* has the [DAT] feature right out of the lexicon), but the verb assigns [ACC] case. I propose that this asymmetry is what accounts for the variable behavior of the direct object and indirect object. In particular,

I propose that the direct object is licensed only in its merge position and consequently cannot undergo movement (A-movement, that is: objects can undergo focus/*wh*-movement). On the other hand, the indirect object is not licensed by Dative case: it already has inherent case. Instead, it satisfies a selectional requirement of the V, and once it has done so, it is free to move.

Thus, when the IO precedes the DO, as in (27b), I propose that it raises and left-adjoins to VP (as sketched in (30a)). The impossibility of a time adverbial before the DO in such a case follows from the restriction on the distribution of sentence-level adverbials: they cannot occur inside the VP. However, in sentences like (27a), where the time adverbial can occur after DO but before IO, I assume that the IO has extraposed to the right, perhaps adjoining to CP, above the time adverbial. This extraposition is sketched in (30b), which omits a significant amount of structure above VP.



When we examined the placement of *q* particles in §4.1.3, I proposed that some of the word order facts can be accounted for through rightward displacement of locative PPs. The picture here suggests that some form of rightward displacement is also needed for indirect arguments (that is, arguments other than the subject and direct object). The reason for the movement operations needed to account for variable placement of indirect object is not entirely

clear, although I suggest that there may be an information structure motivation. However, I have no data bearing on this question, and I leave the topic for later research.

Other asymmetries that we might expect to find between direct and indirect objects—from a cross-linguistic perspective, at least—involve the arguments’ accessibility to relativization, *wh*-questioning, and focus-movement. Both the direct and indirect object in Jarai are eligible for all of these operations. First, as the next two examples show, both a direct object (31a) and an indirect object (31b) can be relativized.

- (31) a. Anũn jing anõ kâo broi ___ kσ adoi kâo.
 DEM.MED COP thing 1SG give DAT younger.sibling 1SG
‘That’s what I gave my younger sibling.’
- b. Anũn jing pô kâo broi rodêh phrâo ___.
 DEM.MED COP PRT 1SG give car new
‘That’s the one who I gave the new car to.’

Next we see that both a direct object (32a) and an indirect object (32b) can be *wh*-questioned, and that *wh*-phrase can undergo movement.

- (32) a. Hσget H’Jok broi ___ kσ Bom?
 what H’Jok give DAT Bom
‘What did H’Jok give to Bom?’
- b. Kσ hloi Je sĩ romô ñu ___?
 DAT who Je sell cow 3SG
‘Who did Je sell his cow to?’

Finally, the following examples demonstrate that Jarai permits focus-fronting of direct objects (33a) and of indirect objects (33b). Recall from Chapter 4, §4.2 that *yoh*, as seen in (33a), is an optional marker of focus; what is relevant in this pair of examples is that both constituents are eligible for focus-movement.

- (33) a. Ao anũn yoh kão moit ____ kɔ ih.
 shirt DEM.MED FOC 1SG send DAT 2SG
 ‘It was that shirt that I sent to you.’
- b. Kɔ H’Yit kão broi ia moñum ____.
 DAT H’Yit 1SG give water drink
 ‘It was to H’Yit that I gave drinking water.’

Thus, Jarai, like English, merges the direct object and indirect object in different positions in the clause, giving rise to certain asymmetries: most notably, differences in case marking and in word order possibilities. However, again like English, both direct and indirect objects are legitimate targets for relativization, *wh*-questioning, and focus-movement.

6.5.2 Goal–source asymmetry

A second asymmetry—between goal and source PPs—shows up in predicates of directed motion. Directed motion predicates are those containing a motion verb that denotes something about progress in some direction (in contrast to specifying the manner of motion). The core members of this class are *nao* ‘go’, *glai* ‘return’, and *rai* ‘come’; for illustrative purposes I use *nao* in the examples that follow, but the results generalize to other verbs of directed motion.

The first asymmetry is essentially a conceptual one, and it relates to the interpretation of PPs that are not specified as paths but instead simply denote places. This contrast relies on a more general distinction between PATH prepositions, which crucially require some concept of directionality or origination/terminus points (e.g., English *to*, *from*, *through*), and PLACE prepositions, which simply denote something about static locations (e.g., *at*, *beside*). My claim is that goals in Jarai are expressed by means of a place preposition (meaning *at* or *in*), whereas sources are expressed by means of a path preposition (meaning *from*).

Consider (34), which simply asserts that the subject went to(ward) a particular location, the house. The goal of motion is supplied by the PP *po sang*, which we would expect to be a goal PP. However, as the glossing suggests, *po* is actually a simple place (locative) preposition.

- (34) Ñu **nao** [pɔ̄ sang].
 3SG go LOC house
 ‘He went to the house.’

Evidence that *pɔ̄* is a place rather than a path preposition comes from two sources. First, as (35a) illustrates, *pɔ̄* can be used to specify a static location in what amounts to a locative copular construction. Path prepositions cannot denote static locations in this way. Second, as (35b) shows, when *pɔ̄* follows a manner of motion verb, *robat* ‘walk’, rather than a directed motion verb, it can only introduce the location where the walking happened, not a point on the path along which the walking progresses.

- (35) a. Ñu dǎ [pɔ̄ sang].
 3SG stay LOC house
 ‘He is (staying) at home.’
- b. Kâo robat [pɔ̄ glai].
 1SG walk LOC forest
 ‘I walked in/at the forest.’
 (≠ ‘I walked into/to(wards) the forest.’)

Returning then to (34), we might expect that, when coupled with a verb of directed motion, a place preposition would be able to pick out any salient point on a path of motion. After all, the preposition is unspecified with regards to directionality or a particular point on a path. Nevertheless, *pɔ̄* can only give the goal, never the source. In order to express a source, the path preposition *mǎng* ‘from’ must be used. The examples in (36) show that, in contrast to *pɔ̄*, *mǎng* is a path rather than place preposition: (i) *mǎng* cannot follow the locative copula (36a); and (ii) *mǎng* can combine with a manner of motion verb to yield a path of motion (36b).

- (36) a. *Ñu dǎ [mǎng sang].
 3SG stay from house
 (‘He is from home.’)

- b. Ñu robot [mǒng sang].
 3SG walk from house
 ‘He walked from the house.’

Thus we have evidence from directed motion predicates and from locative clauses that goals in Jarai are expressed with a place preposition (meaning *at* or *in*), whereas sources are expressed with a path preposition (meaning *from*).

The second asymmetry between goal and source PPs has to do with word order. The first thing to note is that under a neutral reading (no focus), a source PP can occur clause-initially (37a), whereas the PP denoting the goal cannot (37b).²²

- (37) a. [_{SRC} Mǒng plɔi A] gomɔi nao pɔ plɔi B.
 from village A 1PL.EXCL go LOC village B
 ‘From village A we go to village B.’
- b. * [_{GL} Pɔ plɔi B] gomɔi nao mǒng plɔi A.
 LOC village B 1PL.EXCL go from village A
 (‘To village B we go from village A.’)

Second, the source PP cannot intervene between the directed motion verb and the goal PP, as illustrated in (38a). The reverse order—*verb-goal-source*—is perfectly acceptable (38b), even though it is non-iconic: that is to say, it orders the final point of the event before the initial point.

- (38) a. *Gomɔi nao [_{SRC} mǒng plɔi A] pɔ plɔi B.
 1PL.EXCL go from village A LOC village B
 (‘We go from village A to village B.’)

22. The unacceptability of (37b) could conceivably be due to a restriction that prohibits *mǒng* from being string-adjacent to *nao* (an odd prohibition, granted). However, the grammatical sentence in (i), where *mǒng* immediately follows *nao*, shows that such a configuration is perfectly fine. The difference between this sentence and the one in (37b) is that in (i) the PP headed by *pɔ* is selected by the second verb, *truh* ‘arrive’ rather than the verb *nao*.

(i) Gomɔi nao [mǒng plɔi A] truh pɔ plɔi B.
 1PL.EXCL go from village A arrive LOC village B
 ‘We go from village A to village B.’

- b. Gomoi nao pɔ ploi B [_{SRC} mǒng ploi A].
 1PL.EXCL go LOC village B from village A
'We go to village B from village A.'

I suggest that these facts are best accounted for by treating the PP denoting a goal (the one headed by *pɔ*) as a locative argument selected by the verb, whereas the PP denoting a source is an adjunct. In a language like Jarai with fixed word order, we expect adjuncts to show a greater degree of flexibility with regard to word order than arguments, and we expect arguments to appear closer to their selecting head.

An additional fact that supports this analysis is that a goal PP can be relativized (39a), but a source PP cannot be (39b). Cross-linguistically, arguments tend to be more accessible to relativization than adjuncts.

- (39) a. Anai jing anih [ñu robat nao ____].
 DEM.PROX COP place 3SG walk go
'This is the place where he walked to.'
- b. *Anai jing anih [mǒng pǎ ñu robat nao ____].
 DEM.PROX COP place from where 3SG walk go
'This is the place from which he walked.'

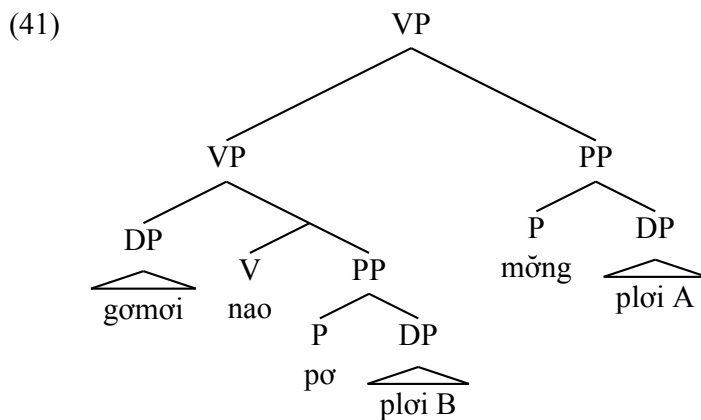
Note that the relativization strategy in (39a) involves gapping of the relativized position. It is not possible to relativize a goal PP with an overt preposition and pronoun. The use of an overt preposition and *wh*-pronoun in (39b) simply illustrates the closest one can get to creating a relativized source PP. Simply gapping would give rise to the structure in (39b).

At this point it is important to emphasize that the preceding discussion is relevant to predicates that are goal-oriented, which includes most directed motion predicates in Jarai. When a predicate is source-oriented, as in *tobiǎ* 'go out' or *đuai* 'leave', we would expect the source PP to act as an argument rather than as an adjunct. This is just what we find with respect to relativization, as illustrated in (40).

- (40) Anai jing anih [ñu tobiã ðuã ____].
 DEM.PROX COP place 3SG go.out leave
 ‘This is the place he came out from.’

I leave cases such as this to the side and return to the analysis of predicates that are goal-oriented, with a goal PP as the argument.

Given the preceding discussion of subcategorized goal PPs, I suggest that the VP of the clause in (38b) has a representation as in (41), where the goal PP is complement to the motion verb, while the source VP is right-adjoined. (I have omitted all the structure above the VP and have made the assumption that the subject of *nao* is a theme, originating in Spec,V.)



A fully fleshed-out analysis would require, of course, a detailed exploration of adverbial adjunction in Jarai, which I do not undertake here. What I hope to have established is that Jarai shows evidence of a goal–source asymmetry, and this asymmetry is both semantically salient and syntactically represented.

As with direct and indirect objects (§6.5.1), however, Jarai goal and source phrases are not distinguished by their ability to be targeted for focus-movement (which I argue in §4.2 includes *wh*-movement). In the next two examples we can see that both goal PPs (42b) and source

PPs (42b) can be questioned by a *wh*-constituent (which can subsequently undergo movement to the left of the clause).²³

- (42) a. Pơ pǎ ñu robat nao?
 LOC where 3SG walk go
 ‘Where did he walk to?’
 b. Mǒng pǎ ñu robat rai?
 from where 3SG walk come
 ‘Where did he walk here from?’

As the next examples illustrate, both a goal PP (43a) and a source PP (43b) can be focus-fronted.

