

INVESTIGATING DIFFERENTIAL CASE MARKING IN SÜMI, A LANGUAGE OF
NAGALAND, USING LANGUAGE DOCUMENTATION AND EXPERIMENTAL
METHODS

by

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A DISSERTATION

Presented to the Department of Linguistics
and the Graduate School of the University of Oregon
in partial fulfillment of the requirements
for the degree of
Doctor of Philosophy

September 2019

DISSERTATION APPROVAL PAGE

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Title: Investigating Differential Case Marking in Sümi, a Language of Nagaland, Using Language Documentation and Experimental Methods

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Degree awarded September 2019

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DISSERTATION ABSTRACT

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Doctor of Philosophy

Department of Linguistics

September 2019

Title: Investigating Differential Case Marking in Sümi, a Language of Nagaland, Using Language Documentation and Experimental Methods

One goal in linguistics is to model how speakers use natural language to convey different kinds of information. In theories of grammar, two kinds of information: “who is doing what (and to whom)”, the technical term for which is case or case role; and pragmatic information about “what is important”, have been assumed to be expressed by different means within a language. However, linguists have recently discovered that in numerous languages spoken in Australia, New Guinea, and South Asia, there are noun suffixes or enclitics that appear to simultaneously provide both case and pragmatic information. The existence of such systems suggests that our current theories of grammar need to be modified, though it is unclear how as we still know little about how these grammatical systems work.

In this project, I looked at Sümi, a Tibeto-Burman language of North-east India, which has such a system of case marking. In this system, speakers do not consistently mark the subject of a transitive or intransitive sentence with an enclitic that conveys case

information, but their choice depends on additional semantic and pragmatic factors. This was the first study of a Tibeto-Burman language to use a combination of new quantitative corpus methods with traditional linguistic fieldwork methods, including the recording, transcription, and tagging of spoken language, to identify semantic and pragmatic factors that are relevant to speakers' choice of noun enclitic. In this study, some factors found to be relevant were: whether the sentence had a direct object or not; the animacy of the subject; and whether it was the first mention of a subject in connected speech or not. This was also the first study of a language with such a case system to include a perception study that investigated if intonation was used by native listeners to disambiguate whether a noun suffix was conveying either case or pragmatic information. This study showed that listeners were not using differences in intonation, but rather relied on the type of sentence the suffix occurred in to determine its meaning.

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ACKNOWLEDGMENTS

I remain indebted to many people who are responsible for my education on Nagaland and the Sümi language, especially Dr Salome Kinny and her wonderful family. I am so grateful that the Sümi community has their own linguist in Dr Kinny, who has been an instrumental member of this project. I am also thankful to my first Sümi teacher, Inotoli Zhimomi, who I met more than a decade ago back in 2007 at the University of Melbourne, and all my subsequent teachers, especially H. S. Rotokha and Abokali Sumi, without whom the Sümi cultural documentation project would not have been possible.

At the University of Oregon, my deepest thanks go to Scott DeLancey who found me wandering around the wilds of North-East India while I was searching for a graduate program. It wasn't our first encounter, but my life would not be what it is today were it not for that fateful meeting in Guwahati at the Tamulis' residence. My deepest thanks also go to Melissa Baese-Berk who allowed me to continue my interest in phonetics, while also expanding my training from speech production to speech perception. I am thankful every day for having her as a mentor and a friend.

Special thanks go to my committee members Spike Gildea and Kaori Idemaru for invaluable feedback on data analysis and experimental design. But there are so many professors at the University of Oregon to whom I am grateful for having received an education and guidance from: Doris Payne, Tom Payne, Eric Pederson, Tyler Kendall, Charlotte Vaughn and Volya Kapatsinski. Thank you for making UO Linguistics such a special place.

There are so many other people at the University of Oregon, past and present, who I need to acknowledge too. Special mention goes to Prakaiwan Vajrabhaya for

brightening my first 5 years at in Eugene. Special thanks to Shahar Shirtz and Matt Stave for all the conversations we've had about linguistic analysis and typology. Thank you also to my fellow Tibeto-Burmanists Linda Konnerth, Krishna Boro, Marie-Caroline Pons, Zoe Tribur, Xuan Guan; my fellow fieldworkers Manuel Otero, Sara Pachhiarotti, Becky Paterson, Richard Griscom and Zalmal Zahir; and my fellow lab mates: Misaki Kato, Dae-yong Lee, Ellen Gillooly-Kress and Zack Jagers. And to everyone else, including Jeff Kallay, Jessica Kosie, Becki Quick, Allison Taylor-Adams, Kaylynn Gunter, Ben Yancer, Philippe Bou Malham, Amy Smolek, Nate Severance, Brian Butler, Charlie Farrington, Jason McLarty, Shelby Arnson, Danielle Barth, Valeriia Tretiak and so many more, thank you for making my time in Eugene some of the most memorable and special years of my life.

Last but not least, I thank my family in Singapore for supporting me through all my academic pursuits. Without their love and support, none of this would be possible.

To my family, for helping me pursue this dream.

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CHAPTER I

INTRODUCTION

1.1 Overview

In many theories of grammar, the assignment of case to nouns or noun phrases (NPs) is assumed to be determined by the predicate. However, in a number of languages, speakers appear to have the choice to flag NPs with a case marker or not, or to choose from two or more different case markers without affecting the grammatical relation between the NP and the predicate. This phenomenon, which is often referred to as *differential case marking* (DCM), presents a problem to most current theories of case. Despite occurring in a range of languages from many different language families, little is still understood about how speakers of such languages choose to flag NPs.

Sümi, a Tibeto-Burman language of Nagaland, North-East India, has a system of DCM. In (1) – (3), we see transitive clauses from a picture description task that share the same predicate, i.e. ‘chasing a chicken’.

1. [*a-tsü=no*] *a-wu* *ha* *che-ni*.
 [NRL-dog=*no*] NRL-chicken chase HAB-PRES
 ‘A dog is chasing a chicken.’ (ABT3-TA3_transitivity01-A, 7)
2. [*a-tsü=ye*] *a-wu* *ha* *che-ni*.
 [NRL-dog=*ye*] NRL-chicken chase HAB-PRES
 ‘A dog is chasing a chicken.’ (elicited, unrecorded)
3. ?*[*a-tsü*] *a-wu* *ha* *che-ni*.
 [NRL-dog] NRL-chicken chase HAB-PRES
 ‘A dog is chasing a chicken.’ (elicited, unrecorded)

Although the most common strategy across different speakers was to mark the transitive subject with =*no* in (1), these speakers also considered the use of =*ye* in (2) to be acceptable but were unable to explicitly explain any difference in meaning between the two sentences. When asked about (3), most speakers considered it unacceptable without a case marker. However, one speaker could imagine a situation where (3) was

acceptable: if the event was happening at the moment of speech and the speaker was demanding that the listener do something about the situation.

Similarly, in the intransitive clauses in (4) – (6), speakers also appeared to have the choice to use any of the three case marking strategies, without changing the grammatical relation between the NP and the predicate ‘sleeping’.

4. *[timi=no]* *zü* *a-ni.*
 [person=no] sleep PROG-PRES
 ‘A person is sleeping.’ (ABT3-TA1_transitivity01-A, 29)

5. *[timi* *hipa-u=ye]* *zü* *a-ni.*
 [person PRX-DEF=*ye*] sleep PROG-PRES
 ‘This person is sleeping.’ (ABT3-TA2_transitivity01-A, 44)

6. *[timi]* *zü* *a-ni.*
 [person] sleep PROG-PRES
 ‘A person is sleeping.’ (ABT3-KA1_transitivity01-A, 33)

Unlike with transitive clauses, speakers generally considered a null marked NP, as in (4), to be acceptable, though when presented with such examples, some speakers stated it sounded “more correct” to mark the NP with =*ye*. Speakers in general had trouble explaining the difference between sentences where the NP was marked with =*no* vs. with =*ye*, though the sentence in (5) was considered a valid response to both the questions ‘What is happening?’ and ‘Who is sleeping?’, while (6) was not considered a valid response to ‘Who is sleeping?’ when the NP is under narrow focus.

In general, the factors that influence speakers’ choice of case marking strategy are still poorly understood, as is the use of =*no* to mark an agent, i.e. the doer of an action, and to mark narrow focus on certain NPs. This dissertation therefore provides both an in-depth description of DCM in Sümi, including an investigation of some important syntactic, semantic and pragmatic factors that influence case marking. These findings are then related to systems of DCM described in other related languages.

1.2 Scope and Contributions of this Dissertation

In this dissertation, I focus on case marking of subjects in transitive, intransitive and verbless clauses in Sümi. Although forms similar to these case markers also appear on adverbial adjuncts and nominalized clauses, I limit my study to these core arguments, with some discussion of case marking of transitive objects, though this is limited to some speakers. Specifically, I ask:

- What semantic, pragmatic and/or construction-specific factors condition DCM of A and S in Sümi?
- Looking at =*ye*, how is it used in narratives and conversation?
- Looking at =*no*, are there prosodic cues that distinguish its use as an agentive marker from a narrow focus marker?
- How similar or different is the system of DCM in Sümi compared to case marking patterns in other related languages?

1.2.1 Descriptive Contributions

This is the first in-depth study of the case marking system of Sümi, an under-described language of North-East India. An understanding of Sümi grammar requires an understanding of the case marking system since speakers must necessarily choose a case marking in every single clause with an overt A or S argument. Previous descriptions have usually devoted a line or paragraph, describing =*no* or =*no* and =*ye* as the “nominative” case marker, illustrating this use with elicited examples from sentence translation. In this work, I show that the label “nominative” obscures the complex patterns of usage found with these case markers.

This dissertation is the first usage-based quantitative study of case marking in a Tibeto-Burman language. When studying DCM, it is impossible to rely solely on grammaticality/acceptability judgements, since speakers often accept sets of sentences with different case markers but are unable to articulate the differences in usage / meaning between them. A usage-based approach has also revealed consistent patterns in case marking that speakers have previously judged to be unacceptable in a sentence translation context. This is also the first descriptive work on case marking in Sümi that considers

inter-speaker variation and which attempts to quantify this variation. It will be shown that speakers do differ in how they use the case markers, with some intra-speaker consistency.

The specific data analyzed in this dissertation were collected over the course of 2 three-month fieldtrips to Nagaland, North-East India in 2016 and 2018, funded by a Doctoral Dissertation Improvement Grant from the National Science Foundation DEL (Documenting Endangered Languages) #1723519. However, the analysis has been informed by previous analyses based on data collected from over 11 years of fieldwork, beginning with a linguistic field methods class at the University of Melbourne in 2007 and extending to a documentation project (2011-2012) of traditional Sümi agricultural songs and stories funded by the Endangered Languages Documentation Programme and the Firebird Foundation for Anthropological Research.

1.2.2 Methodological Contributions

The project incorporates a mix of traditional linguistic analysis of texts with quantitative and experimental approaches. It represents one of only two quantitative studies on DCM, the other being Meakins' (2009) study of Gurindji Kriol. It is also the first to use a classification tree and random forest analysis, which has been applied to other aspects of discourse analysis such as referent realization in narratives (Schnell & Barth 2018), but not in studies of DCM.

Although there are acoustic production studies of prosody and DCM (Schultze-Berndt 2017), this is the first study of DCM that incorporates an experimental perception study to investigate the homophony/polysemy between the so-called “agentive” marker and a “narrow focus” marker, looking specifically for prosodic differences that can be identified by listeners. Finally, the dissertation expands on Cysouw's (2014) method of using parallel text data to quantify typological distances between languages and applies it to case marking patterns across Tibeto-Burman languages.

1.2.3 Theoretical Contributions

Cross-linguistic comparisons of DCM (McGregor 2010, Chelliah & Hyslop 2011, Chappell & Verstraete 2019) show that the phenomenon lies at the intersection between grammar, discourse and/or information structure. A better understanding of the factors

that underlie DCM in Sümi adds to our understanding of DCM in general and how it fits in with theories of case and information structure.

The dissertation demonstrates some advantages in adopting a construction-based approach to notions of transitivity over a prototype approach, especially when dealing with sentences that do fall between the so-called transitive and intransitive prototypes. In addition, it points to the need for positing constructions in Sümi that include both case and information structure, rather than thinking of these as two interdependent or “interfacing” components of language.

1.3 Structure of Dissertation

In the rest of this chapter, I outline the main theoretical background underlying this dissertation. In Chapter 2, I provide some background on the Sümi language and the speakers of Sümi, previous work on case marking in Sümi, and a short description of grammatical features relevant to the dissertation. Chapters III and IV address the question of semantic and discourse factors condition the choice of case marking strategy on core arguments in Sümi. Specifically, in Chapter 3, I look at specific factors such as animacy and volitionality in determining speakers’ choice of case marker, while in Chapter 4, I look at constructions where =*ye* appears to be obligatory, and at the distribution of =*ye* in narratives. In Chapter 5, I focus on the link between the agentive marker =*no* and its use to mark narrow focus in particular constructions. Chapter 6 addresses the question of how similar the system of DCM in Sümi is to other Tibeto-Burman languages, using parallel translation data to quantify cross-linguistic differences in case marking patterns. Finally, Chapter 7 summarizes the findings of the project and their significance.

1.4 Example Format

All examples will be provided in the following format given in (7).

7. [timi hipa-u=ye] | a-gha=sübo |
 [person PRX-DEF=TOP] NRL-jungle=tree

khape ngo a-ni.

hold stay PROG-PRES

‘This man is hugging (lit. ‘holding’) the forest tree and staying. (ABT3-TZ2_transitivity01-A, 192-194)

The top tier uses the standard orthography with morpheme breaks. Prosodic boundaries are marked by |. I use brackets to indicate the syntactic constituent that is relevant to the topic of discussion. Tone is not always represented in the standard orthography, except in some words where <h> at the end of a word represents low tone on the last syllable and a double consonant represents high tone on the following syllable (see §2.2.5 for further details). The next tier gives the morpheme glosses. The bottom tier provides a free translation in English, followed by the identifier code for the example in the corpus. Except for examples that are marked “unrecorded”, all examples are available in the corpus found on the PARADISEC catalog under collections “ABT1”, “ABT2” and “ABT3”.

1.5 Theoretical Background: Definitions

The term *case marking* in this dissertation is used broadly to refer to any dependent-marking of core argument roles, similar to Witzlack-Makaraverich’s (2019) use of the term *argument marking*. Case marking can take the form of suffixes and enclitics, but also adpositions and what are sometimes called “particles” in particular grammatical traditions.

1.5.1 What is Differential Case Marking?

Differential case marking (DCM) refers to a system of case marking that does not merely encode grammatical/syntactic relations, but also semantic and discourse pragmatic information, which may include: animacy of the referent, volitionality of the agent, contrastive focus etc. DCM is implicitly contrasted with an “obligatory” case system, in which case marking is presumed to encode only grammatical relations, such as subject or object. DCM systems are considered “partial and probabilistic” (McGregor

2010), since speakers of such languages appear to have some freedom in whether or how they code a nominal argument, without changing the representational meaning of an utterance.

Although both *differential* or *optional* have sometimes been used to describe such systems, Chappell & Verstraete (2019) posit a distinction between *optional case marking*, where there is a contrast between an overt morpheme and zero marking, and *alternating case marking*, where there is a contrast between two or more overt morphemes. However, they acknowledge that although this distinction is important for transitive objects (P arguments), it is difficult to find a principled way of distinguishing between optional and alternating systems of case marking of transitive subjects (A arguments), as stated by Malchukov and de Swart (2009). Similarly, the Sümi pattern of case marking bears elements of both optional and alternating systems, hence the use of the term *differential case marking*.

1.5.2 Differences from “Split” Systems

DCM systems differ from previously described *split* systems, where the choice of marker is determined by some clear structural or semantic divide, such as *split-S* systems where intransitive subjects (S arguments) are coded like either A or P arguments depending on the semantics of the verb. Similarly, there are *split ergative* systems where case marking of transitive subjects (A arguments) appears motivated by differences in referent type or by difference in the tense/aspect/mood (TAM) of a clause.

Among split ergative languages, referent-based splits, in which case marking patterns differ from one set of referents compared another, have been frequently noted. Splits in case marking may occur between pronouns and lexical NPs, or between humans and non-humans, e.g. Malayalam (Asher & Kumaru 1997). TAM-based splits have also been noted, with ergative case marking typically appearing in the perfective aspect, e.g. standard Tibetan (DeLancey 1984).

However, the relation between such “split” systems and DCM is more complex, and languages may display traits of both. Chappell and Verstraete (2019) note that in Umpithamu (Pama-Nyungan), ergative case marking is obligatory for inanimates but optional for other nominals. Descriptions of split systems have also historically come

from elicited data, but a different pattern sometimes emerges when looking at data from natural discourse. For example, DeLancey (2011) notes that standard Tibetan displays aspectually-based split ergativity only in elicited data. In natural discourse, perfective clauses have a higher tendency to take ergative case marking, while in imperfective clauses, case marking is more variable. Furthermore, supposed ergative marking can also flag S arguments, often with a contrastive focus reading (Tournadre 1991).

In a previous description of DCM in Sümi (Teo 2012), it was thought that the singular pronouns, which are monosyllabic, had a different pattern from other pronouns and lexical nouns, possibly to maintain some disyllabic requirement. However, new data has shown that speakers are able to use monosyllabic pronouns without case marking. In general, I remain wary of treating any differences between pronouns and lexical NPs as simply a “structural” split, since the difference between lexical NPs and pronoun is confounded with their discourse status. Pronominal arguments typically have a different discourse status from full lexical NPs, i.e. most pronouns are usually co-referential with entities that have already been mentioned in a discourse or are assumed by the speaker to be retrievable by the listener, while full lexical NPs often introduce new referents to a discourse.

1.5.3 Differential Object Marking vs. Differential Subject Marking

In this dissertation, I refer to the single argument or subject of an intransitive clause as S, while A is the “argument of a transitive construction that correlates most closely with agent” and P as the argument in transitive clauses “that correlates most highly with patient”, following Comrie (1989: 70). Cross-linguistically, DCM can be found on S, A and P arguments, and studies often focus on DCM of P arguments or DCM of A and S.

Differential Object (P argument) Marking

Most research on DCM has looked at *differential object marking* (DCM of P arguments), after the phenomenon was brought to the attention of the wider linguistic community in an influential paper by Bossong (1983). This emphasis on differential object marking may also be due to its more widespread distribution in unrelated

languages without contact with each other, as well as its occurrence in some major languages, including Spanish (Company 2003) and Japanese (Kuramada & Jaeger 2015). Explanations for differential object marking have emphasized the role of topicality, animacy and definiteness (Aissen 2003; Dalrymple & Nikolaeva 2011). Although insights from DCM of P arguments have been extended to DCM of A arguments, with the latter assumed to be the mirror image of differential object marking, recent work has shown that the same factors do not apply to both types of DCM (Malchukov 2008; Fauconnier 2011).

Differential “Subject” (A and S) Marking

When DCM applies to A and/or S arguments, researchers may use the terms *differential subject marking* (e.g. de Hoop & de Swart 2009), *differential agent marking* (Fauconnier 2011), and *optional ergative marking* (e.g. McGregor 2010). Although the term *optional ergative* has often used to describe optional case marking of A arguments, in many languages described as having optionality ergativity, the ergative marker can also appear on S arguments, e.g. Warrwa (McGregor 2007); Gurindji Kriol (Meakins 2009). McGregor (2010) highlights two main geographic regions where DCM of A arguments (or rather, “optional ergativity”) is widespread: the Australia-Papua New Guinea region; and the Himalayas (see also Chelliah 2009; Chelliah & Hyslop 2011), including North-East India where Sümi is spoken. Differential subject marking has also been described for languages in other parts of the world, including the Americas (e.g. Aikhenvald 1994) and the Caucasus (e.g. Ganenkov et al. 2008).

In general, differential subject marking is more complicated than differential object marking, because the notion of a “subject” that unites S and A is not universal (Dryer 1997; *inter alia*). In fact, A arguments and S arguments may pattern quite differently in an individual language, which as we shall see, is the case for Sümi. For this reason, I will be talking about DCM of A and DCM of S, as opposed to using the term *differential subject marking*.

1.6 Factors Determining DCM of A and S

The factors that are said to be associated with DCM of A and S can be divided into two broad areas: transitivity & information structure. However, little is known about whether such factors are language-specific or more generalizable to all languages with DCM. In the typology of DCM, Malchukov (2008) notes that similar semantic and pragmatic factors, such as animacy, can impact case marking in radically different ways across languages. Chelliah and Hyslop (2011) also note cross-linguistic variation regarding the extent to which agentive marking can be used pragmatically. In this section, I explain some of the main factors said to affect DCM.

1.6.1 Disambiguating Function

Earlier studies hypothesized that the main purpose of differential case marking was to disambiguate the roles of each argument (Comrie 1978, 1989; Dixon 1979, 1994). In this view, an argument is marked when its role in a clause deviates from its more “natural” role, often according to its position in some animacy hierarchy (e.g. Silverstein 1976), although this also depends on the specific predicate, e.g. one of the arguments in a sentence like *The man bit the dog* is more likely to be marked than the arguments of a sentence like *The dog bit the man*.

Chappell and Verstrate (2019) state that the “the old idea that omissibility of A marking is mainly found in contexts with little chance of confusing A and O [...] is now largely abandoned.” Yet even recent studies, including Lu et al. (2019)’s study of “optional ergative marking” in Tujia (Tibeto-Burman) still state that the ergative has a disambiguating function, though this is not the only motivation for DCM. Similarly, Donlay (2017) argues that disambiguation is the primary motivation for marking agents in Khatso (Tibeto-Burman).

1.6.2 Transitivity and DCM

An alternative to the view that disambiguation is the primary function of DCM is the idea that the coding of A and S arguments depends on the degree of transitivity of a clause. A prototypical approach to transitivity has often been taken, with the assumption that transitivity consists of different components (e.g. Givón 2001, Naess 2007, *inter*

alia). For example, the semantic prototype of a transitive event, according to Givón (2001: 126), involves: (i) “a deliberate, active agent”; (ii) “a concrete, affected patient”; and (iii) “a bounded, terminated, fast-changing *event* in real time.” Prototypical transitive verbs typically denote physical creation, destruction or change to an object’s physical condition and/or location, e.g. *build, smash, break, kill, move*. One often cited list of components is that of Hopper & Thompson (1980), given here in Table 1.

Table 1: Components of transitivity (Hopper & Thompson 1980)

	HIGH	LOW
PARTICIPANTS	2 or more participants, A and O	1 participant
KINESIS	action	non-action
ASPECT	telic	atelic
PUNCTUALITY	punctual	non-punctual
VOLITIONALITY	volitional	non-volitional
AFFIRMATION	affirmative	negative
MODE	realis	irrealis
AGENCY	A high in potency	A low in potency
AFFECTEDNESS OF O	O totally affected	O not affected
INDIVIDUATION OF O	O highly individuated	O non-individuated

The application of this list of features to DCM is varied. For instance, in a corpus study of Gurindji Kriol (mixed language, N. Australia), Meakins (2009) finds some effect of continuative aspect and irrealis mood on the appearance of an ergative marker. McGregor (2006) also finds that the level of “agentivity” (or “potency” in Hopper & Thompson) of A and S arguments is a determining factor in ergative marking in Warrwa. Animacy, a feature proposed by Naess (2007), also seems to play a role in ergative marking in some languages like Umpithamu (Pama-Nyungan, Verstraete 2010).

Discourse and transitivity

Hopper and Thompson (1980) also argued for a discourse-functional approach to transitivity, with high transitivity correlating with foregrounded information and low transitivity with background information. The notion of foreground information is similar to the “main event line” (Payne 1992; Shirtz & Payne 2015), which includes clauses that

describe events which drive a story forward. Specifically, clauses on the main event line might receive a special marker. This is an important idea that I will consider when looking at DCM of A and S in narratives.

1.6.3 Information Structure and DCM

In addition to transitivity, studies of DCM have increasingly invoked information structure to explain some motivations for case marking. Using Lambrecht's definition, *information structure* refers to "that component of sentence grammar in which propositions as conceptual representations of states of affairs are paired with lexicogramatical structures in accordance with the mental states of interlocutors who use and interpret these structures as units of information in given discourse contexts." (1994: 5) Specifically, two concepts in information structure are relevant for DCM: topic and focus.

The term *topic*, when applied to a sentential context, relates to "that which the sentence is about" (Lambrecht 1994: 188); while the term *focus* will be used to refer to a functional category or set of categories, as opposed to a formal one, e.g. the marking of prosodic prominence using an accent. Following Lambrecht (1994), I use the term *focus* to refer to "[t]he semantic component of a pragmatically structured proposition whereby the assertion differs from the presupposition." (213). This presupposition may contain an element that competes with the assertion. Although it has been found that cross-linguistically, informational focus correlates with linguistic form, such as nuclear stress in a sentence (Vallduví & Engdahl 1996: 464), it is nevertheless useful to maintain a distinction in terminology referring to function and form.

More specifically, the term *narrow focus* is used when the semantic component by which the assertion and presupposition differ corresponds to a single constituent in a sentence or proposition. For the purposes of this dissertation, the constituent in question is always an NP, so one could equally use terms such as *argument focus*, as per Lambrecht (1994: 236) or *identificational focus*, as per Gussenhoven (2007: 98-99).

Cross-linguistically, a link has been asserted between DCM of P arguments and topicality and between DCM of A arguments and narrow focus. In Australian languages, Pensalfini (1999) demonstrates that the ergative in Jingulu (Mirndi, N. Australia) can also

mark discourse prominence. Meakins (2009) shows that there is a correlation between discourse prominence and the appearance of the ergative in Gurindji Kriol (mixed language, N. Australia). Similarly, Lidz (2011) finds that the agentive in Yongning Na (Tibeto-Burman) has been extended to also mark contrastive focus. In Warrwa (Nyulnyulan, Australia), McGregor (2006) argues that the “ordinary ergative” *-na* does not mark focus on highly agentive agents but does mark focus when used with referents that do not display high agentivity, while *-nma* is used to mark focus on agentive agents.

Information structure is strongly linked to notions of theory of mind: speakers must have some projection of their hearer’s mind when speaking, while hearers must also have some projection of their speaker’s mind (Leino 2013). However, since speakers and hearers do not have direct access to the minds of their interlocutor, and assumptions about knowledge states are constantly being updated, it is reasonable to assume that speakers may not use the same linguistic forms associated with information structure even across similar discourse contexts. By situating DCM within information structure, this captures the intuition that case marking in such systems is not deterministic, but rather has a probabilistic distribution, i.e. it is impossible to predict a single “correct” output that can be computed from the “right” set of variables.

Prosody & DCM

Despite the appeal to information structure and/or information packaging, few studies have examined in detail co-occurrences of DCM of A and S with prosodic patterns, which cross-linguistically are relevant to the realization of information-structural categories (Lambrecht 1994: 238-257). One exception is an experimental study by Yu (2011), who finds that in a variety of Samoan, absolutive case is marked by an obligatory H- boundary tone, which is optionally accompanied by an overt morpheme. Another notable exception is Ozerov (2014), who uses audio corpus data to look at how prosody (i.e. intonation and pausing) interacts with subject marking in Burmese to give rise to topic-like and focus-like interpretations. Nevertheless, no studies have looked specifically at any differences in prosodic patterns that accompany ergative markers when they are used to mark discourse prominence vs. when they are not.

Given the paucity of literature on DCM and prosody, it is also useful to consider studies of Japanese since more studies have looked at the interaction between prosody and case markers in Japanese (e.g. Finn 1984, Nakanishi 2001). In traditional grammars, markers like *wa* and *ga* are considered to be “particles” and neither particle is considered to be an “agentive” or “ergative” marker. Nevertheless, their syntactic position at the right edge of NPs and their functions in managing information structure parallels that of the Sümi differential case marking enclitics.

1.6.4 Intra-speaker and Inter-speaker Variation in DCM

Finally, very little work has considered the sociolinguistics of DCM, with the exception of Ochs’s (1988) study in which she found that the Samoan ergative was associated with a formal register and used less when adults spoke to children. On the other hand, Meakins (2009) finds no effect of formality on ergative marking in Gurindji Kriol. Intra-speaker variation in case marking has also associated with medium. For example, although Japanese *wa* and *ga* are common in formal speech and writing language, Ono et al. (2000), find few instances of *ga* in conversation.

CHAPTER II

SÜMI LANGUAGE BACKGROUND

2.1 Overview

As mentioned in Chapter I, Sümi is a language that displays differential case marking. In this chapter, I start by providing some background on the Sümi language and its speakers, starting in §2.2 with its classification and history. In §2.3, I summarize previous work on case marking in Sümi. I then describe clausal constructions in Sümi in §2.4, before describing the structure of noun phrases (NPs) in Sümi in §2.5; pronouns in §2.6; and case markers themselves in §2.7.

2.2 Sümi Language Background

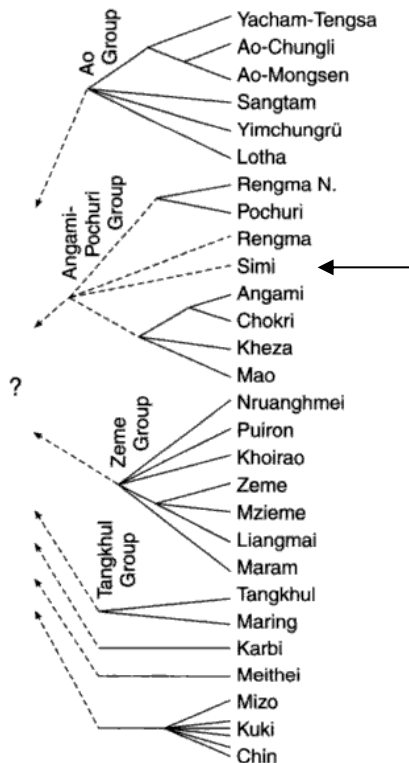
2.2.1 Language Classification

Near the start of the 20th century, Grierson (1903-1928/1967) classified Sümi (referred to by its exonym “Sema”) as a member of the “Western sub-group” of the Tibeto-Burman languages of Nagaland, along with Angami, Rengma and Kezhama (also known as Kezha). This was mainly a geographical grouping, with some reference made to shared vocabulary and syntactic features. Hutton (1921/1968: 4) also suggested that Sümi (referred to as Sema) was linguistically closest to Khezha (referred to as Kezāmi Angami), but noted superficial similarities between Sümi and Chokri (referred to as Chekrama). In the time since then, a number of different classifications have been proposed for these languages as more data have been collected. The most important of these classifications include that of Marrison (1967), Bradley (1997) and Burling (2003).

Marrison (1967), in his comprehensive survey of the languages of Northeast India, places Sümi (referred to as Sema) in his “Type C-1” group with Angami, Chokri, Khezama (or Khezha) and Mao. He notes that Sümi is much more similar to Angami in terms of phonology, vocabulary and syntax but closer to Mao and Maram in terms of morphology. A similar classification is proposed by Bradley (1997), who groups Sümi (referred to as Sema) with Angami, Chakhesang – consisting of Chokri and Khezama

(or Khezha) – and Mao, but he places them within the “Southern Naga” sub-group of a larger Kuki-Chin-Naga grouping. Finally, Burling (2003), in a more conservative classification, places Sümi (referred to as Simi) in the Angami-Pochuri group, which consists of Angami and Pochuri (or southern Sangtam or eastern Rengma) as two clear nuclei, along with Rengma N. (called Ntenyi in Marrison 1967), Rengma, Chokri, Khezha (or Khezha) and Mao (see Figure 1).

Figure 1: Genetic classification according to Burling(2003: 184)¹



While Burling’s more conservative classification is not simply based on geographical location, we still do not get a sense of the larger genetic groupings, mainly due to the sparse amount of linguistic work done in this region. In general, most proposed classifications thus far would show that Angami, Mao, Chokri and Khezha share a number of phonological and morphological innovations with Sümi, and are therefore among the languages most closely related to Sümi.

¹ *Kheza* here is an alternative spelling of *Khezha*.

Figure 2 shows the geographic distribution of languages in Northeast India according to Burling’s 2003 classification. One important observation to make here is that while Sümi is genetically classified as a member of the Angami-Pochuri group, it is geographically surrounded to the north, west and east by languages of the Ao group. Historical contact with these languages (to be discussed in the next section) may to some extent explain the difficulty of locating Sümi within the Angami-Pochuri group.

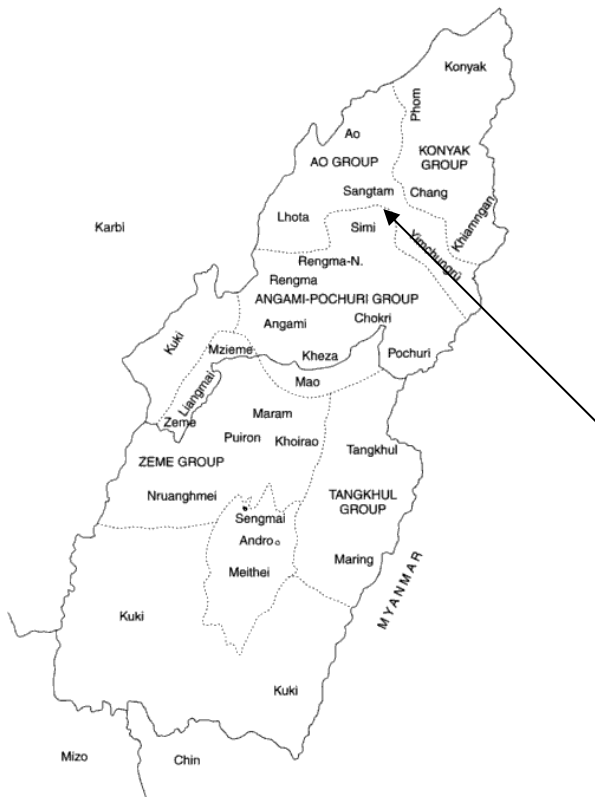


Figure 2: Map of language distribution in Nagaland and Manipur (Burling, 2003: 185)

2.2.2 Speakers

The majority of Sümi speakers can be found in the Zunheboto district (centred around the town of Zunheboto) of Nagaland, though there are Sümi villages in all neighbouring districts. In addition, there are a handful of Sümi villages in Tinsukia district, Assam, near the town of Margherita on the border with Nagaland (Morey, *pers. comm.*). A substantial number of speakers live in the commercial capital Dimapur and the political capital Kohima.

According to *Ethnologue* (Lewis *et al.*, 2013), the 2001 census estimates 104,000 speakers of Sümi. Bradley (1997) gives a similar figure of 100,000. This number is likely to have dropped over the past 10 years with the increasing prevalence of Nagamese and English across Nagaland. In the Zunheboto district, Sümi still remains the main language, with many speakers also fluent in Nagamese and English. In the main cities Kohima and Dimapur, Sümi speakers self-report to still use Sümi at home, but communicate mainly in Nagamese outside. Informally, literacy levels are reported to be quite low, although there is a daily newspaper *Sümi Zümülhü* and the weekly *Izatsa*. The King James Bible has also been translated into Sümi. However, language consultants have reported that readership among the young is generally quite poor.

2.2.3 History of Language Contact and Migration

The Sümi language community has also been, and continues to be, associated with extensive migration: in the recent past, Sümi speakers spread north and eastwards into areas previously occupied by speakers of languages of the Ao/Central Naga group. Hutton (1921/1968: 7) described how the Sümis pushed the Aos further north, and cut off Sangtam groups to the east. From his short account of recent social history, it is more than likely that Sümi society has incorporated many speakers of other languages, primarily of the Ao group, into the speech community. It is probable that such intense language contact has influenced the languages. There is some linguistic evidence that supports this account of a northward expansion. For example, many river names in the Zunheboto district end in *-ki* e.g. *Langki*, *Orki* and *Kiliki* rivers, which corresponds to *-ki* ‘water’ in Sangtam (see Marrison, 1967: 289). Teo (forthcoming) provides further comparative linguistic evidence of language contact with Ao/Central Naga languages.

2.2.4 Dialects

The first mention of different dialects within the Sümi speaking community can be found in Sir George Grierson’s *Linguistic Survey of India Vol. 3, Part 2* (1903-1928/1967). He mentioned two known dialects: “Simi” and “Zhimomi”, with the former described as being not too different from Angami. However, no estimates for the number of speakers of each dialect were given.

In his seminal work *The Sema Nagas*, Hutton (1921/1968) looked at what he called the “Zümomi” dialect² but noted the existence of another dialect, which he referred to as the “Lazemi” dialect, which was spoken only in a few villages and was not widely understood by other tribe members. Hutton made reference to a number of dialectal differences between villages, contrasting the dialects of Lazemi and other areas in the Dayang Valley with the dialects spoken in the neighbouring Tizu Valley, which included the Zümomi dialect. He noted that speakers of the “Yepothomi” dialect, spoken in the Upper Tizu, were more likely to drop word final vowels like /i/, although the vocabulary used was similar to that of the Zümomi. He also noted that speakers from the “Aichi-Sagami” village tended to invert the order of words and syllables (e.g. the name *Inakhu* becomes *Ikhuna*), although he admitted that this practice, the rules of which do not appear to be fixed, could be observed in most Sümi villages (1921/1968: 266-267).³

In contrast, Sreedhar (1976: 4) notes four main dialects: (1) “Western Sema” spoken around what he refers to as Lezemi (Lazami) village; (2) “Eastern Sema” spoken in the village of Chizemi in the Khezha area; (3) the “Chizolimi” dialect spoken around Chizolimi village; and (4) the “Central” dialect. However, he only provides details of the Central dialect, which he describes as the “standard” one.

In general, most speakers report only minor differences between the varieties of Sümi spoken across the Zunheboto district, as well as the Sümi spoken in the cities of Kohima and Dimapur. Preliminary findings show some minor phonological differences between the dialect of Zunheboto town and that of the Satakha area just to the south, although the situation is complicated by widespread migration, especially from rural to urban areas. Consequently, what are described as features of the “Satakha” dialect or “Zunheboto” dialect are not confined to these areas, and may not even occur consistently

² It is uncertain, though likely that the Zümomi dialect mentioned by Hutton (1968/1921) is the same as the Zhimomi dialect mentioned in Grierson (1967/1903-1928), given that /z/, usually transcribed as *zh*, is realised as [z] before central /ɨ/, which is usually transcribed as *ü*.

³ Regarding lexical dialectal variation, Hutton retells the following joke:

“Seven men of different villages happened to meet by the road one evening. They asked one another what they had got with them to eat with their rice. Each mentioned a different thing – *atusheh*, *gwomishi*, *mugishi*, *amusa*, *akelho*, etc., including, as some understood it, dried fish, meat, and various kinds of vegetables. They agreed to pool their good things and share alike and sat down prepared for a feast, each one thinking how he had scored by agreeing to share with his neighbours. When they opened their loads, they all produced chillies.” (1921/1968: 267)

within these areas. In general, both varieties would correspond to Sreedhar's "Central" dialect.

I have met speakers of the Central dialect who report having great difficulty understanding the Sümi spoken in the Pughoboto area, located in the south-west part of Zunheboto district. This area is where the village of Lazami (Hutton's "Lazemi" and Sreedhar's "Lezemi") is located. On the other hand, Sümi speakers from the Pughoboto area are generally able to understand the "standard" Central dialect, although it is possible that older speakers have some difficulty speaking it.⁴ Preliminary reports suggest the Pughoboto variety (or varieties) may be closer to Northern Angami dialects or Rengma, but further investigation is urgently needed to determine the validity of these claims.

In this project, I have worked with speakers living in Zunheboto district, as well as speakers who live in the commercial capital Dimapur. Most of these people speak the Central dialect, although it is possible that there has been some dialect leveling amongst speakers in Dimapur, since Sümi speakers from across the state have migrated there. People in Dimapur are also in greater contact with speakers of other Naga languages, and we find more words from English and Nagamese, the state lingua franca with its origins in Assamese and Bengali, in their speech.

2.2.5 Note on Orthography

The creation of the current practical orthography based on the Latin alphabet is attributed to the missionary Rev. W. F. Dowd and Inashe Sema, who published a primer entitled *Mlali* in 1909 (Sreedhar 1976, 1980). It has since been used in translations of the Sümi *Baibel*, as well as in publications such as the Sümi newspaper *Sümi Zümiülhü* and the newsletter *Izatsa*. This script is nearly phonemic and uses all the letters of the English alphabet. Some phonemes, such as the aspirated stops, are written using digraphs. The script has since been modified, with the addition of the letter 'ü' for the close central unrounded vowel.⁵

⁴ In an interview between a language consultant from Satakha and the wife of the chief of Lazami village, an interpreter was required to translate what the chief's wife was saying into "standard" Sümi.

⁵ Sreedhar (1980) attempted to introduce a purely orthographic system that used only one grapheme per phoneme, e.g. using 'c' to represent both [tʃ] and [ts], but this has not been met with great success.

A recently published dictionary by the Sümi literature board (Swu & Yepthomi 2004) uses a further modified version of the original missionary orthography. Low tones are marked by placing ‘h’ at the end of a syllable, while high tones are marked by doubling the preceding consonant, e.g. *apuh* ‘father’, *apu* ‘dipper, water scoop’, *appu* ‘son’. However, there is still no official standard as to how and when to indicate tone. Mr H. S. Rotokha, the current Secretary of the Sümi Literature Board, informed me that these modifications should only be used to distinguish words that are potentially confusing. However, more work needs to be done to determine what words are most likely to be misinterpreted without marking tone orthographically. Sümi speakers have also been slow to take up the new system, preferring to follow the orthography presented in the Sümi Bible, with only a small set of words written using the new system e.g. *apuh* ‘father’, *appu* ‘son’.

For this study, transcriptions in the current standard orthography will be used and presented in italics e.g. *atsü* ‘dog’, *msah* ‘be afraid’. A phonemic transcription with tone will only be given for instances where it is important to the discussion in Chapter 5. In phonemic transcriptions, indicated by slash brackets //, low tone is marked by a grave accent (à); mid tone by a macron (ā); and high tone by an acute accent (á). The lack of an accent mark indicates the segment is not specified for phonemic tone.