- (43) a. Pơ sang hrǎ yoh, kǎo nao tǒm-broi.
 LOC house paper FOC 1SG go yesterday
 ‘It was to school that I went yesterday.’
 b. Mǒng Pleiku yoh, ñu robat nao pơ Cheo Reo.
 from Pleiku FOC 3SG walk go LOC Cheo Reo
 ‘It was from Pleiku that he walked to Cheo Reo.’

As with direct and indirect objects, these facts mirror the situation in English: in both Jarai and English, goal and source PPs are equally accessible to *wh*-questioning and focus-movement. Nevertheless, the two types of PPs show clear distributional differences.

6.6 Serial verb constructions

Like many Southeast Asian languages, Jarai has clauses with two verbs but no apparent coordination or subordination, as illustrated in (44).

23. It is also worth noting that both *pơ* ‘LOC’ and *mǒng* ‘from’ obligatorily pied-pipe when their complement is questioned, as in (i).

- (i) a. (**pơ**) pǎ ñu robat nao (***pơ**)?
 LOC where 3SG walk go LOC
 ‘Where did he walk to?’
 b. (**mǒng**) pǎ ñu robat (***mǒng**)?
 from where 3SG walk from
 ‘Where did he walk from?’

- (44) a. Kâo **sut** **pɔ-djel** hĩ kɔbɔng.
 1SG wipe CAUS-clean PRT table
'I cleaned the table by wiping it.'
- b. Kâo **kla** **glai** hĩ præk ñu.
 1SG pay return PRT money 3SG
'I paid back his money.'
- c. Kâo **čih** hrã **moit** kɔ adoi kâo.
 1SG write paper send DAT younger.sibling 1SG
'I wrote a letter and sent it to my younger brother.'

Sentences such as these appear to be in the class of structures known as *serial verb constructions* (SVCs).

In the discussion to follow, I begin with a consideration of what constitutes an SVC according to the descriptive-typological literature (§6.6.1), followed by a brief survey of theoretical approaches to SVCs from the generative literature (§6.6.2). I then present a taxonomy of multi-verb constructions in Jarai, arguing that at least some of them meet the descriptive criteria of SVCs; I go on to argue that Jarai SVCs are instances of verb phrase complementation (§6.6.3).

6.6.1 Definition and common properties

In her cross-linguistic typology of serial verb constructions, Aikhenvald (2007) begins with the definition in (45), which reflects the general consensus in the descriptive literature about what counts as a serial verb construction:

- (45) DEFINITION OF SVCs (Aikhenvald 2007:1)
 A serial verb construction (SVC) is a sequence of verbs which act together as a single predicate, without any overt marker of coordination, subordination, or syntactic dependency of any other sort.

However, it turns out that defining SVCs is quite difficult, in part because SVCs do not comprise a single phenomenon at all, a point acknowledged by Aikhenvald (2007). Paul (2008)

observes that “in order to talk of a *construction*, a precise structural analysis and a predictable set of formal properties associated with that structure must be provided. . . . [T]he SVC is appealed to as a kind of *deus ex machina* whenever a sentence containing two or more verbs is difficult to analyze” (406-407). A similar point is made by Zwicky (1990).

In spite of the fact that SVCs are not necessarily a single structurally-defined construction type, it is still useful to use the term to cover a range of phenomena that share, at least superficially, certain characteristics. In (46) I list some common characteristics of SVCs.

- (46) PROPERTIES OF AN SVC (Durie 1997; Kroeger 2004; Aikhenvald 2007)
- a. Contains at least two verbs
 - b. Component verbs can each head a clause independently
 - c. Presents a single event
 - d. Has a single value for tense, aspect, modality, and polarity
 - e. Distinct from embedding, complementation, or coordination
 - f. Has the intonation of a mono-verbal clause
 - g. At least one argument is shared by all the verbs
 - h. Has only one external argument
 - i. No (overt, non-reflexive) arguments are coreferent with each other

In my discussion of apparent SVCs in Jarai, I will draw from this list to distinguish SVCs from other construction types in Jarai. I note here that all of the multi-verb constructions I discuss have at least two verbs, both of which can independently head a clause. It is also the case that all of the constructions I discuss have a single-event reading. With regard to intonation, I have not made a close study of the phonological characteristics of what I take to be SVCs in Jarai. Other relevant characteristics of SVCs will be discussed at greater length in §6.6.3.

6.6.2 Theoretical approaches to SVCs

Much of the formal literature on SVCs concerns structures like those in (47), where the NP occurring between the verbs is in some way shared by them. In (47a), *asâo* ‘dog’ is

the object of *čung* ‘kick’ and the unaccusative subject of *djai* ‘die’. In (47b), *monong* ‘meat’ appears to be the object (theme) of both verbs, *kiă* ‘cut’ and *broi* ‘give’.

- (47) a. Ty **čung** asão **djai** laih.
 Ty kick dog die already
 ‘Ty kicked the dog (and it) died.’
- b. Mik **kiă** monong **broi** kɔ bonai ñu.
 Mik cut meat give DAT wife 3SG
 ‘Mik cuts the meat for his wife.’

The question of how this object-sharing is represented has received three answers: (i) the object is theta-marked by both verbs; (ii) the apparent sharing is mediated by a null argument of V2, an argument co-indexed with the object of V1; (iii) one of the verbs does not actually discharge a theme theta role. In what follows I briefly discuss these three approaches in turn. I ultimately adopt the third view, proposing that object sharing in Jarai is an interpretational consequence of verb phrase complementation, and V1 does not, in fact, theta mark the apparently shared object.

The hypothesis that the object is actually shared by both verbs is developed and defended by Baker (1989). Examples (48a) and (48b) are typical of the data Baker’s analysis accounts for. In (48a), from Sranan, V1 and V2 share the internal argument, *Amba*. In (48b), from Yoruba, both verbs take *ẹwu* ‘garment’ as an internal argument, and V2 introduces a recipient argument not shared by V1.²⁴

- (48) a. Kofi **naki** Amba **kiri** (Baker 1989:516, ex.3a)
 Kofi hit Amba kill
 ‘Kofi struck Amba dead.’
- b. Bàba mi **ra** ẹwu **bùn** mi (Baker 1989:516, ex.4b)
 father 1SG buy garment present 1SG
 ‘My father bought me a garment.’

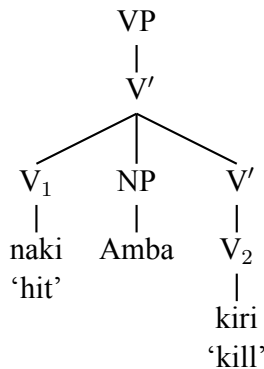
24. Example (48a) appears originally in Sebba (1987); Sranan is a Creole language of Suriname. Example (48b) appears originally in Oyelaran (1982); Yoruba is a Niger-Congo language of West Africa.

The syntactic problem presented by (48a) and (48b) is that both verbs should project their own VP, and only one of these VPs could contain the “shared” object. According to the version of the Projection Principle adopted by Baker (1989:517), an object noun phrase must be within the maximal projection of the verb that theta-marks it, so one of the Vs in the examples above would fail to assign its internal theta-role, as there would be no noun phrase inside its projected VP.²⁵

Baker’s solution is that a VP can be multiply-headed, allowing both Vs to assign their internal theta role within their (shared) maximal projection. For an SVO language with SVCs of the type [S – V1 – O – V2 – (X)] (e.g., (48a) and (48b)), V1 is the primary head of the VP, and V1’s V’ projection dominates the V’ projection of V2. Thus, the object is sister to the primary verb and to V2’s first V’ projection. V1 “directly” theta-marks the object, and V2 “indirectly” theta-marks the (shared) object. This configuration is shown in (49), an analysis of (48a).

(49) DOUBLE-HEADED VP

(adapted from Baker 1989:520, ex.13)



Although Baker’s proposal is vulnerable on empirical grounds,²⁶ there are two specific claims, presented in (50), that are recurring themes in the generative literature on SVCs.

25. Baker’s version of the Projection Principle actually requires the theta-marked phrase to be under a one-bar-level projection of the theta-marking category.

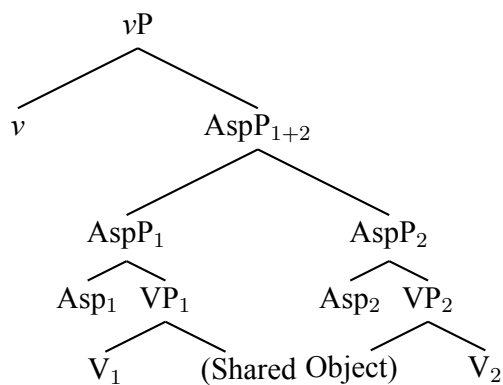
26. Baker’s proposal entails predictions about possible and impossible SVC configurations. Durie (1997) demonstrates that these predictions are not borne out by the data available on serializing languages—indeed, are not borne out even in the data sources referenced in Baker (1989).

(50) CLAIMS ABOUT SVCs IN BAKER (1989)

- a. Object-sharing is directly represented in the phrase structure.
- b. The apparent multi-headedness of SVC predicates is a consequence of a multi-headed VP.

Both of these claims are taken up within a Minimalist framework by Hiraiwa & Bodomo (2008), who present evidence from Dàgáárè that object-sharing, unmediated by an empty category, is in fact a feature of SVCs. Their proposal, too, depends on a multiply-headed verbal projection, specifically the inner aspect phrase. In contrast to Baker (1989), they represent object-sharing by means of multiple dominance of the object noun phrase (see (51), which simplifies the structure in H&B by omitting a functional projection above AspP).²⁷

(51) DOUBLE-HEADED ASPP (adapted from Hiraiwa & Bodomo 2008:822, ex.69)



Like Baker and Hiraiwa & Bodomo, Collins (1997) aims to account for the apparent object-sharing properties of SVCs. Using data from Ewe, Collins rejects true object sharing and instead posits that object-sharing effects arise from the presence of an empty category that receives V2's internal theta role. Collins further argues that this empty category is controlled

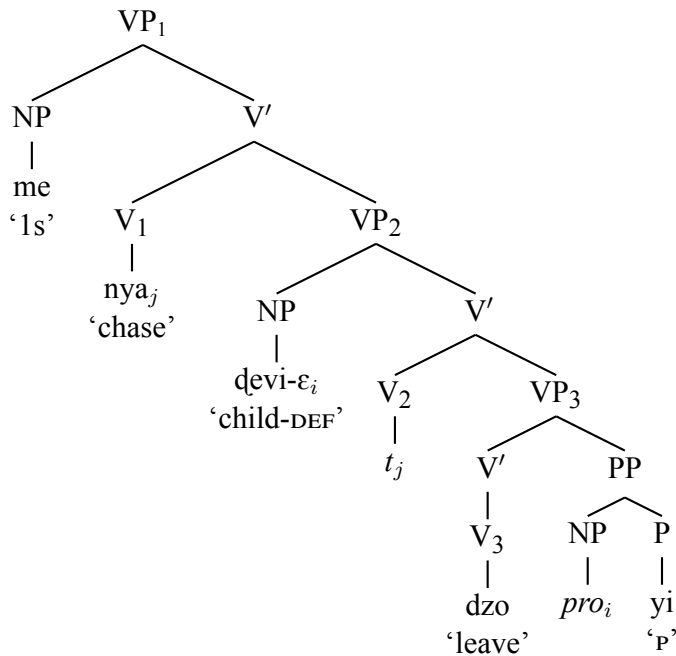
27. A major issue confronted by Hiraiwa & Bodomo is whether symmetric structures such as a doubly-headed phrase are permissible. Their answer is yes, as long as the symmetry generated in the narrow syntax (when the categories merge) does not persist to spellout.

pro, rejecting the possibility that it is a trace of A-movement, a trace of A'-movement, or PRO.

The structure in (53) gives an analysis for the Ewe sentence in (52).²⁸

- (52) Me nya ɖevi-ε_i dzo [pro_i (yi)] [Collins (1997):473, ex.44]
 1SG chase child-DEF leave P
 'I chased the child away.'

- (53) OBJECT-SHARING WITH *pro* (adapted from Collins 1997:474, ex.46)



The structure in Collins (1997) is crucially non-symmetrical—the second V is a complement of the first—so each maximal projection has a unique head. For Collins, the parameter that determines whether a language is serializing is whether “I (tense) can license multiple V’s” (493).

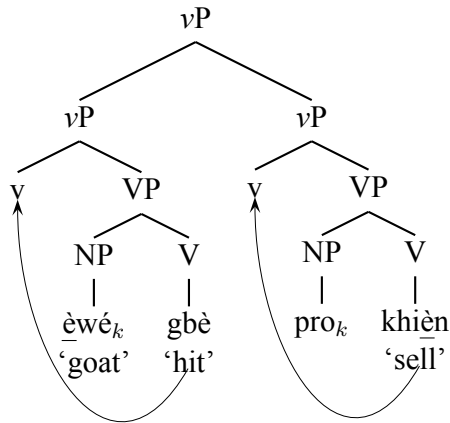
Another argument for *pro* mediating the shared-object effects can be found in Baker & Stewart (1999). Baker & Stewart actually distinguish three types of SVCs, each of which

28. Ewe is a Niger-Congo language. Anticipating the analysis Collins subsequently proposes, I slightly modify his example by identifying the empty category as *pro*. Additionally, I show the movement of V2 to V1 and the result of an extraposition rule that gets the PP in the right configuration with V3.

instantiates a different doubly-headed maximal projection.²⁹ One of the SVC types they identify, *Consequential SVCs*, is claimed to be an instance of a doubly-headed vP. Example (55) sketches part of the structure of the Consequential SVC given in (54).

- (54) Òzò ghá gbè èwé khièn (Baker & Stewart 1999:3, ex.3b)
 Ozo FUT hit goat sell
 ‘Ozo will kill the goat and sell it.’

- (55) Double-Headed vP (adapted from Baker & Stewart 1999:13, ex.19)



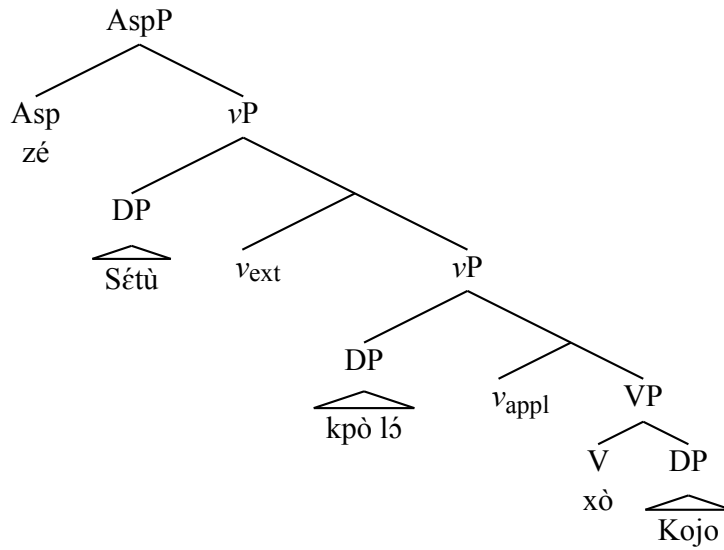
The final approach to SVCs I survey here is different from the others in that it does not take both verbs to be merged into the structure as full lexical verbs. Aboh (2009) argues that in two-verb constructions that seem to share an internal argument, the first verb is merged in the inflectional domain of the clause as an aspect head. Thus, V1 does not assign case or a theta role.³⁰ This structure is sketched in (57), which gives an analysis of the Gungbe (Kwa) SVC in (56). The tree shows initial merge positions of elements before movement, and it omits two functional layers above the higher vP for simplicity. What is crucial is that V1, *zé* ‘take’ is not in the theta domain but instead has merged in the inflectional domain.

29. Two of these SVC types are claimed to have *pro* as the object of V2, while one of the SVC types has a true shared object.

30. Actually, Aboh presents evidence that V1 does sometimes introduce the subject.

- (56) Sétù zé kpò ló xò Kòjò. (Aboh 2009:16, ex.36a)
 Setu take stick DET hit Kojo
 ‘Setu took the stick hit Kojo (i.e., Setu hit Kojo with the stick).’

- (57) V1 AS A (FUNCTIONAL) LIGHT VERB (adapted from Aboh 2009:16, ex.37a)



Aboh’s approach avoids the problem of argument sharing altogether, because V1 has no arguments.

6.6.3 Serial verbs in Jarai

6.6.3.1 Classifying SVCs

Multi-verb constructions in Jarai fall into five distinct classes, summarized in Table 6.2 and illustrated by the examples that follow. I present the first type, the BENEFACTIVE SVC for the sake of completeness: I leave it to the side in the more extended discussion that follows the initial presentation.³¹

31. There are probably other classes of SVCs that I do not discuss in this section. These, however, are the ones that I have made the closest examination of.

Table 6.2. SVC Types in Jarai

SVC Type	Verb Types		Word Order	Example
	V1	V2		
BENEFACTIVE	any	<i>broi</i>	Agt V1 V2 Ben	‘she dance give king’
SHARED AGENT	Trns	Trns	Agt V1 V2 Th	‘she shoot kill tiger’
SHARED THEME	Trns	Unac	Agt V1 Th V2	‘he push pole fall’
MANNER-GOAL	Unerg	Unac(?)	Agt=Thm V1 V2	‘they walk go to house’
CAUSED MOTION	Trns	Unac	Agt V1 (V2) Th (V2)	‘he carry boy go to house’

The first type is the BENEFACTIVE SVC. In the BENEFACTIVE SVC, the verb *broi* ‘give’ (V2) introduces a dative-marked beneficiary of the action denoted by V1. In (58a) V1 is unergative *suang* ‘dance’. In (58b) V1 is the transitive verb *črǒ* ‘put in’.

- (58) a. Bonai suang **broi** kɔ potao.
 female dance give DAT king
 ‘The girls danced for the king.’
- b. Waih črǒ bôh plum amǎng bai **broi** kɔ amǐ ñu.
 Waih put.in fruit cassava in basket give DAT mother 3SG
 ‘Waih put cassava roots in a basket for his mother.’

It is important to note that in neither example is anything literally given to the dative-marked participant. In fact, (58a) completely lacks a theme argument. Thus, *broi* ‘give’ is being used simply to introduce the beneficiary, without contributing its full lexical meaning. As far as I know, the BENEFACTIVE SVC is rarely if every obligatory: datives can be freely included in the clause without *broi*.³²

The second type of multi-verb constructions are what I will call the SHARED AGENT SVC. In this construction, V1 and V2 share not only a theme, which follows V2, but also an agent, which precedes V1. This SVC type is illustrated by the two examples in (59). In both cases,

32. As evidence that *broi* has not been reanalyzed as a preposition in these examples, observe in (i) that it cannot be pied-piped with the DP that it precedes. Prepositions, on the other hand, cannot be stranded (ii).

agentive V1 is the event that brings about V2, and V2 is also agentive. Typically, V2 in these constructions contains *pɔ-*, which I argued earlier to be a v_{CAUSE} head.

- (59) a. Ñu **pɔnah pɔ-djai** roman anũn.
 3SG shoot CAUS-die elephant DEM.MED
'He shot and killed the elephant.'
- b. Kào **tɔlũ pɔ-rɔbuh** hĩ toměh.
 1SG push CAUS-fall PRT post
'I pushed and knocked over a post.'

Given that these examples share both an agent and an object, why not call them shared-theme SVCs? The reason is that agent-sharing is what distinguishes these from the next class of SVCs, which share only their internal argument.

That brings us to the SHARED THEME SVC. What distinguishes these SVCs is that while V1 is an agentive transitive verb, V2 is an unaccusative verb and is thus unable to share the surface subject, which is an agent. In (60a), the surface subject does the shooting, V1, but not the dying, V2. Likewise in (60b): the subject pushes, V1, but does not fall, V2. In both examples, the theme of V1 is also the theme of V2.

- (60) a. Kào **pɔnah** romung **djai** hĩ.
 1SG shoot tiger die PRT
'I shot a tiger (and it) died.'
- b. Kào **tɔlũ** goyũt kào **trũn**.
 1SG push friend 1SG go.down
'I pushed my friend (and he) fell.'

- (i) a. Kɔ hloi goũu suang **broi**?
 DAT who 3SG.PL dance give
'Who did they dance for?'
- b.***Broi** kɔ hloi goũu suang?
 give DAT who 3SG.PL dance
('Who did they dance for?')

- (ii) a. **Hãng** hoget amĩ kào ñeč rokuaah?
 with what mother 1SG crush ginger
'With what did my mother crush ginger?'
- b.*Hoget amĩ kào ñeč rokuaah **hãng**?
 what mother 1SG crush ginger with
('What did my mother crush ginger with?')

The final two classes of multi-verb constructions are subclasses of a single type, the MOTION SVC. The two subtypes are the MANNER-GOAL SVC and the CAUSED MOTION SVC. The MANNER-GOAL type of SVC involves an unergative V1 that names a manner of motion, and a directed motion V2 that gives the goal of motion. These are illustrated in (61): the manner of motion V1s *đuaĩ* ‘run’ (61a) and *luai* ‘swim’ (61b) are paired with directed motion V2s, *rai* ‘come’ and *nao* ‘go’, respectively. Recall from previous discussion (§6.5.2) that manner of motion verbs cannot combine directly with a PP to give a movement-toward-a-goal reading; a directional V2 is obligatory.

- (61) a. Kâo **đuaĩ rai** hĩ pơ homa.
 1SG run come PRT LOC field
‘I ran (here) to the field.’
- b. Kâo **luai nao** pơ ia rosĩ.
 1SG swim go LOC water ocean
‘I swam to the ocean.’

In terms of the arguments of the two verbs, V1 clearly has an agent only. The case of directed motion verbs (V2) is less clear. Some but not all verbs of directed motion can be combined with *pơ-*, which is a diagnostic for unaccusatives.³³ For now I will leave it as an open question how the agent of V1 relates to V2—as an agent or as a theme (or perhaps as both).

The CAUSED MOTION SVC is characterized by a transitive V1 that transmits motion to a theme; the theme of V1 serves as the theme of V2, which is a verb of directed motion. In the following examples, the verbs of caused motion (V1), *čung* ‘kick’ in (62a) and *ba* ‘bring’ in (62b), involve an agent acting on a theme so as to move it. The path of the theme is then introduced by the directed motion verb (V2), *nao* ‘go’ and *rai* ‘come’.

33. For example, *pơ-glai* ‘CAUS return’ and *pơ-đĩ* ‘CAUS go up’ are possible, but *pơ-rai* ‘CAUS come’ and *pơ-nao* ‘CAUS go’ are not. These may be accidental gaps. Or perhaps verbs of directed motion can pattern as both unaccusatives and unergatives. Or perhaps what seems to be a single class of verbs is not actually coherent with respect to how arguments are projected.

- (62) a. Kâo **čũng** boh lŏng **nao** hĩ pơ goyũt kâo.
 1SG kick fruit ball go PRT LOC friend 1SG
'I kicked the ball to my friend.'
- b. Goyũt kâo **ba** adoi kâo **rai** pơ sang.
 friend 1SG bring younger.sibling 1SG come LOC house
'My friend brought my younger sibling home.'

Note that in these examples, the theme of motion is not agentive with regard to the second verb. So unlike the previous examples, here it is fairly clear that they are themes only. Additionally, in many (but not all) CAUSED MOTION SVCS, V2 can precede the theme. Compare (63), one of the examples that multiple speakers agree on, to (62a).

- (63) Kâo **čũng** **nao** hĩ boh lŏng pơ goyũt kâo.
 1SG kick go PRT fruit ball LOC friend 1SG.
'I kicked the ball to my friend.'

In the discussion to follow, I will often treat the MANNER-GOAL SVC and CAUSED MOTION SVC as subtypes of the more general MOTION SVC.