2.3 Previous Descriptions of Case Marking

The first published description of case marking in Sümi can be found in Volume III Part 2 of the *Linguistic Survey of India* (Grierson 1903-1928/1967). Although the language sample in the variety of Sümi presented in the survey, called the “Simi dialect”, does not contain any examples of case marking of core arguments, the editor notes that, “[t]he nominative may optionally take the suffix *-nā* before a transitive verb.” (223)

Hutton (1921/1968) in *The Sema Nagas* notes the existence of two “post-positions” *-no* and *-ye*:

The post-position -no, or sometimes -ye, is suffixed to the nominative of the verb when the noun represents an agent by which something is done, e.g. Sakhalu-no Abor’limi ipfü ghe = Sakhalu took the head of an Abor girl. -ye is used particularly when the noun is, so to speak, in a disjunctive position, e.g. “O Amiche, O Hocheliye” (= “O Amiche, O Hocheli”) (274-275)

It is unclear what Hutton meant by the term “disjunctive position”, though this could refer to its use as a sort of contrastive marker. However, this use of *-ye* in such a vocative construction is unattested in the modern variety.

In Sreedhar (1980)’s *Sema Grammar*, he describes *no* as a “nominative marker” and *ye* as a “focus marker” and states that “[t]he difference in the use of the two forms, viz. *ye* and *no* lies basically on whether or not the noun concerned is in the focus” (108). He illustrates this point by saying that in a possible response to the question ‘Who went to the house?’, *ye* would be used with the 1st person singular pronoun to mean ‘It is I and not someone else who went to the house.’

In Teo (2012, 2018), I analyze *=no* as an agentive/focus marker, while *=ye* functions more like experiencer/topic marker. I show that *=no*, not *=ye*, would be used in the response to the *wh*- question in Sreedhar’s analysis. However, this depends on the type of clause each case marker occurs in, as summarized in Table 2.

Table 2: Summary of functions of *=no* and *=ye* by clause type (from Teo 2018)

Clause type	<i>=no</i>	<i>=ye</i>	unmarked
Transitive clauses	‘agent’ – high degree of control, volition, purpose etc.	‘experiencer’ – low degree of control, volition, purpose etc.	[not possible]
Intransitive clauses	‘focus’ – contrastive / corrective	‘continuing reference’	first mention of referent
Equative clauses	‘focus’ – contrastive / corrective	‘(pragmatically unmarked) subject’	[not possible]

Although *=no* and *=ye* occur on both intransitive and transitive subjects, their different functions suggest that the term “nominative” case, a category that unites intransitive and transitive subjects, is not appropriate. I argue that semantic factors such as volitionality of the referent play a large role in case marking in transitive clauses, while discourse characteristics like topicality and contrastiveness play a larger role in differential argument marking in intransitive and equative clauses. However, the distinction is not as clear-cut as it appears in Table 1, since semantic factors such as volitionality may also play a role in case marking of intransitive subjects, while discourse factors certainly play a role in case marking of transitive subjects.

2.4 Clausal Constructions in Sümi

Since the scope of this work is case marking of core arguments in different clausal construction types, in this section, I begin by describing some of the main clausal constructions, or sentence frames, in Sümi. In §2.4.1 and §2.4.2, I describe verbal predication and argument structure, looking at intransitive and transitive constructions; and in §2.4.3, I describe one non-verbal predication constructions, the equative/proper inclusion construction. In §2.4.4, I describe some tense-aspect-modality (TAM) inflections, as well as some clause chaining strategies.

It should also be noted that forms similar to the core case markers appear on a variety of other construction types in Sümi. These include: nominalized subordinate clauses in chains (see §2.4.4); nominalized complement clauses (see §2.5.5); and adverbial adjuncts (see §2.7.10). These constructions will be described briefly, but an in-depth investigation of these forms lies outside the scope of the current work.

2.4.1 Verbal Predication

Intransitive Construction

The main intransitive construction has the structure presented in Figure 3, with the order SV, where S is the subject of the clause; and V is a TAM-inflected verb.

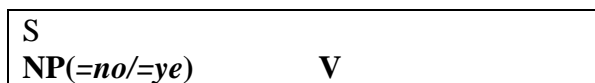


Figure 3: Intransitive sentence frame construction

S arguments can be marked by *=no*, *=ye* or null, as in (8) – (10).

8. *[timi=no]* *zü a-ni.*
[person=AGT]_s sleep PROG-PRES
'A person is sleeping.' (ABT3-TA1_transitivity01-A, 29)

9. *[ni=ye]* *zü-a.*
[1SG=TOP]_s sleep-IMPRF
'I was sleeping.' (ABT3-MZ1_JZ1_interview01_soft-A, 4)

10. *[timi lakhi] zü a-ni.*
 [person one]_S sleep PROG-PRES
 ‘A man is sleeping.’ (ABT3-KA1_transitivity01-A, 28)

Although null marked S arguments are common in narratives and conversation, in sentence translation elicitation, older language consultants preferred to mark S with =*ye*, as in (11), though null marked S was still deemed acceptable.

11. *[a-kulu=*ye*] ighi va.*
 [NRL-light=TOP]_S come.back PRF
 ‘The light has come back.’ [elicited]

Transitive Construction

The main transitive construction has the structure presented in Figure 4, with the order APV, where A is the subject of the clause; P is the object of the clause; and V is a TAM-inflected verb.

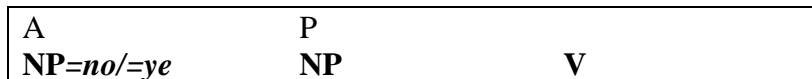


Figure 4: Transitive sentence frame construction

A arguments are typically marked by =*no* or =*ye*, while P arguments are unmarked, as in (12) – (13).

12. *[a-mu=*no*] [a-puh] sünhe a-ni.*
 [NRL-older.brother=AGT]_A [NRL-father]_P pull PROG-PRES
 ‘A brother is pulling a father.’ (ABT3-KA1_transitivity01-A, 23)

13. *[timi hipa-u=ye] / [a-gha=sübo] /*
 [person PRX-DEF=TOP]_A [NRL-jungle=tree]_P
khape ngo a-ni.
 hold stay PROG-PRES
 ‘This man is hugging (lit. ‘holding’) the forest tree and staying. (ABT3-TZ2_transitivity01-A, 192-194)

For older language consultants, a null marked A, as in (14), was not acceptable, unlike null marked S. In sentence elicitation, they would prefer to mark A with =no, as in (15), though =ye was also acceptable, as in (16).

14. **[a-kü-ka-u] a-zah tsü-ve.*
 [NRL-NZP=rule-DEF]_A NRL-command give-VM
 ‘The chief gave a command.’
15. *[a-kü-ka-u=no] a-zah tsü-ve.*
 [NRL-NZP-rule-DEF=AGT]_A NRL-command give-VM
 ‘The chief gave a command.’ [elicited]
16. *[a-kü-ka-u=ye] a-zah tsü-ve.*
 [NRL-NZP-rule-DEF=TOP?]_A NRL-command give-VM
 ‘The chief gave a command.’ [elicited]

However, as we shall see in the next chapter, although A is often marked by =no, there are some situations where it can be unmarked, mainly among younger speakers. These situations are much rarer than unmarked S, which may explain speakers’ grammaticality judgements. Furthermore, we shall see that some speakers also optionally mark P arguments with a locative marker.

The ditransitive construction has the structure presented in Figure 5, where A is the subject of the clause (the most agent-like argument); R is the argument corresponding to the recipient; T is the argument corresponding to the theme e.g. a given object; and V is a TAM-inflected verb. An example is given in (17).

A	R	T	
NP= <i>no/=ye</i>	NP	NP	V

Figure 5: Ditransitive double object sentence frame construction

17. *[pa=no]* *[pa=no* *küthü]*
 [3SG=AGT]_A [3SG=ASSOC.PL three]_R
- [a-xathi* *lakhi-khi]* *tsü-nani=ke.*
 [NRL-fruit one-DISTR]_T give-FUT=NZR
- ‘He will give the three of them one fruit each.’ (ABT3-AC1_IC1_pearstory01-A, 54)

However, it is rare for both R and T to be null marked. A more common strategy is for speakers to use the structure given in Figure 6, particularly when the R argument is pronominal.

A	T	R	
NP= <i>no/=ye</i>	NP <i>süwo/pesü</i>	NP	V

Figure 6: Ditransitive secundative sentence frame construction

Examples are given in (18) and (19): in the latter, no overt T argument is mentioned, but we can see a pronominal R argument proclitized to the verb. Case markers on T arguments will be discussed further in §2.7.5.

18. *[a-ppu* *tipa-u=no]* *[a-xathi |* *sü-wo]* *pa=tsü.*
 [NRL-boy MED-DEF=AGT]_A [NRL-fruit INST]_T 3SG=give
- ‘That boy gave him a fruit.’ (ABT3-TZ2_pearstory01-A, 30.2-31)
19. *[i=no]* *o=tsü-ve-nani*
 [1SG=AGT]_A 2SG=give-VM-FUT
- ‘I will give (it) to you.’ (ABT3-KZ1_TZ1_interview04, 38.2)

Finally, the verb *pi* ‘speak’ has its own construction, given in Figure 7, in which the addressee needs to be marked with *vilo/ulo*. Examples are given in (20) and (21).

speaker NP= <i>no/=ye</i>	addressee NP <i>vilu/ulo</i>	Clause/NP= <i>no</i>	<i>pi</i> -TAM
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Figure 7: ‘speak’ sentence frame construction

20. *[police=no]* *[küpiükami vilu]*
 [NA=AGT] [thief to]
- [“ngo a-ghi-lo”]* *pi a-ni*
 [stay EXIST-CONT-IMP] say PROG-PRES
 ‘A policeman is saying to the thief, “Stop there.”’ (ABT3-KA1_transitivity01, 87)
21. *[timi lakhi=no]* *[timi lakhi vilu]*
 [person one=AGT] [person one to]
- [a-tsa a-xou=no]* *pi a-ni*
 [NRL-word NRL-low.tone=INST] say PROG-PRES
 ‘One man is whispering (speaking in a low tone) to another man.’ (ABT3-TA4_transitivity02, lines 2-3)

2.4.2 Argument Structure in Sümi

In Sümi, many verbs can only be used in intransitive vs. transitive sentence frame constructions. In other words, these verbs have argument structure. Argument structure is defined as the number of syntactic arguments that a verb subcategorizes for. For example, an English transitive verb like *destroy* subcategorizes for two arguments, A and P, both of which must be overtly mentioned, as in (22). Even if the house or tornado were mentioned earlier in the discussion, (23) and (24) would still be considered ungrammatical.

22. *[A tornado]_A destroyed [the house]_P.*
 INDF torndao destroy-PST DEF house
23. **A tornado destroyed.*
24. **Destroyed the house.*

However, in Sümi, like in most Tibeto-Burman languages, a single TAM-inflected verb can constitute a grammatical sentence, as in (25) and (26). This means that argument structure in Sümi cannot be determined in the same way as argument structure in a language like English.

25. *zï a-ni.*
 sleep PROG-PRES
 ‘(He) is sleeping.’ (ABT3-MA1_transitivity02-A, 23)

26. *miki a-ni.*
 bite PROG-PRES
 ‘(Something) is biting (something).’ (ABT3-MA1_transitivity01-A, 3)

Cross-linguistically, referents may not be mentioned for a number of reasons: a speaker may assume the referent is recoverable by the listener from context or previous mention; or the speaker may consider the referent as being unimportant in the description of an event (Givón 2017). These factors apply to Sümi as well, though the line between recoverability from context and unimportance to context is not always clear.

Yet, even in the absence of overtly mentioned arguments, there are morphological criteria to help decide if a verb takes one or two core arguments. Although Sümi does not have productive transitivity / detransitivizing verbal morphology, one can find a pattern where a number of lexicalized verbs that have the prefix *i-* are intransitive, i.e. they only take one syntactic argument or a core argument with a locational object marked with a locative marker. These verbs often refer to body postures or states, e.g. *iqa* ‘sit’, *iho* ‘curl up’, *itsaqi* ‘bend’, *iqü* ‘be lit’, or are associated with motion, e.g. *ilo* ‘go in’, *ipe* ‘go out’, *iqi* ‘go down’, *iqho* ‘go up’, *itha* ‘move’.

Some *i-* prefixed verbs in Sümi have causative counterparts that take the prefixes *pV-* or *kV-*, where V is a high vowel that displays vowel harmony with the verb root. Some *pV-* and *kV-* prefixed verbs also have intransitive counterparts that are not prefixed by *i-*.

Table 3 gives examples of such intransitive and transitive verb pairs.⁶

⁶ Similar prefixes have been noted in other Tibeto-Burman languages of North-East India, which point to an older system of productive transitivity/detransitivizing morphology. For example, Karbi (Assam,

Table 3: Intransitive and transitive verb counterparts

Intransitive	Gloss	Transitive	Gloss
<i>ithu</i>	‘get up’	<i>puthu</i>	‘wake (s.o.) up’
<i>iku</i>	‘climb’	<i>puku</i>	‘bring up’
<i>inhe</i>	‘extinguish; go out’	<i>pinhe</i>	‘extinguish; put out’
<i>iqi</i>	‘go down’	<i>piqi</i>	‘lower (something) down’
<i>thi</i>	‘die’	<i>pithi</i>	‘cause to die’
<i>lü</i>	‘be hot’	<i>pülü</i>	‘boil’
<i>zü</i>	‘sleep’	<i>püzü</i>	‘make (s.o.) sleep’
<i>ida</i>	‘wake up’	<i>küda</i>	‘wake (s.o.) up’
<i>m̄la</i>	‘melt’	<i>kümla</i>	‘melt (sthng)’

Examples of intransitive *ithu* and *ida* are given in (27), while examples of their transitive counterparts *puthu* and *küda* are given in (28) and (29) respectively.

27. *zü* *u-ve=pu*,
sleep go-VM=CONN

ti *thanau* *ida* *ithu-ghi-ve=ke* *tikhau*
MED next.morning wake.up get.up-come-VM=NZR after
‘(you) slept and after getting up next day ...’ (ABT3-KZ1_TZ1_interview02-A, 19)

28. *pa=no* *kiithü=no* *ighi=pu=no*,
3SG=ASSOC.PL three=AGT come=CONN=CONN

pa=sünhe *pu-thu=pu=no*,
3SG=pull CAUS-get.up=CONN=CONN
‘The three of them came and pulled him up and ...’ (ABT3-TA4_pearstory01-A, 68)

India) has a number of verb roots prefixed with *ing-* that have an intransitive or medial function, e.g. *inglók* ‘break (intrans.)’ vs. *lók* ‘break (trans.)’, *ingjír* ‘to dissolve’, *ingchír* ‘be hungry’, though this prefix is not productive (Konnerth 2014: 187). Daai Chin (Myanmar) has a productive detransitivizing prefix *ng-* used in reciprocal, reflexive and passive constructions, in addition to a set of lexicalized intransitive verbs prefixed with *ng-* that refer to body posture or change in body posture (So-Hartmann 2009: 202-208). In his dictionary of Angami (Nagaland, India), Giridhar (1987) lists verbs as intransitive or transitive, with a number of intransitive verbs prefixed with *rú-*, e.g. *rúhoú* ‘bend (intrans.)’, *rúrié* ‘fall off (as fruits) (intrans.)’, *rúsū* ‘hide (intrans.)’, and a number of transitive verbs prefixed with *ke-*: e.g. *kéhoú* ‘bend (trans.)’, *kéviē* ‘to hide (trans.)’.

29. *pa-fo=no* *züle=no*
 3SG.POS-older.sister=AGT suddenly=FOC

panongu ***küda*** *pi* *a-ni.*
 3PL wake.up say PROG-PRES

‘(He) says his sister suddenly woke them up.’ (ABT3-AJ1_IA2_interview01-A, 52)

Examples of intransitive verbs of motion are given in (30) and (31). In these clauses, the locative objects *ayeghi=lo* ‘on the ground’ and *pa-shou* ‘upon him’ must be marked by the locative case marker =*lo* or a relator noun such as *shou*. This is in contrast to the transitive counterpart *piqi* in (32), where the object (P argument) is null marked.

30. *mchomi=no* / [*a-yeghi=lo*] / ***iqi*** *zü* *a-ni.*
 old.man=AGT [NRL-earth=LOC] go.down sleep PROG-PRES
 ‘An old man goes down on the ground and is sleeping.’ (ABT3-TA1_transitivity01-A, 38-40)

31. *a-wucho* [*pa-shou*] *iluqi-ghi* *a-ni.*
 NRL-banana [3SG-upon] fall-come PROG-PRES
 ‘A banana is falling on him. (ABT3-KZ1_TZ1_transitivity01-A, 182)

32. *a-yeghi* *kü-ghütha=no* *ighi* *na=no,*
 NRL-earth NZP-move=AGT come DP=CONN

[*a-kighi* *lakhi*] ***pi-qi-ve=pu,*** *tile=no*
 [NRL-rope one]_P CAUS-go.down-VM=CONN MED.LOC=CONN

‘When an earthquake comes, (someone) will lower one rope down, and from there...’ (ABT3-HC1_AZ2_interview01, 154)

In Sümi, most verbs of motion have the prefix *i-*, like other intransitive verbs. Unlike objects of transitive verbs, locative objects are always marked by a locative case marker or relator noun construction in that they have the *i-* prefix. For these reasons, I treat verbs of motion in Sümi as intransitive verbs which take a single core argument S.

Some intransitive and transitive verb pairs differ in terms of aspiration on the consonant onset of the root: unaspirated stops in the intransitive verb roots correspond to aspirated ones in the transitive roots.⁷ Table 4 gives a few examples of these verbs.

Table 4: Intransitive and transitive verb counterparts

Intransitive	Gloss	Transitive	Gloss
<i>iki-pe</i>	‘come out’	<i>iki-phe</i>	‘take out’
<i>ilu-qi</i>	‘fall’ (probably <i>ilu</i> ‘roll’ and <i>iqi</i> ‘go down’)	<i>phe-qhi</i>	‘drop’
		<i>fu-qhi</i>	‘cause to fall by blowing’
<i>ipo</i>	‘break, crack’	<i>tsa-pho</i>	‘chew to crack’
<i>iko</i>	‘crack’	<i>xi-kho</i>	‘break, crack’
		<i>ve-kho</i>	‘burst apart by fall’
		<i>sho-kho</i>	‘chop’

However, in the absence of distinctive verbal morphology, one has to use the distribution of verbs in different clausal constructions to determine their argument structure. For example, *tsü* ‘give’ in (33), appears in a ditransitive double object construction with three core arguments. This defines it as ditransitive, even when all three arguments are not explicitly mentioned.

33. *[a-tine=no]* *[a-shuki]* *[a-na]*
 [NRL-wolf=AGT]_A [NRL-monkey]_R [NRL-cooked.rice]_T

tsü *a-ni*.
 give PROG-PRES
 ‘The wolf is giving the monkey food.’ (ABT3-TA3_transitivity03, lines 21)

We can also identify transitive verbs in Sümi that can appear in transitive constructions and which subcategorize for two arguments, an A argument marked by *=no* or *=ye* and null marked P argument, as in (34) – (36). The occurrence of a verb in this construction defines it as transitive even when one or both arguments are not explicit.

⁷ The alternation in stop aspiration has been attributed to a causative prefix *s- in proto-Sino-Tibetan (Conrady 1896) and is found in other intransitive/transitive verb pairs across the Tibeto-Burman family, e.g. Angami *pruō* vi. ‘to break’ (as pot) vs. *biê-phruô* vt. ‘to break pot etc. by hand’ (cf. *biê* ‘touch’) (Giridhar 1987); Khezha *epo* ~ *hpo* /ə.po/ ‘burst, rupture, explode’ vs. *bo-pho* ‘to burst and gush off’; *hpra* /ə.pra/ ‘break (bottle)’ vs. *bo-phra* ‘cause to break (bottle) into pieces’ (cf. *bo* ‘touch, touch with hand’) (Kapfo 2007).

39. *[a-nga=ye]* *[a-pighi]* *msah* *a-ni.*
 [NRL-baby=EXP]_A [NRL-snake]_P be.afraid PROG-PRES
 ‘The child is afraid of the snake.’ (ABT3-KH1_transitivity01, 49)
40. *[a-nga=no]* *[a-pighi]* *msah* *a-ni.*
 [NRL-baby=AGT]_A [NRL-snake]_P be.afraid PROG-PRES
 ‘The child is afraid of the snake.’ (ABT3-KA1_transitivity01, 31)

The verb *gheha* ‘bark at’ is also syntactically transitive in (41), where it takes a P argument realized as a pronominal proclitic.

41. *a-khosa=no* *a-kha* *chu-ni=ke=lo,*
 NRL-cat=AGT NRL-fish eat-FUT=NZR=LOC
- [a-kha=no]* *[pa=gheha]* *a-ni.*
 [NRL-fish=AGT]_A [3SG=bark.at] PROG-PRES
 ‘The cat was going to eat fish, the fish is barking at it.’ (ABT3-TA3_transitivity01-A, 100)

One minor complication is that for most speakers, P arguments are null marked for case, as in (42). However, some speakers optionally mark P arguments with a locative marker, as in (43).

42. *[a-ngshuu=no]* *[a-pighi]* *miki a-ni.*
 [NRL-tiger=AGT]_A [NRL-snake]_P bite PROG-PRES
 ‘The tiger is biting the snake.’ (ABT3-NA1_transitivity02-A, 40)
43. *[gora=no]* *[a-nga=lo]* *miki a-ni.*
 [NA=AGT]_A [NRL-baby=LOC]_P bite PROG-PRES
 ‘The horse is biting the foal.’ (ABT3-KH1_transitivity01-A, 6-8)

Verbs in these sentences are still treated as transitive, i.e. taking two core arguments, since locative marking on the P argument is restricted to certain speakers.

A second complication is when dealing with verbs that always take cognate objects, i.e. objects that express a semantic concept already present in the verb. In Sümi, these verbs include *ale phe* ‘sing’ (lit. ‘song sing’), *ala che* ‘walk’ (lit. ‘road walk’), *azü*

gha ‘swim’ (lit. ‘water swim’). A clause with these verbs can be considered “more transitive” or “less transitive” depending on the degree of object incorporation with the verb. For this study, I have treated clauses with such verbs as intransitive, as in (44) and (45). This matches the observation that such verbs can be nominalized with a nominalizing prefix *kV-*, but the nominalized form always contains the incorporated cognate object (Teo 2013), e.g. *alekiphe* ‘act of singing’, *alakiche* ‘act of walking’. On the other hand, when the object is clearly individuated, as in (46), I treat the clause as transitive. Such clauses cannot be nominalized by a prefix, but require a nominalizing enclitic *=ke* which has scope over the whole clause.

44. *[timi hipa-u=ye] | a-la che-che=pu=no,*
 [person PRX-DEF=TOP]_S NRL-road walk-CONT=CONN=CONN
 ‘This man was walking and ...’ (ABT3-KH1_transitivity01-A, 90-91)

45. *[pa=ye] a-le phe a-ni.*
 [3SG=TOP]_S NRL-song sing PROG-PRES.
 ‘She sings.’ (elicited, unrecorded)

46. *[pa=no] [a-le küthü] phe va.*
 [3SG=AGT]_A [NRL-song three]_P sing PRF.
 ‘She sang three songs.’ (elicited, unrecorded)

The main complication when determining if a verb is being used with one or two core arguments occurs when no argument, or only one argument, is overtly expressed, but the verb could occur in both intransitive and transitive constructions, i.e. it is ambitransitive. Ambitransitive verbs do not display morphological differences in their stem when they occur with one vs. two arguments. Consequently, one has to decide if any arguments have been elided because of previous mention/clarity from context, i.e. zero anaphora, or if there is actually no referent involved, i.e. the actual absence of an argument. When looking at clauses in a text, certain assumptions often need to be made about the recoverability of such “silent” arguments. For instance, within a narrative, we can look at whether a referent was previously mentioned and also the distance (e.g. number of clauses) from the last previous mention of that referent.

Sometimes the semantic differences between the intransitive and transitive constructions can be clearly seen in the translations. One example is the verb *shi* ‘do; happen; become’. With two arguments, as in (47), it is usually translated as ‘do (something)’; while with one argument, as in (48), it is often translated as ‘happen’.

47. *i=pu* *tishi=pu=no*,
PRX=CONN like.that=CONN=CONN

[*ningu=ye*]_A [*khumu*]_P *shi-mo-ve*.
[1PL=TOP] [nothing] do-NEG-VM

‘And then after that, we did nothing.’ (ABT3-AJ1_IA2_interview01, 24)

48. *ni=ye*, [*tipa-u*]_S *shi*, [*accident*]_S *shi-a=ke=lo*,
1SG=TOP [MED-DEF] happen [NA] happen-IMPRF=NZR=LOC

ni=ye *hospital=lo* *ngo-a*.
1SG=TOP NA=LOC stay-IMPRF

i=wu *cousin lakhi* *sü=pu* *ngo-a=ke* *lei*.
1SG=POS NA one be.sick=CONN stay-IMPRF=NZR DP

‘When that happened, the accident happened, I was in the hospital. One of my cousins was sick and was staying (in the hospital).’ (ABT3-AC1_IC1_interview02, 125)

On the other hand, it is not always clear from the translations if certain verbs are in an intransitive or transitive construction. (49) is a clear example of a transitive clause, since the verb *msah* ‘be afraid of’ has an overt P argument, but in (50), it is difficult to tell if *msah* is in a transitive construction meaning ‘be afraid of the earthquake’ or in an intransitive construction meaning ‘feel fear (in general)’. Similarly, (51) is a clear example of a transitive clause with two overt arguments, but in (52), it is difficult to tell if *aki* is the S argument of an intransitive clause or the P argument of a transitive one.

49. [*a-mu=no*] [*a-mghu*] *msah* *a-ni*.
[NRL-older.brother=AGT]_A [NRL-axe]_P be.afraid PROG-PRES
‘The brother is afraid of the axe.’ (ABT3-KA1_transitivity01-A, 56)

50. *earthquake ighi=pu, [pa=ye] msah=pu,*
 NA come=CONN [3SG=TOP]_{A/S?} be.afraid=CONN
 ‘The earthquake came and he got scared and ...’ (ABT3-AA1_RZ1_interview02-A, 29.1)
51. *[a-mi=no] [a-ki] piti a-ni.*
 [NRL-fire=AGT]_A [NRL-house]_P burn PROG-PRES
 ‘A fire is burning the house.’ (ABT3-NA1_transitivity02-A, 28)
52. *[a-ki] piti a-ni.*
 [NRL-house]_{S/P?} burn PROG-PRES
 ‘A house is burning.’/ ‘(Fire) is burning the house.’ (ABT3-TA1_transitivity02-A, 24)

For this project, I have noted cases where it is not possible to distinguish between a verb in a transitive vs. intransitive sentence frame. In Chapter 3, I exclude from the statistical analysis any examples which I could not clearly distinguish as intransitive or transitive.

2.4.3 Non-verbal Predication

In this section, I consider only equative and proper inclusion predication. The main construction used for these two functions has the structure presented in Figure 8, where COP is an optional copula.

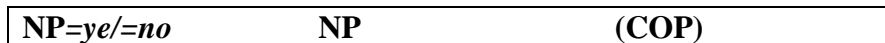


Figure 8: Equative and proper inclusion sentence frame construction

The construction is used for equative predication, i.e. predicating that two NPs refer to the same entity, as in (53); or for proper inclusion construction, i.e. ascribing an entity membership to a class of entities, as in (54). In elicited sentences, there is no copular verb in the affirmative present tense and the first NP / subject is almost always marked by *=ye*. The use of *=no*, as in (55), is associated with contrastive focus on the subject.

53. [timi hipa-u=ye] [i-puh].
 [person PRX-DEF=TOP] [1SG.POS-father]
 ‘This person is my father.’ (elicited, unrecorded)
54. [pa-za=ye] [Sümi].
 [3SG.POS-mother=TOP] [Sümi.person]
 ‘His mother is Sümi.’ (elicited, unrecorded)
55. [pa-za=no] [Sümi].
 [3SG.POS-mother=FOC] [Sümi.person]
 ‘His mother is Sümi.’ (i.e. not his father) (conversation, unrecorded)

In non-present tense and clause chains, a copula is often used. One copular verb that is often used is *shi*, as in (56) where it occurs with an auxiliary verb *aghi*. We saw in §2.4.2 that *shi* can also be used in transitive clauses with the meaning of ‘do’ and in intransitive clauses with the meaning of ‘happen’.

56. [tipa-u=ye] / [pa=no=ppu] shi a-ghi
 [MED-DEF=TOP] [3SG=ASSOC.PL=son] be EXIST-CONT
- mtha ishi=pu,*
 NEG.know like.this=CONN
 ‘This (boy) might be his son.’ (ABT3-MZ1_JZ1_pearstory01-A, 13.2-14)

A second copula is *ke*, as in (57) and (58), which has the same form as the clausal nominalizer.

57. [a-toti-u=ye]
 [NRL-woman-DEF=TOP]
- [i-küsa-u=wu a-chepu] ke.
 [1SG-friend-DEF=POS NRL-younger.sister.of.brother] COP
 ‘The girl is my friend's sister.’ (ABT3-AC1_IC1_interview02-A, 2)
58. [a-nipu=ye] [Sümi] ke=pu,
 [NRL-wife=TOP] [Sümi.people] COP=CONN
 ‘The wife is Sümi and ...’ (ABT3-AC1_IC1_interview02-A, 5)

A nominal predicate and a copula can constitute a grammatical clause in Sümi without an overt subject, as in (59) and (60).

59. *[a-ppu] shi, [iti-mi] shi a-ghi=mu,*
 [NRL-boy] be [young-person] be EXIST-CONT=even.though
 ‘Even though (they) are young ...’ (ABT3-MZ1_JZ1_pearstory01-A, 28)

60. *[i-chepu ke], ishi pi*
 [1SG-younger.sister.of.brother COP] like.this say

pi=ke pa=no.
 say=NZR 3SG=AGT
 ‘He said, “(It’s) my younger sister.”’ (ABT3-AC1_IC1_interview02-A, 83)

2.4.4 Verbal Inflection and Clause Connectors

A basic understanding of verb morphology is needed to determine clausal boundaries in the data. Verbs in Sümi do not agree with core arguments for person or number, although pronominal P arguments are indexed on the verb (see §2.6). Inflected verbs may include an auxiliary verb such as *ani* ‘present progressive’ in (61) or *cheni* ‘habitual’ or ‘present progressive’ in (62), which have their origins in the existential verb *a* ‘existential/have’ and the verb *che* ‘walk/come’ respectively. Other auxiliaries include *uve* ‘inceptive’, as in (63), and *tave* ‘terminative’, as in (64), which come from the verb *u* ‘go’ and *ta* ‘finish’ respectively.

61. *timi=no [zü a-ni].*
 person=AGT [sleep PROG-PRES]
 ‘A person is sleeping.’ (ABT3-TA1_transitivity01-A, 29)

62. *a-puh=ye [po che-ni].*
 NRL-father=TOP [run HAB-PRES]
 ‘The father is running.’ (ABT3-KA1_transitivity01-A, 102)

63. *i=ke=mu tische kutomo [itha u-ve].*
 PRX=NZR=though like.that a.lot [move INCEP-VM]
 ‘But then (it) started shaking more (ABT3-AA1_RZ1_interview01-A, 69)

64. *a-yeghi* [itha ta-ve].
 NRL-earth [move finish-VM]
 ‘The earthquake stopped.’ (ABT3-AC1_IC1_interview01-A, 23)

Auxiliary verbs with modal functions include *masa* ‘must’, as in (65) and (66); and a marker of uncertainty *mtha*, as in (67), which appears to be in the process of grammaticalizing from the lexical verb meaning ‘to not know’. There are also verbal suffixes that go on both verb roots and some auxiliaries, including future *-nani*, as in (66) and (68), desiderative *-nishi*, as in (67), abilitative *-lu* ‘can’, as in (69); and the negative abilitative *-mla* ‘cannot’, as in (70).

65. *Sümi kusho kile lu=ke=lo*,
 Sümi.people meet RECP take=NZR=LOC

Sümi-tsa=o=no [küpütsa kile masa].
 Sümi.people-language=LOC=INST [discuss RECP must]
 ‘When Sümis meet, (we) must speak to each other in Sümi.’ (ABT3-AA1_RZ1_interview03-A, 83)

66. *Nagamese-tsa=o=no* [pa=pütsa masa-nani] lei.
 NA-language=LOC=INST [3SG=converse must-FUT] DP
 ‘(I) will have to talk to him in Nagamese.’ (ABT3-AA1_RZ1_interview03-A, 18)

67. *pa* [chu-nishi-ve mtha].
 3SG [eat-DES-VM NEG.know]
 ‘He might have felt like eating.’ (ABT3-VS1_KY1_pearstory01-A, 11)

68. *i=pu ti küma=no, pa=no küthü=no* /
 PRX=CONN MED 3DU=AGT 3SG=ASSOC.PL three=AGT

[pa=kuphu-nani].
 [3SG=help-FUT]
 ‘And those two, they three will help him.’ (ABT3-KA2_LJ1_pearstory01-A, 25-26)

69. *chu-ju=ke=lo=ye* *a-lo-shi* *[chu-lu].*
 eat-try=look.at=NZR=LOC=TOP NRL-good-ADV [eat-ABIL]
 ‘(They) tasted (them) and (realised that the soya beans) could still be eaten.’ (IZ1-20080620-Origin_of_Axone-A, 21)

70. *ike ningu ti=ye khumu [shi-mla].*
 so 1PL MED=TOP nothing [do-NEG.ABIL]
 ‘So we cannot do anything.’ (ABT3-AJ1_IA2_interview01-A, 96)

Clauses in the perfective, indicated a completed action, are often marked by *va* as in (71), or *=ke*, as in (72), which likely has origins as a clausal nominalizer (see below).

71. *küthü=lo a-thi kini=ye [chhi va].*
 three=LOC NRL-seed two=TOP [be.full PRF]
 ‘Out of the three, two baskets are full.’ (ABT3-AA1_RZ1_pearstory01-A, 7)

72. *itaghi a-ppu küthü [ighi=ke].*
 again NRL-boy three [come=NZR]
 ‘Again, three boys came by.’ (ABT3-TA1_transitivity01-A, 26)

The enclitic *=ke* is also commonly used to nominalize clauses which can then function as subordinate clauses. These nominalized clauses typically take the locative marker *=lo*, as in (73).

73. *[Sümi kusho kile lu=ke=lo],*
 [Sümi.people meet RECP take=NZR=LOC]

Sümi-tsa=o=no küpütsa kile masa.
 Sümi.people-language=LOC=INST discuss RECP must
 ‘When Sümis meet, (we) must speak to each other in Sümi.’ (ABT3-AA1_RZ1_interview03-A, 83)

Nominalized subordinate clauses marked by *=ke=lo* can also be marked by *=ye* or *=no*, as in (74) and (75) respectively.

74. *[sünhe pe-che=ke=lo=ye], iluqi va.*
 [pull take-CONT=NZR=LOC=TOP] fall PRF
 ‘While (she) was pulling (the log), (she) fell down.’ (ABT3-TA2_transitivity01-A, 115-116)

75. *püka-ve=pu [pesü u che=ke=lo=no],*
 steal-VM=CONN [take go walk=NZR=LOC=FOC]

totimi lakhi sholu-nani=pu,
 woman one meet-FUT=CONN
 ‘(He) stole (the basket) and when he took (it) and left, he sees a girl and ...’
 (ABT3-AC1_IC1_pearstory01-A, 32)

A full analysis of the markers =*ye* and =*no* in these constructions lies outside the scope of this project. However, some of their functions seem to overlap with their use with A and S arguments, including marking some sort of focus on the nominalized clauses. On the other hand, they seem to have developed their own semantics: one language consultant stated that the use of =*ye* on nominalized clauses was associated with events that happen simultaneously, while =*no* on nominalized clauses was associated with events that happen sequentially.

Other common morphemes used to connect clauses include =*pu*, as in (75), and =*püzü*, as in (76), which can both take an additional connective morpheme =*no*. This connective =*no* may be related to the sequential use of =*no* in *kelono* though in this context is not in complementary distribution with =*ye*.

76. *a-nga po-sü ighi=püzü=no,*
 NRL-child run-AM come=CONN=CONN

a-puh ulo | münü-lu va.
 NRL-father to lean.on-ABIL PRF
 ‘A child comes running and leans on the father.’ (ABT3-MA1_transitivity03-A, 14-15)

Sümi also has an associated motion verb suffix -*sü*, as in (76) and (77), and a converb *pe*, as in (78), that marks simultaneous events.

77. *a-nga=no* *a-puh=lau* *po-sü* *ighi* *a-ni*.
 NRL-child=AGT NRL-father=LOC run-AM come PROG-PRES
 ‘The child comes running to father.’ (ABT3-TA2_transitivity01-A, 93)
78. *a-puh=ye* *utughu-pe* *ngo* *a-ni*.
 NRL-father=TOP stand-SIM stay PROG-PRES
 ‘A man is standing.’ (ABT3-KA1_transitivity01-A, 99)

Unlike in clauses connected by *=ke* and *=pu*, where the A or S arguments of each clause in sequence may be different and each clause receives its own TAM marking, verbs marked by *-sü* and *-pe* always share the same A or S argument as the following verb, which is the only one inflected for TAM. In this project, they are treated as single main clauses that exemplify clause union, i.e. where two clauses are reanalyzed as a single clause.

2.5 Noun Phrase Structure in Sümi

In this section, I describe the structure of the noun phrase (NP) in Sümi. An understanding of NP structure is necessary since the case markers of interest are realized as enclitics on NPs. In general, NPs in Sümi can have the following maximal structure given in Figure 9.

([NP= <i>wu</i>] _{POSSR})	(RC)	HEAD Noun	(ADJ)	(NUM)	(RC)	(DEM)	(PL)
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Figure 9: Noun phrase structure

Only two kinds of modifiers may precede the head noun: possessor NPs marked by *=wu* ([NP=*wu*]_{POSSR}), and relative clauses (RC). Following the head noun, adjectives (ADJ), cardinal numerals (NUM), relative clauses (RC), demonstrative determiners (DEM) and the plural enclitic *=qo* (PL) may occur. Case marking enclitics and postpositions come after the last element of the NP and have scope over the entire NP or conjoined NPs, which will be shown in §2.7. Pronouns, to be described in §2.6, may substitute an entire NP, but for some speakers, pronouns substitute all elements of the NP except the plural enclitic.

2.5.1 Nominal Morphology

With the exception of some borrowings, bare nouns in Sümi are minimally disyllabic in length. The typical structure of a noun is a nominal prefix followed by a monosyllabic; sesquisyllabic, comprising a reduced “minor” syllable followed by a full syllable; or, rarely, a disyllabic root. The citation or dictionary forms of the majority of nouns are typically prefixed with *a-*, which is glossed as a ‘non-relational’ (‘NRL’) prefix, indicating that is not possessed or not modified as part of a compound, e.g. *aza* ‘mother’, *aju* ‘appearance’, *amlo* ‘heart’, *akütsü* ‘head’, *aghoki* ‘river’.

When a noun is marked for possession, the non-relational prefix is replaced by a possessive pronominal prefix, such as *i-* ‘1SG’, e.g. *iza* ‘my mother’, *imlo* ‘my heart’; *o-* ‘2SG’, e.g. *aju* ‘your (sg) appearance’; or *pa-* ‘3SG’, e.g. *pamqa* ‘his/her back’. Table 5 gives the paradigm. Some speakers also use an innovative 3rd singular feminine pronoun *li*, though this is highly marked in usage. Teo (2014: 69) provides the full possessive paradigm, as well as an account of tonal morphophonemic alternations in the prefixes.

Table 5: Possessive prefix paradigm

	SG	PL
1	<i>i-</i>	<i>ni-</i>
2	<i>o-</i>	<i>no-</i>
3	<i>pa-</i>	<i>pano-</i>
3.FEM	<i>li-</i>	<i>lino-</i>

In compound nouns, the *a-* prefix of the head noun is also dropped. For example, *akümkhü* (*a-kü-mkhü* ‘NRL-NZP-prop.up’) is a verbal nominalization that can mean ‘prop’ or ‘support’ and has both the non-relational prefix *a-* and the nominalizing prefix *kü-*⁸. The *a-* prefix of *akümkhü* is dropped in the compound *akütsü kühkhü* ‘pillow’, literally ‘head prop’ (*a-kütsü=kü-mkhü* ‘NRL-head=NZP-prop.up’). In compound nouns with no clear semantic head, the *a-* is sometimes not dropped, e.g. *apuh-aza* ‘parents’ (lit. ‘father-mother’), *ashi-ajih* ‘health’ (lit. ‘flesh-blood’). This may also be to preserve a minimally quadrisyllabic structure.⁹

⁸ The form of the prefix is *kV-*, where V is a high vowel that displays harmony along the front-back dimension with the vowel of the verb root (see Teo 2014: 92-97).

⁹ For example, *kighinoli* ‘intestines’ is a compound of *akighi* ‘rope’ and *anoli* ‘intestines’.

2.5.2 Preposed Modifiers

In a second possessive construction, a NP marked by the possessive case marker =*wu* can modify the head noun. This clitic is produced as /u/ in the standard variety and sometimes written orthographically as <*w*>, although I have recorded some speakers of the Satakha area of Zunheboto district producing /vi/. In (79) and (80), we can see that the =*wu* marked NP is preposed and the *a*- prefix of the possessed NP is not dropped.