6.6.3.2 The SVC as a distinct construction in Jarai

The question that now arises is whether these classes of multi-verb constructions meet the descriptions given in (46) for being identified as SVCs, or do they instead pattern with some other type of structure in Jarai? It is conceivable that what looks like a special construction is simply coordination (with a covert coordinator), or clausal adjunction, or clausal complementation. I will now seek to demonstrate that the multi-verb constructions presented above do show the earmarks of serial verb constructions. (As I remark above, I omit discussion of the BENEFACTIVE SVC, largely because, unlike the other SVC types, V2 in the BENEFACTIVE is invariably *broi* 'give', and this verb clearly does not make its normal lexical contribution in the BENEFACTIVE.)

I begin by arguing that multi-verb constructions are not instances of **coordination**. The first test—using negation—shows that apparent SVCs do not involve *clausal* coordination. The basic fact is that a single negator cannot negate across two conjoined independent clauses. As (64a) shows, a negator before the verb in the first conjoined clause cannot scope over the verb in the second clause. (Notice that the facts are the same for the conjunctions *budah* ‘or’ and *laih-anũn* ‘and’.) Once the NEG2 element *ôh* is moved to the first clause, indicating that negation is intended just for the first conjunct, the structure is licit (64b).³⁴ The second conjunct can also be negated independently of the first (64c).

- (64) a. **[Kâo bu pɔnah roman] budah / laih-anũn [Je klãõ romung ôh].*
 1SG NEG shoot elephant or and Je stab tiger NEG2
‘I didn’t shoot an elephant nor did Je stab a tiger.’
- b. *[Kâo bu pɔnah roman ôh] samõ [Je klãõ romung].*
 1SG NEG shoot elephant NEG2 but Je stab tiger
‘I didn’t shoot an elephant but Je stabbed a tiger.’
- c. *[Kâo pɔnah roman] samõ [Je bu klãõ romung ôh].*
 1SG shoot elephant but Je NEG stab tiger NEG2
‘I shot an elephant but Je didn’t stab a tiger.’

However, when negation precedes V1 in a multi-verb construction, it takes scope over both verbs. This is illustrated for a SHARED AGENT SVC in (65a), a SHARED THEME SVC in (65b), and a MOTION SVC in (65c).

- (65) a. *Kâo bu kih pɔ-rɔgoh sang ôh.*
 1SG NEG sweep CAUS-be.clean house NEG2
‘I did not sweep the house clean.’
- b. *Kâo bu taih asâo rɔka hĩ ôh.*
 1SG NEG hit dog be.injured PRT NEG2
‘I did not injure the dog by hitting it.’

34. For pragmatic reasons, the conjunction required for the licit version is *samõ* ‘but’.

- c. Tõm-broi kâo **bu** robat nao hĩ pơ sang amĩ kâo **ôh**.
 yesterday 1SG NEG walk go PRT LOC house mother 1SG NEG2
'Yesterday I certainly did not walk to my mother's house.'

What these examples demonstrate is that multi-verb constructions are not instances of two independent clauses with ellipses of (at least) the subject of the second clause. Instead, negation treats the two verbs as part of the same clause.³⁵

The argument from negation dealt specifically with coordination at the clause level. This next argument rules out covert coordination at the verb or verb phrase level. Because Jarai has overt coordinating conjunctions, *laih-anũn* 'and; after that' and *hãng* 'and; with', the following prediction holds: If a multi-verb construction is an instance of covert coordination, then adding an overt coordinator between the two verbs should not change its interpretation.³⁶

I begin with the SHARED AGENT SVC. Recall that with these, V1 and V2 are transitive, and the agent and theme are shared by both verbs. The word order is Agent–V1–V2–Theme. As the examples in (66) illustrate (cf. 59), it is generally acceptable to add a conjunction between V1 and V2.³⁷

- (66) a. Ñu **põnah** laih-anũn **pơ-djai** romung anũn.
 3SG shoot and CAUS-die tiger DEM.MED
'He shot and killed the tiger.'
- b. Kâo **tolũ** hãng **pơ-rõbuh** hĩ tomẽh.
 1SG push and CAUS-fall PRT post
'I pushed and knocked over a post.'

35. It is conceivable, of course, that if Jarai has a covert coordinator, its properties are significantly different from Jarai's overt coordinators. However, it is not obvious what properties a covert coordinator could have that would give rise to the judgments I report here for apparent SVCs.

36. Between the two overt coordinators, both are equally good (or bad) in most cases. Consequently, in the discussion that follows I vary between the two without remarking on the choice of conjunction. Note as well that *laih-anũn*, which can be used sequentially, can also be used non-sequentially, as in a simple list of objects.

37. For one of my speakers, the addition of the coordinator makes (66a) bad—to him it sounds as though first the tiger is shot, then subsequently killed, which he says makes no sense. Another speaker dislikes (66a) but does not reject it.

Does the acceptability of conjunctions in (66) mean that the versions without conjunctions are simply covertly coordinated? The answer is no. We predict that (66) should be good independently of how we analyze the apparent SVCs in (59). So long as V-coordination is permitted in Jarai—and it obviously is—then (66) should be licit.

The more important issue is one of interpretation. We predict that if (59) and (66) are structurally identical (coordination), then they should have the same interpretations.³⁸ However, this is not the case. The examples in (59) have only a one-event reading. The shooting and killing in (59a) must be accomplished in one act (the shooting does the killing), and the pushing and knocking over in (59b) must also have a single event reading. These sentences cannot mean that first there was a shooting event, followed by a separate killing event (and likewise for pushing and knocking over). When we turn to the overtly coordinated structures in (66), however, the story is different. Although each sentence has a natural interpretation as only one event, there is another reading available: it is possible to use (66a) in a situation where first the tiger is shot, and then it is killed by some other act. The same is true for (66b): it would still be true of a situation where first the subject pushes on the pole and then knocks it over by hitting it with his car.

In addition to speaker judgments about whether a sentence describes one or two events, we can also look at the distribution of modifiers, as illustrated in the following pair of sentences, one acceptable and the other ungrammatical. In (67a), two verbs, *phao* ‘shoot’ and *po-djai* ‘kill’, are conjoined by the coordinator *laih-anñn*. What is important for this example is that each one is modified separately by a different instrument: the shooting was done with a *phao* ‘gun’, and the killing was done with a *hrao* ‘crossbow’. This structure is possible (if awkward). In (67b), however, there is no coordinator, and it is impossible to modify the two verbs independently.

38. As mentioned above, it might be that apparent SVCs in Jarai involve a covert coordinator with a significantly different meaning from the overt coordinators. However, I cannot think of a coordinator meaning that would give rise to the contrasts in interpretation reported here.

- (67) a. Ñu pɔnah **hǎng phao** laih-anũn pɔ-djai bê **hǎng hraõ**.
 3sg shoot with gun and CAUS-die goat with crossbow
'He shot with a gun and killed the goat with a crossbow.'
- b. *Ñu pɔnah **hǎng phao** pɔ-djai bê **hǎng hraõ**.
 3sg shoot with gun CAUS-die goat with crossbow
('He shot with a gun (and) killed the goat with a crossbow.')

Consider now a SHARED THEME SVC in (68) (cf. 60a).³⁹ Here the contrast is even sharper. If we place the conjunction after the theme, before V2, as in (68a), the subject of V2 becomes ambiguous: either the tiger dies, or the person who shot the gun dies. This ambiguity does not exist in (60a). In (68b), the conjunction follows V1 and precedes the theme. In this case, it sounds as though the shooting and dying are not (necessarily) related to each other, again, in contrast to (60a), where the shooting necessarily leads to the dying of the object that was shot.

- (68) a. Kào **pɔnah** romung laih-anũn **djai**.
 1sg shoot tiger and die
'I shoot a tiger and it dies / I die.'
- b. ?Kào **pɔnah** laih-anũn romung **djai**.
 1sg shoot and tiger die
'I shoot, and a tiger dies.'

I conclude, then, that the SHARED THEME SVC is distinct from a coordinate structure.

Finally, consider the case of a MOTION SVC. In (69a), a manner of motion verb, *robat* 'walk', is overtly coordinated with a directed motion verb, *rai* 'come'. Observe that each one can be modified by a time adverbial, and the time adverbials can indicate different days. Now consider (69b), which is string-identical to (69a) except that it lacks an overt coordinator. It is now impossible to separately modify the two verbs.

39. A couple of my speakers typically interpret the SHARED THEME SVC as two events and put a pause after V1. The judgments that follow are for speakers who accept a one-event reading for SHARED THEME SVCS and do not require a strong pause after V1.

- (69) a. H'He robat **tǒm-broi** hǎng rai pɔ anai **hroi anai**.
 H'He walk yesterday and come LOC DEM.PROX day DEM.PROX
 'H'He walked yesterday and came here today.'
- b. *H'He robat **tǒm-broi** rai pɔ anai **hroi anai**.
 H'He walk yesterday come LOC DEM.PROX day DEM.PROX
 ('H'He walked yesterday came here today.')

It is clear, then, that overtly coordinated verbs are quite different from verb sequences that make up (I claim) an SVC: under coordination, the two verbs can be interpreted as representing two separate events, permitting adverbial modification of the two verbs separately. In the apparent SVCs, the verbs together denote a single event and consequently cannot be modified separately. I conclude, then, that none of the three types of multi-verb constructions—*SHARED AGENT*, *SHARED THEME*, or *MOTION*—is simply a coordinate structure with a covert coordinator.

Next I wish to show that Jarai multi-verb constructions are not cases of **clausal adjunction**, where the second verb and any argument accompanying that verb are part of an adverbial clause. The first test for adjunction relates to extraction of a shared object. The relevant background is that adjoined clauses are islands for *wh*-movement, as illustrated in the next two pairs of examples. The sentences in (70) contain an adjunct clause introduced by *yuako* 'because'. Notice that, as (70a) shows, the object of the verb embedded in the adjunct can be questioned *in situ*. However, if the *wh*-word is raised out of the adjunct clause, the sentence is unacceptable, as shown in (70b).

- (70) a. Ñu huĩ [yuako ñu ngǎ pɔčah lui **hoget**]?
 3SG afraid because 3SG make break PRT what
 'What is he afraid because he broke (it)?'
- b. ***Hoget** ñu huĩ [yuako ñu ngǎ pɔčah lui ____]?
 what 3SG afraid because 3SG make break PRT
 ('What is he afraid because he broke?')

The contrast between sentences in (71) reflects the same thing: here the adjunct is a purpose clause introduced by *kiǎng* ‘want’. Once again, the object can perhaps be questioned *in situ* (71a) (there are mixed judgments on this), but the *wh*-word cannot be extracted to the left edge of the matrix clause, (71b).

- (71) a. %Ih mã-bruǎ [kiǎng kơ homâo **hoget**]?
 2SG work want COMP have what
 ‘What do you work in order to have (it)?’
- b. ***Hoget** ih mã-bruǎ [kiǎng kơ homâo ___]?
 what 2SG work want COMP have
 (‘What do you work in order to have?’)

As additional evidence that the embedded clauses in (70) and (71) are truly adjuncts, observe that reason and purpose clauses can be fronted or omitted without giving rise to ungrammaticality, as illustrated in (72).⁴⁰ (Fronting the purpose clause in (72b) is awkward, but I have the same intuition about the English equivalent.)

- (72) a. (Yuakơ Poi đã asâo,) bonai ñu huĩ.
 because Poi kick dog wife 3SG afraid
 ‘(Because Poi kicked the dog,) his wife was frightened.’
- b. (Kiǎng kơ homâo prăk) Je mã-bruǎ.
 want COMP have money Je work.
 ‘(In order to have money,) Je works.’

The prediction is this: if multi-verb constructions involve garden-variety clausal adjunction, where V2 (and its arguments) are simply adverbial, then extraction out of that clause should be bad. As (73a) illustrates for the SHARED AGENT SVC, extraction of the object after V2 is allowed. The same is true for (73b), where the object is extracted from a SHARED THEME SVC.⁴¹

40. The exact mechanism of adjunct-fronting is not at issue here. What is crucial is that phrases which are adjoined are freer to displace (or merge in more than one position) than phrases which are subcategorized for.

41. Example (73b) may not show the same thing as (73a), because if V2 is part of an adjoined clause, it is not obvious whether its theme is the overt DP that precedes it—that DP could just as well be an argument of V1 only,

- (73) a. **Hoget** ih pɔnah pɔ-djai hĩ ___ lě?
 what 2SG shoot CAUS-die PRT Q.WH
 ‘What did you shoot and kill?’
- b. **Hoget** ih tolř ___ rɔbuh hĩ lě?
 what 2SG push fall.over PRT Q.WH
 ‘What did you push over?’

Extraction is also possible in the case of the MOTION SVC. In (74a), a MANNER-GOAL svc, the PP that obligatorily follows V2 can be questioned and extracted to the left edge of the clause. In (74b), a CAUSED MOTION SVC, the shared theme is extracted.⁴²

- (74) a. **Pɔ pǎ** ñu rɔbat nao ___?
 LOC where 3SG walk go
 ‘Where did he walk to?’
- b. **Hoget** ih pǔng ___ nao hĩ amǎng lõn lě?
 what 2SG pound go PRT in ground Q.WH
 ‘What did you pound into the ground?’

In addition to the *wh*-extraction facts, the impossibility of V2-displacement also shows that multi-verb constructions are not adjoined. For both the SHARED AGENT SVC (75a) and the SHARED THEME SVC (75b,c), leftward displacement of V2 and its internal argument is impossible. (For the SHARED THEME SVC I show that it is bad whether the internal argument fronts with V2 (75b) or remains *in situ* (75c).)

- (75) a. ***Pɔ-djai rɔman**, ñu pɔnah.
 CAUS-die elephant 3SG shoot
 (‘Killing an elephant, he shot’)
- b. ***Tɔmeh rɔbuh**, ñu tolř.
 pole fall 3SG push.
 (‘A pole falling, he pushed.’)

with V2’s theme being *pro*. I do not know of a test that would distinguish these two possibilities. I also have instances of *wh*-extraction for this type of SVC that speakers judge to be degraded.

42. The same caveat as I gave in fn. 41 also holds for the CAUSED MOTION SVC.

- c. ***Robuh**, ñu tolǔ to meh.
 fall 3SG push pole.
 (*Falling, he pushed a pole.*)

In the case of MOTION SVCS, we find the same thing. Although it is possible to displace a directed motion verb along with the goal PP (76a), the meaning is almost entirely different from the sentence with no displacement. As the examples in (76b,c) show, it is simply impossible to displace the V2 (with or without the theme) in a CAUSED MOTION SVC.

- (76) a. **Nao pɔ̄ house**, ñu rɔbat.
 go LOC house, 3SG walk
 ‘*Going home, he does by walking.*’
 ≠ ‘*To home he walked.*’
- b. ***Nao amǎng lõn**, ñu pǔng gai.
 go in ground 3SG pound stick
 (*‘Into the ground he pounded the stick.’*)
- c. ***Gai nao amǎng lõn**, ñu pǔng.
 stick go in ground 3SG pound
 (*‘The stick into the ground he pounded.’*)

So then, both the *wh*-extraction facts and the V2 displacement facts show that multi-verb constructions cannot be accounted for by appealing to adjunction.

A final test of Jarai multi-verb constructions relates to **non-finite clausal complementation**. A feature of non-finite complement clauses in Jarai is that quite generally the lower clause can be preceded by *kiǎng kɔ̄* ‘want COMP’ without a change in meaning (see §4.1.2). For example, in (77) the matrix verb *hɔdor* ‘remember’ selects a non-finite clause as its complement. The addition of *kiǎng kɔ̄* does not add any sense that the subject wants to buy chicken eggs; it seems to be purely functional.⁴³

43. Note that *kiǎng* ‘want’ shows up in both the adjunction and complementation test. This is because *kiǎng* can introduce both a purpose adjunct and a non-finite complement clause. The interpretation and distribution of these two clause types are distinct enough to make the tests non-overlapping.

- (77) Djang hodor (kiǎng kɔ) [bloi boh monũ].
 Djang remember want COMP buy egg chicken
 ‘Djang remembered to buy chicken eggs.’

Now, if the Jarai multi-verb constructions are straightforward instances of non-finite clausal complementation, then we would expect *kiǎng kɔ* to be possible between V1 and V2 with little or no change in the meaning. This turns out not to be the case. The following examples add *kiǎng kɔ* to a SHARED AGENT SVC in (78a), a SHARED THEME SVC in (78b), and a MOTION SVC in (78c). In each case, *kiǎng kɔ* gives a reading where V2 is the intention of V1 but not necessarily the outcome. But when *kiǎng kɔ* is absent, the normal reading is that V1 and V2 are equally asserted.⁴⁴

- (78) a. Kào tolũ **kiǎng kɔ** pɔ-robuh hĩ toměh.
 1SG push want COMP CAUS-fall PRT post
 ‘I pushed in order to knock over the post.’
- b. Kào tolũ **kiǎng kɔ** toměh robuh hĩ.
 1SG push want COMP post fall PRT
 ‘I push in order for the post to fall.’
- c. Tòm-broi kào robat **kiǎng kɔ** nao pɔ glai.
 yesterday 1SG walk want COMP go LOC forest
 ‘Yesterday I walked in order to go to the forest.’

What, then, is the structure of the clauses in (78)? Well, *kiǎng* ‘want’ can also introduce a purpose clause (as we saw in the preceding argument concerning clausal adjunction), so I take the introduction of *kiǎng kɔ* before V2 to induce a reading where V2 is part of a purpose (adjunct) clause. What these examples demonstrate is that Jarai SVCs are not straightforward instances of clausal complementation, because if that were the case, we would expect *kiǎng kɔ* to make no semantic contribution. Specifically, I am arguing that SVCs in Jarai do not involve

44. I say the “normal” reading because it may be possible to force an “in order to V2” reading when *kiǎng kɔ* is absent. Nevertheless, there is a definite contrast between the default interpretation of these sentences when *kiǎng kɔ* is and is not present.

complementation of a non-finite clause subcategorized for by V1, as in (77). However, I argue later that the structure of SVCs does involve a sort of complementation.

Based on the evidence presented above, I conclude that Jarai multi-verb constructions are not coordinate structures—constituent, verb phrase, or clausal coordination—nor do they involve clausal adjunction or subcategorized non-finite clausal complementation. In other words, these appear to be classic cases of what can be called, descriptively, serial verb constructions.

Before concluding this section, however, I wish to point out that there are two common characterizations of SVCs that I have not addressed and which give rise to judgments that are slightly more difficult to interpret. The relevant tests are related to separate negation of the two V's in a multi-verb construction and separate tense marking. The normal expectation is that the two verbs in an SVC cannot have distinct values for polarity or tense. I restrict myself to presenting the data on SHARED AGENT SVCS and SHARED THEME SVCS.

With respect to negation, it appears that speakers will sometimes (though not always) permit V2 to be negated separately from V1. In (79), a SHARED AGENT SVC, V1 is not negated, but V2 is. This sentence is marginally acceptable, but speakers prefer the conjunction *samõ* ‘but’ to be present following V1.

- (79) ??Ñu rôt **bu** pɔ-djai goyüt kâo ôh
 3SG strangle NEG CAUS-die friend 1SG NEG2
 ‘He strangled (but) didn’t kill my friend.’

For the SHARED THEME SVC in (80), the same fact holds: negation can precede V2 alone. It appears that this structure is better than the previous: speakers readily accept it without suggesting a preferred alternate.

- (80) Ñu ponah kobao glai **bu** djai ôh
 3SG shoot water.buffalo forest NEG die NEG2
 ‘He shot a wild water buffalo (but it) didn’t die.’

Apparently in both sentences, a biclausal analysis is possible. For (79) this analysis is degraded because the second clause lacks a subject. A biclausal analysis of (80) is better because the “shared” theme is analyzed as the subject of the second clause, and the first clause is interpreted as having an elided object (which is generally better than an elided subject).

The tense marking facts essentially mirror the negation facts. For SHARED AGENT SVCS, marking tense on the second element but not the first is unacceptable, as illustrated in (81). (Marking the same tense on both is degraded as well, but not quite as bad.) This is just as expected if the structure we are considering is an SVC: a single clause with only one T node.

- (81) Ñu kih (***amra**) pɔ-rɔgoh sang kâo.
 3SG sweep FUT CAUS-be.clean house 1SG
‘He sweeps (will) clean my house.’

Turning to (82), a SHARED THEME SVC, there are mixed judgments. Sometimes some speakers accept structures like this, other times not. When accepted, there is a pause after V1 and the “shared theme” is pronounced with the V2, apparently as the subject.

- (82) Ñu kih sang kâo (%**amra**) rɔgoh.
 3SG sweep house 1SG FUT be.clean
‘He sweeps my house (will be) clean.’

If, as I have suggested, SHARED THEME SVCS can easily be parsed as bi-clausal, then we have a ready explanation for the (partial) acceptability of (82).

I conclude, then, that the structures I have identified as SVCs in Jarai really are mono-clausal, but at least on some cases, a bi-clausal structure can be coerced, particularly for the SHARED THEME SVC. In the next section where I analyze SVCs, I set aside coercion and focus on the structure of SVCs under their most natural interpretation.

6.6.3.3 An analysis of Jarai SVCs

In this section I develop an analysis of the SHARED AGENT SVC and SHARED THEME SVC. I assume that MOTION SVCS have an analysis similar or identical to what I propose here, but I leave that as an open question.

Of the proposed structures surveyed from the literature in §6.6.2, there is one that I reject at the outset, the shared object approach of Baker (1989) (cf. 49). Baker predicts that such a structure can only yield V1–Theme–V2 word order; otherwise, the shared internal argument would not be in an appropriate position to be theta-marked by both verbs. However, the Jarai word order for the SHARED AGENT SVC is V1–V2–Theme, so much of the motivation for Baker (1989)’s analysis is lost.⁴⁵

Neither will I pursue an approach involving double-headed structures. Recall that the approach involving a double-headed phrase comes in two basic sub-types: either with direct argument sharing, as in Hiraiwa & Bodomo (2008) (cf. 51), or *pro*-mediated object sharing, as in Baker & Stewart (1999) (cf. 55). I reject both versions of this analysis, in part, because positing non-standard structures of that kind would require a strong base of empirical support, and I have no evidence that bears on the question.⁴⁶ Additionally, a double-headed structure fails to predict the nature of V1 and V2—and their relationship to each other—in all the constructions we have been looking at. In the four SVC types under discussion, V1 and V2 are never simply sequential or simultaneous events; instead, V2 is somehow the consequence of V1. To put it differently, V2 delimits V1, much as a resultative secondary predicate delimits the main verb (Larson 1991). If Jarai SVCs had a double-headed analysis, then we would predict, I think, that V1 and V2 would not have to have such a close logical relationship.⁴⁷

45. Even if Baker (1989) were reformulated to allow for the word order in Jarai, it is not clear how to maintain his argument under a theory that permits only binary branching.

46. Hiraiwa & Bodomo (2008) adduce facts related to predicate clefting, but Jarai cannot cleft a verb and its object. Baker & Stewart (1999) uses adverb placement facts, but I know of no adverbs in Jarai that provide the kind of evidence needed.

47. This may account for why it is so difficult to construct SVCs of the write–send type illustrated by (44c).

The two remaining approaches are ones in which V1 and V2 are merged into a fairly standard clausal structure. For Aboh (2009), the distinguishing feature of SVCs is that V1 is merged in the functional structure dominating the verb (as an aspect head). For Collins (1997), an SVC is essentially a resultative secondary predicate involving a shell-VP structure: V2 is simply merged where an adjective merges in English resultative constructions. (Collins suggests that the parametric difference between SVC languages and non-SVC languages is that the tense head in SVC languages licenses more than one lexical verb.)

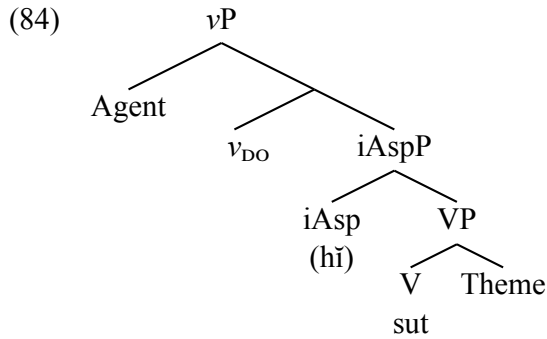
The approach I pursue here is a combination of Aboh's and Collins's: like Aboh, I propose that V1 is merged in a functional position: not aspect, but *v*. Like Collins, I propose that SVCs, at least in Jarai, are like resultative predicates. I begin by considering a SHARED AGENT SVC, illustrated in (83).