79. *a-mishi lakhi=no*
 NRL-cow one=AGT
- [[a-mishi lakhi]=wu a-shomi] miki a-ni.*
 [[NRL-cow one]=POS NRL-tail] bite PROG-PRES
 ‘A cow is biting a(nother) cow’s tail.’ (ABT3-ABT3-NA1_transitivity01-A, 69)
80. *[pa=wu a-xathi] küha a-ghi-ve=ke.*
 [3SG=POS NRL-fruit] NEG.EXIST EXIST-CONT-VM=NZR
 ‘His fruits were gone.’ (ABT3-MZ1_JZ1_pearstory01-A, 54.2)

The use of the =*wu* possessive construction, as opposed to a possessive prefix, is sometimes associated with some kind of focus on the possessor, i.e. it is this entity who is the possessor, not someone else. For example, in (81), the three boys assume that the other boy is carrying his own fruit, but the speaker uses =*wu* to mark that this an incorrect assumption, since the fruit belongs to someone else.

81. *a-ppu tipa-u=ye [pa=wu a-xathi]*
 NRL-boy MED-DEF=EXP [3SG=POS NRL-fruit]
- pe-u che-ni küghashi.*
 take-go CONT-PRES assume
 ‘(They) thought he was carrying his (own) fruits.’ (ABT3-HC1_AZ2_pearstory01-A, 67.2)

On the other hand, the use of =*wu* is obligatory, with no necessary focus interpretation, when one wishes to mark the possessor of a noun that does not have an *a*-prefix, such as borrowed nouns, as in (82) and (83); or verbs nominalized by the enclitic

=*ke*, as in (84). It is possible that the association of the =*wu* possessive construction with a focus on the possessor is slowly being lost as speakers use more borrowed nouns, which always require their possessors to take =*wu*.

82. *i=ke=lo* *pa-küsa-u,* [*pa=wu* *cousin*]=*no*
 PRX=NZR=LOC 3SG-friend-DEF [3SG=POS NA]=AGT
- pa=küda=pu=no,*
 3SG=wake.up=CONN=CONN
 ‘But then her friend, her cousin woke her up and ...’ (ABT3-MZ1_JZ1_interview06-A, 9-10)
83. *a-lipa=lo* *iku=pu,*
 NRL-bed=LOC climb=CONN
- [*i-puh* *ngo* *i-za=wu* *story*] *pi=pu,*
 [1SG.POS-father and 1SG.POS-mother=POS NA] say=CONN
- junu-qhi=keu=no* *lei.*
 laugh.at-keep=REL=FOC DP
 ‘(What we did was) climb on the bed and laugh at the story of my father and mother.’ (ABT3-KA2_LJ1_interview01-A, 139-140)
84. *a-chi,* *no=no* *kishi*
 NRL-brother/sister.in.law 2SG=AGT how
- [*o=wu* *pujushiju=ke*]=*no* *pi-ju.*
 [2SG=POS experience=NZR]=ABL say-try
 ‘Brother-in-law, speak about your experience.’ (ABT3-KH1_KH2_interview01-a, 54)

Note that the use of =*wu* is also obligatory with possessor NPs functioning as predicates, as opposed to modifiers, as in (85). This is one possible source construction for the use of =*wu* as a modifier.

85. *Christian=mi ke, Naga=ye [Christ=wu] lei.*
 NA=person COP NA=TOP [NA=POS] DP
 ‘(We) are Christians, Nagas belong to Christ.’ (ABT3-KZ1_TZ1-interview03-A, 47)

2.5.3 Postposed Modifiers

Head nouns can also be modified by elements that follow them: adjectives (nominalized stative verbs), cardinal numerals, demonstrative determiners, and the plural enclitic =*qo*.

Like other Tibeto-Burman languages, Sümi has a class of stative verbs, e.g. *lü* ‘be warm’. These verbs must be nominalized by the prefix *kV-* (V is a high vowel that displays vowel harmony with the root) in order to function as nominal modifiers, e.g. *azü külü* ‘warm water’ (*a-zü kü-lü* ‘NRL-water NZP-be.warm’). These are different from noun-noun compounds in §2.5.1, e.g. *akütsü kümkhü* ‘pillow’ (*a-kütsü=kü-mkhü* ‘NRL-head=NZP-prop.up’), where the semantic head is typically the second element. For instance, *akütsü kümkhü* specifies a kind of support, not a kind of head, but *azü külü* specifies a kind of water, not a kind of warmth. This suggests that nominalized stative verbs like *akülü* belong to a different word class than other nouns. More evidence to treat these as adjectives can be seen in (86), where *kushuo* (also *kushu* or *kusho*) comes after the noun-noun compound *ampe ado* ‘time’, over which it has scope.

86. [*a-mpe a-do ku-shuo*] *u-ve=ke tikhau, ...*
 [NRL-year NRL-time NZP-be.long] go-VM=NZR after
 ‘After a long time had passed, ...’ (IZ1-20070905-Kutili_Bird_Story_short-A, 20.1)

Cardinal numerals follow the head noun, as in (87).

87. [*a-ppu lakhi*], [*a-ppu kini*] *ngo a-ghi-nani ke*
 [NRL-boy one] [NRL-boy two] stay EXIST-CONT-FUT COP
 ‘One boy, two boys will be there.’ (ABT3-KA2_LJ1_pearstory01-A, 24)

Demonstrative determiners also follow the head noun, as in (88) – (90). There are three levels of distance associated with demonstrative determiners: *hipa* ‘proximal’, *tipa* ‘medial’ and *hupa* ‘distal’. For most speakers, the demonstrative determiners end with *-pa*, while the demonstrative pronouns, which will be described in §2.6, usually do not.

88. *[a-mu hipa]=ye ...*
 [NRL-older.brother PRX]=TOP
 ‘this brother ...’ (ABT3-TA3_transitivity02-A, 30)
89. *tsüngumi=qo=no [timi tipa] kügha=pu=no*
 Angami.people=PL=AGT [person MED] catch=CONN=CONN
 ‘The Angamis caught that man and ...’ (ABT3-AJ1_IA2_interview02-A, 15)
90. *[a-puh hupa] ghi*
 [NRL-father DIST] even
 ‘even that father’ (ABT3-AJ1_IA2_pearstory01-A, 96)

Numerals are placed closer to the head noun than demonstrative determiners, as in (91). Note that in this example, the distal locative is used as a modifier.

91. *ei [a-ghau lakhi hule]=no*
 EXCL [NRL-bird one DIST.LOC]=AGT
 ‘“Oh, that bird...” (IZ1-20070905-Kutili_Bird_Story_short-A, 26.2)

The plural enclitic *=qo* comes at the right edge, as in (92) and (93). In Sümi, overt plural marking is not necessary to trigger a plural interpretation, but the presence of the enclitic forces a plural reading. Overt plural marking also does not occur with cardinal numerals.

92. *[a-küsa-mi=qo] dolo shi a-ghi-a-mu,*
 [NRL-friend-person=PL] between be EXIST-CONT-IMPRF-even
 ‘Even among friends ...’ (ABT3-AA1_RZ1_interview03-A, 82)

93. *[a-tu hipa=qo] dolo,*
 [NRL-stone PRX=PL] between
- khi, khi a-ki-je-u kea?*
 which which NRL-NZP-be.big-SUPR Q
 ‘Of these stones, which, which one is biggest? (ABT3-TA2_transitivity01-A, 242.1)

There is also an associative plural construction, i.e. X and others associated with X, which uses an associative plural morpheme =*no* /=*nó*/, in addition to the plural =*qo*, as in (94) and (95).

94. *[pa-puh=no=qo]=ye*
 [3SG.POS-father=ASSOC.PL=PL]=TOP
 ‘His father and others ...’ (ABT3-MZ1_JZ1_interview01_soft-A, 20)

95. *[a-ppu tipa-u ngo a-xathi=no=qo]*
 [NRL-boy MED-DEF and NRL-fruit=ASSOC.PL=PL]
- uluqi-ve=ke=lo=ye,*
 fall-VM=NZR=LOC=TOP
 ‘When the boy and the fruits fell down ...’ (ABT3-TZ2_pearstory01-A, 18)

2.5.4 Definite Marker

I use the term *definite* to describe a nominal expression denoting a referent that is presumed by the speaker to be identifiable by the listener (as per Lambrecht 1994: 79). In Sümi, there is a singular definite suffix *-u*¹⁰ which goes on demonstrative determiners and usually occurs in the same slot as the plural *-qo*, as in (96) – (98).

96. *[a-chuqu-pu hipa-u] lei*
 [NRL-edible-NZR PRX-DEF] DP
 ‘this edible thing’ (ABT3-TA2_transitivity01-A, 128)

¹⁰ The superlative suffix *-u* may historically be related to this morpheme but has a more restricted function and distribution on nominalized stative verbs, e.g. *a-ki-je-u* ‘NRL-NZP-be.big-SUPR’.

97. [a tipa-u=no] mto toi a-ghi aye,
 [place MED-DEF=FOC] be.strong be.like EXIST-CONT if
- mto toi tile ngo-lu-ve.
 be.strong be.like MED.LOC stay-IMP-VM
 ‘If the place is strong, stay there (lit. ‘stay strong there).’ (ABT3-KH1_KH2_interview01-A, 90)

98. [a-ppu tipa-u]=no cycle=lono pesü u-ve.
 [NRL-boy MED-DEF]=AGT NA=ABL take go-VM
 ‘That boy took it away from the cycle.’ (ABT3-KA1_pearstory01-A, 27)

Certain speakers, e.g. TA2, always use *hipau/tipau/hupau* when the noun is singular. However, for other speakers, there is some variation in the use of *hipa/tipa/hupa* vs. the *-u* suffixed forms, as in (99). It is unclear though what factors condition the distribution of the singular definite suffix, although its use might also be associated with some kind of focus marking, as we shall see in Chapter 5.

99. [a-ppu tipa] [a-xathi tipa-u] ithulu=pu=no,
 [NRL-boy MED] [NRL-fruit MED-DEF] see=CONN=CONN
 ‘That boy saw that fruit and ...’ (ABT3-KA1_pearstory01-A, 25)

For some speakers, *-u* appears to have been bleached of its singular meaning and reanalyzed as part of the demonstrative determiner, as in (100) and (101) where it occurs with the plural =*qo*.

100. [a-xathi tipa-u=qo] |
 [NRL-fruit MED-DEF=PL]
- ikiqhe tsü i=pu=no
 pick.up give PRX=CONN=CONN
 ‘picked up and gave those fruits and then ...’ (ABT3-HC1_AZ2_pearstory01, 38-39)
101. ningü TV=lo [tipa-u=qo] ithulu video ithulu=pu qe
 1PL NA=LOC [MED-DEF=PL] see NA see=CONN PART
 ‘We saw them on TV, saw the video and ...’ (ABT3-KZ1_TZ1-interview03-A, 45)

There is a similar singular definite suffix *-u* that is affixed directly onto noun roots which refer to humans that have already been mentioned in discourse. In this construction, the root receives the non-relational prefix *a-*, while *-u* occupies the same slot as the *-mi* ‘person’ suffix: compare the use of *kipitimi* and *kipitiu* in (102). Table 6 gives a list of some of these indefinite and definite forms of nouns referring to humans.

102. *[kipiti-mi lakhi]=no momu*
 [man-person one]=AGT or
- [kipitimi=no=sholoku-mi ngo [a-kipiti-u]] panongu=no*
 [man=ASSOC.PL=family-person and [NRL-man-DEF]] 3PL=AGT
 ‘A man or a man’s family and the man, they...’ (ABT3-20080917-
 Courting_a_wife, 7-9)

Table 6: Indefinite and definite forms of nouns with human referents

Indefinite form	Gloss	Definite	Gloss
<i>kipiti-mi</i>	‘man’	<i>a-kipiti-u</i>	‘the man’
<i>toti-mi</i>	‘woman’	<i>a-toiti-u</i>	‘the woman’
<i>iti-mi</i>	‘child’	<i>a-iti-u</i>	‘the child’
<i>mcho-mi</i>	‘old man’	<i>a-mcho-u</i>	‘the old man’
<i>a-küsa-mi</i>	‘friend’	<i>a-küsa-u</i>	‘the friend’

The *a-* prefix in these definite forms can also be replaced by the other possessive prefixes, as in (103).

103. *i=ke=lo [pa-küsa-u], pa=wu cousin=no*
 PRX=NZR=LOC [3SG-friend-DEF] 3SG=POS NA=AGT
- pa=küda=pu=no,*
 3SG=wake.up=CONN=CONN
 ‘But then her friend, her cousin woke her up and...’ (ABT3-
 MZ1_JZ1_interview06-A, 9)

However, as with the definite suffix on demonstratives, there are some speakers for whom *-u* in the definite forms of human nouns does not convey singular meaning, as seen in (104).

104. *[a-kipiti-u tipa-u=qo]=no /*
 [NRL-man-DEF MED-DEF=PL]=AGT

pa=ku ide=pu=no
 3SG=call go.back=CONN=CONN

sü-wo pa=tsü=ke=lo,
 put-go.back 3SG=give=NZR=LOC

‘Those boys called him back, brought (it) and gave (it) to him, and then ...’
 (ABT3-HC1_AZ2_pearstory01-A, 46-47)

Moreover, some younger speakers also use the *-u* forms of nouns to refer to humans that have not been previously mentioned in discourse. In (105), a speaker even produced the *-u* form of the noun with the cardinal numeral *lakhi* ‘one’, which seems to be grammaticalizing into an indefinite article. This suggests that for some speakers, *-u* in such words does not convey a meaning of definiteness but is simply part of the root.

105. *a-kipti-u lakhi=no ighi-a=no,*
 NRL-man-DEF? one=AGT come-IMPRF=CONN
 ‘A man comes and ...’ (ABT3-TZ2_transitivity01-A, 83)

Finally, we shall see in Chapter 5 that *-u* is possible on common nouns referring to non-human entities in certain constructions. However, the function of *-u* in those constructions appears to be marking some kind of focus.

2.5.5 Relative Clauses

Relative clauses are subordinate clauses that modify a noun, typically embedded inside NPs (Givón 1990:645). Where they occur without a head noun, they are said to be headless. In this section I describe their structure, as this will be important when we look at examples of cleft constructions in Chapter 4.

In Sümi, the verbs of most relative clauses are marked with *=keu* and can come after or before the head noun. Most relative clauses come after the head noun, as in (106) and (107).

106. *a-nga=ye* *[kukela* *[iluqi-ve=keu]]* *chilu* *a-ni.*
 NRL-baby=EXP [something [fall-VM=REL]] hear PROG-PRES
 ‘The child hears something falling down.’ (ABT3-KA1_transitivity01-A, 69)

107. *[a-ppu* *tipa=wu* *a-kütsüqho* *[iluqi-ve=keu]] /*
 [NRL-boy MED=POS NRL-hat [fall-VM=REL]]

kümsüna-ve=pu *u-ve-nani=ke=no*
 forget-VM=CONN go-VM-FUT=NZR=FOC
 ‘(He) forgets that boy's hat, which fell down, and leaves.’ ABT3-AA1_RZ1_pearstory01-A, 42-43.1)

Post-head relative clauses also come after a cardinal numeral, as in (108) – (110), and before the demonstrative determiner, as in (110) – (112).

108. *i=ke=lo* *tile=no*
 PRX=NZR=LOC MED.LOC=CONN

[a-nga *lakhi / [a-mgha* *pe* *mgha-a=keu]]=no* *lei /*
 [NRL-child one [NRL-toy take play-IMPRF=REL]]=AGT DP

miji=pu=no
 whistle=CONN=CONN
 ‘And then one child who is playing with a toy whistles and’ (ABT3-KA2_LJ1_pearstory01-A, 33-35)

109. *pa* *[basket* *a-thi* *kiithü* *[qhi=keu]]=no,*
 3SG NA NRL-seed three [keep=REL]]=ABL

a-thi *kini* *likhi* *va=ke* *pi,*
 NRL-seed two only PRF=NZR say

tishi *kümsü-nani* *pi.*
 like.that think-FUT say
 ‘He wondered, out of the three baskets that were kept, only two were left.’ (ABT3-KA2_LJ1_pearstory01-A, 44.2)

110. *[a-tu-qu lakhi [a-laghi=lo a-ghi=keu]*
 [NRL-stone-big.one one [NRL-road=LOC EXIST-CONT=REL]
tipa-u]=lono
 MED-DEF]=ABL
 ‘from the stone that was on the road’ (ABT3-AA1_RZ1_pearstory01-A, 32.2)
111. *pa=ye [pa=wu a-kütsüqho [iluqi-ve=keu] tipa-u]*
 3SG=TOP [3SG=POS NRL-hat [fall-VM=REL] MED-DEF]
lu kümsüma-ve=ke=mu,
 take forget-VM=NZR=even.though
 ‘He forgot to take his hat which had fallen down, but ...’ (ABT3-
 HC1_AZ2_pearstory01-A, 44-45)
112. *[pa=wu a-xathi [iluqi-ve=ke-u] tipa-u]*
 [3SG=POS NRL-fruit [fall-VM=NZR-DEF] MED-DEF]
a-shoghi=lo kiche sü-ve tsü.
 NRL-basket=LOC pick.up put-VM give
 ‘(They) picked up his fruits that had fallen and put them back into the basket.’
 (ABT3-MA1_pearstory01-A, 33)

When the relative clause occurs before the head noun, as in (113) – (115), the *a-* prefix of the head noun, if present, is usually dropped, with the head noun cliticized to the relative clause, similar to the formation of a noun-noun compound, as described in §2.5.1. Relative clauses can also come before a pronoun that they modify, as in (116), though such examples are rare.

113. *[o-ve=keu=mpe]=lo March-qhi=lo March*
 [go.back-VM=REL= year]=LOC NA-month=LOC NA
 ‘Last year in the month of March’ (ABT3-KZ1_TZ1-interview03-A, 1)

114. *[ti toi=keu=ghuloki]=lo*
 [MED be.like=REL=time.period]=LOC
- lhothe=mi=no ku shi masa?*
 youth=person=AGT what do must
 ‘During those times, what must the youth do?’ (ABT3-KZ1_TZ1-interview03-A, 67)
115. *[earthquake ighi=keu time]=lo,*
 [NA come=REL NA]=LOC
- ni=ye zü-a=ke va.*
 1SG=TOP sleep-IMPRF=NZR PRF
 ‘So I was sleeping when the earthquake came.’ (ABT3-VS1_KY1_interview01-A, 1)
116. *[[ili che=keu] pa=no küthü]=no*
 [[roam walk=REL] 3SG=ASSOC.PL three]=AGT
- pa=kuphu-nani, i=pu tische=no,*
 3SG=help-FUT PRX=CONN like.that=CONN
 ‘They three, who were roaming around, will help him and after that ...’ (ABT3-AC1_IC1_pearstory01-A, 47-48)

Where the head noun refers to a human, =*ke=mi* with the agent nominalizer =*mi* ‘person’ is sometimes used, as in (117) – (119), although this does not apply to all head nouns referring to humans, as was shown in (114). Where the head noun is plural, =*ke=qo*, with the plural enclitic =*qo*, is also sometimes used, as in (120).

117. *pa=no [pa=kuphu=ke=mi=qo] a-xathi*
 3SG=AGT [3SG=help=NZR=person=PL] NRL-fruit
- tsü=pu=no,*
 give=CONN=CONN
 ‘He gave fruits to the ones who helped him.’ (ABT3-AJ1_IA2_pearstory01-A, 25.1)

118. *[tsüngumi=qo ngo-a=ke=mi=qo]*
 [Angami.people=PL stay-IMPRF=NZR=person=PL]
 ‘The Angamis who were staying’ (ABT3-AJ1_IA2_interview02-A, 41.1)
119. *a-kipti-u tipa=qo=ye [ithi=ke=mi] ke.*
 NRL-man-DEF MED=PL=TOP [know=NZR=person] COP
 ‘That man and others are known (people who are known).’ (ABT3-AC1_IC1_interview02-A, 4.1)
120. *especially [ningu=wu /*
 NA 1PL=POS
- a-ssü a-puza=no=qo, kümsü-ju=ke=lo,*
 NRL-grandfather NRL-grandmother=ASSOC.PL=PL think-try=NZR=LOC
- [ki-ghithi=mi kumo=ke=qo]] /*
 [NZIP-know=person NEG.COP=NZR=PL]]
- vetha-mla-nani=ke, English=lo=no pi apa.*
 understand-NEG.ABIL=FUT=NZR NA=LOC=INS say if
 ‘Especially our grandmothers and grandfathers, for instance, who are not educated people, will not understand if (they are) spoken to in English’ (ABT3-MZ1_JZ1_interview03_soft-A, 42-43)

Although these examples might suggest that =*keu* should be analyzed as a clausal nominalizer =*ke* with the singular definite =*u*, =*keu* can also be used with nouns that refer to plural entities, as in (116). Furthermore, =*keu* can occur with =*qo*, as in (121) and (122), suggesting that for most speakers, the =*u* in =*keu* does not have a singular meaning, even if this may have been its origin.

121. *ni-puh ni-ssü=lo=no*
 1PL.POS-father 1PL.POS-grandfather=LOC=FOC
- [xü ighi=keu=qo]=ye*
 [live come=REL=PL]=TOP
 ‘In the time of our ancestors,’ (IZ1-20080917-Courting_a_wife-A, 43)

122. *[phi-mo* *he-mo=keu=qo]=lo*
 [read-NEG write-NEG=REL=PL]=LOC

ningu awareness hipa=qo spread shi masa-ni lei.
 1PL NA PRX=PL NA do must-FUT DP

‘To the illiterate (lit. ‘(those) who cannot read and write’), we should spread this awareness.’ (ABT3-AJ1_IA2_interview01-A, 82)

It is important to note that headless relative clauses are possible in Sümi, as in (122), which is understood as ‘(people) who cannot read and write’, and in (123), where the referent of the relative clause is the same as that of the first full NP *appu hupau* but the head noun is not repeated in the relative clause.

123. *i=pu=no* [*a-ppu hupa-u*] *ghi,*
 PRX=CONN=CONN [NRL-boy DIST-DEF] even

[*cycle=lono a-xathi pe-che=keu*] *ghi,*
 [NA=ABL NRL-fruit take.with.hand-walk=REL] even

ide *o-ve.*
 go.back go.back-VM

‘Even this boy, (the one) carrying fruits on his bicycle, went back.’ (ABT3-HC1_AZ2_pearstory01-A, 51.2)

Although data from previous language consultants suggested that *=keu* was used to form relative clauses, which modify arguments that have a referent, and *=ke* for nominalized complement clauses, which do not modify arguments and have no referent, the boundary between the two is not strictly categorical in terms of form. There are examples of complement clauses being marked by *=keu*, as in (124), where *ngoni keu* does not refer to ‘ones who will stay’ but rather to ‘the act of staying’; and in (125), where *Sümi-tsa likhi ithi keu* refers to ‘knowing only Sümi’ and not ‘one who knows only Sümi’. If these were indeed headless relative clauses meaning “(be) ones who stay” or “(be) only Sümi knowers”, we would expect a copular verb like *shi* ‘be’.

124. *timi ngo-a=ke=qo ghi /*
 person stay-IMPRF=NZR=PL even

[ngo-ni=keu] msah lei.
 [stay-FUT=NZR?] be.afraid DP
 ‘Even people who were staying there were afraid to stay.’ (ABT3-AJ1_IA2_interview02-A, 45-46)

125. *Sümi shi=ke=lo*
 Sümi.people be=NZR=LOC

ningu ghi Sümi-tsa likhi,
 1PL even Sümi.people-language only

[Sümi-tsa likhi ithi=keu]
 [Sümi.people-language only know=NZR?]

a-lo-mo=ke=no.
 NRL-good-NEG=NZR=FOC
 ‘Being Sümi, even us only Sümi, knowing only Sümi is not good.’ (ABT3-AA1_RZ1_interview03-A, 10.1)

Similarly, in (126), one speaker uses =*ke* to nominalize the clause, while in (127), another speaker uses =*keu* instead.

126. *[ningu ghi ki-ghithi=mi lakhi=ke] ghengu=no*
 [1PL even NZR-know=person one=NZR] because=FOC
 ‘Because even we are educated,’ (ABT3-AA1_RZ1_interview03-A, 68)
127. *[pa=no küthü=no pa=kuphu=keu] ghengu=no,*
 [3SG=ASSOC.PL three=AGT 3SG=help=NZR?] because=FOC
 ‘Because the three of them helped him,’ (ABT3-AC1_IC1_pearstory01-A, 53.2)

Furthermore, the boundary between the two is not strictly categorical in terms of function, as can be seen in (128), where *ayeghi itha keu* ‘earthquake’ might be translated literally as ‘that which moves the earth’ or ‘the moving of the earth’ (or even perhaps ‘the earth that moves’). In (129) – (131), it is also not necessary for one to interpret each relative/nominalized clause as having a referent.

128. *i=ke=lo* [*ti=ye*] [*a-yeghi* *itha=keu*]=*ye*
 PRX=NZR=LOC [MED=TOP] [NRL-earth move=REL]=TOP
 ‘And so the earthquake ...’ (ABT3-AA1_RZ1_interview01-A, 33)
129. *ti=ye,* [*pa=no* *shi=keu*]=*ye*
 MED=TOP [3SG=AGT do=REL]=TOP
- [pi-pini* *o* *shi* *masa=keu*?
 [CAUS-blame or do must=REL]
 ‘So what he did, was it wrong or was it something that had to be done?’ (ABT3-AJ1_IA2_pearstory01-A, 85)
130. [*no=no* *pi-a=keu*]=*ye*
 [2SG=AGT say-IMPRF=REL]=TOP
- a-chipi* *ke=ke=mu*
 NRL-correct COP=NZR=even.though
 ‘What you are saying is right but ...’ (ABT3-AC1_IC1_pearstory01-A, 54)
131. [*pa=no* *pi-a=keu*]=*no*
 [3SG=AGT say-IMPRF=REL]=FOC
 ‘What he is saying is ...’ (ABT3-MZ1_JZ1_interview01_soft-A, 19)

For the purposes of this dissertation, it is sufficient to note that both headless relative clauses and nominalized complement clauses function as clausal arguments with the potential for case marking. Both have the distribution of full NPs and can receive case marking enclitics and postpositions such as =*ye* in (128) – (130) and =*no* in (131). However, the functions of case markers on various relativized/nominalized clause types might differ, especially where a headless relative clause has a referent that is animate compared to a complement clause with no referent. Therefore, although the function, distribution and origin of case markers on complement clauses may be similar to that on subordinate clauses in clause chains (see §2.4.4), they will not be investigated in detail in this work.

2.6 Pronouns

Pronouns can substitute a whole NP, as in (132), where *pa* ‘3SG’ replaces *iwu cousin* or *iwu cousin brother*. They take the same case marking enclitics and postpositions as full NPs.

132. *[i=iwu cousin]=ye lei, [i=iwu cousin brother]=ye /*
 [1SG=POS NA]=TOP DP [1SG=POS NA NA]=TOP

[pa]=ye / a-ki kungu zü-a=ke=no,
 [3SG]=TOP NRL-house above sleep-IMPRF=NZR=FOC

top floor=lo.

NA NA=LOC

‘My cousin, my cousin’s brother, he was sleeping at the top of the house, on the top floor.’ (ABT3-AA1_RZ1_interview02-A, 17-19)

When two or more NPs are conjoined, a pronoun is often used in apposition, as in (133) and (134), with only the pronoun taking a case marker.

133. *kipiti-mi lakhi=no momu*
 man-person one=AGT or

[kiptimi=no=sholoku-mi ngo a-kipiti-u] [panongu]=no
 [man=ASSOC.PL=family-person and NRL-man-DEF] [3PL]=AGT

‘A man or a man’s family and the man, they...’ (ABT3-20080917-Courting_a_wife, 7-9)

134. *[a-huu=mülhü ngo khetsünhe] [küma]=no*
 [NRL-north=wind and sun] [3DU]=ABL

khi-u=no a-ku-mto-u kela pi.
 which.one-DEF=FOC NRL-NZP-be.strong-SUPR PRT say

‘While the North Wind and the Sun were disputing which was the stronger.’ (IZ1-20100816-North_Wind_and_the_Sun, 2)

Some of the personal pronouns in Sümi have special A/S forms and P/R forms. The A/S forms are given in Table 7. A 3rd person feminine pronoun *li* /li/ is also found, but this is a recent coinage only used by a few speakers.

Table 7: Personal pronouns (A and S arguments)

	SG	DU	PL
1	<i>ni</i> (or <i>i-</i> in <i>ino</i>)	<i>ikujo</i>	<i>ningu</i>
2	<i>no</i>	<i>okujo</i>	<i>nongu</i>
3	<i>pa</i>	<i>küma</i> <i>pama</i> <i>paküma</i>	<i>panongu</i> <i>panoqo</i>
3.FEM	<i>li</i>		? <i>linongu</i>

The 1st person singular pronoun has two forms: *ni* and *i-*, with the latter only occurring with the case marker =*no*: cf. (135) and (136).

135. [*ni=ye*] *zü-a*.
 [1SG=TOP]_s sleep-IMPRF
 ‘I was sleeping.’ (ABT3-MZ1_JZ1_interview01_soft-A, 4)

136. [*i=no*] *a-kibo* *shi=ke=ghuloki=lo*,
 [1SG=AGT] NRL-family do=NZR=time.period=LOC

i-tianuli *vilo*
 1SG.POS-children to

- [*i=no*] *Sümi-tsa=o=no* *piütsa-nani*.
 [1SG=AGT] Sümi.people-language=LOC=INST converse-FUT
 ‘When I get married, I will talk to my children in Sümi.’ (ABT3-VS1_KY1_interview02-A, 34)

Grammatical judgements from previous language consultants indicated that the 1st, 2nd and 3rd singular pronouns need to be marked by either =*no* or =*ye* in A/S position. This is supported by narrative and some interview data from older speakers, in which the singular pronouns almost always appear with a case marker. However, in conversation, younger speakers use the singular pronouns without case markers, as in (137) and (138).

137. *[ni] | a-zü-a=lo* *zü-a=ke=mu,*
 [1SG] NRL-sleep-place=LOC sleep-IMPRF=NZR=even.though

ithu-ve=pu=no,
 get.up-VM=CONN=CONN
 ‘I was sleeping in the bed but got up and ...’ (ABT3-HC1_AZ2_interview01-A, 34-35)

138. *[no] incident hipa-u ghili mtha?*
 [2SG] NA PRX-DEF about NEG.know
 ‘Don’t you know about this incident?’ (ABT3-AC1_IC1_interview02-A, 75)

The P/R forms, also used as “possessors” of postpositions (from old relator noun constructions), are given in Table 8. Examples are given in (139) – (141).

Table 8: Personal pronouns (P and R arguments)

	SG	PL
1	<i>i=</i>	<i>ni=</i>
2	<i>o=</i>	<i>no=</i>
3	<i>pa(=)</i>	<i>pano=</i>
3.FEM	<i>li(=)</i>	<i>?lino(=)</i>

139. *no=no [i=he].*
 2SG=AGT [1SG=hit]
 ‘You hit me.’ (elicited, unrecorded)
140. *pa=ye khaghi=no [o=pütsa-nni] pi*
 3SG=TOP long.ago=FOC [2SG=converse-FUT] say
 ‘She said she was going to talk to you.’ (IZ1-20070905-Kutili_Bird_Story_short-A, 25.2)
141. *i=no [o=tsü-ve-nani].*
 1SG=AGT [2SG=give-VM-FUT]
 ‘I will give (it) to you.’ (ABT3-KZ1_TZ1_interview04, 38.2)

However, some younger speakers also use the A/S forms of the pronouns as P arguments, as in (142).

147. *[tipa-u=ye hupa-u] küghashi,*
 [MED-DEF=TOP DIST-DEF] assume

chu-sü a-lo-ki-vi-shi.
 eat-AM NRL-good-NZP-be.good-ADV
 ‘(They) thought that that was that and were happily eating.’ (ABT3-
 HC1_AZ2_pearstory01-A, 81)

2.7 Case Markers

Case marking in Sümi is realized with enclitics and postpositions. These come after the right-edge of the NP, as with =*no* in (148). The case marker also comes after conjoined NPs, as in (149), or the appositive pronoun used with conjoined NPs, as in (150).

148. *[a-sübo=lo ngo-a=pu=no,*
 [NRL-tree=LOC stand-IMPRF=CONN=CONN

a-sübo=lo xo-a=keu tipa-u]=no /
 NRL-tree=LOC pluck-IMPRF=REL MED-DEF]=AGT

a-qho-u iki-ghi-nani=ke=lo,
 NRL-below-DEF go.down-come-FUT=NZR=LOC

‘The one who was in the tree and who was plucking from the tree comes down and ...’ (ABT3-KA2_LJ1_pearstory01-A, 40.2-41.1)

149. *[i-puh ngo i-za]=ye*
 [1SG.POS=father and 1SG.POS-mother]=EXP

ni-küthü kümsüma-ve=ke.
 1PL-three forget-VM=NZR

‘My parents forgot about the three of us.’ (ABT3-KA2_LJ1_interview01-A, 105)

150. *kipiti-mi* *lakhi=no* *momu*
 man-person one=AGT or

[kiptimi=no=sholoku-mi *ngo* *a-kipiti-u]* *[panongu]=no*
 [man=ASSOC.PL=family-person and NRL-man-DEF] [3PL]=AGT
 ‘A man or a man’s family and the man, they...’ (ABT3-20080917-
 Courting_a_wife, 7-9)

The main case markers are given in Table 9. Enclitics are transcribed with /=/, while postpositions are considered separate words. Low tone is marked by a grave accent (à); mid tone by a macron (ā); and high tone by an acute accent (á). The lack of an accent mark indicates the segment is not specified for phonemic tone.

Table 9: Orthographic and phonological forms of case markers

Function	Orthographic form	Phonological form
Agentive/Focus(?)	<i>no</i>	/=no/ [no] ~ [na]
Experiencer/Topic(?)	<i>ye</i>	/=je/
Possessive	<i>wu</i>	/=u/ ~ /=vì/
Locative	<i>lo</i> <i>lau</i> <i>vilò ~ ulò</i>	/=lo/ [lo] ~ [la] /=lau/ /vìlò/ ~ /ùlò/
Ablative	<i>no</i> <i>lono</i>	/=no/ [no] ~ [na] /=lono/ [lono] ~ [lana]
Instrumental	<i>no</i> <i>pesü</i> <i>süwo/sü-o</i>	/=no/ [no] ~ [na] /pēsī/ /sīwō/
Comitative	<i>sasü</i>	/sàsī/
Additive	<i>ghi</i>	/γí/
Reason/Purpose	<i>ghengu</i>	/γēnú/
About	<i>ghili</i>	/γīlī/

In this analysis, the enclitics are more phonologically bound to the last element of the NP than postpositions, but the division between the two is not clear-cut. For this analysis, case markers with phonological tone were treated as postpositions, while those that were not associated with a phonological tone but only received a *F₀* pattern through phonetic interpolation were treated as enclitics. Interestingly, the vowel /o/, when present in enclitics such as =no, =lo and =lono can alternate between [o] and [a], but not in

postpositions or lexical words. However, it is unclear what factors motivate this vowel alternation.

2.7.1 =*no* and =*ye*

A summary of previous analyses of =*no* and =*ye* was given in §2.3, and the following chapters will provide more in-depth analyses of these two case markers based on new data. In this dissertation, I gloss =*no* as ‘agentive’ (‘AGT’) when it appears in transitive and intransitive clauses, and as ‘narrow focus’ (‘FOC’) when it appears in non-verbal clauses. However, not all instances of =*no* mark semantic agents; and it is also likely that the narrow focus function of =*no* is not limited to non-verbal clauses. I have also glossed =*ye* as ‘experiencer’ (‘EXP’) in the presence of certain predicates, but as ‘topic’ (‘TOP’) elsewhere. These are not perfect glosses, but reflect the polysemy / polyfunctionality of these two case markers and the difficulty in assigning them clear meanings. Finally, it should be noted that =*no* and =*ye* cannot be stacked with each other, but can come after some other case markers, which I describe in the rest of this section.

2.7.2 Possessive

For a description of the possessive =*wu*, see §2.5.2.

2.7.3 Locative

The locative marker =*lo* marks both static locations, as in (151) and (152), and destinations of verbs of motion, as in (153). Some speakers use =*lo* interchangeably with =*lau* to mark destinations, as in (154). The latter may be an old allative derived from the noun *ala* ‘road, path’.

151. *timi=no* [*a-ghasüli*]=*lo* *ili* *che-ni*
person=AGT [NRL-forest]=LOC play CONT-PRES
‘A man is playing in the forest.’ (ABT3-TA1_transitivity01-A, 73-74)

152. *a-ti=no* *a-za* *miki* *a-ni*,
 NRL-little.animal=AGT NRL-mother bite PROG-PRES
- [a-shomi]=lo.*
 [NRL-tail]=LOC
 ‘A young animal is biting (its) mother on the tail.’ (ABT3-TZ2_transitivity01-A, 72-73)

153. *ningu=qo=no* *[town]=lo* *iqi=ke=lo=ye*,
 1PL=PL=AGT [NA]=LOC go.down=NZR=LOC=TOP
 ‘When we go down to town,’ (ABT3-AA1_RZ1_interview03-A, 11s)

154. *a-nga=no* *[pa]=lau /* *po* *ighi* *a-ni*.
 NRL-child=AGT [3SG]=LOC run come PROG-PRES
 ‘A child comes running towards him.’ (ABT3-NA1_transitivity01-A, 73.2-74)

It is also seen in some relator noun constructions, such as *dolo* ‘between’ in (155), which likely has its origin in the noun *ado* ‘space’ or ‘time’.

155. *[a-tu* *hipa=qo]* *dolo*,
 [NRL-stone PRX=PL] between
- khi, khi* *a-ki-je-u* *kea?*
 which which NRL-NZP-be.big-SUPR Q
 ‘Of these stones, which- which one is biggest? (ABT3-TA2_transitivity01-A, 242.1)

It can also be found in the postposition *vilu/ulo*, which is typically used to mark the addressees of speech verbs, as in (156).

156. *[police=no]* *[küpükami]* *vilu*
 [NA=AGT] [thief] to
- [“ngo a-ghi-lo”]* *pi* *a-ni*
 [stay EXIST-CONT-IMP] say PROG-PRES
 ‘A policeman is saying to the thief, “Stop there.”’ (ABT3-KA1_transitivity01, 87)

The locative =*lo* can be stacked with =*ye* and =*no*, as in (157) and (158) respectively. Where it is stacked with the focus marker =*no*, it is homophonous with the ablative =*lono*.

157. [atughu]=*lo=ye*
 [first]=LOC=TOP
 ‘In the beginning ...’ (ABT3-AC1_IC1_interview02-A, 95)
158. [tipa ji]=*lo=no* [Whatsapp]=*lono* *ighi-kha-ve* *na*
 [MED night]=LOC=FOC [NA]=ABL come-CPL-VM DP
 ‘On that night (itself), everything came from WhatsApp’ (ABT3-AA1_RZ1_interview02-A, 4.1)

2.7.4 Ablative

The ablative =*no* is rare in Sümi but can still be seen with relator nouns such as *kungu* ‘above’ in (159). The more common ablative marker is =*lono*, a combination of the locative =*lo* and =*no*, as in (160) – (162).

159. [kungu]=*no* *a-wucho* *iluqi* *ghi=pu*,
 [above]=ABL NRL-banana fall come=CONN
- a-sü=lo*, *a-süthalu=lo* *ngo* *va*.
 NRL-wood=LOC, NRL-log=LOC stay PRF
 ‘From above a banana falls down and stays on the wood, on the log.’ (ABT3-MA1_transitivity04-A, 37)
160. *boini* *ngo* *bhai=ye* *ti* *mama* *ithu=pu*
 NA and NA=TOP MED unconscious wake.up=CONN
- [*a-lipa*]=*lono* *ilhe* *a-ni=ke=ke*
 [NRL-bed]=ABL jump PROG-PRES=NZR=NZR
 ‘(My) sister and brother woke up hazily and jumped from the bed.’ (ABT3-KA2_LJ1_interview01-A, 96-97.1)

161. *[pa=no pi=keu]=lono*
 [3SG=AGT say=REL]=ABL
 ‘From what she said’ (ABT3-HC1_AZ2_interview01-A, 62)
162. *[cycle]=lono ighi=pu=no a-xathi tipa-u*
 [NA]=ABL come=CONN=CONN NRL-fruit MED-DEF
 ‘(he) comes by bicycle and the fruit’ (ABT3-HC1_AZ2_pearstory01-A, 21)

2.7.5 Instrumental

An example of the instrumental marker =*no* is given in (163), where it appears in the same sentence as the agentive =*no*.

163. *[a-jih]=no a-khosa /*
 [NRL-rat]=AGT NRL-cat
- [a-phi]=no cover shi-ne shi a-ni*
 [NRL-cloth]=INST NA do-PROS do PROG-PRES
 ‘The rat is going to cover the cat with a cloth.’ (ABT3-KH1_transitivity01-A, 132-133)

However, instrumental =*no* is rare in the data, with speakers tending to use the case markers *pesü*, as in (164), or *süwo* (sometimes written *sü-o*), as in (165) and (166).

164. *kuto=ye [a-kala] pesü iku kungu iku*
 later=TOP [NRL-ladder] INST climb above climb
- xo-a=ke=lo=no,*
 pluck-IMPRF=NZR=LOC=FOC
 ‘Later (he) climbed up with the ladder and while plucking.’ (ABT3-TA2_pearstory01-A, 6)
165. *a-khosa=no a-jih [pillow] süwo nha a-ni.*
 NRL-cat=AGT NRL-rat [NA] INST cover PROG-PRES
 ‘The cat is the covering rat with a pillow.’ (ABT3-KZ1_TZ1_transitivity01-A, 73)

166. *a-nga* *lakhi=no* / *a-ppu* *lakhi* /
 NRL-baby one=AGT NRL-boy one
- [*a-mhi*] *süwo* *küqhi* *a-ni*.
 [NRL-feather] INST tickle PROG-PRES
- ‘A girl is tickling a boy with a feather.’ (ABT3-NA1_transitivity01-A, 58-60)

These instrumental case markers appear to be in the process of grammaticalizing from serial verb constructions that involve the verbs *pe* ‘take with hand’ and *sü* ‘put (somewhere)’. In (167), *pesü* still takes the connective morpheme =*no*, while in (168), a prosodic boundary comes between *axathi* ‘fruit’ and *sü-wo*, suggesting that the process of grammaticalization is not quite complete.

167. [*a-kütsüqho* *tipa-u*] *pesü=no* *pa=tsü*.
 [NRL-hat MED-DEF] take=CONN 3SG=give
- ‘(He) gave that hat to him.’ (lit. ‘Took and gave that hat to him.’) (ABT3-AJ1_IA2_pearstory01-A, 68)

168. *a-ppu* *tipa-u=no* [*a-xathi*] / *sü-wo* *pa=tsü*.
 NRL-boy MED-DEF=AGT [NRL-fruit] put-go.back 3SG=give
- ‘That boy gave him a fruit.’ (ABT3-TZ2_pearstory01-A, 30.2-31)

2.7.6 Comitative

The comitative case marker *sasü* denotes a referent that accompanies another one, as in (169).

169. *timi* *lakhi* *a-ne* / [*a-ne*] *sasü* *che=pu*,
 person one NRL-goat [NRL-goat] COM walk=CONN
- ‘A man was coming with goat and’ (ABT3-AC1_IC1_pearstory01-A, 8-9)

Similar to the instrumental case markers *pesü* and *süwo*, *sasü* appears to be in the process of grammaticalizing from a serial verb construction that involves the verb *sa* ‘lead’ with perhaps the associative motion marker *-sü*. For example, in (170), we see *sasü* immediately following the verb *sünhe*, with no intervening NP.

170. *mchomi tipa-u=no sünhe sa-sü, /*
 old.man MED-DEF=AGT pull lead-AM

a-ne sünhe sa-sü u-ve-nani.
 NRL-goat pull lead-AM go-VM-FUT
 ‘That old man pulls, pulls a goat and leaves.’ (ABT3-TA4_pearstory01-A, 37-38)

2.7.7 Additive

The additive postposition *ghi* ‘also/even’ occurs in the same syntactic slot on core arguments as =*no* and =*ye*, as in (171). Like =*no* and =*ye*, it can be stacked with the locative =*lo*, as in (172), but it can also be stacked with the ablative =*lono*, as in (173).

171. *ta [i-puh]=no, [i-puh] ghi /*
 again [1SG.POS-father]=AGT [1SG.POS-father] even

ithu-mo=pu, zü-a=ke=cho=i
 wake.up-NEG=CONN sleep-IMPRF=NZR=be.true=EMPH
 ‘Again my father, even my father, did not get up and was sleeping (ABT3-AA1_RZ1_interview01-A, 16.2-17.1)
172. *hila Dimapur Nagaland [Chekiye]=lo ghi.*
 PRX.LOC NA NA [NA]=LOC even
 ‘Here in Dimapur, Nagaland, even in Chekiye.’ (ABT3-AA1_RZ1_interview02-A, 26)
173. *i=ke=mu, [tipa-u]=lono ghi ta incident,*
 PRX=NZR=even.though [MED-DEF]=ABL even again NA

lakhi learn shi lu=keu=ye kipitimi=qo ghi
 one NA do take=REL=TOP man=PL even
 ‘But again, from that incident, one lesson that was learnt was, even the men ...’
 (ABT3-AC1_IC1_interview02-A, 146)

2.7.8 Reason/Purpose

The postposition *ghengu* ‘for’ is used to mark a NP or nominalized clause as some reason or purpose or reason, as in (174). It can also be used with interrogative pronoun *ku* in a *kughengu*, as in (175), to introduce a clause.

174. *[[i-puh ngo i-za noshi ilhe=ke=u]*
 1SG.POS-father and 1SG.POS-mother INT jump=NZR=DEF

ithulu-mphi=ke=u] ghengu=no lei,
 see-not.yet=NZR=DEF because=FOC DP
 ‘Because I had never seen my parents jumping like that ...’ (ABT3-
 KA2_LJ1_interview01-A, 124)

175. *ku-ghengu i=no Nagamese-tsa mtha=ke=lo,*
 what-because 1SG=AGT NA-language NEG.know=NZR=LOC
 ‘Because if I do not know Nagamese then, ...’ (ABT3-AA1_RZ1_interview03-A,
 33.1)

For some speakers, *ghenguno* appears to have been reanalyzed as a single morpheme, as in (176), the only example in the corpus in which is is stacked with =*ye*.

176. *i=ghenguno=ye i=no vetha-lu=keu=ye*
 1SG=because=TOP 1SG=AGT understand-ABIL=REL=TOP
 ‘For me, what I understood is ...’ (ABT3-KH1_KH2_interview01-A, 88)

2.7.9 About

Finally, the postposition *ghili* ‘about’ is used to mark a topic of discussion, as in (177) and (178). It can also be used with a similitive function, as in (179).

177. *[a-xone / hu<ku>thu] ghili*
 [NRL-fermented.soya.beans begin<NZP>] about
 ‘about the origin of *axone*’ (IZ1-20080620-Origin_of_Axone-A, 1-2)

178. *no [incident hipa-u] ghili mtha?*
 2SG [NA PRX-DEF] about NEG.know
 ‘Don’t you know about this incident?’ (ABT3-AC1_IC1_interview02-A, 75)

179. *a-kha=no [a-tsü] ghili shi shi=pu,*
 NRL-fish=AGT [NRL-dog] about do do=CONN
 ‘The fish acted like a dog and ...’ (ABT3-KA1_transitivity01-A, 90.2-91.1)

2.7.10 Case Markers on Adverbs

It should be noted that the case markers =*ye* and =*no* do sometimes appear on non-core arguments, specifically adverbial adjuncts relating to time or place, as in (180) and (181). While their functions may overlap somewhat with the use of these case markers on core arguments, a full analysis of their functions lies outside the scope of this project.

180. *[itehi]=ye a-puza=no*
 [now]=TOP NRL-grandmother=AGT

a-ssü=wu a-sah xe-tsü a-ni.
 NRL-grandfather=POS NRL-head.hair comb-give PROG-PRES
 ‘Now, grandmother is combing grandfather’s hair.’ (ABT3-KZ1_TZ1_transitivity01-A, 155)

181. *pa=ye [khaghi]=no o=pütsa-nni pi*
 3SG=TOP [long.ago]=FOC 2SG=converse-FUT say
 ‘She said she was going to talk to you.’ (IZ1-20070905-Kutili_Bird_Story_short-A, 25.2)

2.8 Summary

In this chapter I briefly described the language situation of Sümi. I then described aspects of Sümi grammar that are relevant to understanding the language’s system of DCM of A and S arguments. In the next chapter, I look at a method to investigate whether certain semantic factors determine case marking of core arguments in Sümi.

CHAPTER III

DIFFERENTIAL CASE MARKING IN PICTURE/VIDEO ELICITATION

3.1 Overview

In this chapter, I investigate the effect of syntactic and semantic factors that are of theoretical interest on case marking in Sümi using data from a video and picture description task. I demonstrate that the number of core arguments (1 vs. 2 or more) in a clause affects speakers' choice of case marking strategy on S (intransitive subject) or A (transitive subject), though there are also interesting inter-speaker differences. Additionally, I examine the effects of animacy of S and P (transitive object) and volitionality of A and S on case marking.

In §3.2, I first reiterate some relevant facts of Sümi differential case marking (DCM), before describing the method and data used for this study in §3.3. I then present the results of the video and description task, looking first at A and S case marking in §3.4, P case marking in §3.5, and case marking of subjects of non-verbal predicates in §3.6. This will then lead into the next chapter, where we will look at larger discourse units.

3.2 Background

As described in §2.2.3, previous descriptions of Sümi analyzed *=no*, and sometimes *=ye*, as “nominative” markers since they both occur on transitive subjects (A) and intransitive subjects (S). In Teo (2012, 2018), I analyze *=no* as an agentive/focus marker, while *=ye* functions more like experiencer/topic marker. However, this depends on the type of clause each case marker occurs in. I suggested that semantic factors such as volitionality of the referent play a large role in DCM of A in transitive clauses, while discourse characteristics like topicality and contrastiveness play a larger role in DCM in intransitive and equative clauses. However, semantic factors such as volitionality may also play a role in DCM of S arguments, while discourse factors can play a role in DCM of A arguments.

However, this analysis was based on data that came from speaker judgements and a handful of narratives. In this study, I wanted to further explore how different degrees of semantic transitivity might affect case marking by manipulating these factors: the number of core arguments described as part of an event; the animacy of S and P; and the volitionality of A and S. I also wanted to expand the study to multiple speakers of different ages to see if there were any clear differences between them.

I originally took a prototypical semantic approach to transitivity, assuming that transitivity consists of different components. For example, the semantic prototype of a transitive event, according to Givón (2001a: 126), involves: (i) “a deliberate, active agent”; (ii) “a concrete, affected patient”; and (iii) “a bounded, terminated, fast-changing *event* in real time.” However, as we shall see, I suggest a more construction-based approach might be more insightful, especially when dealing with clauses that are neither prototypically transitive nor prototypically intransitive.

3.3 Method and Materials

To elicit event descriptions, I used a series of picture and video description tasks. There is a history of the use video elicitation in linguistic research, particularly out of the MPI. Some of the shortcomings of using picture and video description tasks will be discussed later in §3.7. The idea was to begin with more controlled stimuli, before using more naturalistic tasks. Comparisons could also be made between the two types of data.

Specifically, for this project, a video and picture description task featuring three kinds of stimuli was administered. The same procedure was used for all three kinds of stimuli, so I describe these here. However, the results of one of the tasks, the cat and fish video, will be discussed in the following chapter.

3.3.1 Participants

11 speakers, 6 female and 5 male, were presented with the audio-visual stimuli. 2 speakers were over 50 years of age, 3 were between 25 and 50, and 6 were under 25. All participants were native speakers of Sümi who were living in Dimapur, Nagaland at the time of recording.

3.3.2 Stimuli for Description Tasks

Three types of stimuli were presented to the participants: (i) videos depicting single events; (ii) illustrated children's drawings (Kratochvíl, *pers. comm.*) ; and (iii) videos from the Questionnaire for Information Structure (QUIS) (Skopeteas et al. 2006). In this section, I give a brief summary of each type of stimuli.

The single-event videos were designed and used by Fedden et al. (2013) to investigate the role of certain semantic features on differential argument indexation on verbs¹¹ in Alor-Pantar languages. Figure 10 shows screenshots from one such single-event video.



Figure 10: Screenshots of a single-event video depicting a man bumping into another man.

¹¹ This is a grammatical phenomenon related to differential case marking, in that speakers sometimes appear to have the choice of whether or not to mark a verb for agreement with an argument.

The semantic features investigated were: number of participants; animacy of S or P; volitionality of A or S; telicity of the verb; and whether the verb was stative or dynamic. 42 videos with different semantic feature specifications were designed. For instance, a video showing a man pulling another man would have the specification: [2 participants], [+volitional A], [+animate P], [-telic], [dynamic]; while a video showing a child pulling a log would be specified for all the same semantic features, except for [-animate P]. A chart summarizing each video and semantic feature specification is given in Appendix A. However, for this study, I did not rely on the semantic feature specifications used by Fedden et al. (2013) to tag descriptions of each video, for reasons to be discussed in §3.3.5.

The pictures were provided by František Kratochvíl (*pers. comm.*). They featured 34 illustrations of various pairs of humans, animals and vehicles acting on each other. Each pair of entities would be of the same type, e.g. a human tickling another human, an animal chasing another animal, a vehicle riding another vehicle. Figure 11 shows an example of one such picture.



Figure 11: Sample picture of a dog chasing a chicken

The two QUIS videos came from the Field Method Session Manual One (version 5.1) (Skopeteas et al. 2006) and were originally meant to elicit linguistic expressions of surprise. The first depicted a cow kicking a ball around, the other showed a cat coming to eat a fish in a bowl, but the fish barks and scares the cat away. However, the linguistic expressions elicited from these tasks did not differ from other picture/video descriptions, i.e. nearly all speakers used the expected transitive construction NP=*no* NP V when

describing the cow kicking the ball around, so it is unclear if the task really elicited dedicated linguistic structures corresponding to the expression of surprise. Consequently, I will not be discussing the effect of “surprise” on A/S case marking. Nevertheless, the data elicited from the cat and fish video task comprise short narratives with referent switching. The data from that video will be discussed in the next chapter on discourse structure and case marking.

3.3.3 Recording and Procedure

All participants did the video and picture description task in a quiet room in the presence of the main researcher. 9 participants did the tasks individually, while 2 participants did the tasks as a pair. These 2 participants would take turns to describe the videos, with little to no discussion between them.

A Tascam DR-100MK-II was used for digitally recording at a sampling rate of 44.1 kHz. 7 of the participants who did the tasks individually used a Shure head-worn dynamic microphone, but for the other participants, the Tascam’s built-in microphone was used since the head microphone was unavailable.

For the videos and pictures, participants were asked to respond to the question *Kiu shi ani kea?* ‘What’s happening?’, which was meant to elicit broad or sentence focus. They received training in describing each scene using complete sentences, i.e. with a full noun phrase or full noun phrases and an inflected verb, not just with a single inflected verb even though such sentences are grammatical in Sümi and felicitous responses to the prompt question. For the videos, participants were asked to watch the whole video before responding. For all pictures and some videos, the verb in English was also given at the bottom of the screen to assist in eliciting the desired predicate, as in Figure 12. This was also useful: in the debriefing session, some participants reported that this made them think the purpose of the task was to test their knowledge of verbs in Sümi, instead of whether they would use =*no*, =*ye* or null case marking.



Figure 12: Sample picture of a dog chasing a chicken, with verb in English given.

The stimuli were presented in three blocks of 8-9 pictures and four blocks of 10-11 videos, with the QUIS videos inserted between blocks; and a short break after the first three blocks. In this initial study, all speakers were presented the stimuli in the same order. It was expected that even though each stimulus was meant to be treated as a stand-alone event, it was still possible for some speakers to create a narrative out of them, especially if the same actors appear in multiple videos. However, given the small number of speakers, it was decided to not manipulate the order of the stimuli for this study. If stimulus order did appear to affect case marking, this would then indicate a need for a larger-scale study using different stimuli orders and sufficient numbers of speakers to have enough statistical power. On the other hand, even using these stimuli in this manner does not control for whether speakers will construe events separately or as part of a larger discourse structure, so another task would be required to look specifically at the effects of discourse structure on case marking.

Finally, three of the Fedden et al. (2013) videos were meant to elicit stative verbs, e.g. ‘be tall’, ‘be long’. In all these videos, multiple entities were shown, but only one of which would possess the quality of interest, i.e. be tall or be long, as in Figure 13.



Figure 13: Screenshot of a long stick compared to three other sticks.

Given the presence of potential alternative members, it was likely that the videos would elicit a contrastive focus reading on that member of the set. Since this would have known consequences on case marking of subjects of non-verbal predicates, as mentioned in §2.4.3, it was decided to control the focus condition in these videos, by asking the participants to answer the question “Which one of these is the tallest/longest/biggest?”, thereby eliciting contrastive argument focus. Consequently, the results from these particular videos are treated separately from ones where participants were asked to describe what was happening, i.e. with broad or sentence focus.

3.3.4 Data Processing

In each recording, the data were divided up into prosodic units in Praat (version 6.0.36) (Boersma & Weenink 2017), using Praat’s built-in silence recognizer. A minimum silence duration of 0.2s and a minimum sounding duration of 0.1s was selected. The boundaries for prosodic units were then manually hand corrected, depending on the level of background noise.

The TextGrids were then imported into ELAN (version 5.4) (Sloetjes & Wittenburg 2008), where they were transcribed using a standard Sümi orthography and

translated. For the transcriptions, I sat together with Dr Salome Kinny: we listened to the segmented recordings together using two headphones Sony MDR7506 headphones, each connected to my laptop via an Upbeat Audio T613BNC Boostero to amplify the volume of the recordings. Dr Kinny then inputted the translations into ELAN.

The transcriptions and translations were then imported into FieldWorks Language Explorer (FLEX) (version 8.3), where words were assigned parts-of-speech labels, as well as parsed and glossed morphemically. The parts of speech labels and morpheme glosses were then re-exported to ELAN and merged with the original transcriptions and translations. The corresponding ELAN .eaf files containing these analyses are available on the online PARADISEC catalogue. The data was then exported to an Excel spreadsheet for tagging. A description of the data set, including the number of clauses, will be given in §3.4.1.

For this study, a syntactic clause with the potential for the overt expression of an S or A argument was treated as the basic unit of interest. However, since the annotated data were divided into prosodic units, demarcated by the pauses in speech, they did not always correspond to syntactic clausal units. This meant that multiple prosodic units corresponding to a single clausal unit had to be combined for analysis. Similarly, any prosodic unit containing more than one clause had to be divided.

The right edge of a clause was defined by the presence of a verb inflected for TAM; a clause nominalizer, e.g. =*ke*; and/or a connective morpheme, e.g. =*pu*, =*puno* (see §2.4.4). Only matrix clauses were counted in this study, i.e. relative clauses marked by =*keu*, such as in (182), were not.

182. *a-nga=ye* *kukela* [*iluqi-ve=keu*] *chilu a-ni*.
 NRL-child=EXP something [fall-VM=REL] hear PROG-PRES
 ‘The child hears something falling down.’ (ABT3-KA1_transitivity01-A, 69)

Clauses with verbs marked by the associated motion marker -*sü*, as in (183), and the converb *pe* that mark simultaneous events, as in (184), were treated as single clausal units, since they only had one potential A/S argument. Unlike chains that use connective morphemes like =*pu*, the following verb in the sequence always shares the same A or S

argument, and only the final verb would be inflected for tense/aspect. For tagging purposes, only the first verb in the chain was noted.

183. *a-nga=no* *a-puh=lau* *po-sü* *ighi a-ni.*
 NRL-child=AGT NRL-father=LOC run-AM come PROG-PRES
 ‘The child comes running to father.’ (ABT3-TA2_transitivity01-A, 93)

184. *a-puh=ye* *utughu-pe* *ngo a-ni.*
 NRL-father=TOP stand-SIM stay PROG-PRES
 ‘A man is standing.’ (ABT3-KA1_transitivity01-A, 99)

Right-dislocated constituents were also included as part of the clausal unit. These constituents could be an oblique, as in (185); or an S/A argument as in (186) and (187).

185. *a-ppu=no* *zü a-ni,* *a-yeghi=lo.*
 NRL-boy=AGT sleep PROG-PRES NRL-earth=LOC
 ‘The boy is sleeping, on the ground.’ (ABT3-TA1_transitivity02, 19)

186. *a-sübo=lo* *crash shi a-ni,* *a-mu.*
 NRL-tree=LOC NA do PROG-PRES NRL-older.brother
 ‘Crashing into a tree, older brother.’ (ABT3-KA1_transitivity01, 51-52)

187. *a-sütsa* *chilu a-ni,* *timi=no.*
 NRL-sound hear PROG-PRES person=AGT
 ‘Hears a sound, the man.’ (ABT3-TA1_transitivity02-A, 63-64)

For the statistical analysis, right dislocated S/A arguments were excluded, since non-canonical word order in other languages has been associated with different requirements for case marking, e.g. in Tujia (Tibeto-Burman) marked word order is associated with obligatory ergative marking (Lu et al. 2019).

For the same reason, examples where A and P were not in their canonical positions, i.e. where A comes after P as in (188), were also excluded from the statistical analysis. In the data set, only 10 clauses contained examples of non-canonical word order. These examples will be discussed separately in §3.4.6.

This would elicit a contrastive/exhaustive/identificational/narrow focus reading between members of each set, with known consequences for case marking on the subjects of such predicates. These data with contrastive focus will therefore be analyzed separately in §4.3.6.

Of the three remaining features investigated by Fedden et al.: animacy of S/P; volitionality of A/S; and number of participants, I mainly followed their semantic feature specifications for animacy. However, in my tagging, I used three levels of animacy: inanimate, animate and body parts of animates. The last category was added in case body parts of animates were treated as different from animates. The effect of pronouns vs. common nouns was not investigated here given the low incidence of pronominal A and S, since speakers were describing novel scenes.

In tagging for volitionality, I considered whether the A/S has control over the instigated action. Some actions were described with verbs that could be classified as volitionally instigated, e.g. sitting down, pushing, etc., or non-volitionally instigated, e.g. falling, getting scared, etc. However, there were actions, typically involving sleeping and waking up, that I was not confident in being able to assign to each category. In fact, in some Tibeto-Burman languages, these actions can be construed as either volitional or non-volitional. For example, in Lhasan Tibetan, the verb takes *ñal* ‘go to sleep’ takes an ergative subject in elicitation, while *gnid k’ug* ‘fall asleep’ does not (DeLancey 2011: 56). In contrast, Sümi does not make a clear lexical distinction between the two, using *zū u* (lit. ‘sleep go’), and the only evidence one might argue for construing the action as being instigated either volitionally or non-volitionally would be case marking, the dependent variable of the study. Consequently, I treated these subjects with these predicates as a separate third category in my tagging. Finally, a fourth category was also used for verbs of location or posture, e.g. *ngo* ‘stand; stay’.

Finally, by “number of core participants” I refer to the number of semantic participants involved/activated in the linguistic representation of a scene. Tagging for number of core participants in each clause was not a trivial matter for two main reasons: one, whether or not to include zero mentions; and two, distinguishing between “core” and “oblique” arguments.

Zero anaphora or cataphora is common in Sümi, even for what would be considered core syntactic arguments. In the training, speakers were asked to produce “complete sentences” that included full NPs. Nevertheless, as mentioned in §2.2.4.2, a single inflected verb can constitute a grammatical sentence in Sümi. In (191) – (193), we see the same speaker describing the same video three times, but each time adding a new overt argument. We can say that in (191), there are two zero NPs, given that the speaker immediately overtly mentioned them when describing the same scene again in (192) and (193).

191. *chilu a-ni.*
 hear PROG-PRES
 ‘(He) hears (something).’ (ABT3-KH1_transitivity01-A, 120)

192. [*kukela*] *chilu a-ni.*
 [something] hear PROG-PRES
 ‘(He) hears something.’ (ABT3-KH1_transitivity01-A, 121)

193. [*pa=ye*] [*kukela*] *chilu a-ni.*
 [3SG=EXP] [something] hear PROG-PRES
 ‘He hears something.’ (ABT3-KH1_transitivity01-A, 122)

The challenge with zero mentions was to decide if there was a constituent that was activated in the speaker and hearers’ minds, but not overtly mentioned, perhaps because it was clear from context. Although certain verbs in Sümi are known to take a fixed number of syntactic arguments, there were some ambitransitive verbs in the dataset: *msah* ‘be afraid/scared’ and *piti* ‘burn’. For example, (194) – (196) are descriptions of the same video by different speakers. In (194) and (195), there is an overt P argument, *apighi* ‘snake’, null marked for case, which refers to the source of the fear.

194. [*a-nga=ye*] [*a-pighi*] *msah a-ni.*
 [NRL-child=EXP] [NRL-snake] be.afraid PROG-PRES
 ‘The child is afraid of the snake.’ (ABT3-KH1_transitivity01-A, 49)

195. *[a-nga=no]* *[a-pighi]* *msah* *a-ni.*
 [NRL-child=AGT] [NRL-snake] be.afraid PROG-PRES
 ‘The child is afraid of the snake.’ (ABT3-KA1_transitivity01-A, 31)
196. *timi* *hipa-u=no* *a-pighi*
 person PRX-DEF=AGT NRL-snake
- pe* *a-ni=ke=lo=ye,*
 hold.with.hand PROG-PRES=NZR=LOC=TOP
- msah* *a-ni,*
 be.afraid PROG-PRES,
- [a-nga=no]* *msah* *a-ni,* *lei.*
 [NRL-child=AGT] be.afraid PROG-PRES DP
 ‘While this man is holding a snake, (a child) is scared, a child is scared.’ (ABT3-TA2_transitivity01-A, 56-58)

On the other hand, the presence of a single argument in the final clause of (196) can be interpreted in at least two different ways: (i) there is a zero P argument, since the snake is clear from context; (ii) or there is no P argument, and the speaker is simply describing the child’s general mental state.

Similarly, there were instances of the verb *piti* in a clear transitive construction when the force, i.e. *ami* ‘fire’, was overtly mentioned, as in (197) and (198). Even when *ami no* did not appear in the more common clause initial position, the clause was treated as having two core arguments.

197. *[a-mi=no]* *[a-ki]* *piti* *a-ni.*
 [NRL-fire=AGT] [NRL-house] burn PROG-PRES
 ‘A fire is burning the house.’ (ABT3-NA1_transitivity02-A, 28)
198. *[a-ki]* *[a-mi=no]* *piti* *a-ni.*
 [NRL-house] [NRL-fire=AGT] burn PROG-PRES
 ‘A fire is burning the house.’ (ABT3-MA1_transitivity04-A ,10)

However, there were also examples with no overt mention of *ami* ‘fire’, as in (199). In this example, it was not possible to tell if *piti* was now in an intransitive

construction, where a linguist might analysis what was the P argument in clauses like (197) as an S argument.

199. *[a-ki] piti a-ni.*
 [NRL-house] burn PROG-PRES
 ‘A house is burning.’ (ABT3-TA1_transitivity02-A, 24)

In such examples where I could not reliably determine the number of arguments in the clause, I treated these as a separate third category instead of attempting to guess if they involved either one or two participants. These instances were excluded from the statistical analysis.

Finally, I will explain how core and oblique arguments were distinguished in the tagging: a formal criterion like the presence of a locative case marker =*lo* could not be used, since certain P arguments could also be “optionally” marked by the locative =*lo*, as seen by comparing (200) and (201).

200. *timi lakhi=no [timi lakhi] sünhe a-ni.*
 person one=AGT [person one] pull PROG-PRES
 ‘A person is pulling a person.’ (ABT3-NA1_transitivity01-A, 30)

201. *timi lakhi=no [timi lakhi=lo] sünhe a-ni.*
 person one=AGT [person one=LOC] pull PROG-PRES
 ‘A person is pulling a person.’ (ABT3-MA1_transitivity02-A, 16-17)

Rather, when distinguishing between core and oblique arguments, I relied on Filmore’s (1994) distinction between “frame-internal” and “event-setting” locations. Using an English example in (202), the prepositional phrase *on the banana* would be considered frame-internal, i.e. involving a figure that is central to the action, while *in the kitchen* would be an event-setting location.

202. *I stepp-ed [on the banana] [in the kitchen].*
 1SG step-PST [on DEF banana] [in DEF kitchen]

Similarly, the locative-marked NP in (201) and the locative-marked NP *asübo lo* ‘into a tree’ in (203), would be considered frame-internal and central to the action. In contrast, *aghasüli lo* ‘in the forest’ in (204), would be treated as event-setting since the act of playing could occur anywhere, but this one happens to be in this location.

203. *timi lakhi=ye a-sübo, [a-sübo=lo] shopukhu va.*
 person one=EXP NRL-tree [NRL-tree=LOC] bump PRF
 ‘A man bumped into a tree.’ (ABT3-MA1_transitivity03-A, 21-22)

204. *timi=no [a-ghasüli=lo] ili che-ni*
 person=AGT [NRL-forest=LOC] play CONT-PRES
 ‘A man is playing in the forest.’ (ABT3-TA1_transitivity01-A, 73-74)

A distinction was also made between internally and externally possessed NPs. An example of an internally possessed NP is given in (205), where the *a-* ‘NRL’ prefix of *ashomi* ‘tail’ is dropped and the noun is cliticized onto the possessor noun. On the other hand, externally possessed NPs, where the *a-* prefix is retained, are phonologically and syntactically independent, as in (206) and (207), where the externally possessed NP occurs as a right-dislocation. Semantically, they typically specify a location on one of the core arguments. For tagging purposes, externally possessed NPs were not counted as core arguments of a clause.

205. *a-ngshuu=no [a-pighi=shomi=lo] mighi a-ni.*
 NRL-tiger=AGT [NRL-snake=tail=LOC] bite.peck PROG-PRES
 ‘A tiger is biting a snake’s tail.’ (ABT3-TZ2_transitivity01-A, 163-166)

206. *a-kipti-u lakhi=no [a-u=lono] mtüpe*
 NRL-man-DEF one=AGT [NRL-hand=ABL] hold.by.hand

ngo-a=pu=no, sünhe a-ni.
 stay-IMPRF=CONN=CONN pull PROG-PRES
 ‘The man is holding (someone) by the hand and pulling.’ (ABT3-TZ2_transitivity01-A, 32-34)

The reason for omitting these is that NPs referring to sources were not mentioned in most speakers' descriptions of the same scene, unlike goals which would be mentioned more frequently by speakers. This bias in Sümi is in line with typological observations that indicate a “goal bias” in the encoding of motion events (Jackendoff 1983, Levinson 2003, *inter alia*).

Finally, decisions also had to be made regarding whether goals/endpoints of motion verbs should be treated as core vs. oblique arguments of such verbs. Let us consider the following Sümi examples in (211) – (213). On the one hand, such “locative objects”: *apuh lo* ‘to the father’ in (211), *pa shou* ‘on him’ in (212) and *asübo lo* ‘on the tree’ in (213), refer to arguments that are more central to the actions than sources or event-setting locations.

211. *a-ppu=no* *po-sü* [*a-puh=lo*] *ighi* *a-ni*.
 NRL-boy=AGT run-AM [NRL-father=LOC] come PROG-PRES
 ‘A son comes running to the father.’ (ABT3-KA1_transitivity01-A, 46)

212. *a-wucho* [*pa-shou*] *iluqi-ghi* *a-ni*.
 NRL-banana [3SG-upon] fall-come PROG-PRES
 ‘A banana is falling on him. (ABT3-KZ1_TZ1_transitivity01-A, 182)

213. [*a-sübo=lo*] *a-wucho* *iluqi-ghi* *a-ni*.
 [NRL-tree=LOC] NRL-banana fall-come PROG-PRES
 ‘A banana is falling on a tree.’ (ABT3-KH1_transitivity01-A, 162)

On the other hand, these “locative objects”, unlike P arguments, are always marked by the locative case marker =*lo* or a relator noun e.g. *shou*. Furthermore, as we saw in §2.2.4.2, *i-* prefixed verbs are generally syntactically intransitive, subcategorizing for a single S argument and never take the pronominal P proclitics: *i=* ‘me’, *o=* ‘you’ or *pa=* ‘him/her/it’. For these reasons, locative objects were treated as oblique arguments and not core arguments, so examples like (211) – (213) were tagged as containing a single core argument.

3.4 Analysis of A and S Case Marking

3.4.1 Data Set Description

In this section, I describe the data used in the statistical analysis. Table 10 provides a summary of the number of clausal units in the data set, and the number of clauses with overt S/A NPs: out of a total of 1,153 clausal units with the potential for an A or S NP to be expressed, 68.7% (792 clauses) were produced with an overt A or S NP. This percentage is expectedly high for this data set, since participants were instructed to produce “complete” sentences that included NPs, even though as mentioned in §3.3.5, a single inflected verb can constitute a grammatical sentence in Sümi.

Table 10: Frequency counts of clauses with overt vs. zero S/A argument

S/A argument	No. of clauses	%
overt NP	792	68.7
zero NP	343	29.7
indeterminate	8	0.7
non-canonical word order	10	0.9
Total	1,153	100

8 clauses containing ambitransitive verbs *piti* ‘burn’/‘be on fire’ and *msah* ‘be afraid’/‘be afraid of’ (see) were excluded from the data set because it was unclear what kind of argument they contained, i.e. whether it was A or S or S or P. These clauses were therefore excluded from the analysis. An additional 10 clauses (3 intransitive, 7 transitive) with non-canonical word order, i.e. right-dislocated S/A or A following P, were also excluded from the statistical analysis, for reasons explained in §3.3.5. Table 11 gives a breakdown of the 792 clauses with overt S/A NPs according to the transitivity of the clause.

Table 11: Number of intransitive vs. transitive clauses with overt S or A

Clause type	No. of clauses	%
Intransitive	256	32.3
Transitive	536	67.7
Total	792	100

216. [a-mülhü=no] coconut=lo a-thi
 [NRL-wind=AGT] NA=LOC NRL-seed

fu-qhi *va=ke.*
 blow-cause.go.down PRF=NZR

‘The wind has blown down a coconut.’ (ABT3-TA2_transitivity01-A, 101)

Considering volitionality, Table 14 gives the breakdown of intransitive clauses according to volitionality of S. Table 15 gives the breakdown of transitive clauses according to volitionality of A.

Table 14: Number of intransitive clauses, according to volitionality of S

Volitionality of S	No. of clauses	%
Non-volitional	56	21.9
Volitional	113	44.1
Sleeping/Waking	58	22.7
Posture verbs	29	11.3
Total	256	100

Table 15: Number of transitive clauses, according to volitionality of A

Volitionality of A	No. of clauses	%
Non-volitional	54	10.1
Volitional	482	489.9
Total	536	100

3.4.2 Comparing A and S Case Marking

In this section, I present descriptive statistics on the frequency of case markers depending on the transitivity of a clause (number of arguments); the animacy of S or P; and the volitionality of S or A. Table 16 gives the frequency and proportion of case markers in intransitive and transitive clause types. The proportion of each type of case marker for each clause type is also presented in the bar plot in Figure 14.

Table 16: Frequency counts of case markers by clause type, with proportion within each clause type (% of row total)

Clause type	Case marker on S/A						Total	
	null/zero		=ye		=no			
	n	(%)	n	(%)	n	(%)		
Intransitive (S)	126	(49.2)	35	(13.7)	95	(37.1)	256	(100)
Transitive (A)	30	(5.6)	24	(4.5)	482	(89.9)	536	(100)
Total	156		59		577		792	

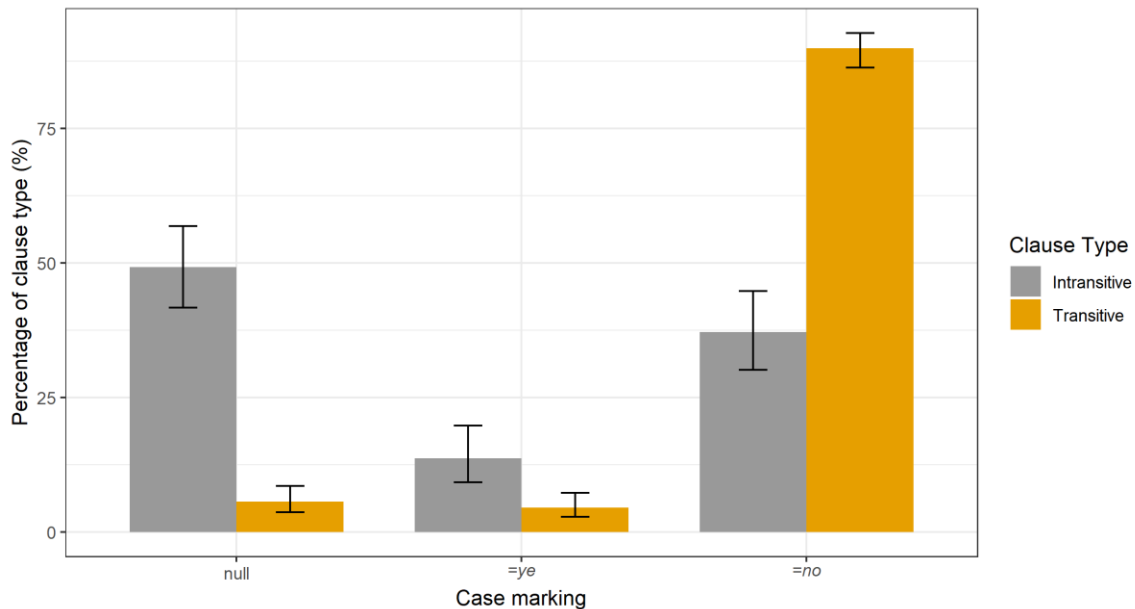


Figure 14: Bar plot showing the proportions of S/A case markers within each clause type. Error bars indicate 95% confidence intervals.

Within intransitive clauses, null marked S arguments are the most common (49.2%), followed by =no (37.1%). Within transitive clauses, =no is the most common case marker (89.9%), while null marked A NPs account for only 5.6% of all transitive clauses. For both clause types, =ye is the least common case marking strategy.

A chi-square test of independence was performed to examine the relation between transitivity of the clause (i.e. number of core arguments) and case marking of S or A. The relation between these variables was significant, $\chi^2(2, N = 792) = 253.37, p < .01$. The proportions of all case marking strategies: null case marking, =ye and =no, vary between intransitive and transitive clauses. These observations are in line with previous

description of Sümi that show *=no* and *=ye* have different distributions on S vs. A arguments.

Examining inter-speaker variation in case marking also reveals an important difference between S and A case marking. Figure 15 shows the speaker-specific proportions of S case marking in intransitive clauses, and Figure 16 shows the speaker-specific proportions of A case marking in transitive clauses. Speakers are ordered by their birth year, with older speakers appearing to the left.



Figure 15: Bar plot showing speaker-specific proportions of S case markers, with speakers ordered by birth year.

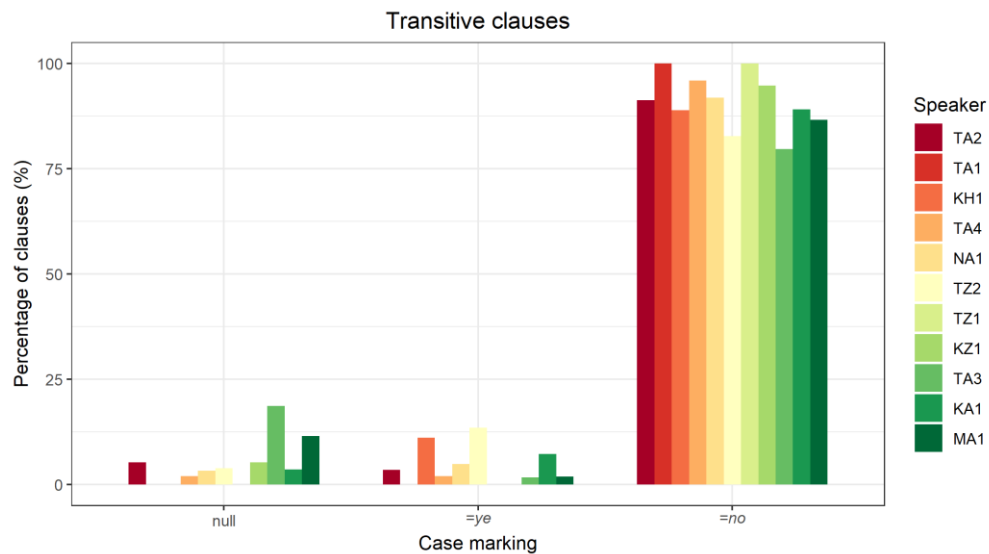


Figure 16: Bar plot showing speaker-specific proportions of A case markers, with speakers ordered by birth year.

By comparing Figure 15 with Figure 16, we can see that there is much more inter-speaker variation in case marking on S than in case marking on A. In transitive clauses, all speakers consistently mark A arguments with *=no*. Null marking on A is very rare, with most instances of these coming from two younger speakers: TA3 (born 1997) and MA1 (born 1998). In intransitive clauses, we can see that null marking on S arguments is high for only 5 out of the 11 speakers: NA1 (born 1989), KZ1 (born 1996) and MA1 (born 1998), for whom more than 75% of all intransitive subjects were null marked; and TA3 (born 1997) and KA1 (born 1997), for whom more than 50% of intransitive subjects were null marked. Similarly, only a few speakers consistently marked S arguments for *=no*, with TA1 (born 1960) marking 90.3% of S arguments with *=no*.

Consequently, given the differences in overall proportions of case markers on S vs. A arguments, as well as differences in inter-speaker variation for each, it makes sense to analyze S case marking separately from A case marking.

Problems with Regression Analysis

Although it was originally planned to do a mixed multinomial logistic regression on the data, the nature of the data has proven to be unsuitable for such an analysis. As an example, let us split the data set into transitive and intransitive clauses. Looking only at transitive clauses, Table 17 gives the frequency counts and proportions of case markers on A in transitive clauses, according to the animacy of P and volitionality of A, with animate P and body part P collapsed into a single animate P category. The proportion of each case marker for each level of animacy and volitionality is presented in the bar plot in Figure 17. The distribution of null marking appears to be similar to that of *=ye*, while both look different from the distribution of *=no*, which is the most commonly used case marker for all A arguments. Note that even with animate and body parts collapsed into a single category, there are fewer than 5 observations in four of the cells in Table 17: null and *=ye* marking when P is animate and A is non-volitional and when P is animate and A volitional.