- (83) Kâo **sut** **pσ-djel** hĩ kobang. [= (44a)]
 1SG wipe CAUS-clean PRT table
'I cleaned the table by wiping it.'

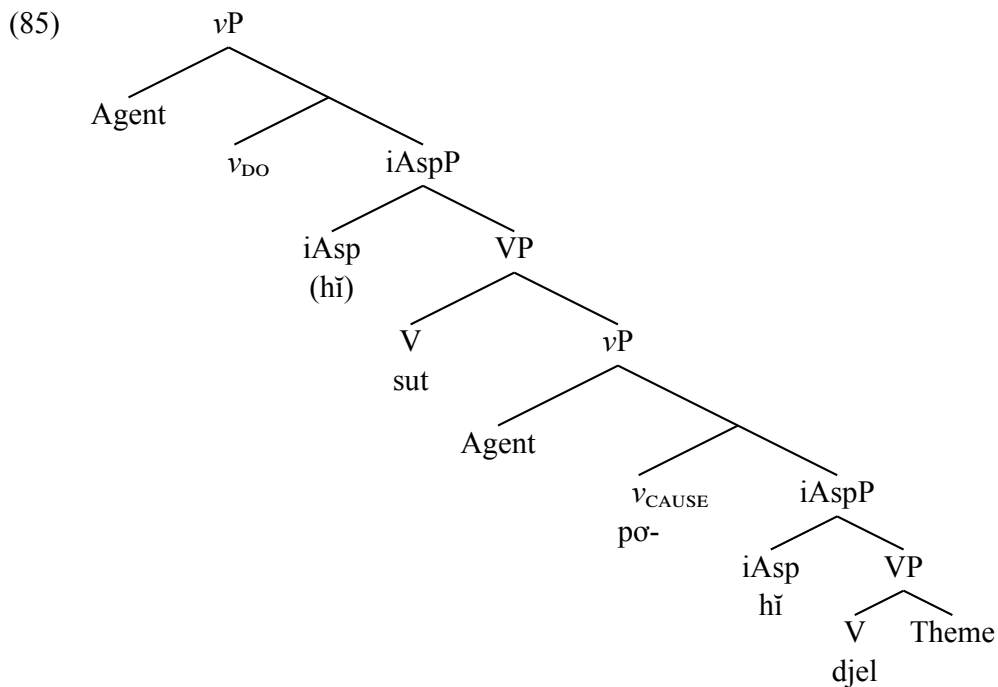
In this sentence, V1 ('wipe') is the action that directly brings about the result state of V2 ('CAUS-clean'). But remarkably, V2 has a causative prefix, meaning that it is not simply result-denoting, but caused-result-denoting: *pσ-djel* requires an agent. So an analysis must account for the fact that both verbs are agentive, but the activity of the first verb results in the state of the second verb. Additionally, note that the two verbs share a theme, 'table'.

My point of departure will be the fact that both verbs are agentive. Under the approach I have taken so far in this chapter, that is a straightforward indication that both verbs are associated with a *v* head. In §6.1 I argued that there are at least two varieties of agent-introducing *v* in Jarai: a *v*_{CAUSE} head and a *v*_{DO} head. The *v*_{CAUSE} head, often spelled out as *pσ-*, selects for verbal roots denoting a state. The *v*_{DO} head selects for verbal roots denoting a manner or means. So then, at least V2 must involve a *v*_{CAUSE} head, because *pσ-* is part of the verb. But what about the higher verb? When *sut* 'wipe' appears outside of an SVC, I would analyze it as

a root that merges in V, and the V is then embedded under a vP headed by v_{DO} . (Recall that an inner aspect phrase comes between v and V.) This is illustrated in (84).



Could this be the structure associated with *sut* ‘clean’ when it is V1 in an SVC, as sketched in (85)?



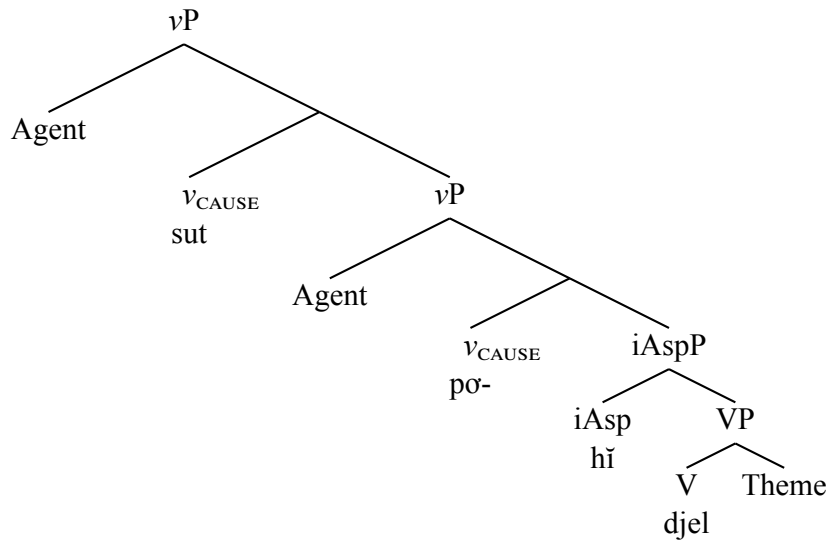
I suggest that the answer is no. One reason is that the theme of *sut* ‘wipe’ is deeply embedded in the lower vP , so it is not obvious how the theme theta role of *sut* can be discharged. Another reason is that the structure in (85) predicts that the iAsp head *hĩ* should be able to appear

immediately after *sut* (after the V raises and adjoins to iAsp, and V–iAsp raises to adjoin with *v*; see §6.1). However, speakers routinely reject SVCs with *hĩ* after the first verb.⁴⁸

Let us suppose instead that *sut* merges directly in a *v* position, selecting another *v*P as its complement. This would immediately explain why *hĩ* is degraded after V1, and it also takes care of the shared-theme problem: a root only assigns a theta role from a V position. In fact, we can go a step further and associate theta roles explicitly with the structural position of the theta-marked DP: agents are in Spec,*v*, whereas themes are either complements to V or in Spec,V (depending on whether the verb takes one or two internal arguments). This move is well justified in the literature (see Hale & Keyser 1993; Ramchand 2008, among many others). Thus, if a verbal root merges directly with a *v* rather than in a V position, it will not be associated with a theme theta role, because the “theme” position will not be part of the verb’s projection. The question now is which *v* head *sut* merges with: v_{DO} or v_{CAUSE} ? I suggest that it must be v_{CAUSE} . Recall from §6.1 that the root that is c-commanded by v_{DO} must be a means or manner-denoting root. However, in the SVCs under consideration, the root in the embedded domain is state-denoting, *djel* ‘clean’. Let us suppose, then, that *sut* merges in v_{CAUSE} , and its complement is another v_{CAUSE} P, as in (86).

48. Speakers are more likely to accept *hĩ* after both verbs (that is, two instances of *hĩ*, one after V1, and the other after V2), but even there the judgments are mixed, and speakers indicate that this is something limited to casual speech.

(86)



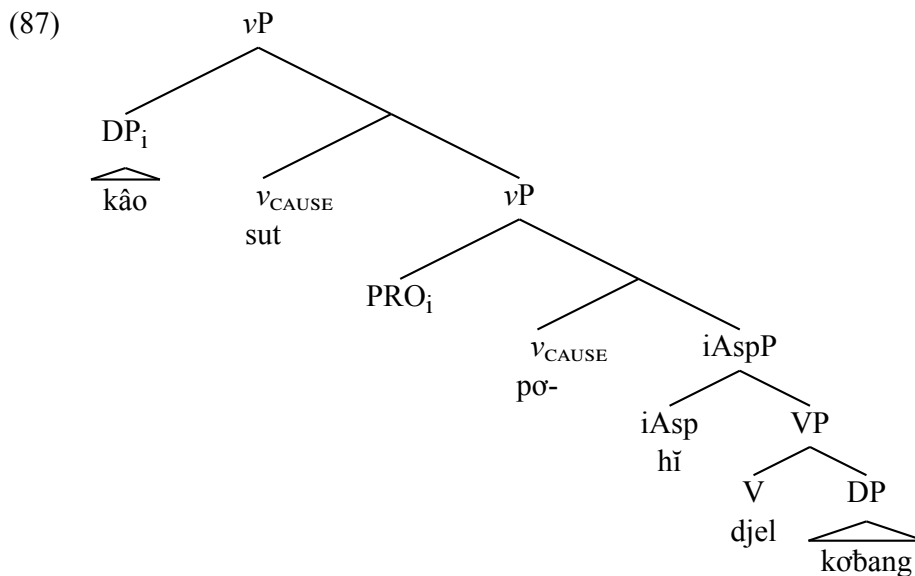
The interpretation of the structure is relatively straightforward: there is a wiping (*sut*) that causes a result state, a theme being clean (*djel*). However, the structure also requires that an agent be associated with the coming-to-be-clean in the lower *vP*. The agent of the lower v_{CAUSE} is necessarily interpreted as the agent of the higher v_{CAUSE} , so we need to figure out how to relate the two agent positions. Assuming that the clause's agent at some point occupies the specifier of the higher *vP*, we want to know what occupies the specifier of the lower *vP*. It might be a trace of A-movement (that is, the agent originates in the lower *vP* and raises to the specifier of the higher *vP* on its way to Spec,T). Or it may be a trace of A' movement, or *pro*, or PRO. I will assume a fairly restrictive view of theta roles, such that a DP can sit in only one theta position (by the Theta Criterion of Chomsky 1981). This rules out the A-trace possibility. Because the specifier of the higher *vP* is not an A' position, we can rule out an A'-trace. That leaves us with *pro* and PRO. Leaving aside the possibility of controlled *pro*,⁴⁹ we expect a pronominal to be free in a clausal domain, but the agent of the lower event is necessarily co-referent with the higher agent. We are left with PRO. Because Spec,*v* is not a case position, and we expect PRO

49. Collins (1997) argues that SVCs in Ewe involve a controlled little-*pro*. However, I know of no independent reasons to think that Jarai has a controlled *pro*, so I will not explore this possibility.

to be controlled within the clause, this is a straightforward way to account for the agent-sharing properties of this type of SVC.

Finally, what do we make of the fact that the Theme is not given a theta role by the higher verb? This is actually an advantage given the Theta Criterion. But how do we know that it was the table that got wiped rather than something else? I propose that it is a necessary inference from the structural configuration and the meaning of the parts. If the wiping directly causes Y to become clean (that is, they are sub-parts of the same event), then the wiping must be of Y. The crucial fact is that direct causation means we are talking about sub-parts of the same event. Consequently, the first sub-event, the wiping, must be a wiping of whatever gets clean in the second sub-event.

The initial merge order of elements, then, is given in (87). After merging, of course, V raises into iAsp, and V-iAsp then raises into (the lower) v. The $[uV^*:]$ feature on the higher v is valued by the root that merges into it directly.



Before turning to SHARED THEME SVCs, I want to explore two predictions made by this analysis, both of which are related to the fact that V1 does not theta-mark the theme. The first prediction is this: there should be cases in which the theme of V2 is not interpreted as the

theme of V1. Because of the fact that V1 and V2 are in a direct causal relation, it is difficult to construct appropriate situations, but the following two sentences bear this prediction out. In the first sentence (88a), the verbs denote cutting (V1) and causing to fall (V2). Crucially, the theme of V2, the basket (which is what is made to fall), is not what is cut. Instead, whatever holds the basket up (a string or rope) is cut, directly causing the falling of the basket. In the second sentence (88b), there is a shooting (V1) and a causing to be awake (V2), but the theme of the awakening is not the theme of shooting. In other words, a normal interpretation of this clause—given the right context—is that the mother is not shot, but she is awakened by the shooting.