Table 17: Frequency counts of case markers on A in transitive clauses, with proportion within each combination of animacy and volitionality type (% of row total)

Animacy of P & Volitionality of A	Case marker on A						Total
	null/zero		=ye		=no		
	n	(%)	n	(%)	n	(%)	
Inanimate P							
- Non-volitional A	7	(24.1)	8	(27.6)	14	(48.3)	29 (100)
- Volitional A	18	(22.5)	14	(17.5)	48	(60)	80 (100)
Animate P							
- Non-volitional A	2	(8.0)	1	(4.0)	22	(88.0)	25 (100)
- Volitional A	3	(0.7)	1	(0.2)	398	(99.0)	402 (100)
Total	30		24		482		536

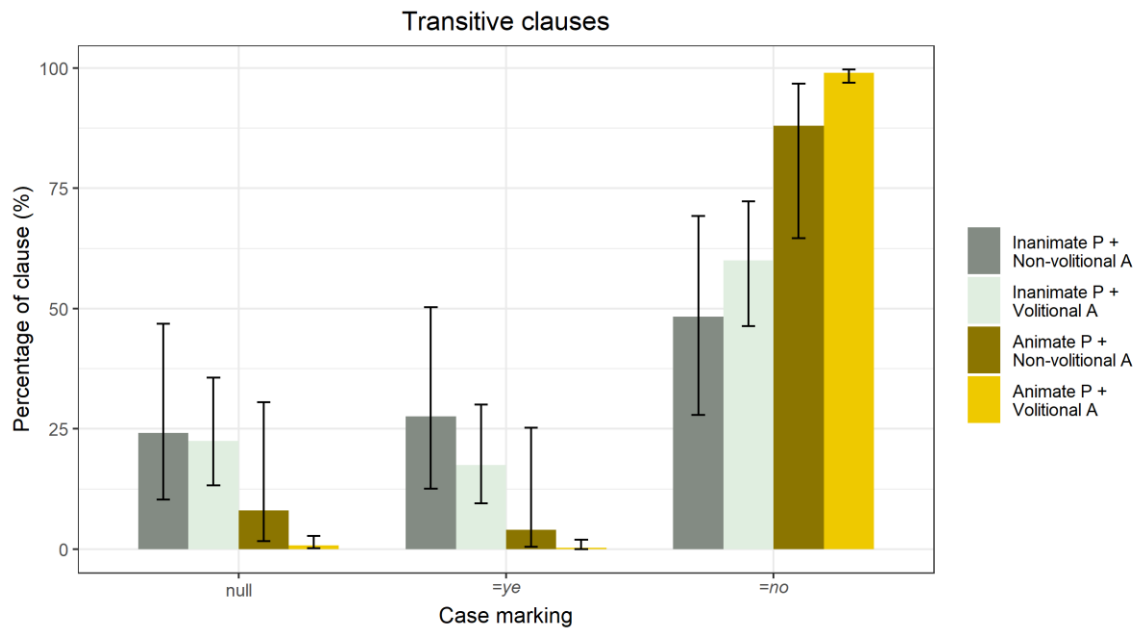


Figure 17: Bar plot showing the proportions of A case markers for different combinations of animacy of P and volitionality of A. Error bars indicate 95% confidence intervals calculated for each interaction group. The two gold bars on the right represent animate P, while the lighter bar of each pair represents volitional A.

A multinomial logistic regression was performed to investigate the effect of (i) animacy of P; (ii) volitionality of A; and (iii) their interaction on the choice of case marker: null vs. =ye vs. =no. The model estimates are provided in Table 18.

Table 18: Parameter estimates contrasting null marking with =*ye* and =*no* on A arguments

Predictor	Null marking vs.	Coef. β	SE (β)	z	p
Intercept	= <i>ye</i>	.134	.518	.257	.796
	= <i>no</i>	.693	.462	1.497	.134
Animacy of P: - animate	= <i>ye</i>	-.827	1.33	-.622	.534
	= <i>no</i>	1.705	.872	1.956	.050
Volitionality of A: - volitional	= <i>ye</i>	-0.385	.628	-.612	.540
	= <i>no</i>	.288	.539	.534	.594
Animacy of P x Volitionality of A	= <i>ye</i>	-.021	1.797	-.012	.991
	= <i>no</i>	2.202	1.083	2.034	.042

The results of the analysis show no effect of animacy of P, volitionality of A and their interaction on the choice between null marking and =*ye*. No main effect of volitionality of A on the choice of null vs. =*no* was observed, and only a marginal main effect of animacy of P was found for null vs. =*no* case marking ($\beta = 1.71$, SE = .87, $p = .05$). However, there was a significant interaction between animacy of P and volitionality of A ($\beta = 2.20$, SE = 1.08, $p = .04$). These results suggest a crossover effect, whereby a volitional A only has an effect on null vs. =*no* case marking when P is animate. However, this runs counter to the observation that A is almost always marked by =*no* when P is animate, with very few instances of null or =*ye* marked A. Rather, the significant interaction effect looks to be the result of a very low number of observations of null and =*ye* marking that makes their proportions within these categories appear more similar and/or different than they might actually be. Although the data have already been repartitioned by number of core participants, it would make sense to further repartition the data into animate vs. inanimate P arguments and analyzing these two subsets separately.

Similar issues arise when looking at intransitive clauses, Table 19 gives the frequency counts and proportions of case markers on S in intransitive clauses, according to the animacy and volitionality of S. Firstly, the low number of observations in several cells in Table 19 would be problematic for similar reasons as the transitive clause data. Furthermore, if a logistic regression model were to be applied to these data, collinearity

would be an issue since all inanimate S arguments are also non-volitional, though not all non-volitional S arguments are inanimate. Rather, it would make sense to repartition the data into inanimate and animate S and analyze the latter group separately.

Applying a simple logistic regression would therefore fail to capture some important divisions in the data. Consequently, a classification tree analysis was applied in order to capture patterns found by analyzing subsets of the data.

Table 19: Frequency counts of case markers on S in intransitive clauses, with proportion within each animacy and volitionality type (% of row total)

Animacy of S & Volitionality of S	Case marker on S						Total
	null/zero		=ye		=no		
	n	(%)	n	(%)	n	(%)	
Inanimate							
- Non-volitional	41	(85.4)	0	(0)	7	(14.6)	48 (100)
Animate							
- Non-volitional	7	(53.8)	2	(15.4)	2	(15.4)	13 (100)
- Sleeping	20	(40.0)	15	(30.0)	15	(30.0)	50 (100)
- Posture/Position	16	(50.0)	1	(3.1)	15	(46.9)	32 (100)
- Volitional	42	(37.2)	17	(15.0)	54	(47.8)	113 (100)
Total	126		35		95		256

Classification Tree Analysis

In a classification tree, the split at each step is based on the independent variable that results in the greatest possible reduction in the heterogeneity of the dependent variable, i.e. choice of case marker. Figure 18 provides a classification tree analysis of the data set, using the partykit package in R (Hothorn, Hornik & Zeileis 2006). The following independent variables: number of core arguments (1 vs. 2 or more); animacy of A or S; animacy of P (transitive) or destination (intransitive); and volitionality (non-volitional vs. volitional for A; non-volitional vs. verb of sleep vs. verb of posture vs. volitional for S). The minimum number of observations allowed in a terminal node was set to 1, while the minimum number of observations in a parent node that could be split was set to 2. No maximum depth for the tree was set. These parameters were set to intentionally produce an overfitted model from the tree could then be pruned, i.e. by

grouping together nodes where there is no clear split, after a more careful evaluation of those splits in the data.

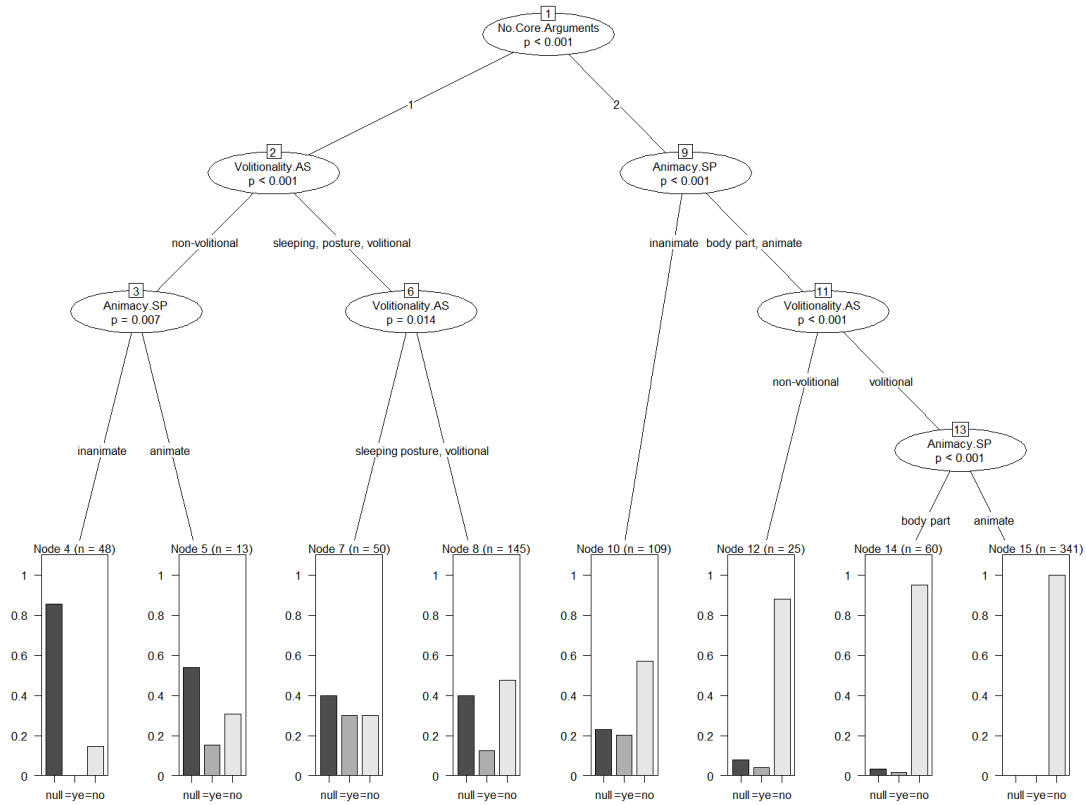


Figure 18: Classification tree analysis of A and S case marking. Each non-terminal node is represented by an ellipse with a specified feature, e.g. “No. of Core Arguments”. The data is then split into two subsets of observations that have different values associated with that feature. Within each terminal node on the bottom row, there is a bar plot showing the proportion of null, =ye and =no (from left to right) case markers for that set of features. The label for each final node also gives the total number of observations n for that set of features.

Overall, the classification tree shows that for transitive clauses where a volitional animate A is acting on an animate P (terminal nodes on right), speakers are more likely to select =no to mark the A argument, whereas for clauses that are lower in “transitivity”, i.e. a single inanimate non-volitional S (terminal node on left), speakers are more likely to select null marking for the S argument. In none of the terminal nodes do we find =ye to be the most common case marker.

The first main split in the tree is based on the number of core arguments, i.e. 1 vs. 2 or more in a clause. This matches the observation made earlier in this section that the

distribution of case marking of A in transitive clauses (two or more core arguments) is very different from that of case marking of S intransitive clauses (one core argument). For transitive clauses, the first split is whether P is animate or not: when P is animate. The first split for intransitive clauses is also whether S is volitional or not. This suggests that animacy affects A and S case marking differently.

A random forest analysis was also done to validate the classification tree analysis, which tends to overfit the data. In the random forest analysis, speaker was added as a variable, even though it was not used in the classification tree analysis. As Schnell and Barth (2018) note, it is possible to including speaker as a variable in a random forest, but the high number of levels in the variable can result in confusing splits in the classification tree. Figure 19 shows the variable importance assessment based on a 1000-tree random forest of classification trees, using the randomForest package in R (Liaw & Wiener 2002).

This plot shows that the number of core arguments; volitionality of A or S; and animacy of S or P are all informative for case marking in Sümi, but speaker identity is also important.

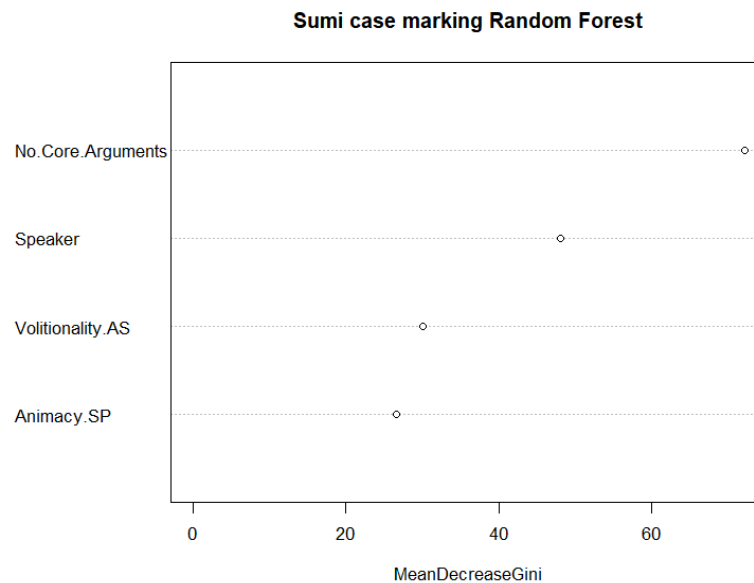


Figure 19: Variable importance ranking from random forest for Sümi A and S case marking.

As mentioned above, one disadvantage of using a classification tree is that it does not offer an easy way to capture inter-speaker differences. Since speaker identity was found to be an important factor in case marking, , in the next two sections, I examine four specific sub-divisions of the classification tree: (i) transitive clauses with animate P; (ii) transitive clauses with inanimate P; (iii) intransitive clauses with inanimate S; (iv): intransitive with volitional S. For each subset of the data, I look at inter-speaker differences, while also providing glossed examples to support or contradict the classification tree analysis.

3.4.3 A Case Marking

As we saw in the classification tree in Figure 20, the first split for A arguments is based on the animacy of P. Table 20 gives the frequency counts and proportions of case markers on A in transitive clauses, according to the animacy of P. The proportion of each case marker for each level of animacy is presented in the bar plot in Figure 21. The proportions presented here are the same as those presented in the two right-most nodes on the third level of the classification tree in Figure 18. Nearly all A arguments are marked by *=no* when P is animate (98.6%). In contrast, when P is inanimate, only 56.9% of A arguments are marked by *=no*, while 22.9% are null marked and 20.2% are marked by *=ye*.

Table 20: Frequency counts of case markers on A in transitive clauses by animacy of P, with proportion within each animacy type (% of row total)

Animacy of P	Case marker on A						Total	
	null/zero		<i>=ye</i>		<i>=no</i>			
	n	(%)	n	(%)	n	(%)		
Inanimate	25	(22.9)	22	(20.2)	62	(56.9)	109	(100)
Body Part of Animate	2	(3.3)	1	(1.7)	57	(95.0)	60	(100)
Animate	2	(.5)	1	(.3)	363	(99.2)	366	(100)
Total	29		24		482		535	

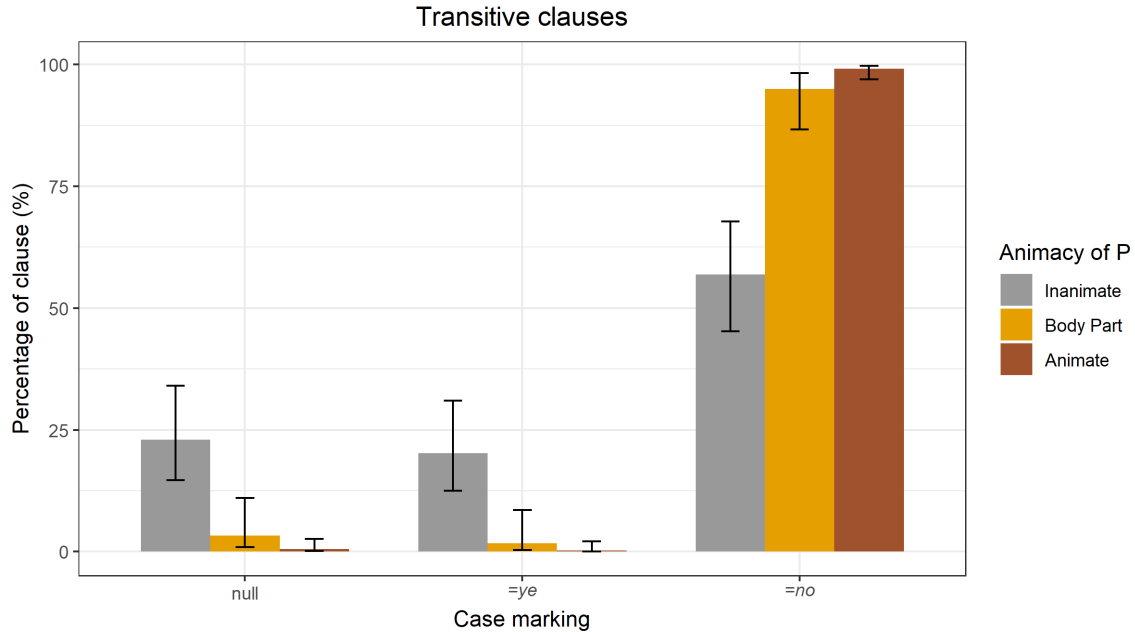


Figure 20: Bar plot showing the proportions of A case markers for different animacy levels of P. Error bars indicate 95% confidence intervals.

Animate P

Looking first at clauses with body part and animate P, we can see that A arguments are almost universally marked by =no in the data set. This is true when the predicate is a verb of manipulation, as in (217) and (218), and also when it is a verb of perception, as in (219) and (220), or a verb of emotion, as in (221).

217. [a-nga=no] / a-ppu küqhiü a-ni.
 [NRL-child=AGT] NRL-boy tickle PROG-PRES
 ‘The child is tickling the boy.’ (ABT3-TA2_transitivity01-A, 70-71)

218. [a-ghau=no] / a-wu=sübo=lo
 [NRL-bird=AGT] NRL-chicken-backside=LOC

 mighi-sü mgha a-ni.
 peck-AM play PROG-PRES
 ‘The bird is pecking the backside of a hen.’ (ABT3-TA2_transitivity-A, 89-90)

219. *[a-nga lakhi=no] a-pighi ithulu=pu=no,*
 [NRL-child one=AGT] NRL-snake see=CONN=CONN

msah va, bu=pu=no.
 be.afraid PRF touch=CONN=CONN
 ‘A child is frightened after seeing a snake, after touching (it).’ (ABT3-NA1_transitivity01-A, 49)
220. *[timi lakhi=no] | ku=keu chilu a-ni.*
 [person one=AGT] call=REL hear PROG-PRES
 ‘A man hears (someone) who is calling.’ (ABT3-TA4_transitivity02-A, 68-69)
221. *[a-nga=no] a-pighi msah a-ni.*
 [NRL-child=AGT] NRL-snake be.afraid PROG-PRES.
 ‘The child is afraid of the snake.’ (ABT3-KA1_transitivity01-A, 31)

In the classification tree in Figure 18, an additional split between non-volitional and volitional A is posited to better fit the model to the data. However, this split appears to only accommodate a few examples of non-volitional A that occur with verbs of perception or emotion and are not marked by =no, as in (222) and (223).

222. *[a-puh hipa] a-pighi msah a-ni.*
 [NRL-father PRX] NRL-snake be.afraid PROG-PRES
 ‘This father is afraid of the snake.’ (ABT3-TA3_transitivity02-A, 33)
223. *[a-nga=ye] a-pighi msah a-ni.*
 [NRL-child=EXP] NRL-snake be.afraid PROG-PRES
 ‘The child is afraid of the snake.’ (ABT3-KH1_transitivity01-A, 49)

On the other hand, there are examples where non-volitional A is marked with =no, as in (224) and (225).

224. [a-ppu=no] *ithu-mla=pu,*
 [NRL-boy=AGT] see-NEG.ABIL=CONN
- a-puh neda-sii u va.*
 NRL-father step.on-AM go PRF
- ‘The son did not see (him) and left having stepped on the father.’ (ABT3-TA3_transitivity02-A, 65)
225. [a-pumi=no] / *mchomi chishi va.*
 [NRL-young.man=AGT] old.man bump PRF
- ‘The young man has bumped into an old man.’ (ABT3-TA1_transitivity01-A, 66-67)

There are also two examples where volitional A is null marked, as in (226) and (227), though in these examples, P refers to a body part with no overt possessor mentioned.

226. [a-nga] *a-gi=muchu bu-tsü a-ni.*
 [NRL-child] NRL-face=cheek touch-give PROG-PRES
- ‘A child is touching (the mother’s) cheeks.’ (ABT3-TA2_transitivity-A, 83)
227. [khurshi] / *a-shomi miki a-ni=ke=no voi.*
 [horse] NRL-tail bite PROG-PRES=NZR=FOC EMPH
- ‘A horse is biting the tail.’ (ABT3-TA2_transitivity-A, 5-6)

Inanimate P

Looking at clauses with inanimate P, it is useful to compare sentence pairs where P differs only in animacy. In some pairs produced by the same speaker, the speaker has marked A with =no when P is animate and with =ye when P is inanimate, as in (228) & (229) and (230) & (231).

228. [a-za=no] / *pa-nu / khape a-ni.*
 [NRL-mother=AGT] 3SG.POS-son hold PROG-PRES
- ‘A mother is holding her son.’ (ABT3-TZ2_transitivity01-A, 10-12)

229. [timi hipa-u=ye] / a-gha=sübo /
 [person PRX-DEF=TOP] NRL-jungle=tree
 khape ngo a-ni.
 hold stay PROG-PRES
 ‘This man is hugging (lit. ‘holding’) the forest tree and staying. (ABT3-TZ2_transitivity01-A, 192-194)
230. [a-nga=no] a-puh müngü da-pe ngo a-ni.
 [NRL-child=AGT] NRL-father lean.on incline-SIM stand PROG-PRES
 ‘The child is leaning on father.’ (ABT3-TA3_transitivity02-A, 26)
231. [a-mu hipa=ye] / a-ki müngü da-pe
 [NRL-older.brother PRX=TOP] NRL-house lean.on incline-SIM
 ingu a-ni.
 doze.off PROG-PRES
 ‘This older brother is leaning on the house and dozing.’ (ABT3-TA3_transitivity02-A, 30-31)

The effect of animacy of P can also be seen in sentence pairs where the speaker has marked A with =no when P is animate, and has a null marked A when P is inanimate, as in (232) & (233), (234) & (235), and (236) & (237).

232. [totimi lakhi=no] a-nga khape a-ni.
 [woman one=AGT] NRL-child hold PROG-PRES
 ‘A woman is holding a child’ (ABT3-NA1_transitivity02-A, 6)
233. [timi lakhi] a-sü khape a-ni.
 [person one] NRL-wood hold PROG-PRES
 ‘A man is holding some wood.’ (ABT3-NA1_transitivity02-A, 76)
234. [a-nga=no] a-puh ulo münü-pe ngo a-ni.
 [NRL-child=AGT] NRL-father to lean.on-SIM stand PROG-PRES
 ‘A child is leaning on the father and staying.’ (ABT3-MA1_transitivity02-A, 18)
235. [pa] wall=lo münü-pe ngo a-ni.
 [3SG] NA=LOC lean.on-SIM stand PROG-PRES
 ‘He is leaning on the wall.’ (ABT3-MA1_transitivity03-A, 31)

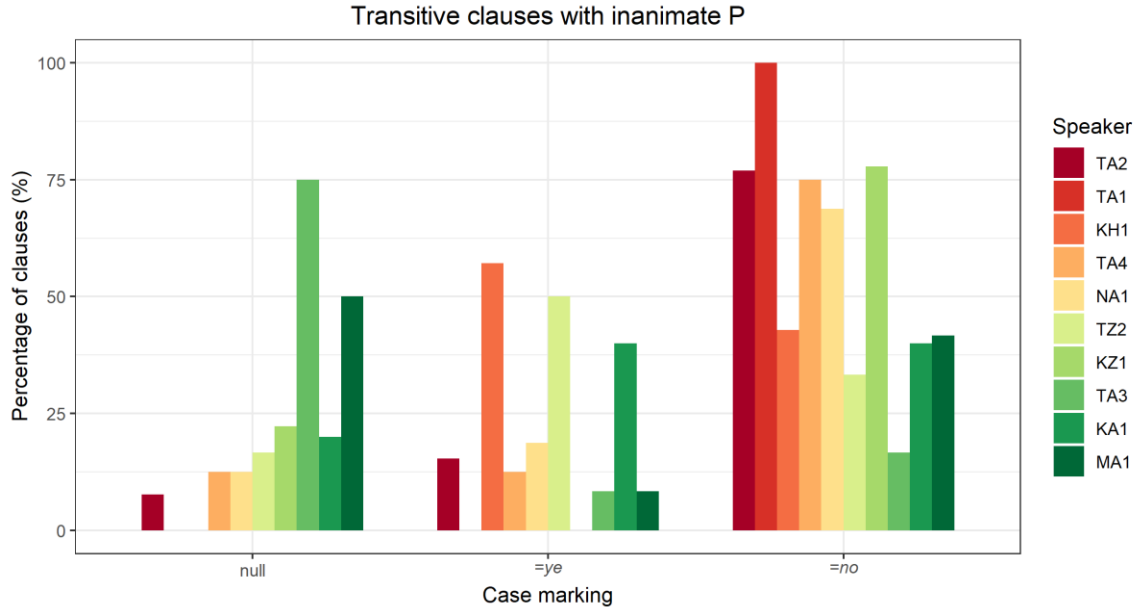


Figure 21: Bar plot showing speaker-specific proportions of A case markers in transitive clauses with inanimate P with speakers ordered by birth year.

Although the sample size per speaker is small for clauses with inanimate P, we can see some trends emerging. For five speakers: TA1, TA2, TA4, NA1 and KZ1, animacy of P does not appear to strongly affect A marking, especially TA1 who marked all A arguments with =no, regardless of the animacy of P. For three speakers: KH1, TZ2 and KA1, A tends to get marked with =no when P is animate and =ye when P is inanimate. Two speakers: TA3 and MA1, were more likely to have null marking for A when P is inanimate. However, no speaker consistently marks all inanimate P arguments with null or =ye marking, suggesting the need to look at other factors.

Returning to the classification tree in Figure 18, an additional split between non-volitional and volitional A is posited for inanimate P. Table 21 gives the frequency counts and proportions of case markers on A in transitive clauses where P is inanimate. The proportions presented here are the same as those presented in the fourth and third nodes from the right on the final level of the classification tree.

Table 21: Frequency counts of case markers on A in transitive clauses with inanimate P, with proportion within each level of volitionality (% of row total)

Volitionality of A (when P is inanimate)	Case marker on A						Total
	null/zero		=ye		=no		
	n	(%)	n	(%)	n	(%)	
Non-volitional	7	(24.1)	8	(27.6)	14	(48.3)	29 (100)
Volitional	18	(22.5)	14	(17.5)	48	(60.0)	80 (100)
Total	25		22		62		109

Overall, both volitional and non-volitional As are still likely to be marked by =no when P is inanimate, as in (240) and (241). However, there are a number of examples of non-volitional A marked by either null or =ye, as in (242) and (243).

240. [a-nga=no] a-sü sünhe che-ni.
 [NRL-child=AGT] NRL-wood pull HAB-PRES
 ‘The child is pulling the piece of wood.’ (ABT3-KA1_transitivity01-A, 55)
241. [a-mu=no] a-mghu msah a-ni.
 [NRL-older.brother=AGT] NRL-axe be.afraid PROG-PRES
 ‘The brother is afraid of the axe.’ (ABT3-KA1_transitivity01-A, 56)
242. [a-puh hipa] a-sü shokho va,
 [NRL-father PRX] NRL-wood bump PRF

 ithu-mla=pu=no.
 see-NEG.ABIL=CONN=CONN.
 ‘This father bumps into a tree, after not seeing.’ (ABT3-TA3_transitivity02-A, 65)
243. [a-puh hipa-u=ye] / a-tu=lo
 [NRL-father PRX-DEF=EXP] NRL-stone=LOC

 nekiphe-sü luqi va.
 step.slip-AM fall PRF
 ‘This man slipped on a rock and fell down.’ (ABT3-KH1_transitivity01-A, 127-128)

In general, volitionality of A as a factor does not appear to have much explanatory power regarding the choice of A case marking. One reason is that more speakers have

extended =*no* to subjects of these verbs, where historically, subjects of these verbs were marked by =*ye* in an experiencer subject construction – this may explain the small amount of inter-speaker variation found here, compared with verbs of manipulation, where all speakers consistently use =*no*.

Another reason may be due to issues with the tagging of the data. Two verbs of perception were tagged as having volitional and non-volitional counterparts: *ju* ‘look at’ vs. *ithu/ithulu* ‘see’; and *ini/inilu* ‘listen’ vs. *chilu* ‘hear’. In the data set, there are more tokens of the non-volitional verbs *ithu/ithulu* and *chilu* than their volitional counterparts. With the non-volitional verbs of perception, case marking of A is quite varied. For example, we can see null marked A, as in (244) and (245), and =*ye* marked A, as in (246) – (248).

244. [*timi lakhi*] *a-mghu ithulu=pu, msah a-ni*
 [person one] NRL-axe see=CONN be.afraid PROG-PRES.
 ‘A man saw the axe and is scared.’ (ABT3-KZ1_TZ1_transitivity01-A, 109)

245. [*a-ppu hipa*] *kukelo chilu=pu=no, a-kichiqhi.*
 [NRL-boy PRX] something hear=CONN=CONN NRL-surprise
 ‘This boy hears something and is surprised.’ (ABT3-TA3_transitivity02-A, 80)

246. [*timi=ye*] *a-mghu ithulu=pu, msah va.*
 [person=EXP] NRL-axe see=CONN be.afraid PRF
 ‘The man saw the axe and got scared.’ (ABT3-NA1_transitivity01-A, 100)

247. [*a-nga=ye*] *kukelo iluqi-ve=keu chilu a-ni.*
 [NRL-child=EXP] something fall-VM=REL hear PROG-PRES
 ‘A child hears something falling down.’ (ABT3-KA1_transitivity01-A, 62)

248. [*a-ppu=ye*] *kukelo chilu-nishi a-ni.*
 [NRL-boy=EXP] something hear-DES PROG-PRES
 ‘A boy is about to hear something.’ (ABT3-TA2_transitivity01-A, 156)

However, in most examples, A is marked by =*no*, as in (249) and (250).

249. [a-ppu hipa-u=no] pa-tikhau=no
 [NRL-boy PRX-DEF=AGT] 3SG.POS-back=ABL
 kuala chilu=ke=lo=ye,
 something hear=NZR=LOC=TOP
 ‘This boy hears something from behind him, ...’ (ABT3-TZ2_transitivity01-A, 139)

250. [a-ppu=no] a-sütsa chilu a-ni.
 [NRL-boy=AGT] NRL-sound hear PROG-PRES
 ‘The boy is hearing a sound.’ (ABT3-TA1_transitivity02-A, 18)

In contrast, there are only a few examples of the volitional verbs *ju* ‘look at’ and *ini/inilu* ‘listen’ in the data set. This paucity of tokens makes it difficult to compare them with their non-volitional counterparts. One preliminary observation is that in the two examples of *ju* in the data set, A is marked with =no, even when P is inanimate, as in (251) and (252).

251. [timi lakhi=no] a-mghu ju a-ni.
 [person one=AGT] NRL-axe look.at PROG-PRES
 ‘A man is looking at an axe.’ (ABT3-NA1_transitivity01-A, 92)

252. [timi=no] | a-mghu ju a-ni.
 [person=AGT] NRL-axe look.at PROG-PRES
 ‘A man is looking at an axe.’ (ABT3-TA1_transitivity01, 82-83)

On the other hand, case marking of A with the verb *ini/inilu* ‘listen’ was similar to case marking with *chilu* ‘hear’: A could be null marked, as in (253); or marked with =no, as in (254).

253. [a-ppu hipa] a-gha khila=no ighi
 [NRL-boy PRX] NRL-noise where=ABL come
 a-ni=ke=lo ini-ju a-ni.
 PROG-PRES=NZR=LOC listen-see PROG-PRES
 ‘This boy is listening to where the noise is coming from.’ (ABT3-MA1_transitivity04, 3)

254. *[a-ppu-ti lakhi=no] a-sütsa lakhi inilu a-ni.*
 [NRL-boy-little.one one=AGT] NRL-sound one listen PROG-PRES
 ‘One small boy is listening to a sound.’ (ABT3-KZ1_TZ1_transitivity01-A, 123)

There was also one instance of *inilu*, in (255), though with animate P, where A was marked with =*ye*. For this translation, the language consultant also used ‘hear’ instead of ‘listen’.

255. *[a-ppu=ye] pa=ku=keu inilu a-ni.*
 [NRL-boy=EXP] 3SG=call=REL listen PROG-PRES
 ‘A boy hears (someone) calling him.’ (ABT3-KA1_transitivity01-A, 93)

This similarity in case marking strategies for *ini/inilu* ‘listen’ and *chilu* ‘hear’ might simply be because the difference between the verb pairs is not one of volitionality, but along some other dimension. Consequently, tagging A arguments of these verbs as “volitional” may obscure the effect of volitionality on A case marking. Alternatively, it might be that case marking in Sümi is not sensitive to volitionality of A, at least not for verbs of perception, and that verbs of perception and emotion need to be considered separately from other verbs.

3.4.4 S Case Marking

Within intransitive clauses, I look at the effect of animacy and volitionality of S on the case marking of S. In the classification tree in Figure 18, the first split for intransitive clauses is between animate vs. inanimate S. Table 19 (repeated here) gives frequency counts and proportions for case marking of S for animacy and volitionality type. As mentioned in §3.3.5, S arguments were tagged for more than two levels of volitionality because it was unclear if intransitive subjects of verbs referring to ‘falling asleep’ or ‘waking up’, as well as verbs of posture and position, e.g. ‘bend’, ‘stay’, should be treated as non-volitional or volitional in Sümi. We can note that all inanimate S arguments in the data set are also non-volitional, while only animate S arguments can be distinguished for different levels of volitionality.

Table 19: Frequency counts of case markers on S in intransitive clauses, with proportion within each animacy and volitionality type (% of row total)

Animacy of S & Volitionality of S	Case marker on S						Total
	null/zero		=ye		=no		
	n	(%)	n	(%)	n	(%)	
Inanimate							
- Non-volitional	41	(85.4)	0	(0)	7	(14.6)	48 (100)
Animate							
- Non-volitional	7	(53.8)	2	(15.4)	4	(30.8)	13 (100)
- Sleeping	20	(40.0)	15	(30.0)	15	(30.0)	50 (100)
- Posture/Position	16	(50.0)	1	(3.1)	15	(46.9)	32 (100)
- Volitional	42	(37.2)	17	(15.0)	54	(47.8)	113 (100)
Total	126		35		95		256

Inanimate and Non-volitional S

I start this section by presenting examples of inanimate S, keeping in mind that there is a confound with animacy and volitionality, since all inanimate S arguments are also non-volitional. In the data set, there are no observations of inanimate S marked by =ye, and the majority are null marked, as in (256) and (257).

256. *o, [a-mi] inhe va.*
 oh [NRL-fire] extinguish PRF
 ‘Oh, the fire has gone out.’ (ABT3-TA2_transitivity01-A, 144)

257. *[narikol] a-sübo=lono iluqi-ghi a-ni.*
 [NA] NRL-tree=ABL fall-come PROG-PRES
 ‘A coconut comes falling down from the tree.’ (ABT3-MA1_transitivity03-A, 20)

However, a number of inanimate non-volitional arguments are marked with =no, as in (258) and (259).

258. *timi=no* *zü-a=ke=lo,*
 person=AGT sleep-IMPRF=NZR=LOC
- [a-wucho kola=no] pa=shou iku-ghi a-ni.*
 [NRL-banana skin=FOC] 3SG=upon fall-come PROG-PRES
 ‘When a man was sleeping, a banana peels falls over him.’ (ABT3-TA1_transitivity02-A, 78)
259. *a-ssü* *hipa zü-a=ke=lo,*
 NRL-grandfather PRX sleep-IMPRF=NZR=LOC
- [a-wucho=no] ikiqi=pu=no, pa=ve a-ni.*
 [NRL-banana=FOC] fall=CONN=CONN 3SG=hit PROG-PRES
 ‘This grandfather was sleeping, when a banana falls down and hits him.’ (ABT3-TA3_transitivity03-A, 15)
260. *a-sü* *lakhi a-ni.*
 NRL-wood one PROG-PRES
- tipa-u a-sü shou / a-wucho vepeku a-ni. /*
 MED-DEF NRL-wood upon NRL-banana throw.at PROG-PRES
- [a-wucho=no] ngo va.*
 [NRL-banana=FOC] stay PRF
 ‘There is a log. On that log, (someone) is throwing a banana. The banana stayed.’
 (ABT3-TA4_transitivity02-A, 60-62)

Although I use the gloss ‘FOC’ (contrastive focus) for these examples, it is actually not clear if the speakers are marking the argument for contrastive focus, i.e. singling out a referent from a set of possible entities. However, it is arguably a better gloss than ‘AGT’ (agent) since there is nothing agent-like about inanimate non-volitional referents. In the absence of a better analysis, I use ‘FOC’ for such examples.

In many of these examples, the preceding clause for the same picture/video has a different S or A. In (260), the referent of the S argument *awucho* ‘banana’ in the final clause corresponds to the referent of P in the preceding clause. This suggests that the use of *=no* in these examples is motivated by discourse context. Initially, it was thought that *=no* was being used to mark switch reference, i.e. to signal a different subject of the

clause from the preceding one. However, it is not always the case that =no is driven by a switch in S, as in (261), which was not preceded by another clause for that same video description.

261. *[a-wucho=no] a-sü=züingü ikiqi-ku a-ni*
 [NRL-banana=FOC] NRL-wood=dried.leaves fall-fall PROG-PRES
 ‘A banana is falling on dry leaves.’ (ABT3-TA2_transitivity01-A, 220)

Furthermore, data from narratives, to be presented in Chapter 5, suggest that speakers typically use =no to mark A and S arguments in clauses in the main event line, i.e. clauses that move the story forward. However, speakers still have a choice to mark A or S, as seen in (262) and (263), where the S arguments are unmarked. An alternative explanation is that these speakers are construing the narrative to be about the sleeping man, as opposed to the falling banana, but it is impossible to tell from these examples without further discourse context.

262. *a-kipti-u hipa-u=ye zü-a=ke,*
 NRL-man-DEF PRX-DEF=TOP sleep-IMPRF=NZR
- pa-kive=lo [a-wucho] iluqi iqhi a-ni.*
 3SG.POS-stomach=LOC [NRL-banana] fall go.down PROG-PRES
 ‘While this man was sleeping, a banana comes falling on his stomach.’ (ABT3-TZ2_transitivity01-A, 21)

263. *zü, a-mchou hipa-u=no zü-a=ke=no, /*
 sleep NRL-old.man PRX-DEF=AGT sleep-IMPRF=NZR=FOC
- [a-wucho koza] a-kive=lo iku-ghi a-ni.*
 [NRL-banana skin] NRL-stomach=LOC fall-come PROG-PRES
 ‘Sleeping, while this old man was sleeping, a banana peel falls on his stomach.’
 (ABT3-TA2_transitivity01-A, 243-244)

Figure 22 shows a bar plot with speaker-specific proportions of S case marking in intransitive clauses with non-volitional S arguments. Overall, most speakers consistently leave non-volitional S null marked. Only one speaker, TA1, used =no in more instances

of non-volitional S than other case markers. However, the number of speaker-specific observations is very small, and if the use of *=no* is indeed driven by discourse factors, we would need to look at more examples of non-volitional S in a variety of discourse contexts.

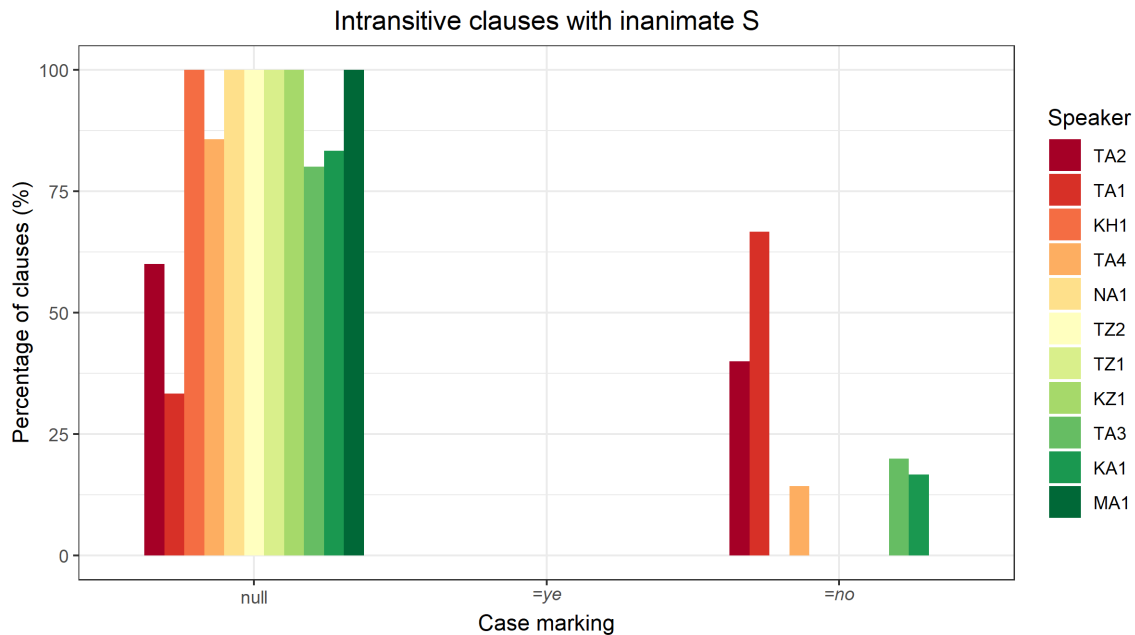


Figure 22: Bar plot showing speaker-specific proportions of S case markers in intransitive clauses with inanimate S, with speakers ordered by birth year.

Volitional S

In the classification tree in Figure 18, the first posited split for volitional S is between sleeping/waking S and posture/positional plus volitional S. This might suggest that S arguments of sleeping and waking verbs are treated more like non-volitional Ss, while S arguments of posture and positional verbs are treated more like volitional Ss. However, caution should be taken here. Table 22 gives the frequency counts and proportions of case markers according to the volitionality of animate S, Figure 23 provides a bar plot with the proportion of each case marker for each level of animacy. First, we can see that there are only a small number of observations for non-volitional S. Second, there is much more variability in the choice of case marking for different levels of volitionality. A look at inter-speaker variability would help to see if there is some interaction between speaker and volitionality of S.

Table 22: Frequency counts of case markers on animate S in intransitive clauses by volitionality of S, with proportion within each volitionality type (% of row total)

Volitionality of S (for animate S)	Case marker on S						Total	
	null/zero		=ye		=no			
	n	(%)	n	(%)	n	(%)		
Non-volitional	7	(53.8)	2	(15.4)	4	(30.8)	13	(100)
Sleeping/Waking	20	(40.0)	15	(30.0)	15	(30.0)	50	(100)
Posture/Positional	16	(50.0)	1	(3.1)	15	(46.9)	32	(100)
Volitional	42	(37.2)	17	(15.0)	54	(47.8)	113	(100)
Total	85		35		88		208	

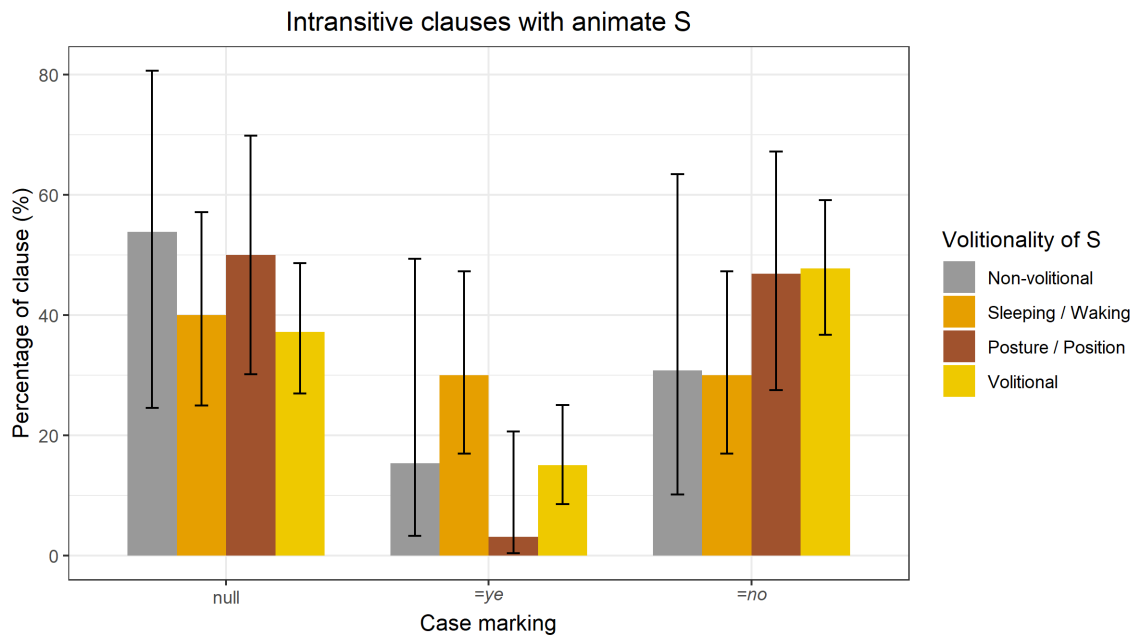


Figure 23: Bar plot showing the proportions of S case markers for different levels of volitionality of animate S. Error bars indicate 95% confidence intervals.

The first thing to note is the lack of observations of non-volitional animate S in the data set, such as in (264).

264. [timi lakhi] iluqi va.
 [person one] fall PRF
 ‘A man has fallen down.’ (ABT3-NA1_transitivity02-A, 27)

The reason for this is that when presented with a video featuring a man falling down, most speakers also described the circumstances under which he fell, as in (265)

and (266). Since the first predicate in the sequence did not refer to the falling event, these examples were not counted in the analysis of non-volitional S arguments. More examples of animate non-volitional S are therefore needed to confirm if non-volitional S arguments are more likely to be null marked when S is animate.

265. [*a-puh hipa*] *a-la che che=pu,*
 [NRL-father PRX] NRL-road walk CONT=CONN

shokho-pe veqhi a-ni.
 bump-SIM fall.down PROG-PRES

‘This father was walking, bumps (something) and falls down.’ (ABT3-TA3_transitivity02-A, 84)

266. [*timi hipa-u=no*] / *a-la che-che=ke=lo=ye,* /
 [personPRX-DEF=AGT] NRL-road walk-CONT=NZR=LOC=TOP

ne piqhe-pe iluqi va.
 step.on step.upward-SIM fall PRF

‘This man was walking when (he) slipped and fell down.’ (ABT3-TZ2_transitivity01, 149-151)

On the other hand, there is still a high amount of variance in case marking for different levels of volitionality of S, for which there are sufficient token numbers. This suggests that volitionality of S by itself does not appear to be a good predictor of case marker for animate S. Figure 24 shows speaker-specific proportions for case marking of animate S, collapsed across all volitionality types. As we can see, some speakers: KZ1, NA1 and MA1, generally produce null marked animate S, while other speakers: TA1, TZ1 and TA4, generally produce =no marked animate S, regardless of the volitionality of S.

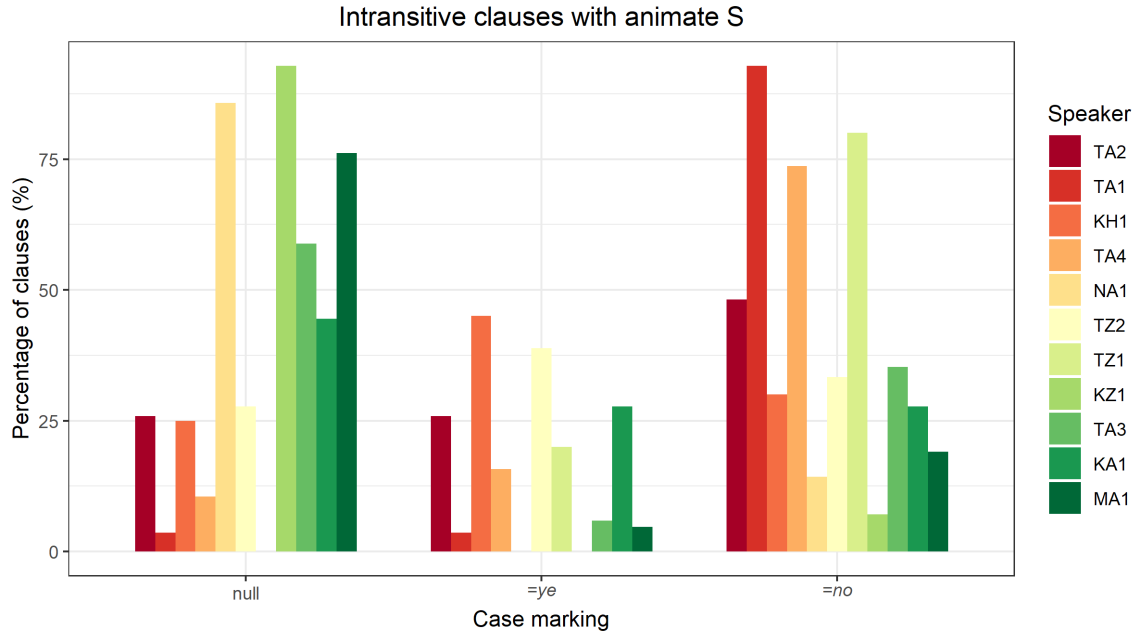


Figure 24: Bar plot showing speaker-specific proportions of S case markers in intransitive clauses with animate S, with speakers ordered by birth year.

For speakers that show more variation in case marking, volitionality of S is also not a good predictor of case marker. Instead, different verb classes might be motivating the choice of case marker. For example, KH1 tends to mark S of verbs of sitting and standing with =ye, regardless of whether they refer to a stative event, as in (267) and (269) or a dynamic event, as in (268) and (269). On the other hand, KH1 tends to mark S of translational movement with =no, as in (271) and (272).

267. [kiptimi=ye] iqa=pu=no,
 [man=TOP] sit=CONN=CONN
 ‘This man is sitting and ...’ (ABT3-KH1_transitivity01-A, 77)

268. [pa=ye] a-yeghi=lo iqa va.
 [3SG=TOP] NRL-earth=LOC sit PRF
 ‘He has sat on the ground.’ (ABT3-KH1_transitivity01-A, 84.2-85)

269. [kiptimi hipa-u=ye] | puthugho a-ni.
 [man PRX-DEF=TOP stand.up PROG-PRES
 ‘This man is standing.’ (ABT3-KH1_transitivity01-A, 185-186)

270. *[pa=ye]* *ithu-ghi=pu=no,* *u* *va.*
 3SG=TOP wake.up-come=CONN=CONN go PRF
 ‘He got up and left.’ (ABT3-KH1_transitivity01-A, 193)
271. *[kiptimi=no]* *ighi=pu=no,*
 [man=AGT] come=CONN=CONN
 ‘A man comes and ...’ (ABT3-KH1_transitivity01-A, 81.1)
272. *[a-nga=no] /* *a-lo-ki-vi-shi*
 [NRL-child=AGT] NRL-good-NZP-be.good-ADV
- a-puh=lo* *ighi* *a-ni.*
 NRL-father=LOC come PROG-PRES
 ‘The child comes happily to the father.’ (ABT3-KH1_transitivity01-A, 79-80)

Even for similar predicates, the same speaker might use any of the three case strategies, as in (273) – (276).

273. *[timi* *lakhi]* *ingu* *a-ni.*
 [person one] doze.off PROG-PRES
 ‘One man is dozing.’ (ABT3-KA1_transitivity01-A, 29)
274. *[a-mu=ye]* *ingu* *a-ni.*
 [NRL-older.brother=TOP] doze.off PROG-PRES
 ‘The brother is dozing.’ (ABT3-KA1_transitivity01-A, 65)
275. *[a-puh]* *zü* *a-ni.*
 [NRL-father] sleep PROG-PRES
 ‘A father is sleeping.’ (ABT3-KA1_transitivity01-A, 33)
276. *[a-puh=no]* *zü-a=ke=lo,*
 NRL-father=AGT] sleep-IMPRF=NZR=LOC
- pa-shou* *a-wucho* *iluqi-ghi* *a-ni.*
 3SG.POS-upon NRL-banana fall-come PROG-PRES
 ‘While a father was sleeping, a banana falls down over him.’ (ABT3-KA1_transitivity01-A, 101)

In these examples, it seems that case marking is motivated not by the semantics of the verb, but perhaps by some aspect of the discourse context. However, in such a picture and video description task, it is impossible to tell what aspects of discourse context are relevant, since speakers may be making links between particular videos that are not obvious to someone looking only at their linguistic output. Rather, we would need to look at narrative data, where discourse is more clearly structured, as we shall see in Chapter 5. In any case, what is emerging is a complex picture where verb class, discourse context and speaker all appear to be interacting.

3.4.5 Interim Summary of Findings

A and S case marking were analyzed separately, mainly because of differences in the overall proportion of case markers for transitive vs. intransitive clauses, as well as differences in inter-speaker variability for each clause type. A classification tree analysis provided additional support for dividing up the data this way, since the first split was between intransitive clauses with one core argument and transitive clauses with two or more core arguments.

Looking at the four main sub-divisions of the data, in transitive clauses with animate P, A is consistently marked with *=no*, with little variability across speakers. In transitive clauses with inanimate P, A is often marked with *=no*, but can be null or *=ye* marked by some speakers. In intransitive clauses with inanimate S, S is consistently null marked, with little variability across speakers, although *=no* is possible under certain discourse factors. In intransitive clauses with animate S, we find the most variation in case marking, which looks like the result of a complex interaction between verb classes, discourse context and speaker.

More generally, we see that in prototypical transitive clauses comprising two participants, a volitional A acting on another maximally distinguished animate P, all speakers consistently mark A with *=no*. At the other end of the transitivity continuum, a single inanimate and non-volitional participant, speakers also consistently have null marking on S. However, in between these two extremes, we do not necessarily see a gradient in semantic transitivity that matches case marking. Case marking of A seems to be more consistent across speakers given certain semantic features, i.e. animacy of P and

volitionality of A. On the other hand, case marking of S in Sümi is much more variable across speakers, suggesting the need to look at discourse context as a factor.

3.4.6 Non-canonical Constituent Order and Case Marking

In Chapter 1, it was mentioned that in languages that have differential/optional A case marking, it is often the case that A arguments in non-canonical order are obligatorily marked. In the current data set, there are only 10 examples of clauses with non-canonical constituent order, i.e. they do not have the order APV for transitive clauses, or SV for intransitive clauses.

Looking first at transitive clauses, in (277) and (278), A appears before the verb, while in (279) – (282), A appears as a right-dislocated constituent after the verb. As we saw in §3.4.3, A arguments are already typically marked by =*no*, even in clauses with canonical word order. Nevertheless, the null marked A in (282) shows that case marking is not obligatory on right-dislocated A arguments.

277. *a-ki* [*a-mi=no*] *piti* *a-ni*.
 NRL-house [NRL-fire=AGT] burn PROG-PRES
 ‘A fire is burning the house.’ (ABT3-MA1_transitivity04-A, 10)
278. *a-ngushu=shomi* / [*a-pighi=no*] *miki* *a-ni*.
 NRL-tiger=tail [NRL-snake=AGT] bite PROG-PRES
 ‘The snake is biting the tiger’s tail.’ (ABT3-TA1_transitivity02, 89-90)
279. *a-wucho* *kho* *chu* *a-ni*, / [*a-mu=no*].
 NRL-banana peel eat PROG-PRES [NRL-older.brother=AGT]
 ‘Is peeling and eating a banana, big brother.’ (ABT3-KA1_transitivity01, 43-44)
280. *a-sütsa* *chilu* *a-ni*, [*timi=no*].
 NRL-sound hear PROG-PRES [person=AGT]
 ‘Hears a sound, the man.’ (ABT3-TA1_transitivity02-A, 63-64)
281. *a-mghu* *qhipa* *a-ni*, [*timi* *lakhi=no*]
 NRL-axe keep PROG-PRES [person one=AGT]
 ‘Has kept an axe, a man.’ (ABT3-TA4_transitivity01-A, 90)

282. *a-sübo=lo* *crash shi* *a-ni, / /* *[a-mu].*
 NRL-tree=LOC NA do PROG-PRES [NRL-older.brother]
 ‘Crashing into a tree, older brother.’ (ABT3-KA1_transitivity01, 51-52)

In (283) – (285), we also see that right-dislocated S arguments can be null marked, similar to S arguments in clauses with canonical order.

283. *qe* *ngo* *a-ni,* *[pa].*
 PART stay PROG-PRES [3SG]
 ‘Just staying, him.’ (ABT3-KZ1_TZ1-transitivity01-A, 112)

284. *po* *ighi* *a-ni,* *[hipa].*
 run come PROG-PRES [PRX]
 ‘Comes running, this one.’ (ABT3-TA3-transitivity03-A, 16)

285. *puthugho=pu,* *u* *va,* *[kiptimi* *lakhi].*
 stand.up=CONN go PRF [man one]
 ‘Gets up and leaves, one man.’ (ABT3-KZ1_TZ1-transitivity01-A, 185)

Although =*ye* was not found on right-dislocated A and S arguments in the data set, this lack of examples can be attributed to the size of the data set and the overall low incidence of =*ye*. It is however attested elsewhere, as in (286) from interview data.

286. *pa=wu* *a-fo* *ngo* *pa-kimi* *kiüma=ye*
 3SG=POS NRL-older.sister and 3SG.POS-husband 3DU=TOP
- a-nga* *ithulu* *pesü* *ngo* *a-ni=ke.*
 NRL-baby see take stay PROG-PRES=NZR
- a-nga* *kughungu* *khape-sü,* *[panongu=ye].*
 NRL-baby new.born hold-put [3PL=EXP]
- ‘Her sister and her husband had a newly born baby. Carried the newly born baby, they.’ (ABT3-AA1_RZ1_interview01, 42)

On the other hand, we shall see examples in the next chapter of =*ye* functioning like a topic marker, where it only occurs on the first NP of the clause. The use of =*ye* in (286) is unlikely to be the same as in those examples.

3.4.7 =nou on A

There is one example, given in (287), of a speaker marking an A argument with =nou, containing what appears to be a definite =u after =no. The use of this marker appears to be associated with an unexpected A. When the same speaker had previously encountered a similar scene but with the roles reversed, they only marked A with =no, as in (288).

287. [küpükami=no=u] police=mi lakha a-ni
[thief=AGT=DEF] NA=person stop PROG-PRES
'A thief is stopping a policeman.' (ABT3-TA1_transitivity03-A, 100-101)

288. [police=no] timi, küpükami hakha a-ni.
[NA=AGT] person, thief catch.stop PROG-PRES
'A policeman is catching a person, a thief.' (ABT3-TA1_transitivity03-A, 46-48)

The use of =no=u in (287) cannot simply be attributed to the reversal of roles, since the same speaker described other pairs of pictures with the roles reversed using =no with both A arguments, as in (289) and (290).

289. [a-gili=no] a- shuki / loji a-ni.
[NRL-squirrel=AGT] NRL-monkey feed PROG-PRES
'The squirrel is feeding the monkey.' (ABT3-TA1_transitivity02-A, 82-83)

290. [a-shuki=no] / a-gili loji a-ni.
[NRL-monkey=AGT] NRL-squirrel feed PROG-PRES
'The monkey is feeding the squirrel.' (ABT3-TA1_transitivity02-A, 92-93)

Pictures and their role-reversed counterparts were never presented one right after the other. Only a few speakers made comparisons with a previously seen picture, but instead of a difference in case marking on A, these speakers would typically use an adverb *itehi* 'now' marked by =ye in the description of the second picture, as can be seen by comparing (291) and (292).

295. *a-nga=no* [a-puh shou] ne va.
 NRL-child=AGT [NRL-father upon] step.on PRF
 ‘The child has stepped on the father.’ (ABT3-KH1_transitivity01-A, 41)
296. *a-nga=no* / pa, / [pa-puh shou] /
 NRL-child=AGT 3SG [3SG.POS-father upon]

müngü da a-ni.
 lean.on incline PROG-PRES
 ‘A child is leaning on his, his father.’ (ABT3-KZ1_TZ1_transitivity01-A, 37-40)
297. *a-nga=no* [a-puh] neda va.
 NRL-child=AGT [NRL-father] step.on PRF
 ‘A child has stepped on the father.’ (ABT3-KA1_transitivity01-A, 27)
298. *a-nga=no* [a-puh] / mungu a-ni.
 NRL-child=AGT [NRL-father] lean.on PROG-PRES
 ‘A child is leaning on the father.’ (ABT3-NA1_transitivity01-A, 31-32)

Furthermore, a few speakers would mark P arguments with a locative marker e.g. =lo or vilo/ulo, even arguments that were not addressees of speech verbs, as in (299) – (301).

299. *timi lakhi=no* [timi lakhi=lo] sünhe a-ni.
 person one=AGT [person one=LOC] pull PROG-PRES
 ‘A person is pulling a person.’ (ABT3-MA1_transitivity02-A, 16-17)
300. *a-va=no* [a-ne ulo] sünhe che-ni.
 NRL-bear=AGT [NRL-goat to] pull HAB-PRES
 ‘The bear is pulling the goat.’ (ABT3-MA1_transitivity02-A, 12)
301. *duck=wu a-ti=no* [a-tsü ulo]
 NA=POS NRL-little.animal=AGT [NRL-dog to]

ha che-ni.
 chase HAB-PRES
 ‘The duckling is chasing the dog.’ (ABT3-TZ2_transitivity01-A, 63-64)

Recall that for most speakers, only addressees of verb *pi* ‘say’ are marked by the postposition *vilo*, as in (302).

302. *police=no* [*küpiükami* *vilo*],
 NA=AGT [thief to]

“*ngo a-ghi-lo!*” *pi* *a-ni*.
 stay EXIST-CONT-IMP say PROG-PRES
 ‘A policeman is saying to the thief, “Stop right there!”’ (ABT3-
 KA1_transitivity01-A, 87)

Consequently, a preliminary study was done to see if the same semantic factors that were tagged to study A and S case marking, i.e. animacy of P and volitionality of A, had any effect on P case marking. Table 23 gives the frequency counts and proportions of P case markers, by animacy of P, while Table 24 gives the frequency counts and proportions of P case markers, by volitionality of A. 11 clauses were excluded from the data set used to analyze S and A marking because P was not overtly mentioned.

Table 23: Frequency counts of case markers on P in transitive clauses by animacy of P, with proportion within each animacy type (% of row total)

Animacy of P	Case marker on P				Total	zero NP
	null/zero		locative			
	n	(%)	n	(%)		
Inanimate	93	(89.4)	11	(10.6)	104 (100)	5
Body part	48	(80.0)	12	(20.0)	60 (100)	
Animate	302	(83.9)	58	(16.1)	360 (100)	6
Total	443		81		524	11

Table 24: Frequency counts of case markers in transitive clauses, according to volitionality of A

Volitionality of A	Case marker on P				Total	zero NP
	null/zero		locative			
	n	(%)	n	(%)		
Volitional	40	(78.4)	11	(21.6)	51 (100)	3
Non-volitional	403	(85.2)	70	(14.8)	473 (100)	8
Total	443		81		525	11

Since P arguments were receiving locative marking, implying the presence of a location, contact between A and P was considered as an additional factor – in some

Tibeto-Burman languages, e.g. Lhasa Tibetan, verbs of contact such as *hit* take a locative-marked P argument (DeLancey 1999). Table 25 gives the frequency counts and proportions of P case markers, according to whether there is physical contact between A and P.

Table 25: Frequency counts of case markers in transitive clauses, according to contact with P

Contact with P	Case marker on P				Total	zero NP
	null/zero		locative			
	n	(%)	n	(%)		
Contact	117	(83.6)	23	(16.4)	140 (100)	8
No contact	326	(84.9)	58	(15.1)	384 (100)	3
Total	443		81		524	11

A comparison at the proportions in the data show that animacy of P, volitionality of A, and contact between A and P do not have any effect on P case marking in Sümi.

Looking at inter-speaker variation, Figure 25 shows a bar plot with speaker-specific proportions of P case marking. Three speakers: MA1, TZ2 and KH1 have a slightly higher proportion of locative-marked P arguments, and MA1 actually has a higher proportion of locative-marked P arguments than null marked P arguments.

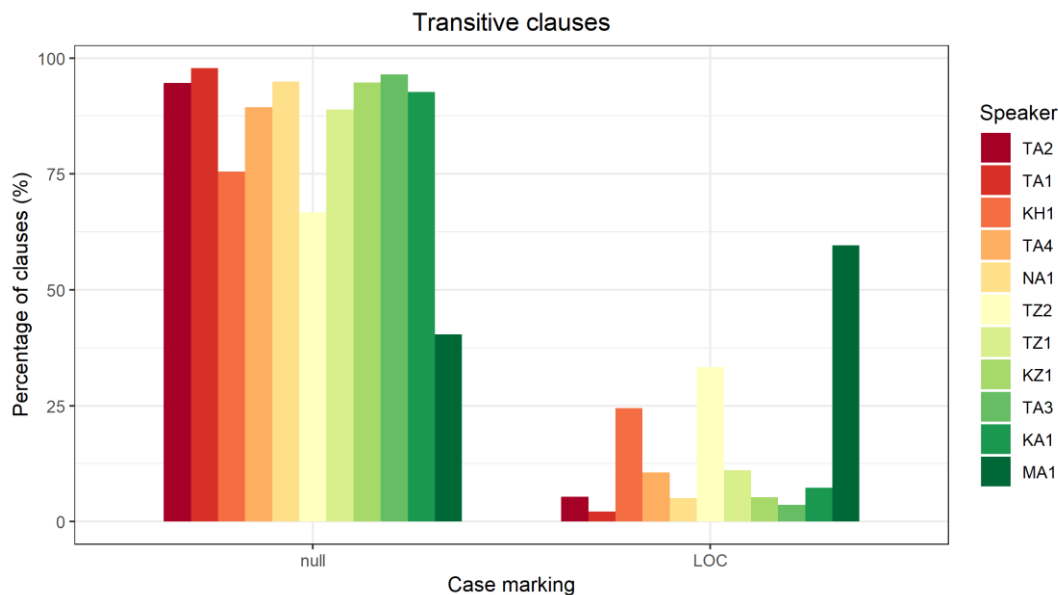


Figure 25: Bar plot showing speaker-specific proportions of P case marking in transitive clauses, with speakers ordered by birth year.

In this section, I have demonstrated that semantic factors like animacy of P and volitionality, which were used to account for A case marking, cannot be used to account for P case marking. Rather, the distribution of P case marking appears to be conditioned by specific verbs, e.g. *münü/müngü* ‘lean’ and *ne/neda* ‘step on’ and also by speaker identity, with one young speaker in particular who appears to have extended their use of the postposition *vilo/ulo* from only marking addressees of the verb *pi* ‘speak’ to P arguments more generally.

3.6 Non-verbal Predication and Contrastive Focus

In the elicitation of non-verbal predicates, speakers were asked to put contrastive focus on one element of a set, i.e. both ask and answer a question such as “Which one is longest?” Previous data had shown that the use of *=no* on subjects of verbless predicates was associated with narrow focus on the subject, as in (303).

303. [*Pa-za=no*] *Sümi.*
 [3SG.POS-mother=FOC] *Sümi*
 ‘His mother is Sümi.’ or ‘It’s his mother who is Sümi.’ (i.e. not his father)
 (conversation, unrecorded)

Several speakers produced the expected *=no* on subjects in narrow focus in both questions, as in (304), and in responses to questions, as in (305) and (306).

304. [*khi-u=no*] *a-ku-shu-u* *kea?*
 [which.one-DEF=FOC] NRL-NZP-be.long-SUPR Q
 ‘Which one is longest? (ABT3-TA4_transitivity01-A, 86)

305. [*a-sü atughu qhi-a=ke=u=no*]
 [NRL-wood first keep-IMPRF=REL=FOC]

a-ku-shu shi a-ni.
 NRL-NZP-be.tall do PROG-PRES
 ‘The wood that was kept first is the longest one.’ (ABT3-TA4_transitivity01-A, 87)

306. *[timi lakhi=no] a-ku-shu shi a-ni. /*
 [person one=FOC] NRL-NZP-be.tall be PROG-PRES

[a-u peu ngo-a=ke=u=no]
 [NRL-hand left stand-IMPRF=REL=FOC]

a-ku-shu shi a-ni.
 NRL-NZP-be.tall be PROG-PRES

‘One man is taller, the one standing on the left is taller.’ (ABT3-TA1_transitivity02-A, 14-15)

For some speakers, the subject (interrogative pronoun) was marked with =no in the question, as in (307), but the response was not, as in (308), where the predicate was not repeated.

307. *[a-sü khi-u=no] kümtsü gho=lo*
 [NRL-wood which.one-DEF=FOC] all close=LOC

a-ku-shu?
 NRL-NZP-be.tall

‘Which piece of wood is the longest?’ (ABT3-MA1_transitivity03-A, 23)

308. *[a-tüghu].*
 NRL-first
 ‘The first (one).’ (ABT3-MA1_transitivity03-A, 24)

On the other hand, some speakers also produced null marking in both questions and answers, as in (309) and (310).

309. *[hi-küdau, o-küdau a=keu]*
 [PRX-side 2SG.POS-side EXIST=REL]

a-ku-shu shi a-ni.
 NRL-NZP-be.tall be PROG-PRES

‘This side, the one towards you is taller.’ (ABT3-TA2_transitivity01-A, 152)

310. *küma [khi-u] a-ku-shu kea?*
 3DU [which.one-DEF] NRL-NZP-be.tall Q

‘Which one of the two is taller?’ (ABT3-TA2_transitivity01-A, 151)

Table 26 gives the frequency counts and proportions of case marking for the total number of clauses with narrow focus. The counts show that in the data set, more subjects of non-verbal predicates were null marked than ones that were marked with *=no*.

Table 26: Frequency counts of case marking of subjects of non-verbal predicates in narrow focus

Case marking	No. of clauses	%
null	30	54.5
=no	25	45.5
Total	55	100

Figure 26 presents bar plots of speaker-specific proportions of case marking of subjects of non-verbal predicates with narrow focus on the subject. Looking at inter-speaker variation, we can see 5 speakers consistently mark subjects in focus with *=no*, while only two speakers consistently mark subjects in focus with null marking.

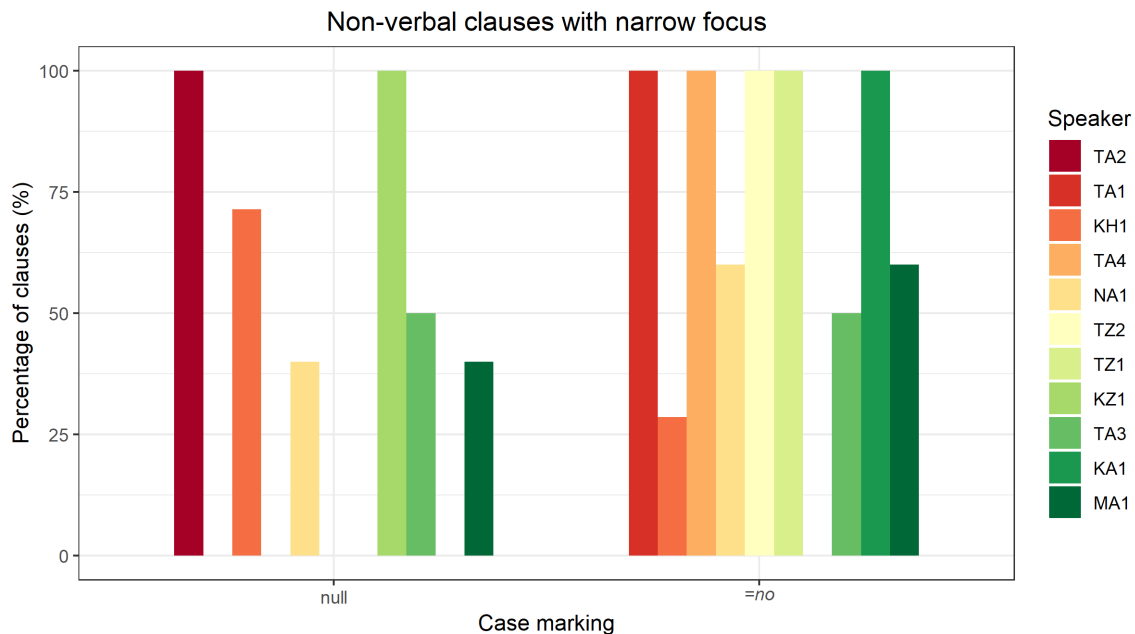


Figure 26: Bar plot showing speaker-specific proportions of case marking on subjects of verbless clauses in narrow focus, with speakers ordered by birth year.

Overall, although there were more instances of null marked subjects of non-verbal predicates in the sample, there were more speakers who marked subjects of non-verbal predicates under narrow focus with *=no*. This is still a somewhat surprising finding, given that in elicitation sessions with previous language consultants, the use of *=no* was

strongly associated with narrow focus on the subject of a non-verbal predicate. Nevertheless, as we shall see in Chapter 5, even though not all speakers produced *=no* in this task, most listeners in a perception task still associated its use with narrow focus.

3.7 Discussion

The results presented in this chapter show that the distribution of S, A and P marking cannot be accounted for by the same factors. In transitive clauses, A is consistently marked by *=no*, though there are a few examples where it is null marked when P is inanimate. On the other hand, the use of a locative enclitic or postposition, i.e. *=lo* or *ulo/vilo* by a few speakers to mark P arguments cannot be predicted by the same factors that predict A case marking. Looking at intransitive clauses, S case marking is much more variable across speakers: although examples of S that are low in animacy and volitionality are more consistently null marked, case marking of S is possibly driven more by other factors, such as discourse context.

Looking at transitive clauses, the appearance of null marked A arguments when P is inanimate could be interpreted as evidence in support for the disambiguation hypothesis, in which A arguments only receive case marking to reduce potential confusion with P. However, although it is true that all speakers consistently mark A with *=no* in clauses with animate P arguments, some speakers consistently mark A with *=no* even when P is inanimate, where there would be no need to disambiguate A from P. Instead, it appears that the default strategy for Sümi speakers is to mark an animate and volitional A with *=no*, it is just a handful of younger speakers who use null marking where it is clear from context which argument is A.

This consistent marking of A with *=no* is support for one proposed origin of the case marker. As seen in §2.7.5, agentive *=no* is homophonous with the instrumental *=no*. In addition, the object (P argument) pronominal proclitics share the same form as the possessive prefixes. These two facts are consistent with the hypothesis that the current transitive construction in Sümi is the reanalysis of an instrumental NP as the subject in a nominalized clause, as in (311):

311. *pa=no* *i=he*.
 3SG=AGT 1SG=hit
 ‘He hit me.’ (elicited) < ‘By him my hitting.’

On the other hand, one surprising finding was the low frequency of =*ye* even with verbs of perception, despite its analysis as an “experiencer” case marker from an old locative case marker, which was based on data from older speakers. A few explanations for the low incidence of =*ye* are possible: (i) the previous analysis was wrong and =*ye* should be analyzed only as a topic marker the use of which is motivated purely by discourse context; (ii) the previous analysis was based on older speakers, but its use has undergone a semantic/pragmatic shift, whereby younger and/or urban speakers have started to use it less to mark experiencer subjects; or (iii) there is simply a low incidence in the data set of the types of verbs that take a subject marked by =*ye*: with certain cognition verbs, =*ye* almost always occurs, as with *küghashi* ‘think, be under the impression’ in (312), or *mtha* ‘not know’ in (313). These predicates will be discussed further in the next chapter.

312. [*timi* *hipa-u=ye*] / *pa=ku* *a-ni*, / *küghashi*.
 [person PRX-DEF=EXP] 3SG=call PROG-PRES assume
 ‘This boy thinks (someone) is calling him.’ (ABT3-TZ2_transitivity01-A, 188-190)

313. [*ni=ye*] *Nagamese=tsa* *mtha=ke*,
 [1SG=EXP] NA=language NEG.know=NZR

kishi=pu *pa=pütsa-ni=ke?*
 how=CONN 3SG=converse-PROS=NZR
 ‘I do not know Nagamese so how will I speak to her?’ (ABT3-AA1_RZ1_interview03-A, 34)

More generally, it might be necessary to look at more specific verbs or subsets of transitive and intransitive constructions, instead of trying to generalize to larger factors such as the volitionality of A or S.

Some caveats of the task need to be mentioned as well. Although description tasks such as this one are designed so that individual stimulus items are meant to be construed

as isolated events, participants may construe each event as part of a larger narrative, especially if the same actors appear in the stimuli. Even when the actors are different, participants may construe them as contrasting with other actors. However, unlike in a traditional narrative, it is impossible to determine what constitutes the length of discourse in speakers' minds. This means we are unable to measure variables like referential distance, i.e. the length between different mentions of the same referent.

Such description tasks also lack a clear interlocuter. Participants were told to describe the scene, but it was not clear who they were describing the scenes for. Furthermore, describing what one is seeing in the moment might be an unnatural task for many participants. An optimistic view would be that such utterances reflect a purely speaker-oriented perspective, in which the speaker is trying to make sense of each scene. However, without explicit instruction and reminders to mention the participants in each scene, many speakers would produce sentences that simply included a verb, which are considered "complete" sentences in Sümi. This suggests that they must have at least a vague sense that they are communicating to someone else, but this potential variable was not controlled for.

Additionally, stimuli from a different cultural context typically contain elements that participants find difficult to recognize, e.g. animals and fruits not usually found in the geographic region; and participants' familiarity with such vocabulary items will differ greatly. Differences in production time for such items may simply come down to participants' searching for a comparable lexical item from the language or a term from another language. This process may be viewed negatively, as speakers may come out feeling like they do not know their own language, or worse, that their language is somehow inferior for not having words for such concepts. In future, it would help to produce stimuli that are more culturally appropriate. Yet despite any potential issues with the use of picture and video stimuli, they are still a useful starting point for considering inter-speaker variation in DCM of core arguments in Sümi.

3.8 Summary

In this chapter I have demonstrated that the number of core arguments in a clause affects speakers' choice of case marking strategy on A vs. S arguments, with some

interesting inter-speaker variation. Consequently, despite =*no* and =*ye* both appearing on both A and S arguments, it would be misleading to refer them to as “optional nominative” or “optional subject” markers.

For intransitive clauses, inanimate and non-volitional S arguments are consistently null marked. However, there is much variation for animate S arguments with different degrees of volitionality, which suggests that the need to look at other semantic and discourse factors to account for the distribution of case marking of S. For transitive clauses, A arguments, which are almost always animate, are generally marked by =*no*, regardless of the animacy of P. However, some younger speakers do use null marking on A when P is inanimate. Volitionality of A was not a clear determining factor for case marking, with many speakers still using =*no* on non-volitional A arguments. Importantly, it was found that the few instances of case marking on P arguments could not be accounted for by the same factors as case marking on A. Rather, the distribution of P case marking appears to be conditioned by speaker identity and by specific verbs. Finally, in verbless clauses, most speakers used =*no* on subjects to mark narrow focus, though a surprising minority used null marking.

The above findings from Sümi do not support the disambiguation hypothesis that DCM is mainly used to help identify the agent where there is potential for confusion, since most speakers mark A arguments with =*no* even when P is inanimate and there is no risk of confusion. Rather, the findings show that for some younger speakers, it is case marking that is dropped when there is no potential confusion.

These findings also appear to align with prototypical notions of semantic transitivity. In prototypically transitive clauses, i.e. ones that comprise two participants, a volitional A acting on another maximally distinguished animate P, all speakers consistently mark A with =*no*. At the other end of the continuum, in clauses with a single inanimate and non-volitional S, speakers consistently have null marking on S. However, the problem with a prototypical approach is that between these two extremes, it is difficult to treat semantic transitivity as a gradient continuum, against which we can compare case marking patterns. Rather, prototypically transitive and intransitive clauses might be epiphenomenal characterizations across case marking patterns found in specific verbs and subsets of transitive and intransitive constructions. It might therefore be

necessary to look at individual constructions instead of immediately generalizing to broad factors such as the volitionality of A or S.

In the next chapter, I begin to look at specific constructions that take =ye, and also the distribution of =ye in narratives and conversation.

CHAPTER IV

SÜMI CASE MARKING IN NATURAL DISCOURSE: =*YE*

4.1 Overview

In this chapter, I explore the distribution of =*ye* on subjects of transitive clauses (A) with specific predicates and in connected discourse. The presence of =*ye* which can occupy the same slot as =*no* in Sümi is interesting from a cross-linguistic perspective, since in many languages with DCM of A and S arguments, the choice is typically between some overt ergative case marker and null marking.

However, one surprising finding from the video and picture description task presented in the previous chapter was the low incidence of =*ye* on core arguments, particularly in transitive clauses. In light of these findings, I consider two possible, though not mutually exclusive, explanations. One, none of the transitive predicates in the data consistently take =*ye*; two, single sentence descriptions lack the discourse context under which A arguments would be marked by =*ye*.

The specific research questions I address in this chapter are:

- 1) Are there specific predicates or sub-types of transitive constructions that consistently take subjects marked by =*ye*?
- 2) Under what discourse conditions might A arguments of verbs of manipulation also be marked by =*ye*?

In §4.2, I explain further complications to the pattern of case marking on A arguments in Sümi presented in Chapter 3. In §4.3, I describe the data collection and how they was collected. In §4.4, I describe specific predicates that consistently occur with subjects marked by =*ye*. In §4.5, I then begin to examine the use of =*ye* to mark transitive subjects (A arguments) in narrative data. I suggest the factors which influence the use of =*ye* on A arguments are likely much more complicated than what can be observed from narrative data and point to other directions to consider in the future.

4.2 Background

In previous descriptions (Hutton 1921/1968, Sreedhar 1980, Teo 2012), it was shown that =*no* and =*ye* occur in the same slot when marking core arguments. In Teo (2012), I noted that in clauses with two core arguments, =*ye* was often found to occur with experiencer subjects, as seen in (314), (315) and (317). In (315), *shi* is also translated as ‘happen’ instead of ‘do’ when A is marked by =*ye*, cf. (316) where *shi* is translated as ‘do’.

314. [ni=*ye*] ni-nga=*sütsa* chu-mla-va-i.
 [1SG=EXP] 1PL-daughter=voice hear-INABIL-PRF-EMPH
 ‘I no longer hear any news from my daughter (lit. ‘our daughter’s voice’).’ (IZ1-20070905-Kutuli_Bird_Story_short-A, 20.3)

315. [ni-nga=*ye*] kuu shi-va kea?
 [1PL.POS-daughter=EXP] what happen-PRF Q
 ‘What has happened to my daughter?’ (lit. ‘our daughter’) (IZ1-20070905-Kutuli_Bird_Story_short-A, 20.2)

316. [ni-nga=*no*] kuu shi-va kea?
 [1PL.POS-child=AGT] what do-PRF Q
 ‘What has our daughter done?’ (elicited, unrecorded)

317. [pa=*ye*] a-zhi pele-ve.
 [3SG=EXP] NRL-blood spill-VM
 ‘He was bleeding.’ (elicited, unrecorded)

318. [pa=*no*] a-zhi pele-ve.
 [3SG=AGT] NRL-blood spill-VM
 ‘He threw away blood.’ (elicited, unrecorded)

A comparison of (317) with (318) suggests that =*ye* is associated with low volitionality and control, while =*no* is associated with high volitionality and control. We would therefore expect more examples of =*ye* on A arguments with low volitionality. However, the findings from Chapter 3 suggest that volitionality of A has little effect once animacy of P is taken into account. Most speakers still marked subjects of verbs of perception and emotion, e.g. *ithulu* ‘see’, *chilu* ‘hear’, *msah* ‘be afraid’, with =*no*.

The absence of a strong effect may be due to various reasons, including language change where younger speakers are using *=no* as a more general subject marker. It may also be the case that there are only a few predicates that consistently take *=ye* marking, including *shi* ‘happen’ and the negated form *khumu shi* ‘do nothing’, as we shall see in §4.4. These predicates did not appear in the data set used in the previous chapter. Furthermore, although these specific predicates are associated with an A that has low volitionality, this does not mean that all A arguments that are low in volitionality are more generally marked by *=ye*.

A second issue is that the data presented in the last chapter were mainly short descriptions of events. In data from longer narratives, examples of which will we see in this chapter, there are instances of animate and volitional A arguments marked by *=ye*. For instance, if animacy and volitionality were the only factors that influenced case marking, we would expect the A in both (319) and (320) to be marked by *=no*, since both involve animate volitional As with nearly identical predicates.