- (88) a. Kào khăt pơ-lễ hĩ rêu.
 1SG cut CAUS-fall PRT basket.
'I cut the basket down.'
- b. Kào mã phao laih-anũn kào pơnah pơ-mơduh amĩ kào.
 1SG take gun and 1SG shoot CAUS-awake mother 1SG.
'I took a gun and I awakened my mother by shooting.'

These examples demonstrate that the theme of V2 need not be interpreted as the theme of V, even though in most cases the two verbs will share the theme conceptually. This is a welcome result for my analysis, in which V1 does not assign a theta role to the theme of V2.

The second prediction is that unergative verbs should be able to stand in V1 position. We expect this because, again, V1 is in a position where it is associated with only an agent role, not a theme role. The examples in (89) bear this prediction out. In (89a), V1 is unergative *robat* 'walk', and in (89b), V1 is unergative *groh* 'bark'. Clearly, the theme of V2 is not an object of V1.

- (89) a. Kào robat pơ-luih jiep kào.
 1SG walk CAUS-wear.out flip-flop 1SG
'I wore out my flip-flops by walking.'

- b. Asão groh p̄-moduh hĩ kào.
 dog bark CAUS-awake PRT 1SG
 ‘The dog awakened me by barking.’

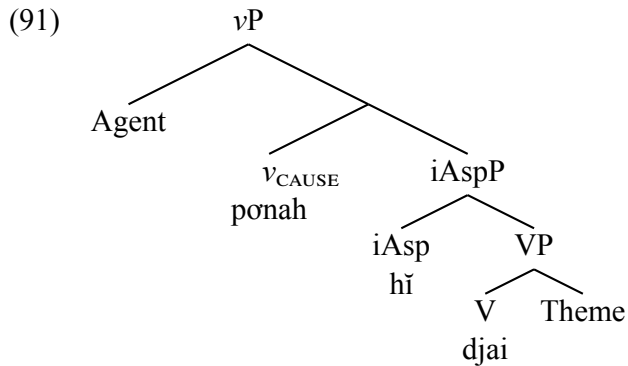
Thus we find striking confirmation for my claim that V1 does not theta-mark the “shared” theme. The apparent sharing is in fact an interpretive effect arising from the close connection of the two sub-events of the predicate; it is not an entailment arising from theta-marking in the syntax.

Turning now to the SHARED THEME SVC, recall that the shared theme is between the two verbs, as shown in (90).

- (90) Kào p̄nah **romung** djai hĩ. [=(60a)]
 1SG shoot tiger die PRT
 ‘I shot a tiger (and it) died.’

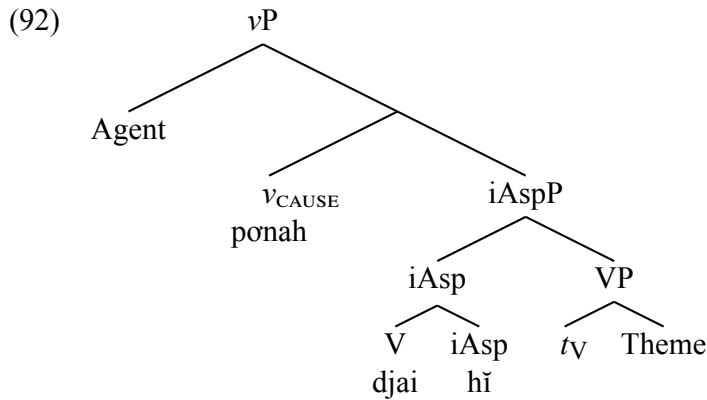
Concomitant with the theme’s position is the fact that the lower verb phrase is non-agentive: it lacks *p̄-*. Finally, speakers report a sense in which the relationship between the two sub-events in this SVC type is not so tight as in the SHARED AGENT SVC: whereas *p̄nah p̄-djai* ‘shoot CAUS-die’ requires that the effect (the death) be immediate, *p̄nah djai* ‘shoot die’, as in (90), allows for more flexibility: the dying may be delayed, even though it is still a direct result of the shooting.

To the extent possible, I wish to analyze the SHARED THEME SVC as having the same basic structure as the SHARED AGENT SVC above. One obvious difference, however, is that the lower verb is unaccusative, which I take to mean that it is not embedded under a separate v_{CAUSE} head. I thus take (91) to be the initial merge order of the elements making up a SHARED THEME SVC. Once again, V1 merges as a causative light verb, but this time the light verb’s complement is an iAsp rather than another vP.

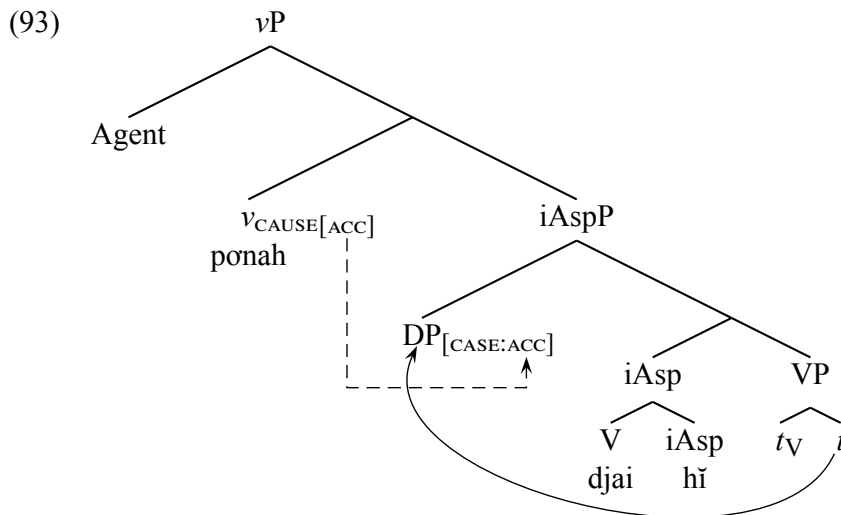


Comparing the structure in (91) to the SVC it is meant to parse (90), the obvious challenge is the location of the theme, which is predicted by the tree diagram to be rightmost in the clause. However, the theme is not permitted clause-finally in the *SHARED THEME SVC*. Before considering the word order problem, however, consider what this structure gets right. First, it has only one v position, as expected. Second, the relation between the agent and the theme's dying is mediated only by the shooting. Thus, the shooting event by the agent causes the dying event of the theme, but the agent does not necessarily directly cause the dying, because the verb denoting the dying is not in a position associated with an agent. Thus, there may be some elapsed time, separating the agency of the agent from the dying event.

However, we are faced with a very real word-order problem: how does the theme get between the two verbs? Recall from the discussion in §6.4 that V raises to adjoin to $iAsp$, and then $V-iAsp$ raises into v (when v is present). Because the only v in this structure has already had its [μV^*] feature checked (by the root *ponah*), $V-iAsp$ raises no further. Thus, we have the structure in (92) after V -to- $iAsp$ raising.

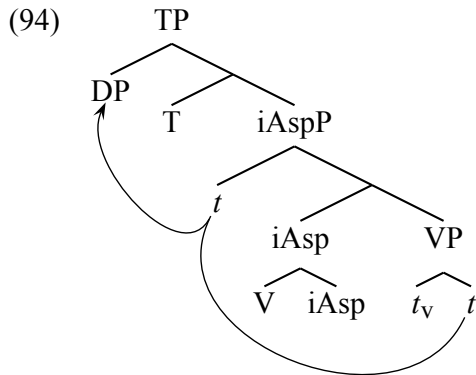


What I suggest is a revision of my earlier account of how the direct object is assigned case. Rather than being licensed by the V head, let us suppose that theme arguments are assigned case either by a v head or by T. When an agent-introducing v is present, a theme is licensed in the verb phrase. When no v is present (as with unaccusatives), the theme must raise to Spec,T to get case. This is a standard view of case, essentially implementing Burzio's Generalization (Burzio 1986) in configurational terms. I propose, then, that v can assign Accusative case to the specifier of its complement. The derivation for (90), then, is illustrated in (93).⁵⁰

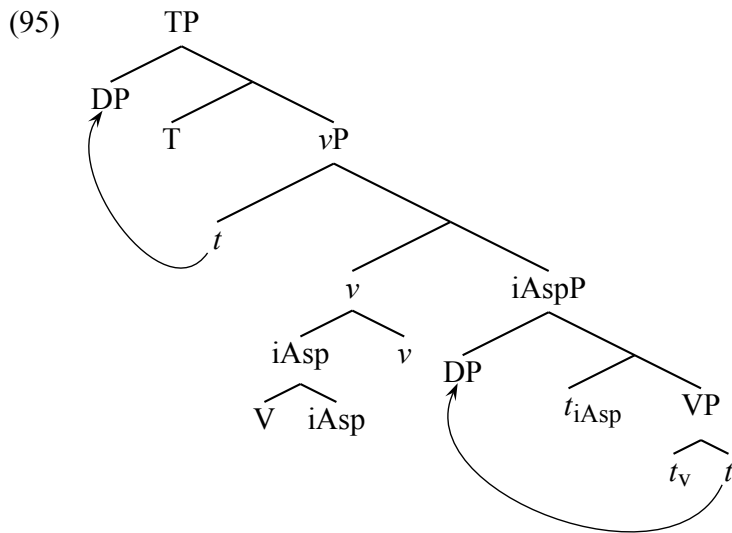


50. An unexplained aspect of this derivation is the mechanism requiring the movement of the theme into Spec,iAsp to get case. If the movement is required by a feature on v or iAsp, then we predict that some DP must always occupy Spec,iAsp; however, my analysis of unergatives predicts that Spec,iAsp is necessarily empty for agentive intransitive predicates (because the external argument merges above iAspP in Spec,v). I leave this as an open question.

A concern with this approach is that it may have undesired consequences for earlier analyses. Does raising the theme to Spec,iAsp make incorrect predictions about word order in other cases? In fact, it does not. To demonstrate this, I will sketch out the relevant cases. First, there is the case of simple unaccusatives. I assume that unaccusatives lack a ν position (or alternatively, that ν fails to assign accusative case), so the theme DP raises all the way to Spec,T, where it is assigned Nominative, and V raises to iAsp, as in (94) (feature assignment not shown; movement lines only for the DP). This gives rise to the correct word order of Theme–V–iAsp.

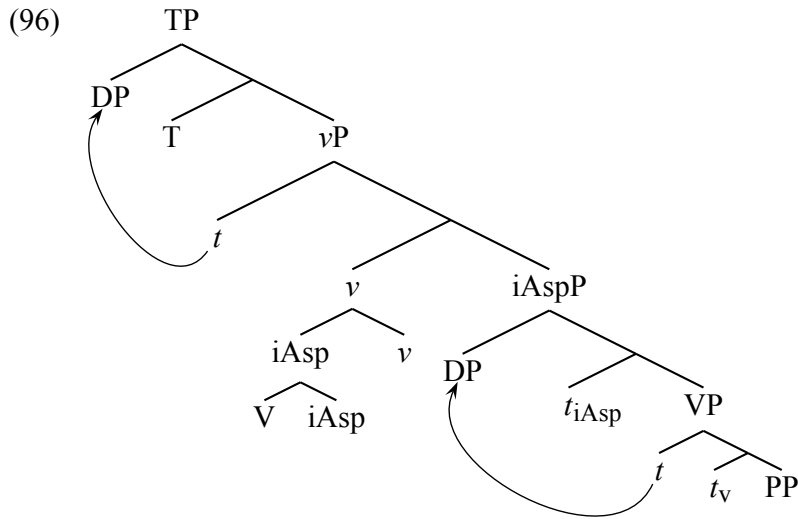


Now consider simple transitive clauses. Transitive clauses involve an agent, and thus a ν position. This ν projects a specifier (for an agent) and also assign Accusative case (to the specifier of its complement). Because Spec, ν is not a Case position, the agent must move to Spec,T to get Nominative case. The Theme moves to Spec,iAsp to get Accusative case. We again derive the correct order: Agent–V–iAsp–Theme.