319. *tishi=no, /*
like.that=CONN

[*küma=no*] [*a-xone*] / *lho-chu-phe.*
[3DU=AGT]_A [NRL-ferm.soya.beans]_P cook-eat-start
‘Henceforth, the two (sisters) started to cook and eat *axone* (a fermented soya bean dish).’ (IZ1-20080620-Origin_of_Axone-A, 31-32)

320. *püzü=no, /* *tingu=no* *a-la-u=ye, /*
CONJ=CONN because.of.that=FOC NRL-path-DEF=TOP

[*Sümi=qo=ye*] [*a-xone*] *lho-chu /* *u-ve. /*
[Sümi=PL=TOP]_A [NRL-ferm.soya.beans]_P cook-eat INCEP-VM
‘And consequently from then on, the Sümis have cooked and eaten *axone*.’ (IZ1-20080620-Origin_of_Axone-A, 33-36)

Similarly, in the modern Sümi translation of the Prodigal Son parable (Luke 15: 11-32, *Sümi Baibel*), the A argument *opuh* ‘your father’ of the prototypically transitive verb ‘kill’ is marked by *=ye* in (321).

321. *[O-thikuzüu=ye]* *a-ki=lo*
 [2SG.POS-young.brother=TOP]_s NRL-house=LOC
- ide* *ighi-va-e,* *ti-ghengu=no* *[o-puh=ye]*
 go.back come-PRF-EMP MED-because=FOC [2SG-father=TOP]_A
- [a-mishi-ti* *a-thakupuu* *hu]* *he-qhi-va-e.*
 [NRL-cow-baby NRL-fattened DIST]_P hit-kill-PRF-EMP
 ‘Your brother has come, and because of that, your father has killed the fatted calf.’ (Luke 15: 27)

In these examples, a few different, though not necessarily competing, explanations are possible. One is that the use of =*ye* is used to set up some kind of contrast between two different subjects. In (319) vs. (320), there is a contrast between the two sisters and Sümis in general; while in (321), there is a contrast between the brother of the addressee and the father of the addressee. A contrastive interpretation of =*ye* was also noted as one possibility for the following elicited sentence:

322. *[a-kii-ka-u=ye]* *a-zah* *tsü-ve.*
 [NRL-NZP-rule=TOP] NRL-command give-VM
 ‘The chief gave a command.’ (elicited, unrecorded)
 (i) has a sarcastic reading and implies no one obeyed him (he was ineffective); or
 (ii) implies someone else was doing something, but ‘as for the chief...’.

Another explanation might be that =*ye* is used for subjects that are not part of the main storyline or are used at the end of the main event line of a narrative. The main event line includes clauses that describe events which drive a story forward (Payne 1992, 2015), which align with what Hopper and Thompson (1980) describe as foregrounded information, while clauses that are not part of the main event line are associated with backgrounded information. The example in (320) is the last line in the story and describes what happens after the end of the main event line of how the two sisters discovered how to make *axone*, a fermented soya bean dish; while the example in (321) was taken from dialogue said by a servant, who was describing actions that had already taken place in the main event line. It would therefore be worth looking at other narratives to see if =*ye* mainly appears on clauses that lie outside the main event line.

In the rest of this chapter, I first look at some predicates that consistently take =*ye*. I then consider the use of =*ye* in narratives, particularly when introducing a new referent or when switching to another referent as the instigator of a new action. Unlike in studies of other languages where pronominal A and S have different case marking patterns to full lexical NPs, I will not be examining pronominal A and S separately from full lexical NPs. In sentence elicitation, case marking on lexical NPs vs. pronouns has not shown to be vastly different. Moreover, when looking at data from narratives, the difference in structural category between lexical NPs and pronoun is confounded with their discourse status. Pronominal arguments typically have a different discourse status from full lexical NPs, i.e. most pronouns are usually co-referential with entities that have already been mentioned in a discourse or are assumed by the speaker to be retrievable to the listener, while full lexical NPs often introduce new referents to a discourse.

4.3 Data and Method

The data analyzed come from three sources: (i) speakers' description of a short *Cat and Fish* video from the Questionnaire for Information Structure (QUIS) (Skopeteas et al. 2006); (ii) speakers' *Pear* Stories i.e. retelling of the events of the *Pear Film*; and (iii) interviews with pairs of speakers about various topics, in which they were asked to recount their experiences and contrast them with the other person's. A description of each of these three data subsets will be provided at the start of each relevant section.

The QUIS video came from Field Method Session Manual One (version 5.1) (Skopeteas et al. 2006); showed a cat coming to eat a fish in a bowl, but the fish barks and scares the cat away. Although the video was originally intended to elicit linguistic expressions of surprise, the expressions elicited from this task did not differ from the other picture/video descriptions presented in Chapter 3. Nevertheless, the cat and fish video task did elicit short narratives that featured referent switching.

The *Pear Film* is a six-minute film with no dialogue that was developed by Wallace Chafe at the University of California at Berkeley in 1975. It has been used to study cross-linguistic narrative structure (Chafe 1980), with speakers of different languages asked to watch it and recount the events of the film. When only one speaker was available, that speaker was asked to watch the film alone, before recounting the

events of the film to the researcher. When two speakers were available to do the task together, they were asked to watch the film together. One speaker was then asked to recount the events of the film to the researcher and the project's main language consultant. The second speaker was then asked to add anything that the first speaker has missed. The two speakers were then asked about their attitudes towards the participants in the film by the main language consultant.

When two speakers were present, the main language consultant would then conduct short interviews with the participants, asking them to describe (i) their experiences during an earthquake that had hit the state a few weeks earlier; (ii) their experiences during a public protest that had happened in Dimapur four years earlier; and (iii) attitudes towards the use of Nagamese in Nagaland, where one person was asked to argue for its use and the other person against it. After the first person presented their experience or attitude, the second person was asked to repeat the first person's story or argument and then contrast their experience and argument with those of the first person.

4.3.1 Participants

All participants were native speakers of Sümi who were living in Dimapur, Nagaland at the time of recording. 10 speakers, 6 female and 4 male, did the QUIS video description task and Pear Story task alone. 2 of these speakers were over 50 years of age, 3 were between 25 and 50, and 4 were under 25. 18 speakers did the Pear Story task in pairs, as well as the interview task.

4.3.2 Recording and Procedure

All participants did the tasks in a quiet room in the presence of the main researcher. A Tascam DR-100MK-II was used for digitally recording at a sampling rate of 44.1 kHz. 7 of the participants who did the tasks individually used a Shure head-worn dynamic microphone, but for the other participants, the Tascam's built-in microphone was used where the head microphone and/or multiple head microphones were unavailable.

324. *[a-küpiina kutomo] shi-a=ke=ke.*
 [NRL-argue a.lot]s happen-IMPRF=NZR=NZR
 ‘There were many troubles.’ (lit. ‘A lot of trouble was happening.’) (ABT3-KZ1_TZ1-interview03-A, 10.2)
325. *ziüle=no, i=wu relative lakhi=no*
 suddenly=FOC 1SG=POS NA one=AGT
- i=ulo phone shi=pu=no,*
 1SG=to NA do=CONN=CONN
- [panongu=ye] [a-küpiina] shi a-ni*
 [3PL=EXP] [NRL-argue] happen PROG-PRES
- pi i=vilo pi=ke va.*
 say 1SG=to say=NZR PRF
 ‘Suddenly one of my relatives phoned me and told them me they were in trouble.’
 (ABT3-KA2_LJ1_interview02-A, 35)

In similar constructions in which the verb *shi* is translated as ‘happen’, there is some variation in how the experiencer of the action is marked for case. For instance, in (326) and (327), the experiencer takes a locative marker. The complementary distribution of =*ye* with these locative markers supports the hypothesis that the origin of =*ye* in this construction is an old locative (Teo 2018).

326. *momu kualala happen shi=ke shi-a,*
 or something NA happen=NZR happen=IMPRF
- [nongu=qo gho=lo] lei?*
 [2PL=PL close=LOC] DP
 ‘Or did anything happen to you all?’ (ABT3-AA1_RZ1_interview02-A, 14)
327. *[timi=lau ghi] ti-shi va=ke=lo*
 [person=LOC also] MED-happen PRF=NZR=LOC
 ‘It had also happened to others.’ (ABT3-KA2_LJ1_interview02-A, 84)

It is also possible for =*ye* to appear on the subject of a transitive light verb clause containing *shi* with the sense of ‘do’, but only when the clause is in the negative. In the

333. [pa=ye] aware shi-mo-ve=ke=no
 [3SG=TOP] NA do-NEG-VM=NZR=FOC
 ‘He was not aware.’ (ABT3-MZ1_JZ1_interview01_soft-A, 24)

In contrast, with positive *shi*, the A argument is generally marked by =no, as in (334) – (336) or is sometimes null-marked, as in (337).

334. [ningu=no] Nagamese use shi u-ve noshi pi aye
 [1PL=AGT] NA NA do INCEP-VM ? say if
 ‘If we start using Nagamese ...’ (ABT3-VS1_KY1_interview02-A, 3.1)

335. ni=ye / [pa=no] zügha shi a-ni küghashi lei.
 1SG=EXP] [3SG=AGT]_A joke do PROG-PRES assume DP
 ‘I thought he was joking.’ (ABT3-AC1_IC1_interview02-A, 85.2-86)

336. züle=no, [i=wu relative lakhi=no]
 suddenly=FOC [1SG=POS NA one=AGT]_A

i=ulo phone shi=pu=no,
 1SG=to NA do=CONN=CONN

panongu=ye a-küpiina shi a-ni
 3PL=EXP NRL-argue happen PROG-PRES

pi i=vilo pi=ke va.
 say 1SG=to say=NZR PRF

‘Suddenly one of my relatives phoned me and told them me they were in trouble.’
 (ABT3-KA2_LJ1_interview02-A, 35)

337. funny=keu [ni] pa=forward shi=ke =lo,
 NA=REL [1SG] 3SG=NA do=NZR=LOC
 ‘Because it was funny, when I forwarded it to him...’ (ABT3-AC1_IC1_interview02-A, 74.1)

This pattern of case marking with negative *shi* predicates may also be found with other predicates, such as *pi* ‘speak’ in (338). However, =no has been found to occur with subjects of predicates in the negative, as in (339). This suggests that further work needs to look at the effect on A case marking of negative polarity with different kinds of predicates.

338. [ningu=qo=ye] / English pi-mo-ve che-ni lei
 [1PL=PL=TOP] NA say-NEG-VM HAB-PRES DP
 ‘We will stop speaking English (ABT3-VS1_KY1_interview02-A, 3.2-4)
339. pa=no i=pütsa-mu [i=no] buji-mo na
 3SG=AGT 1SG=converse-even.though [1SG=AGT] NA-NEG DP
 ‘Even if she talks to me, I will not understand.’ (ABT3-AA1_RZ1_interview03-A, 35)

4.4.2 *küghashi* ‘assume, think’ and *kümsü* ‘think’

Another predicate that consistently takes a subject marked by =ye is *küghashi* ‘assume, think’. This source of this verb is unknown but it may have its origins in the verb *shi* described above. The sentence frame construction it typically appears in is presented in Figure 27.

NP=*ye* Clause/NP *küghashi*

Figure 27: *küghashi* ‘assume’ sentence frame construction

An example from the video and picture description task is given in (340). Although *küghashi* has been glossed here as ‘assume’ and translated as ‘thinks’, another translation might ‘It seemed to the boy that (someone) was calling him’.

340. [timi hipa-u=ye] / [pa=ku a-ni] / küghashi.
 [person PRX-DEF=EXP] [3SG=call PROG-PRES] assume
 ‘This boy thinks (someone) is calling him.’ (ABT3-TZ2_transitivity01-A, 188-190)

There are only 6 instances of *küghashi* with an overt subject in this data set, but none of them take a subject marked by =no. The other examples are given in (341) – (343). There was one example with a null marked A, (344), though this was produced by TA3, a speaker who in the video and picture description task, produced the highest proportion of null marked A arguments when P was inanimate.

341. *[ni=ye] / [pa=no zügha shi a-ni] küghashi lei.*
 [1SG=EXP] [3SG=AGT joke do PROG-PRES] assume DP
 ‘I thought he was joking.’ (ABT3-AC1_IC1_interview02-A, 85.2-86)
342. *[pa=ye] [küghütha ta-ve-ne] küghashi=ke.*
 [3SG=EXP] [quake finish-VM-PROS] assume=NZR
 ‘She thought the quake would stop quickly.’ (ABT3-HC1_AZ2_interview01-A, 99.1)
343. *[pa=ye] / atüghu=lo=ye /*
 [3SG=EXP] first=LOC=TOP
- [khumu kumo] küghashi=ke=mu,*
 [nothing NEG.COP] assume=NZR=even.though
- itha-ve=ke=u.*
 move-VM=NZR=DEF
 ‘At first she thought (it) was nothing, but then it kept shaking.’ (BT3-KH1_KH2_interview01-A, 31-33)
344. *[pa] [pa=no küthü] küghashi-ve=no*
 [3SG] [3SG=ASSOC.PL three] assume-VM=CONN
- pi a-ni.*
 say PROG-PRES
 ‘He thought it was the three of them.’ (ABT3-TA3_pearstory01-A, 75.2)

In contrast, another verb associated with cognition, *kümsü* ‘think; remember’ frequently takes a subject marked by =no. Despite the similarity in semantics, out of 19 occurrences of *kümsü* with an overt subject, 17 took a subject marked by =no, as seen in (345) and (346), while one took a subject marked by =ye, as in (347), and one had a null-marked subject, as in (348).

345. *i=ke=lo [i=no] kümsü=keu=ye*
 PRX=NZR=LOC [1SG=AGT] think=REL=TOP
 ‘And so what I thought was ...’ (ABT3-AC1_IC1_interview02-A, 84.1)

346. *[i=no] kümsü-a=ke kuto=lo=ye,*
 [1SG=AGT] think-IMPRF=NZR until=LOC=TOP
- a-yi bidi pungu qha=lo*
 NRL-hour four five vicinity=LOC
- shi a-ghi-nani.*
 happen EXIST-CONT-FUT
 ‘As far as I can recall, it must have happened around 4 and 5.’ (ABT3-KZ1_TZ1_interview01-A, 4)

347. *[ni=ye] tishi kümsü shi a-ni=pu*
 [1SG=TOP] like.that think do PROG-PRES=CONN
 ‘I think like that.’ (ABT3-KZ1_TZ1-interview03-A, 94.2)

348. *[panongu] kümsü=keu=ye ...*
 [3PL] think=REL=TOP
 ‘What they think is ...’ (ABT3-AJ1_IA2_interview01-A, 90)

On the other hand, A arguments of the predicate *kümsüna* / *kümsüma* ‘forget’, which is likely derived from *kümsü* and a negative morpheme, were often marked by =*ye*, as seen in (349) – (351).

349. *earthquake ighi=ke=ghuloki=lo*
 NA come=NZR=time.period=LOC
- [pa=ye] time=ye kümsüna va pi a-ni,*
 3SG=EXP NA=TOP forget PRF say PROG-PRES
- exact time=ye lei.*
 NA NA=TOP DP
 ‘He has forgotten the time, the exact time when the earthquake happened.’
 (ABT3-AJ1_IA2_interview01-A, 47)

350. *[i-puh ngo i-za=ye]*
 [1SG.POS-father and 1SG.POS-mother=EXP]

ni-küthü kümsüma-ve=ke.
 1PL-three forget-VM=NZR
 ‘My parents forgot about the three of us.’ (ABT3-KA2_LJ1_interview01-A, 105)

351. *[pa=ye] pa=wu a-kütsüqho iluqi-ve=keu tipa-u*
 [3SG=EXP] 3SG=POS NRL-hat fall-VM=REL MED-DEF

lu kümsüma-ve=ke=mu,
 take forget-VM=NZR=even.though
 ‘He forgot to take his hat which had fallen down, but ...’ (ABT3-
 HC1_AZ2_pearstory01-A, 44-45)

A comparison of *küghashi* and *kümsü* highlights the need to look at predicate-specific patterns of case marking. At the same time, one cannot help but notice similarities between the negative forms of *kümsü* and *shi* (in §4.4.1), which suggests that there may still be more generalizable patterns operating over these predicate-specific patterns.

4.4.3 *ithi* ‘know’ and *mtha* ‘not know’

Finally, two predicates that often take =*ye* marked subjects are *ithi* ‘know’, as in (352) and (353), and *mtha* (or *ithi amo*) ‘not know’, as in (354) – (357).

352. *i=pu [ningu=ye] Nagamese-tsa*
 PRX=CONN [1PL=EXP] NA-language

ithi a-ghi masa=ke na.
 know EXIST-CONT must=NZR DP
 ‘So we must know Nagamese.’ (ABT3-AA1_RZ1_interview03-A, 52.2)

The *i-* prefix on *ithi* points to a possible intransitive origin for this verb¹² with the original construction possibly something like ‘be known to (subject)’. However, some younger speakers also use null marked A arguments with these verbs, as in (358) and (359). A more systematic analysis of inter-speaker variation in case marking is needed for these predicates.

358. [ni] *a-lo-shi*, /
[1SG] NRL-good-ADV

a-lo-shi *ithi-mo* *va* *a=ke*,
NRL-good-ADV know-NEG PRF EXIST=NZR

khaghi *shi* *va=ke* *lei*.
long.ago happen PRF=NZR DP

‘I do not remember well because it’s been long time.’ (lit. ‘I no longer know (it) well, (it) happened in the past.’) (ABT3-AJ1_IA2_interview02-A, 5-6)

359. [no] *incident* *hipa-u* *ghili* *mtha?*
[2SG] NA PRX-DEF about NEG.know

‘Don’t you know about this incident?’ (ABT3-AC1_IC1_interview02-A, 75)

Finally, it is possible for A arguments of these verbs to be marked by =*no*, as in (360), even though most examples in the data have A arguments marked by =*ye*.

360. *ku-ghengu* [i=no] *Nagamese-tsa* *mtha=ke=lo*,
what-because [1SG=AGT] NA-language NEG.know=NZR=LOC

[ni=*ye*], / [ni=*ye*] *Nagamese-tsa* *mtha=ke*,
[1SG=EXP] [1SG=EXP] NA-language NEG.know=NZR

kishi=pu *pa=pütsa-ni=ke?*
how=CONN 3SG=converse-FUT=NZR

‘Because if I don’t know Nagamese then I, I do not know Nagamese so how will I speak to her?’ (ABT3-AA1_RZ1_interview03-A, 33-34)

¹² The presence of an epenthetic *gh-* /*y*/ in the nominalized form *a-ki-ghithi* ‘knowledge’ (‘NRL-NZP-know’) also suggests an older **ri-* prefix, since **r* > *y* in Sümi (Teo 2014: 104-105). If this is the source, then *i-* could be cognate with the prefix *ri-* still found on intransitive verbs in Angami (Giridhar 1987).

In (360) specifically, it is unclear why the speaker chose to mark A with =*no* in the first clause, but =*ye* in the second. It is possible this is a self-correction, since =*ye* is more commonly found on subjects of the predicate *mtha*.

4.4.4 Summary

In this section, I have shown that there are some predicates which, when they appear in natural discourse, are more likely to take a subject marked by =*ye*. Furthermore, although subjects of these predicates are associated with low volitionality, not all predicates with low volitionality take subjects consistently marked by =*ye*, including *kümsü* ‘think’ and the verbs of perception and emotion in Chapter 3. This again points to the need to consider predicate-specific constructions instead of trying to generalize to factors such as the volitionality of A. Moreover, negated constructions also need to be considered separately, at least for some predicates, though they occur rarely in the current data set. Therefore, the low incidence of =*ye* in the data presented in Chapter 3 might be somewhat explained by the lack of predicates that consistently take subjects marked by =*ye*, as well as the lack of negated clauses.

On the other hand, there are examples in narratives where A arguments, even prototypical A arguments of verbs like ‘kill’, can be marked by =*ye*, as seen in §4.2. In the next section, I explore some possible explanations for the use of =*ye* in such contexts, looking at potential interactions between the syntactic and semantic factors studied in Chapter 3 and discourse factors associated with narrative structure.

4.5 Argument Marking in Narratives

The examples presented in §4.2 suggested that =*ye* might be used to contrast different A and S arguments, though the exact nature of the contrast is not entirely clear. As a starting point, I therefore wanted to see if =*ye* was used to switch between referents in narratives. I look at data from two narratives: the *Cat and Fish* mini narrative and *Pear Stories*.

4.5.1 Referent Introduction and Switching in *Cat and Fish* Mini Narrative

Table 27 provides a summary of the number of clausal units in the *Cat and Fish* mini narratives, and the number of clauses with overt S/A NPs: across the 10 speakers, an average of 8.1 clauses per speaker were produced in this mini narrative task. Out of these 81 clausal units with the potential for an S/A NP to be expressed, 50 clauses (61.7%) were produced with an overt S/A NP.

Table 27: Frequency counts of clauses in *Cat and Fish* mini narratives with overt vs. zero S/A argument

S/A argument	No. of clauses	%
overt NP	50	61.7
zero NP	31	38.3
Total	81	100

Table 28 gives a breakdown of the 50 clauses with overt S/A NPs according to the transitivity of the clause.

Table 28: Number of clauses with overt S or A in *Cat and Fish* mini narratives

Clause type	No. of clauses	%
Intransitive	25	50.0
Transitive	20	40.0
Ambitransitive	5	10.0
Total	50	100

Table 29 gives the frequency and proportion of case markers in intransitive and transitive clause types. All examples of ambitransitive clauses involved the verb *msah* ‘be afraid/scared (of)’. We can observe a high occurrence of =*no* in two thirds of the clauses with an overt S/A argument, followed by null marking in 9 clauses (36.0%), and a low occurrence of =*ye* in only 3 clauses (6.0%).

Table 29: Frequency counts of case markers by clause type, with proportion within each clause type (% of row total)

Clause type	Case marker on S/A						Total	
	null/zero		=ye		=no			
	n	(%)	n	(%)	n	(%)		
Intransitive (S)	9	(36.0)	0	(0)	16	(64.0)	25	(100)
Transitive (A)	2	(10.0)	1	(5.0)	17	(85.0)	20	(100)
Ambitransitive (S or A)	3	(60.0)	2	(40.0)	0	(0)	5	
Total	14	(28.0%)	3	(6.0%)	33	(66.0)	50	

Given the small sample size, a qualitative analysis will be done here, looking specifically at the distribution of case marking in clauses that introduce new referents and clauses that include a switch in referent from the previous clause.

In the rest of this section, I look for potential interactions between the syntactic and semantic features described in the previous chapter, i.e. number of core arguments, animacy and volitionality, with discourse context, i.e. the opening sentence of the narrative, and a switch in referent. Specifically, I want to see if the use of =ye is associated with a switch reference, given previous analyses of =ye as a contrastive topic marker that can be translated as ‘as for X’.

The clauses in (361) – (363) present an example of a mini narrative as told by a single speaker, KH1. This was the speaker has the highest proportion of =ye marked A arguments in the video and picture description task. When introducing the cat in (361), =no is used to mark an a volitional animate A that appears in a serial verb construction ‘come eat fish’. When switching subjects in (362), the volitional animate S subject is marked by =no. In the final sentence (363), the non-volitional subject, which might be S or A, is null marked.

361. *[a-khosa=no]* / *[a-kha]* / *chu-ni* *ighi=ke=mu,* /
 [NRL-cat=AGT]_A [NRL-fish]_P eat-FUT come=NZR=NEG

miqi-a=ke=lo=ye, /

hide.watch-IMPRF=NZR=LOC=TOP

‘A cat came to eat a fish, but while hiding and watching, ...’ (ABT3-KH1_transitivity01-A, 154-157)

362. *[a-kha=no]* / *igha=ke=lo=ye,*
 [NRL-fish=AGT]_S shout=NZR=LOC=TOP
 ‘When the fish shouted,’ (ABT3-KH1_transitivity01-A, 158-159.1)
363. *[a-khosa]* / *msah=puno, po va.*
 [NRL-cat]_{S/A?} be.afraid=CONN run PRF
 ‘The cat got scared and ran away.’ (ABT3-KH1_transitivity01-A, 159.2-160)

Looking first at the opening sentence of the 10 mini narratives, 6 begin with a transitive construction. In all 6 sentences, the cat is introduced as an A argument and is always marked by =no. Examples of the first lines of the story from three different speakers are given in (364) – (366).

364. *[a-khosa=no]* *[a-kha]* *chu-ni* *ighi=ke=lo,*
 [NRL-cat=AGT]_A [NRL-fish]_P eat-FUT come=NZR=LOC
 ‘When a cat came to eat the fish,’ (ABT3-KA1_transitivity01-A, 90.1)
365. *[a-khosa=no]* *[a-kha]* *chu-ni=ke=lo,*
 [NRL-cat=AGT]_A [NRL-fish]_P eat-FUT=NZR=LOC
 ‘While a cat was going to eat fish,’ (ABT3-TA3_transitivity01-A, 100.1)
366. *[a-khosa=no]* / *[a-kha]* *a-jukhu=lo* *siipa=ke=u* /
 [NRL-cat=AGT]_A [NRL-fish] NRL-cup=LOC put.in=NZR=DEF]_P

ha a-ni, ju a-ni.
 chase PROG-PRES look.at PROG-PRES
 ‘A cat is hunting, looking at the fish that was put in a cup.’ (ABT3-TA1_transitivity02-A, 50-52)

In three of the opening sentences that contained intransitive sentences introducing the cat or the fish, as seen in (367) – (369), S is marked by =no. Only in one opening intransitive sentence is S null-marked, as in (370).

367. *[a-khosa=no]* / *a-zü* / *a-kha* *phi=lo* *ighi=pu*
 [NRL-cat=AGT]_S NRL-water NRL-fish near=LOC come=CONN
 ‘A cat comes to water, to the fish and ...’ (ABT3-MA1_transitivity04-A, 33-35.1)

368. *[a-kha=no]* / *a-yi,* *glass-li=lono* /
 [NRL-fish=AGT]_s NRL-metal NA-pot=ABL
- a-zü=lo* *ili* *che-ni*
 NRL-water=LOC play CONT PRES
 ‘A fish is playing in water in the glass.’ (ABT3-TA4_transitivity02-A, 49-51)
369. *[a-kha* *hipa-u=no]* *a-zü=lo*
 [NRL-fish PRX-DEF=AGT]_s NRL-water=LOC
- a-lo* *ki-vi-shi* *ngo-a=ke=lo=ye*
 NRL-good NZP-be.good-ADV stay-IMPRF=NZR=LOC=TOP
 ‘This fish was happily staying in the water when...’ (ABT3-TZ2_transitivity01-A, 180.1)
370. *[a-kha* *lakhi]* *a-zü* / *a-zü=lo* *ngo* *a-ni.*
 [NRL-fish one]_s NRL-water NRL-water=LOC stay PROG-PRES
 ‘A fish is in the water’ (ABT3-NA1_transitivity02-A, 58-59.1)

These examples are still in line with the findings from the picture and video description task, where animate volitional A arguments were consistently marked by =no, while animate S arguments with verbs of manipulation and posture/posture tended to have an equal likelihood of being marked by either null or =no (see Figure 18). It is difficult to make a full comparison given the small sample size, but it should be noted that no S or A argument in the opening sentence of this mini narrative were marked by =ye. However, when asked to substitute these other case markers with =ye in this particular discourse consultant, my main language consultant judged these as sounding odd, but could not explain why. It would therefore be interesting to look at more narratives to see if the first mention of an S/A argument is not marked by =ye. This may help explain the low incidence of =ye in the picture and video description task, since each description would generally correspond to the first mention of a referent.

Looking at switch reference, there were 7 transitive sentences, 17 intransitive sentences and 3 ambitransitive sentences that introduced a switch in referent, i.e. from cat to fish or from fish to cat. Across all sentences, 17 S/A arguments were marked by =no, 7 were null marked, and only 3 were marked by =ye. Examples of S/A arguments marked by =no are given in (371) – (374). Since these all refer to animate volitional referents,

which is in line with the analysis in the previous chapter, they will not be discussed further.

371. *[a-kha=no]* *[pa]=gheha a-ni.*
 [NRL-fish=AGT]_A [3SG]=bark PROG-PRES
 ‘The fish is barking at it.’ (ABT3-TA3_transitivity01-A, 100.2)
372. *[a-kha tipa-u=no] / [a-tsü hi=toi*
 [NRL-fish MED-DEF=AGT]_A [NRL-dog PRX=be.like
- a-gha] igha-pe pa=piye=ke,*
 NRL-noise]_P shout-SIM 3SG=show=NZR
 ‘The fish made a sound like a dog for (the cat) to hear.’ (ABT3-TZ2_transitivity02-A, 183.2-185.1)
373. *[a-kha=no]* *[a-khosa] / gheha a-ni.*
 [NRL-fish=AGT]_A [NRL-cat]_P bark PROG-PRES
 ‘The fish is barking at the cat.’ (ABT3-TA1_transitivity02-A, 56-57)
374. *[a-kha=no] / [a-tsü ghili-shi] shi=pu,*
 [NRL-fish=AGT]_S [NRL-dog about-ADV] do=CONN
- shi-kü-msah,*
 CAUS-NZP-be.afraid
 ‘The fish acted like a dog and scared (it),’ (ABT3-KA1_transitivity01-A, 90.2-91.1)

6 out of the 7 null-marked S/A arguments were in intransitive clauses, as in (375) and (376), and the last one was in an ambitransitive clause, as in (377). Since these data are also in line with the findings of the previous chapter, they will not be discussed further.

375. *[a-khosa] po va.*
 [NRL-cat]_S run PRF
 ‘The cat ran away.’ (ABT3-KZ1_TZ1_transitivity01-A, 57)

376. *[a-khosa]* *che-ni.*
 [NRL-cat]_S walk-PRES
 ‘A cat is coming.’ (ABT3-NA1_transitivity02-A, 60)
377. *[a-khosa]* *msah=pu=no,* *po* *va.*
 [NRL-cat]_{S/A?} be.afraid=CONN=CONN run PRF
 ‘The cat got scared and ran away.’ (ABT3-KH1_transitivity01-A, 159-160)

Given these examples, there is very little evidence for =*ye* as a marker of switch reference in the data. Looking at the three sentences in which =*ye* does appear, there was only one transitive sentence, as given in (378), and two ambitransitive sentences, as in (379) and (380). In the former, the choice of =*ye* seems to be driven more by the negative polarity of the predicate, similar to the use of =*ye* with negated *shi* ‘do’ (see §4.4.1). In the latter, it seems to be the specific predicate *msah* ‘be scared/afraid (of)’ driving the use of =*ye* by two speakers.

378. *[a-khosa=ye]* *chu-mla-ve*
 [NRL-cat=TOP]_A eat-NEG.ABIL-VM
 ‘The cat could not eat (it)’. (ABT3-TA2_transitivity01-A, 213-214)
379. *[pa=ye]* *msah=pu,* *po* *va.*
 [3SG=TOP]_{S/A?} be.afraid=CONN run PRF
 ‘It got scared and ran away.’ (ABT3-MA1_transitivity04-A, 36.2)
380. *[a-khosa=ye]* *msah=pu,* *po* *va.*
 [NRL-cat=EXP]_{S/A?} be.afraid=CONN run PRF
 ‘The cat got scared and ran away.’ (ABT3-KA1_transitivity01-A, 91.2)

However, there was some variation in the case marking of subjects of the verb *msah*, with the other three instances of *msah* being accompanied by a null marked subject, e.g. (381) and (382).

381. *msah* *a-ni,* *[a-khosa]* *msah=pu,* *po* *va.*
 be.afraid PROG-PRES [NRL-cat]_{S/A?} be.afraid=CONN run PRF
 ‘(It) is afraid, the cat got scared and ran.’ (ABT3-TA3_transitivity01-A, 101)

382. [a-khosa] *msah=pu,* *po* *va.*
 [NRL-cat]_{S/A?} be.scared=CONN run PRF
 ‘The cat got scared and ran away.’ (ABT3-KZ1_TZ1_transitivity01-A, 161.2)

In the mini narrative data, none of the speakers marked the subject of *msah* with =*no*, even if they marked the subject of this verb with =*no* in the picture and video description task. In the mini narrative task, sentences with *msah* occurred at the end, or near the end, of the narrative. It is possible that there is an interaction between this particular predicate and its position at the end of the narrative which is driving speakers’ choice of case marker here. It would be interesting to look at the final sentences of longer narratives.

Overall, the data presented here again show a low incidence of S or A arguments marked by =*ye*. In general, speakers are not using =*ye* for switch reference. On the other hand, it seems like the choice of marker might just be dependent on the predicate, e.g. negative polarity in *chumlave* ‘could not eat’ and the verb *msah* ‘be scared/afraid (of)’, though it is possible that there is some interaction between the predicate and the position of a sentence at both the start and at the end of a narrative.

4.5.2 Referent Introduction and Switching in *Pear Stories*

The *Pear Stories* data set consists of retellings of the *Pear* Film and comprise 6,477 words across 730 clauses produced by 18 speakers. Although not fully analyzed, some generalizations can be made. For instance, similar to the *Cat and Fish* narratives, most speakers rarely used =*ye* with A (or even S) arguments. Some speakers never used =*ye* with A arguments in *Pear Film* retellings, including TA2, the oldest speaker in the sample, and TA3, one of the youngest (who only used =*ye* with the predicate *kümsüna* ‘forget’ – see §4.4.2).

It should be noted that in this sample, whenever a speaker introduced a new referent into the narrative using either a transitive or intransitive clause, =*ye* was never used with the A or S argument of that clause. For instance, if a transitive clause was used to introduce the man picking fruit at the start of the film, no speakers marked the A argument with =*ye*. Most speakers marked A with =*no*, as in (383) and (384), but some

used null marking, as in (385) – TA3 was one of the speakers who often used null marked A arguments when P was inanimate in the video and picture description task.

383. *ghuthu lakhi, [timi lakhi=no] /*
 time one [person one=AGT]_A
- [a-xathi xo-a=ke, a-sübo=lono*
 [NRL-fruit]_P pluck-IMPRF=NZR NRL-tree=ABL
 ‘Once upon a time, a man was plucking fruits, from a tree.’ (ABT3-TA1_pearstory_01-A, 1-2)

384. *[timi lakhi] [pa=no] a-sübo=lo*
 [person one] [3SG=AGT]_A NRL-tree=LOC
- a-xathi xo a-ni=ke=lo=ye,*
 NRL-fruit pluck PROG-PRES=NZR=LOC=TOP
 ‘A man was plucking fruits from the tree’ (ABT3-MA1_pearstory01-A, 1)

385. *khaghi [a-puh lakhi] a-xathi xo-a na*
 long.ago [NRL-father one]_A NRL-fruit pluck-IMPRF DP
 ‘Once, a man was plucking fruits.’ (ABT3-TA3_pearstory01-A, 2)

If an intransitive clause was used in the first sentence, e.g. ‘a man is climbing’, no speakers marked the S argument =*ye*, but used null marking or =*no*, as in (386) and (387). At present, it is unclear what motivates the choice between =*no* and null marking in this context.

386. *khaghi lei / [a-puh lakhi] lei /*
 long.ago DP [NRL-father one]_S DP
- a-sübo=lo iku=pu lei*
 NRL-tree=LOC climb=CONN DP
 ‘Once, a man climbed up a tree.’ (ABT3-KA1_pearstory01-A, 1-3)

387. *[a-puh lakhi=no] a-sübo=lo iqho=pu=no,*
 [NRL-father one=AGT]_S NRL-tree=LOC go.up=CONN=CONN
 ‘A man climbs up a tree,’ (ABT3-TZ2_pearstory01-A, 1.1)

Examples of A marked by =*ye* in these narratives always refer to entities that had already been introduced. However, speakers appeared to use =*ye* in different ways. For instance, in (388), speaker KA1 marks *appu tipa* ‘that boy’ with =*ye* in the clause immediately after the one where the subject is *pano* ‘he (the man in the tree)’. However, when the clause about the boy seeing the fruit is repeated, =*ye* is not used with *appu tipa* again. Similarly, in (389), *paye* ‘he (the man picking fruit)’, is found in a clause that immediately follows one where the subject is the boy.

388. *[pa=no]* *a-sübo* *kungu iku-ve=ke=no* *lei.* /
 [3SG=AGT]_s NRL-tree above climb-VM=NZR=FOC DP
- u-che* *pi* *a-ni* *i=ke=lo,* *pa,*
 go-walk say PROG-PRES PRX=NZR=LOC 3SG
- [a-ppu* *tipa=ye]* *a-xathi* *tipa-u*
 [NRL-boy MED=TOP]_A NRL-fruit MED-DEF
- ithulu=pu=no* *lei,* /
 see=CONN=CONN DP
- [a-ppu* *tipa]* *a-xathi* *tipa-u* *ithulu=pu=no,*
 [NRL-boy MED]_A NRL-fruit MED-DEF see=CONN=CONN
- ‘He (the man) had gone up on the tree. While (he) was going, **that boy** saw that fruit and, that boy saw the fruit and ... (ABT3-KA1_pearstory01-A, 23-25)
389. *[a-ppu* *tipa-u=no]* *cycle=lono* *pesü* *u-ve,*
 [NRL-boy MED-DEF=AGT] NA=ABL take go-VM
- u-ve=pu,* *[pa=ye]* *tishi*
 go-VM=CONN [3SG=TOP]_A like.that
- xo-xo* *a-ni=ke=no.*
 pluck-pluck PROG-PRES=NZR=FOC
- ‘That boy took (it) away by bicycle, left and **he (the man)** was plucking (fruit).’
 (ABT3-KA1_pearstory01-A, 27-29)

In (390), TZ2 uses *pano* with the verb *ithulu* at the end of a sequences of clauses describing how he saw and stole a basket of fruit. The use of =*ye* with the verb *ithulu* in

(390) comes immediately after a clause describing another participant, a woman, coming on a bicycle. We do not expect =*ye* to mark *totimi lakhi* ‘a woman’ in this context as this is where she is introduced into the narrative.

390. *ike a-laghi=lo, /*
so NRL-road=LOC

a-laghi=lo [pa=no] *ishi* *ithulu=ke /*
NRL-road=LOC [3SG=AGT]_A like.this see=NZR

[*totimi lakhi*] *cycle=lono* *che-ghi=ke* *ghengu=no,*
[woman one]_s NA=ABL walk-come=NZR for=FOC

[pa=*ye*] *ti* *ithulu=pusü, /* *a-kü-kümsü, /*
[3SG=EXP]_A MED see=CONN, NRL-NZP-think

a-laghi=lo *ju-mo=pu=no,*
NRL-road=LOC look.at-NEG=CONN=CONN

a-kümsü *kiita-u* *hula* *jupu-a=ke=lo=no, /*
NRL-think other-DEF DIST.LOC look.arnd-IMPRF=NZR=LOC=FOC
‘So on the road- on the road, he saw something like this, a girl was riding a bicycle. Therefore, **he** saw that and thought- (he) did not watch out on the road. While (his) thoughts were elsewhere ...’ (ABT3-TZ2_pearstory01-A, 13-16)

These are the only examples of =*ye* marking A arguments from these two speakers’ *Pear Stories*. Nevertheless, such examples suggest that some speakers occasionally use =*ye* for referent tracking, i.e. the use of =*ye* in (389) and (390) instead of =*no* might be the speaker’s way of signaling that they are not referring to the subject of the previous clause.

On the other hand, there are speakers who only mark some A arguments with =*ye* when it is coreferential with subject of the preceding clause. In (391), speaker MA1’s use of *paye* is coreferential with the subject of the preceding clause. This is similar in (392), although here *pano küthü* ‘the three of them’ is a subset of the subject of the preceding clause *panongu* ‘they’ which refers to four people.

391. *[a-puh=no]* *a-sübo=lono* *iki-ghi=ke* *time=lo,*
 [NRL-father=AGT] NRL-tree=ABL go.down-come=NZR NA=LOC

[pa=ye] / *a-xathi* *ta* *akiniu* *le-sü-ne=no,*
 [3SG=TOP]_A NRL-fruit again second pour-put-PROS=CONN
 ‘When the father came down from the tree, **he** came to drop in the fruits the second time.’ (ABT3-MA1_pearstory01-A, 45-46)

392. *ishi=pu,* (*pa=ye*) *panongu* *kiütüta-shi* *u-ve=pu,*
 like.this=CONN (3SG=TOP) 3PL separate-ADV go-
 VM=CONN

[pa=no *küthü=ye]* *a-xathi* / *ti*
 [3SG=ASSOC.PL three=TOP]_A NRL-fruit MED

chu-sü *u-va.*
 eat-AM go-PRF

‘After that, he- they went separately and **the three of them** went away eating the fruit.’ (ABT3-MA1_pearstory01-A, 43-44)

The situation is further complicated by examples such as (393). Here, the speaker TA1 first uses *paye* both after a clause with a different subject, then again after a clause with the same subject.

It may be the case that some speakers such as KA1 and TZ2 occasionally use *=ye* for switch reference, while other speakers such as MA1 use *=ye* for continued reference. Although bizarre, this is not entirely incompatible with the extent of inter-speaker variation in the distribution of *=ye* seen in the video and picture description task. For instance, speaker MA1 was one of the only speakers to consistently mark P arguments with a locative, while other speakers had null marked Ps, while TA1 was one of the only speakers to consistently mark A arguments with *=no* in that task.

other speakers use *=ye* for continued reference, i.e. when the subject of a clause is the same as one of the previous clause. However, individual speakers still seem to have the choice to use *=ye* or not even when these discourse conditions are met, i.e. for speakers who use *=ye* to mark switch reference, a change in subject does not necessarily entail that they will use *=ye*.