Finally, there is the case of dative constructions (constructions with a direct and indirect object). In this case, the derivation is almost identical, except that the theme originates in Spec,V rather than as V's complement. Nevertheless, it must still raise to Spec,iAsp to get Accusative case. Because the indirect object is PP, it does not have to be assigned case, and it may remain *in situ* as complement to V or it can raise and adjoin, either to VP or to the clause. (See discussion at §6.5.1.) The derivation in which the indirect object (PP) remains *in situ* is sketched in (96).⁵¹ Once again, the word order is just what we expect it to be.

51. One concern is that, if the indirect object raises and adjoins to VP, would it block the movement of the DP direct object out of VP into iAsp? I think not, because the PP cannot be assigned Accusative case. Consequently, it is not in competition with the direct object.



I conclude that the modification in how theme arguments get case has no undesired consequences, and it allows a straightforward derivation of the SHARED THEME SVC that comports with standard assumptions about how direct objects are assigned theta roles and Case.

In conclusion, let us consider the consequences of my analysis of Jarai SVCs.⁵² First, my analysis gives rise straightforwardly to the primary semantic fact about these SVC types, which is that they involve a cause-result relation between V1 and V2. Second, the analysis accounts for agent-sharing and theme-sharing without stipulating any modifications to standard assumptions about theta-role assignment. Third, my analysis makes two predictions about when SVCs (at least of these sorts) should be possible in a language: (i) a language must allow a verbal root to merge directly into v_{CAUSE} for SVCs of either the SHARED AGENT OR SHARED THEME type; and (ii) a language must allow v_{CAUSE} to be embedded under another $v_{\text{CAUSE}}\text{P}$ in order to have SVCs of the SHARED AGENT type. Apparently, English lacks the first of these characteristics, making the second one moot. A typological prediction is that some languages

52. I do not offer an analysis of the two types of MOTION SVC. I anticipate that a similar analysis is possible for them, as well, but there are also complications, not the least of which is that the CAUSED MOTION SVC has variable word order with respect to the “shared” theme. I am not certain at present how this variation should be accounted for, in particular because the word-order alternations seem lexically-specific. I leave this for later research.

may have the SHARED THEME SVC and lack the SHARED AGENT SVC, but no languages should have the SHARED AGENT type but lack the SHARED THEME SVC.⁵³

We have seen, then, that Jarai has at least five classes of canonical serial verb constructions, and perhaps others in addition to these. At least some of these SVCs can be accounted for in terms of a complementation structure that is distinct from clausal complementation. This structure accounts for the typical relation between V1 and V2 such that the latter “measures out” or delimits the first.

53. To the best of my knowledge, this is the case.

CHAPTER 7

CONCLUSION

7.1 Overview

In this dissertation I have aimed to provide a rigorous syntactic account for the core elements of the Jarai noun phrase and for the three regions of the Jarai clause.

In Chapter 3 I investigated the Jarai DP. Much of the chapter was devoted to a principled account of the word-order facts: at least two elements that are expected to dominate the head N are linearized to the right of N: the possessor and the demonstrative. I showed that demonstrative-final word order can be accounted for by movement of Dem's complement into Spec,D, providing overt morphological identification to an otherwise silent definite D. The ordering relation between N and its possessor was also shown to result from a fairly standard movement operation, NP to (outer) Spec,*n*. In the discussion of the numeral–classifier construction I showed that, unlike the fairly standard analysis of classifiers, where the numeral and classifier are each associated with a separate head position in the DP syntax (or where the numeral is specifier of a Clf head position), the numeral and classifier in Jarai form a constituent to the exclusion of the head N. Additionally, Jarai has plural morphology, and I argued that the plural morpheme heads its own projection, with the numeral–classifier phrase as a specifier to that head. Thus, the constituency facts follow as expected. In addition to the low position in the DP associated with cardinality, numerals and other quantifiers can also merge above D, in the specifier position of a head that sometimes has a partitive semantics.

My investigation of the clause started high, in the operator domain, Chapter 4, where I provided evidence for the existence of at least three C-related functional head positions: Fin, which is sometimes spelled out as dative-marking *ko* before non-finite complement clauses (cf.

English complementizer *for*); Foc, which projects a specifier position for focus-moved constituents (the *wh*-phrase of constituent questions and a focused element in declarative clauses); and Force, which is the position of the question particles *lě* (for *wh*-questions) and *hă* (for polar questions). Additionally, I argued at length that Jarai has two strategies for forming *wh*-questions: merging *wh*-phrases in subcategorized argument positions (from which they can optionally move via focus-movement), and merging *wh*-phrases in the specifier of a Pred head, with the remainder of the clause—a headless relative—merging as complement of Pred. I spelled out the circumstances under which one or the other DP may raise into Spec,T and showed that the *wh*-phrase can also move directly from Spec,T to Spec,Foc. Thus, Jarai is a prime example of a language in which a *wh*-pseudocleft structure is not a substitute for *wh*-fronting but instead a parallel option.

In the inflectional domain, Chapter 5, I surveyed tense and aspect heads, arguing from the variable position of negation that T is always null, but an auxiliary (future or progressive) optionally raises past negation into T. I also investigated the apparent lack of past tense and perfective aspect auxiliaries in Jarai, considering two possible markers of past and perfective, *laih* and *hĩ*. The former, *laih*, turns out to be an adverbial with a meaning similar to past perfect, while the latter, *hĩ*, is an inner aspect head with a telic rather than perfective meaning. Finally, I put forward an argument that Jarai subjects sit in Spec,T, rather than appearing in a topic position in the operator domain.

Within the theta domain, Chapter 6, I argued for a decompositional approach to the verb phrase, with separate projections for an agent-introducing verbal head *v*, an *aktionsart*-related inner aspect head *iAsp*, and a position for the verbal root *V*. I demonstrated that the unaccusative–unergative split among intransitive verbs is salient in Jarai, and I connected this split to properties of the verbal roots: unaccusative roots are those that can combine with a v_{CAUSE} (which can be spelled out as *pσ-*), whereas unergative roots combine with a v_{DO} and are incompatible with v_{CAUSE} . Thus, even under the view that verbal roots do not introduce their

external argument, the unaccusative–unergative split is still a coherent way of categorizing verbal roots.

I also explored several multi-verb constructions in Jarai, showing that they have the characteristics commonly associated cross-linguistically with serial verb constructions. The best analysis of these constructions was shown to be one in which a verb phrase (headed by V2) merges as sister to V1, which is actually a verbal root that has merged directly into v_{CAUSE} . Thus, SVCs in Jarai implicate an embedding structure, where the complement of V1 delimits the event denoted by V1. An interesting property of the so-called *SHARED AGENT SVC* is that V1 and V2 share both their external and internal argument rather than simply their internal argument. I cashed out agent-sharing in terms of a controlled PRO, whereas theme-sharing is an interpretive effect read off from the fact that the event of V1 directly causes the event of V2: in other words, they are causally linked sub-events of a macro-event.

7.2 Prospects

There are many open questions left, even with respect to the phenomena that I examined most thoroughly. I mention here two areas in particular that are ripe for additional research.

With regard to serial verb constructions, the argument sharing properties of the verbs should be investigated in greater depth. In particular, the theme-sharing properties of SVCs should be subjected to additional scrutiny. There were also three SVC types that I did not explicitly analyze: the *BENEFACTIVE SVC*, the *MANNER-GOAL SVC*, and the *CAUSED MOTION SVC*. The third of these, at least, shows interesting word order alternations that, if accounted for, would provide a fuller account of SVCs in Jarai.

The structure of the noun phrase is another area that warrants additional work. My discussion completely omitted the discussion of relative clauses, which are post-nominal. Where do relative clauses merge in the DP? What are the properties of relative clauses? Additionally, the nature of quantification in Jarai is largely an open question. I suggested that high (propor-

tional) quantifiers merge as the specifier of a head that takes the DP as a complement. This head position is sometimes filled with a partitive, probably whenever the embedded DP denotes a referential object. What is the nature of this head in other cases? And for that matter, what is the nature of D itself when the DP is non-referential?

A larger issue is one implicitly raised by the dissertation's title: *The Structure of Jarai Clauses and Noun Phrases*. Is there a single "structure" that unifies the clause and noun phrase in Jarai? A major motivation for the DP hypothesis (in, e.g., Abney 1987) is the purported parallelism between the structure of the DP and the CP. I have analyzed the Jarai clause as being organized along the lines of an operator domain, an inflectional domain, and a theta domain. Does the articulated structure of the DP have a similar tripartite structure? Perhaps Part, D, and Dem are operator heads, Num is an inflectional head, and *n* and N are in the noun phrase's theta domain. Furthermore, in both the clause and the noun phrase we can account for the word order facts in terms of movement operations. Are these movement operations similarly motivated? In both places we see rightward-adjoining modifiers. Are the distribution of adjoined modifiers parallel? An area for further research is the depth of these apparent similarities: Do they reflect deep symmetries, or are they merely the kinds of similarities we expect because both domains are subject to the same syntactic constraints?

I end with the hope that other linguists, perhaps even a future generation of Jarai linguists, will explore these issues, correcting my work where it is empirically or theoretically deficient and building on it where it is sound.

APPENDIX A

PHONOLOGICAL INVENTORIES ACCORDING TO LAFONT 1968 AND DOURNES

1976

This appendix is presented so that readers can compare the inventory of phonemes given for consonants in Table 2.1 (pg. 6) and for vowels in Figure 2.1 (pg. 8) with the inventories given in the sources. My primary reason for doing this is that these sources are difficult to acquire. The format of the tables is set up for easy comparison among inventories.

A.1 Consonants

Table A.1 combines two tables that occur in Dournes (1976), one of which gives all consonants that can occur syllable-initially, and a second that gives all syllable-final consonants, the second being substantially smaller, with no additions other than [jh]. The labels, glyphs, and layout of Table A.1 are essentially that of Dournes, with the addition of the bracketed labels. The symbols used for the voiced palatals—a *d* marked as retroflex—is the closest approximate to Dournes’ way of marking this character. I do not believe that he intended these characters to be understood as retroflexed.

Table A.1. Consonant phonemes per Dournes (1976)

[MANNER]	[PLACE]				
	labiales	apicales	palatales	velaires	laryngales
aspirées	ph	th	ch	kh	
sourdes	p	t	c	k	ʔ
sonores	b	d	ɕ	g	
glottalisées	ʙ	ɖ	ɕ̣		
nasales	m	n	ɲ	ŋ	
fricatives		s, jh			h
semi-voyelles	w		j		
liquides			r	l	

Table A.2 shows the consonants given by Lafont (1968), using the glyphs used by him. Lafont presents these segments in a list rather than in a table, but the labels are his (except those in brackets), with the following changes: (i) Lafont groups the following five consonants

as *Liquides* in addition to his more precise manner label: H, R, S, l, ʎ. (ii) The following consonants are not classified for place by Lafont: R, S, l, ʎ, H, W, Y; for the first four, I have not made a precise commitment. (iii) The glottal stop is not listed by Lafont among the consonants but is discussed in the section on vowels.

Table A.2. Consonant phonemes per Lafont (1968)

[MANNER]	[PLACE]				
	Labiales	Dentales	Palatales	Gutturales	[Glottal]
sourde	P	T		K	ʔ
sourde mouillée			Ch		
sourde aspirées	Ph	Th		Kh	
sonore	B	D	J	G	
sonore préglottalisée	B	Ḑ	ǰ		
nasalisée	M	N	Nh	Ng	
nasalisée préglottalisée	M	N	Nh	Ng	
nasalisée aspirée	Mh				
sifflante			S		H
semi-voyelles	W		Y		
roulée			R		
latérale			l		
latérale préglottalisée			ʎ		

A.2 Vowels

Finally, in Table A.3, I give the vowel chart provided in Dournes (1976). The bracketed column labels are my own, provided for clarity. Note that the horizontal dimension distinguishes both backness and nasalization.

Table A.3. Vowel phonemes per Dournes (1976)

[HEIGHT]	[BACKNESS/NASALIZATION]			
	antérieures	nasalisées	centrales	postérieures
fermées	i	ĩ	u	u
ouvertes	e		ə	o
	ɛ	ã	a	ɔ

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BIOGRAPHICAL STATEMENT

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