4.6 Argument Marking in Conversation

The distribution of *=ye* on A arguments remains puzzling. However, it does seem clear that *=ye* has several functions depending on the construction it is in. With certain predicates that consistently have subjects marked by *=ye*, I have continued to gloss *=ye* as an ‘experiencer subject’ and there is also evidence that the origins of this *=ye* are in an old locative marker (Teo 2018). On the other hand, not all instances of *=ye* in narratives on A arguments can be analyzed as experiencer subject constructions. Given the current data, the situation is much more complicated and a full analysis of *=ye* would require analysis of more narrative data, including more traditional narratives.

Nevertheless, there are a few important observations about *=ye* in narratives that can be noted: it is not used when introducing new referents into the narrative. It is also not necessarily associated with backgrounded information since it can also appear in clauses that drive the narrative action forward. Finally, it may be used differently by different speakers, with some using *=ye* for either switch reference and others for continued reference. Consequently, I continue to gloss *=ye* as a ‘topic’ marker, though I remain uncertain as to what kind of topic marker it is.

Given the low incidence of *=ye* on A arguments in narratives and single sentence descriptions, it is curious that it would be featured as often as *=no* in previous descriptions of Sümi case marking. One might be tempted to treat it as a marginal case marker, and that the main contrast in Sümi is between *=no* and null, like many other languages described as having optional ergativity. However, in sentence translation, *=ye* commonly appears on S arguments. Furthermore, outside of A and S argument marking, *=ye* is commonly used to mark the subject of non-verbal predicates, as in (394).

394. *[a-kipti-u tipa=qo=ye] [ithi=ke=mi] ke.*
 NRL-man-DEF MED=PL=TOP [know=NZR=person] COP
 ‘That man and others are known (people).’ (ABT3-AC1_IC1_interview02-A, 4.1)

(395) and (396) are examples taken from conversational data, where =ye occurs more frequently. What we see in these examples is the use of =ye in a cleft construction, with a headless relative clause marked by =ye and a prosodic boundary after =ye. What follows is not necessarily an NP or nominalized clause but more often a full clause or a series of clauses.

395. *[i=no ishi lakhi kümsü-lu=keu=ye] |*
 [1SG=AGT like.this one think-take=REL=TOP]

timi=lau ghi ti-shi va=ke=lo
 person=LOC also MED-happen PRF=NZR=LOC
 ‘One (thing) that I realize was it had also happened to others.’ (ABT3-
 KA2_LJ1_interview02-A, 83-84)

396. *ku-ghengu*
 what-because

[ningu=wu generation hipa-u shi-a=keu=ye] |
 [1PL=POS NA PRX-DEF do-IMPRF=REL=TOP]

ningu=ye Sümi-tsa a-bo
 1PL=TOP Sümi.people-language NRL-root

mtha va na.
 NEG.know PRF DP

‘Because what this generation of ours is doing is, we have forgotten the root of Sümi language.’ (ABT3-AA1_RZ1_interview03-A, 84-85)

The use of the =ye marked cleft clause here matches previous findings of *wh*-clefts in discourse management in English (Kim 1995, Hopper & Thompson 2008), in which “[t]he *wh*-clause foreshadows the content of the forthcoming discourse” (Ozerov 2018). The frequent use of =ye in such constructions may also explain why many native Sümi speakers translate =ye as “is” in English. Another reason might be that it is in fact

the old copular verb (see Teo 2018 for comparative evidence), which has been reanalyzed as a topic marker in cleft constructions.

Furthermore, some speakers occasionally mark fronted P arguments with =*ye*, as in (397) – (399). In (399), the A argument of the causative verb is not even mentioned.

397. [*a-sü* *ku-sho=keu=ye*]
[NRL-wood NZP-be.long=REL=TOP]

[*totimi=no*] *sünhe* *pe* *che-ni*.
[woman=AGT] pull hold.with.hand HAB-PRES
'The longest piece of wood is being pulled by the woman.' (ABT-KH1_transitivity01-A, 97)

398. [*Khan=ye*] [*i=no*] *mithi* *che=ke*
[NA=TOP] [1SG=AGT] hate HAB=NZR
'I used to hate Khan.' (ABT3-AC1_IC1_interview02, line 30)

399. [*ni=wu* *timi=ye*] *pi-pe-ve* *tsü=lo* *lei*
[1SG=POS person=TOP] CAUS-be.free-VM give=LOC DP
'Our man was set free.' (ABT3-AJ1_IA2_interview02, line 24)

Even with no changes to verb morphology, these are functionally passive constructions, where the fronted P argument corresponds to the topic of conversation, as in (398) and the A argument is demoted, especially in (399). One possible source construction is the cleft constructions found in conversation. However, not all fronted P arguments receive =*ye*, as in (400).

400. *a-ki* [*a-mi=no*] *piti* *a-ni*.
NRL-house [NRL-fire=AGT] burn PROG-PRES
'A fire is burning the house.' (ABT3-MA1_transitivity04-A, 10)

It is therefore clear that =*ye* has several functions depending on the construction it is in and there is much more work to be done to analyze the uses of =*ye* in narratives and conversation. The low frequency of =*ye* in transitive clauses, except with specific predicates, would suggest that its use in transitive clauses is an extension from another

construction or other constructions. Interestingly, looking again at the example in (401), speakers who gave the first interpretation may have been thinking of =*ye* as it is used in experiencer subject constructions, i.e. where the subject has little volitionality or control; while speakers who gave the second interpretation may have been thinking of examples of cleft constructions with =*ye*.

401. [a-kii-ka-u=*ye*] a-zah tsii-ve.
 [NRL-NZP-rule=TOP] NRL-command give-VM
 ‘The chief gave a command.’ (elicited, unrecorded)
 (i) has a sarcastic reading and implies no one obeyed him (he was ineffective); or
 (ii) implies someone else was doing something, but ‘as for the chief...’.

4.7 Summary

In this section, I have shown that =*ye* is used consistently with the subjects of some predicates. Although subjects of these predicates are associated with low volitionality, not all predicates with low volitionality take subjects consistently marked by =*ye*. This points to the need to consider predicate-specific constructions instead of trying to generalize to larger factors such as the volitionality of A. Moreover, negated constructions also need to be considered separately, at least for some predicates.

Another observation is that although =*ye* is possible on A arguments in narratives, it occurs rarely in the data set. Where it does occur, =*ye* is only used with referents that have already been introduced into the narrative. Its exact function is still unclear since some speakers appear to use =*ye* for switch reference, while other speakers use =*ye* for continued reference. One clue to the origins of =*ye* in these contexts is its use in cleft and passive constructions, where it functions as a topic marker, which may have originated from a copular verb.

CHAPTER V

SÜMI =*NO* AS AGENTIVE AND/OR FOCUS MARKER

5.1 Introduction

Having looked at the polyfunctionality of =*ye*, in this chapter, I turn to an investigation of the supposed homophony/polysemy between the agentive enclitic and narrow focus enclitic =*no*, looking for the occurrence of prosodic differences between the different functions of this particular case marker. Although similar homophony/polysemy has been described across completely unrelated languages from the Himalayas to New Guinea and even North America, few studies have looked at prosodic differences between the case markers in their different functions, and no studies have investigated whether native listeners are able to use such prosodic differences to distinguish the different functions. Looking for suprasegmental differences between the markers would give us insight into whether we are dealing with two separate but homophonous morphemes, or a polysemous morpheme that is associated with both agentive and focus functions. It would also give us clues to both the origin and future development of =*no*.

Given limited resources in the field, I was hesitant to begin with a resource-intensive study of focus production and decided to first run a perception experiment using stimuli produced by a non-naïve native speaker, i.e. one who was aware that I was looking for prosodic differences. A large production study would then be considered only if prosodic cues were found to help listeners disambiguate the functions of a case marker.

The study presented here therefore answers the following research questions:

(1) Are Sümi listeners able to use prosodic cues to distinguish between the agentive function vs. the narrow focus function of the enclitic =*no* in transitive vs. intransitive sentences?

(2) Does sentence type (transitive vs. intransitive) affect listeners' interpretation of the enclitic =*no* as agentive (i.e. marking a doer of an action)?

Preliminary experimental results findings from this perception task in Sümi suggest that sentence type plays a larger role in interpretation of the enclitic =*no* than any prosodic cues associated with narrow focus.

5.2 Background

As shown in Chapter 3, in Sümi, subjects of transitive clauses are typically marked by the case marker =*no*, as in (402), with no pragmatically marked interpretation. However, subjects of verbless clauses marked with =*no*, as in (403), are interpreted as having narrow focus on the subject, with a corrective or contrastive reading, i.e. singling out an entity from a set of other possible entities.

402. *A-kü-ka-u=no* *a-zah* *tsü-ve.*
NRL-NZP-rule-DEF=AGT NRL-command give-VM
'The chief gave a command.' (elicited, unrecorded)

403. *Pa-za=no* *Sümi.*
3SG.POS-mother=FOC Sümi
'His mother is Sümi.' or 'It's his mother who is Sümi.' (i.e. not his father)
(conversation, unrecorded)

As mentioned in §1.1.6.3, the use of the term *focus* in this dissertation relates to a semantic/pragmatic category or set of categories, as opposed to a formal one, e.g. the marking of prosodic prominence using an accent. Following Lambrecht (1994), I use the term *focus* to refer to “[t]he semantic component of a pragmatically structured proposition whereby the assertion differs from the presupposition.” (213). This presupposition may contain an element that competes with the assertion. This was the case in (403), which was a response to an incorrect presupposition: after learning that a certain man had mixed parentage, I had asked the question “So his father is Sümi?” and the speaker was providing a correction. Alternatively, a set of potential elements may be presupposed, and the assertion identifies which one of the members of this set relates to the predicate: in the case of Sümi, (403) would also have been a felicitous response to the question “Which of his parents is Sümi?”

In addition, the term *narrow focus* is used when the semantic component by which the assertion and presupposition differ corresponds to a single constituent in a sentence or proposition. For our purposes, the constituent in question is always a noun phrase, so one could equally use terms such as *argument focus* (Lambrecht 1994: 236). In the literature on prosody, the term generally contrasts with *broad focus*, where the entire

sentence is highlighted (e.g. Ladd 1980), and sometimes *VP focus*, where only the verb phrase is highlighted (e.g. Sun et al. 2006).¹³ Finally, although there is some cross-linguistic evidence for subdividing narrow focus into *contrastive* and *corrective* focus (Gussenhoven 2007: 91-92), this subdivision does not appear to be relevant for Sümi, in which =*no* can be used for either function, as demonstrated earlier in (403). On the other hand, Kiss (1998) suggests that contrastive focus, which he calls *identificational focus*, i.e. focus expressing exhaustive identification among elements of a set, should be treated differently from mere *information* focus, where a new element is simply introduced. Consequently, for the current study, I only investigated contrastive focus, with other potential members of a set explicitly mentioned or present, but I will continue to use the term *narrow focus* to refer to this focus type.

In languages that display DCM of A, there is often said to be some ambiguity between agentive/ergative and narrow or contrastive focus interpretations, since the same case marker is used for both functions, e.g. Jingulu (Mirndi, Pensalfini 1999). This seems to be the situation in Sümi as well. In other languages like Warrwa (Nyulnyulan, McGregor 2006) a special “focal ergative” *-nma* is used to mark focus on highly agentive referents, versus the “ordinary ergative” *-na* that marks an Agent NP without any highlighting function. In other languages, a syntactic strategy might also be employed, e.g. in Tibetan, the combination of the ergative marker on A and a non-canonical non-initial position in a clause (i.e. non-initial position) marks focus on the agent (Tournadre 1995). However, in elicitation and in the spoken Sümi corpus, no clear evidence of a special focus morpheme for subjects of transitive sentences, as in Warrwa, could be found. No special syntactic strategy, or a combination of morphological and syntactic strategies, was found either.

Despite the apparent ambiguity found in Sümi and other languages, few studies have examined co-occurrences of DCM of A with prosodic patterns, which cross-linguistically are relevant to the realization of information-structural categories such as focus (Lambrecht 1994). Notable exceptions include work on intonation and optional

¹³ It should be noted that in the prosodic literature, the term *focus* typically refers to some formal realization of prosodic prominence through the accentuation of a constituent, or the de-accentuation of surrounding constituents.

case marking in Jaminjung by Schultze-Berndt (2016); and work on how intonation and pausing interact with subject marking in Burmese to give rise to topic-like and focus-like interpretations by Ozerov (2014). Even so, no work has investigated whether native listeners of such languages use prosodic cues to help in the interpretation of these case markers, or if they rely more on top-down information, e.g. the type of sentence in which the marker appears. Since Sümi also has three contrastive tones distinguished in production by F_0 height (Teo 2014), it was unclear if native listeners would consistently use prosodic cues in perception, given that both tone and intonation are conveyed by the same acoustic parameter, fundamental frequency (F_0), in Sümi. Furthermore, different tones might also have different effects: in Mandarin, another tonal language, Yuan (2004) finds evidence of an effect of tone category on intonation identification: a sentence-final Tone 4 (falling) made it easier to identify question intonation, while a sentence-final Tone 2 (rising) made it more difficult.

Given the paucity of literature on DCM and prosody, I looked at studies of Japanese prosody, since more studies have looked at the interaction between prosody and case markers in Japanese. In traditional grammars, markers like *wa* and *ga* are considered to be “particles” and neither particle is considered to be an “agentive or ergative marker. Nevertheless, their syntactic position at the right edge of NPs and their functions in managing information structure parallels that of the Sümi differential case marking enclitics. Different subtypes of Japanese *wa* and *ga* have been proposed, notably Kuno (1970), drawing on work by Kuroda (1965). These two subtypes of *wa* and *ga* align somewhat, though not identically, with Sümi markers =*no* and =*ye*. For clarity, a comparison of the two systems is given in Table 30.

In a production study, Finn (1984), using Kuno’s sub-divisions of *wa* and *ga*, found differences in F_0 patterns between descriptive and exhaustive *ga*: descriptive *ga* was associated with a greater fall in F_0 across a sentence than exhaustive *ga* or objective *ga*. She also found differences in F_0 and pause patterns preceding and following the thematic and contrastive subtypes of *wa*. Later acoustic studies (e.g. Nakanishi 2001, Venditti 2000) have added to these findings, though these have mainly looked at *wa*.

Table 30: Summary of the various subtypes of *wa* and *ga*, as per Finn (1980) (based on Kuno [1970]), with closest functional equivalents in Sümi

Japanese particle	Function	Corresponding Sümi enclitic
<i>wa</i>	“Thematic” - introduces an anaphoric NP; ‘as for X’	= <i>ye</i>
	“Contrastive” - ‘X (but not Y)’	= <i>no</i> or = <i>ye</i>
<i>ga</i>	“Descriptive”: - subject of action verb, existential verb, adjective, nominal adjective of changing state	= <i>no</i> or = <i>ye</i> or null
	“Exhaustive” - answer to a question	= <i>no</i>
	“Objective” - used after stative verbals - subject of subordinate phrase	no clear equivalent

Despite the obvious differences in the functions of Sümi =*ye* and =*no* compared to Japanese *wa* and *ga*, the types of acoustic measures used in work on the latter are nevertheless a useful starting point for investigating the interaction of prosody and case marking in Sümi. Specifically, we can see functional parallels between the descriptive and exhaustive uses of *ga* in Japanese and agentive and narrow focus functions of =*no* in Sümi.

5.3 Methodology

5.3.1 Experiment Design

The experiment was designed to test the hypothesis that agentive and narrow focus =*no* were distinguishable by prosodic cues in a perception task. If agentive and narrow focus =*no* were homophonous to listeners, I expected only sentence type (transitive vs. intransitive vs. verbless) to affect its interpretation, with listeners more likely to rate verbless and intransitive sentences with =*no* as having narrow focus than transitive sentences. If the enclitics were not homophonous, I expected that listeners would rate sentences that had been uttered with narrow focus prosody as having narrow focus. However, an interaction with sentence type was also possible, with prosodic cues

only affecting listeners’ interpretation of transitive sentences, since =no occurs only occasionally in intransitive sentences, as seen in Chapter 3, and previous language consultants had also associated its appearance with narrow focus.

The notions of “narrow focus” and “broad focus” were defined within a Question Under Discussion paradigm, in which a statement is said to have narrow focus on a subject if it is a felicitous response to a question like “Who/what is doing an action?” (out of members of a predetermined set); and broad focus if it is a felicitous response to a question like “What is happening?” The experiment design is given in Table 31.

Table 31: Experimental design

Focus condition	Broad focus (focus not on subject)	Narrow focus (focus on subject)
Sentence type		
Transitive	=no is most common; marks who is doing the action	=no is most common, but marks A in contrast to other entities in a set
Intransitive	=no is not common; marks who is doing the action (=ye or zero also possible, depends on discourse context)	=no is most common, marks S in contrast to other entities in a set
Verbless	=no is not possible (=ye is obligatory here)	=no is most common, marks subject in contrast to other entities in a set

5.3.2 Materials

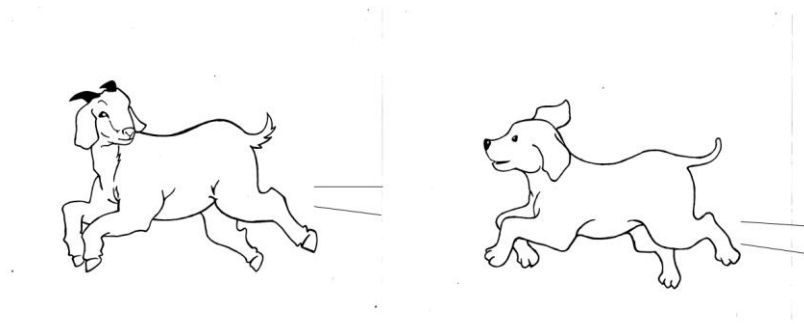
In the experiment, three different sentence (predicate) types were tested: transitive, intransitive and verbless. For the transitive sentence, the predicate used was *ha cheni* /hā tʃènī/ ‘is chasing’. For the intransitive sentence, the predicate used was *zū ani* /zì ànī/ ‘is sleeping’. For the verbless sentence, the predicate used was *akijeu* /àkìzèū/ ‘(be) the bigger one’. In transitive sentences, the object (P argument) was not overtly mentioned. Although =no was not obligatory with the subject of the intransitive sentence, it was considered grammatical by the language consultant. Examples are given below:

- A. *Atsü no ha cheni.*
à-tsi=no hā tʃè-nī
NRL-dog=no chase CONT-PRES
‘The dog is chasing (something).’
- B. *Atsü no zü ani.*
à-tsi=no zì à-nī
NRL-dog=no sleep PROG-PRES
‘The dog is sleeping.’
- C. *Atsü no akijeu.*
à-tsi=no a-kize-u
NRL-dog=no NRL-big-SUPR
‘The dog (is) the bigger one.’

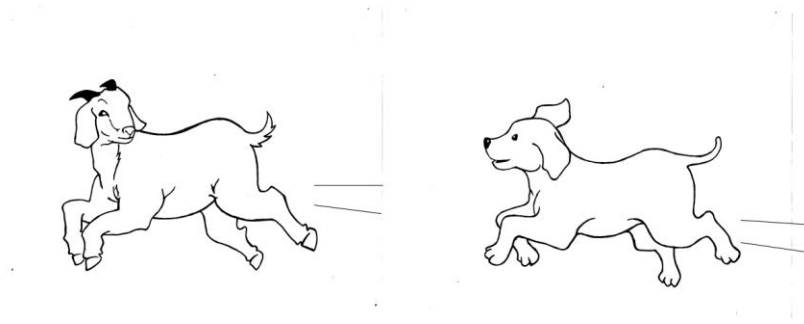
Although the auxiliary verbs differed: *cheni* /tʃè-nī/ in the transitive, and *ani* /à-nī/ in the intransitive, they were judged by the language consultant to be the most natural when used in conjunction with the respective verb to describe the scene presented in each picture. Both auxiliary verbs also have the same Low-Mid tone melody, ending with a Mid tone on the final syllable *-ni*.

For the transitive predicate *ha cheni* ‘is chasing’, the researcher and language consultant did an informal assessment to make sure that animals were paired up in scenarios that were plausible, as opposed to unusual, e.g. a deer chasing a bear. The reason for this was to avoid a situation that would bias listeners towards interpreting such sentences as having narrow focus on the subject (A and S arguments) simply because it was an unusual subject, regardless of focus condition.

To elicit focus on the subject, the main language consultant was asked to produce the same sequence of words with a picture prompt and a written question prompt in Sümi. The questions used were: (1) *Ku shi ani kea?* ‘What is happening?’ to elicit broad focus; and (2) *Khu no ha cheni/zü ani/akijeu?* ‘Who is chasing/sleeping/is the bigger one?’ to elicit narrow focus on the subject. Examples are given below in Figure 28. These same pictures, without the questions, would later be used in the perception experiment. The language consultant was instructed to answer the question in full sentences. However, for the 2-entity pictures described by transitive sentences, she was asked not to mention the object, i.e. the animal being chased.



- Ku shi ani kea?



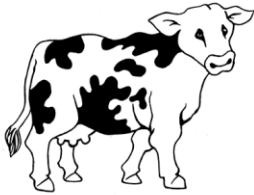
- Khu no ha cheni?

Figure 28: Example pictures for the predicate ‘chase’ with prompts for broad focus and narrow focus. Broad focus: *Ku shi ani kea?* ‘What is happening?’; narrow focus: *Khu no ha cheni?* ‘Who is chasing?’

When recording the intransitive sentence stimuli, the language consultant was presented with one entity for the broad focus condition, and two entities for the narrow focus condition. Examples are given in Figure 29. However, in the perception study itself, only the pictures with two entities would be used as visual stimuli. This was done so that experiment participants would see the same visual stimulus when listening to the audio stimuli from each focus condition, i.e. only the focus condition of the audio stimulus would change.



– Ku shi ani kea?



– Khu no zü ani?

Figure 29: Example pictures for the predicate ‘sleep’ with prompts for broad focus and narrow focus. Broad focus: *Ku shi ani kea?* ‘What is happening?’; narrow focus: *Khu no zü ani?* ‘Who is sleeping?’

The subject nouns that were studied in this experiment consisted of nouns referring to animals found in Nagaland. These are given in Table 32. The nouns were balanced for tone on the final syllable, with 4 lexemes ending with Low tone, 4 ending with Mid and 4 ending with High. 2 additional lexemes, 1 ending with Low and 1 with Mid tone, were used for training purposes. All words were expected to be known by native speakers.

Table 32: Nouns used in perception experiment, grouped by tone category on the final syllable

Low Tone on final syllable	Mid Tone on final syllable	High Tone on final syllable
<i>awo</i> /àvò/ ‘pig’	<i>avi</i> /āvī/ ‘mithun’ (Indian bison)	<i>ami</i> /ámí/ ‘mosquito’
<i>atsü</i> /àtsì/ ‘dog’	<i>ava</i> /āvā/ ‘bear’	<i>akuhu</i> /ākūhú/ ‘gibbon’
<i>amishi</i> /àmīʃi/ ‘cow’	<i>ashe</i> /āʃē/ ‘deer’	<i>awudu</i> /āvùdú/ ‘rooster’
<i>ane</i> /ànè/ ‘goat’	<i>akhi</i> /āk ^h ī/ ‘bee’	<i>apighi</i> /āpīyí/ ‘snake’
<i>agha</i> /àḡà/ ‘crow’ (used only for training)	<i>akhosa</i> /āk ^h ōsā/ ‘cat’ (used only for training)	

The decision to use words referring to animals was motivated by the need to use animate nouns that could act as potential agents. Using animals would allow us to draw from a wider range of vocabulary than kinship terms or words referring to people. When creating visual stimuli, it was also easier to differentiate between animals than between kinship terms.

The visual stimuli were created based on the sentences used in the study. These were illustrated in black and white by Mr Obeto Kinny, who is a member of the Sümi community. He was asked to draw pictures of animals in a style that would be recognizable to people in Nagaland. The same pictures were also used in the perception experiment.

All the audio stimuli were produced by the main language consultant, Dr Salome Kinny. All recordings were done using a head-microphone and a Tascam DR-100MK-II in a quiet room, with the lead researcher present. An acoustic analysis looking at the effect of focus condition and sentence type on the speaker’s productions is given in §5.4.

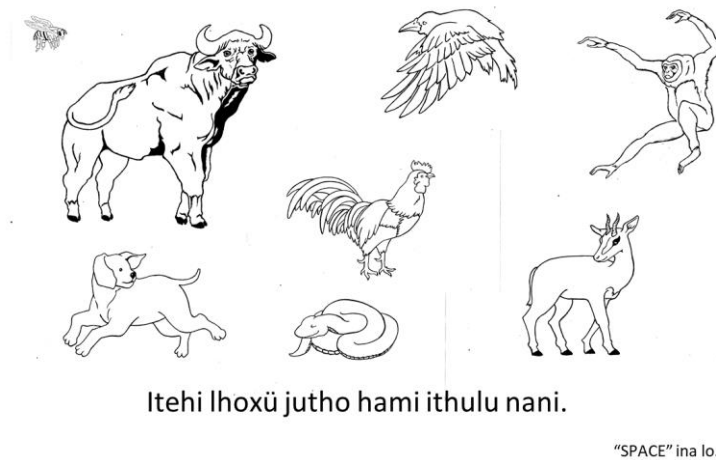
5.3.3 Participants

12 participants for the perception experiment were recruited from Institute of Chartered Financial Analysts of India (ICFAI) in Dimapur, Nagaland. All participants were native Sümi speakers who were residing in the city of Dimapur. They were all between the ages of 20-25 years, with no hearing difficulties reported.

5.3.4 Procedure

The perception experiment was run in PsychoPy (v3.0) (Peirce 2007), with pre-recorded audio instructions and written instructions in Sümi. Participants listened to the stimuli using Sony MDR7506 headphones in a quiet room in ICFAI college.

The experiment was done in two parts. In the introduction to the first part, participants were told that they would see pictures of animals from a set, and that the animals would be doing certain actions.



They were then told that a speaker would describe each scene in Sümi. Sometimes, the speaker would be emphasizing the action; other times, the speaker would be emphasizing who was doing the action. The participants were told that they had to listen carefully to the speaker, and then decide if the speaker was emphasizing either who was doing the action or the action itself. Participants were given a forced choice task with 4 options: they were instructed to press “W”, if they thought the speaker was emphasizing the actor; and they to press “P”, if they thought the speaker was emphasizing the action. If they were not entirely sure, they were told they could press “F”, if they were thought it was more likely that the speaker was emphasizing the actor, and “J” if they were thought it was more likely that the speaker was emphasizing the action. The letters “W”, “F”, “J” and “P” were marked on the keyboard with a white paper. Some examples are given below in Figure 30.

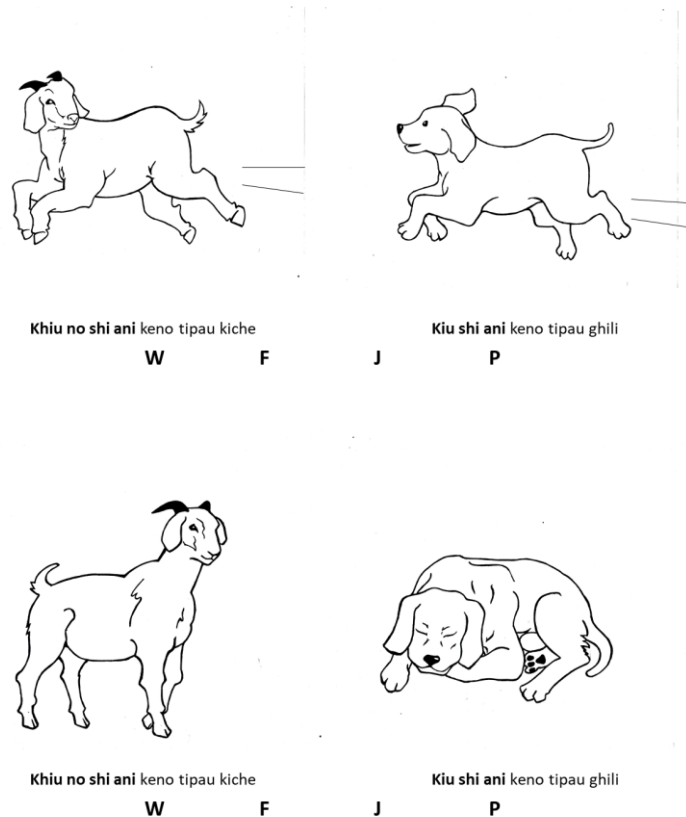


Figure 30: Picture and written prompts for listeners in 1st part of perception experiment

There was a training phase to get participants accustomed to selecting the right letters on the keyboard. They were allowed to ask Dr Salome Kinny for further clarification. After this, they were presented with the target stimuli for the ‘chase’ and ‘sleep’ sentences: 2 sentence types x 2 focus conditions x 12 nouns = 48 items. All visual stimuli featured a pair of animals, including ones that accompanied audio stimuli that had been recorded when the participant saw only one animal, i.e. intransitive sentences produced in broad focus.

In the second part of the experiment, the participants were told that they would see pictures of the same animals, with one standing to another. This time, the speaker would state that one animal was the bigger one, e.g. *Atsü no akijeu*. ‘The dog is the bigger one.’

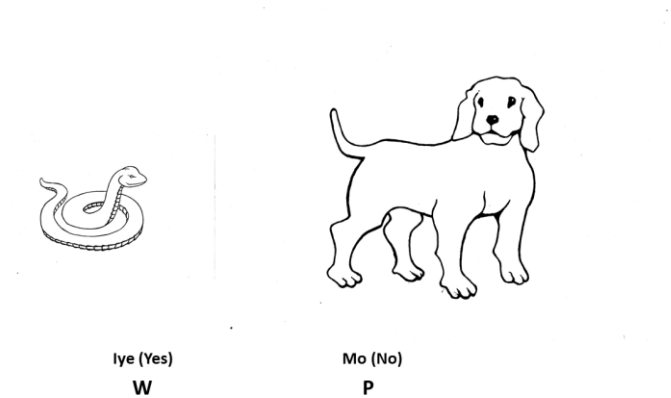


Figure 31: Picture and written prompts for listeners in 2nd part of perception experiment

The participants had to decide whether the speaker was emphasizing which of the two was bigger and respond with either ‘yes’ by pressing ‘W’ or ‘no’ by pressing ‘P’. There was another short training phase before the participants were presented with the target sentences: 1 sentence type x 1 focus condition x 12 nouns = 12 items. The reason for including verbless sentences was to check that participants understood the task in the first part.

5.4 Analysis of Production Stimuli

A number of acoustic measures were done on the production stimuli to test the effect of focus condition and/or sentence type: (a) duration of enclitic =*no*; (b) F_0 across =*no*; (c) duration of last syllable of noun preceding =*no*; and (d) F_0 over the final syllable of the intransitive and transitive sentences, which both end with the same morpheme *-ni* ‘present tense’. The first two measures were done because the enclitic, which is not specified for lexical tone, was identified as a potential location for prosodic events, similar to the Japanese particle *ga* (e.g. Finn 1984). The third measure was done because the last syllable of nouns is where the main tonal contrast is typically found in Sümi nouns and a potential site for phrase/sentence-level prominence marking (Teo 2014: 79-81, 84-87). The fourth measure was to look for evidence of post-focal F_0 compression, and differences in the functions of Japanese *ga* were also associated with differences in global F_0 patterns (Finn 1984).

A summary of the findings for each of five measures is given below. However, only two were found to be affected by focus condition and/or sentence type: duration of =no; and F₀ across the final syllable of the sentence. Note that unlike in studies of Japanese *wa* and *ga*, pause duration was not considered, since the speaker did not produce noticeable pauses after the enclitic in the stimuli.

5.4.1 Duration of =no

Figure 32 gives a boxplot that shows the duration of the vowel of =no was shorter in narrow focus than in broad focus, regardless of sentence type, although there was more variance in the transitive sentence under broad focus.

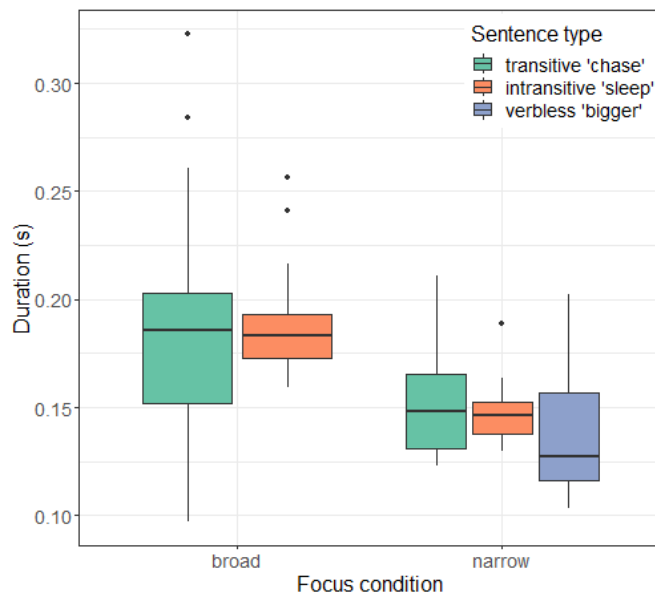


Figure 32: Duration of vowel of enclitic =no, by sentence type and focus condition

The results of a one-way ANOVA support the picture above: they show a significant difference between the two focus conditions, $F(1,65) = 24.673$, $p < .001$, but no effect was found for sentence type, $F(2,65) = .471$, $p = .63$; or interaction with sentence type, $F(1,65) = .013$, $p = .91$.

5.4.2 F₀ across =no

Figure 33 shows a boxplot with average F₀ at the midpoint of =no, by focus category and tone of the preceding syllable. Since =no is not specified for its own lexical

tone, F₀ across the vowel portion is higher immediately after a syllable with High tone, than after a syllable with Mid tone, which is higher than after a syllable with Low tone. Figure 34 gives a F₀ plot across the vowel portion of =no, plotted by mean duration of for each combination of focus condition and tone category of the preceding syllable.

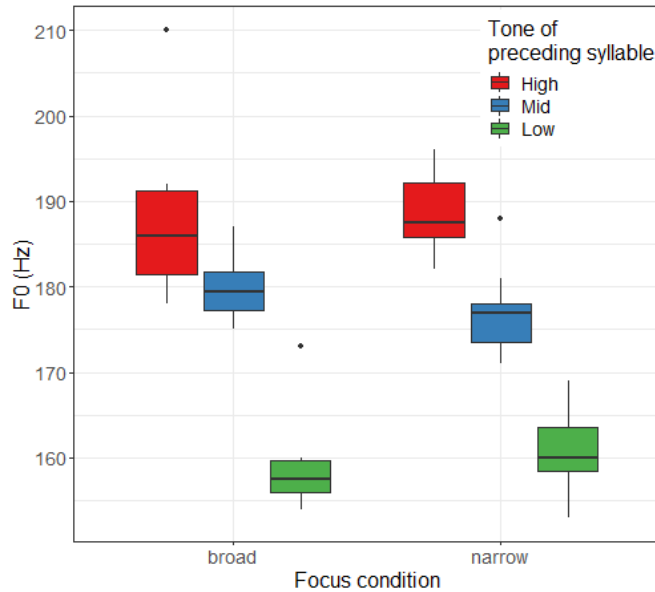


Figure 33: F₀ at midpoint of vowel of enclitic =no, by focus condition and tone category of preceding syllable

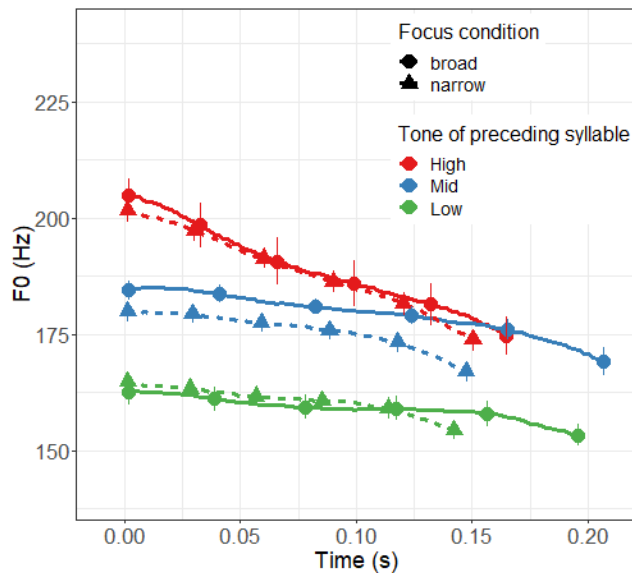


Figure 34: F₀ trajectory across vowel portion of =no. Error bars represent standard deviation halved.

The results of a one-way ANOVA on F_0 at the vowel midpoint of *=no* support the pictures above: a significant effect was found only for preceding tone category, $F(2,64) = 160.152, p < .001$, with no significant difference found between the two focus conditions, $F(1,64) = .008, p = .928$; or interaction between tone category and focus condition, $F(2,64) = 1.502, p = .230$.

5.4.3 Duration of Last Syllable of Noun before *=no*

Figure 35 shows a boxplot of the average duration of the last syllable of the noun that immediately precedes *=no*, across different focus conditions and sentence types. Unlike the duration of *=no*, there was no clear effect of focus condition and/or sentence type on the duration of this syllable. The results of a one-way ANOVA show no effect of focus condition, $F(1,65) = .036, p = .850$; sentence type, $F(2,65) = .077, p = .926$; or an interaction effect between focus condition and sentence type, $F(1,65) = .073, p = .788$.

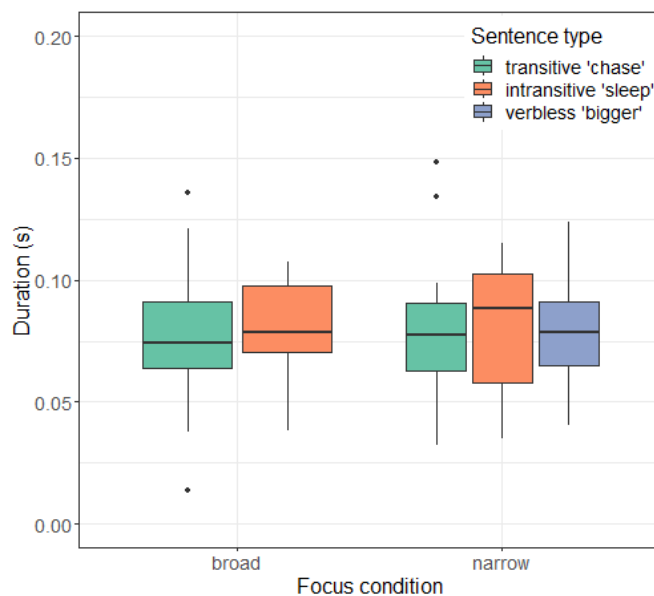


Figure 35: Duration of vowel immediately preceding *=no*, by sentence type and focus condition

F_0 over the last syllable of the noun before *=no* was also measured. However, this measure was mainly exploratory, given the small sample size for each tone category in each focus condition (3 or 4 tokens). Figure 36 shows a boxplot with F_0 at the midpoint of the last syllable of the noun immediately preceding *=no*, for different focus conditions,

divided up by tone category. Figure 37 shows the F_0 trajectory across vowel immediately preceding =no. As expected, the lexical tone of the syllable looks to be a significant predictor of F_0 at the syllable midpoint. These preliminary results also show a trend towards compression of F_0 range on the last syllable of the noun, with High and Mid tones produced with lower F_0 and Low tones produced with higher F_0 , but a larger sample would be required to confirm this trend.

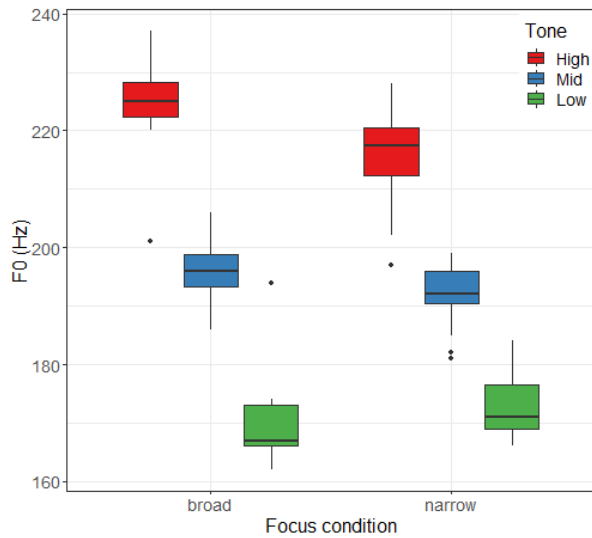


Figure 36: F_0 at midpoint of vowel immediately preceding =no, by focus condition and tone category of syllable

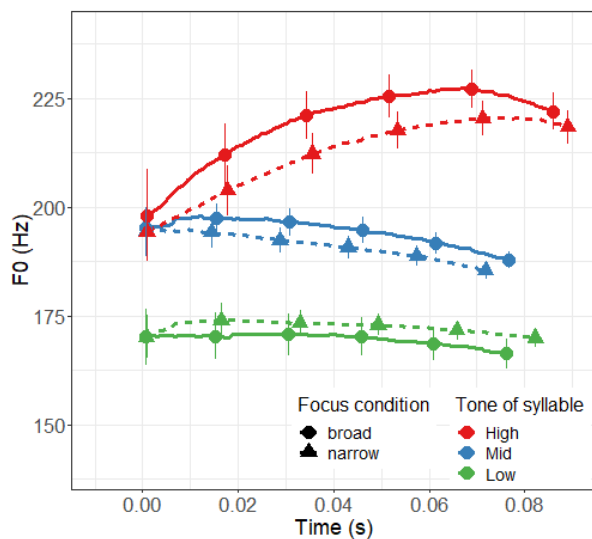


Figure 37: F_0 trajectory across vowel immediately preceding =no. Error bars represent standard deviation halved

5.4.4 F₀ over Final Syllable of Sentence

There was also some evidence for post-focal F₀ compression. Figure 38 gives a boxplot that shows F₀ at the midpoint of the final syllable *-ni* /*-nī*/ of transitive and intransitive sentences. Figure 39 shows the F₀ trajectory across the vowel portion of the final syllable.

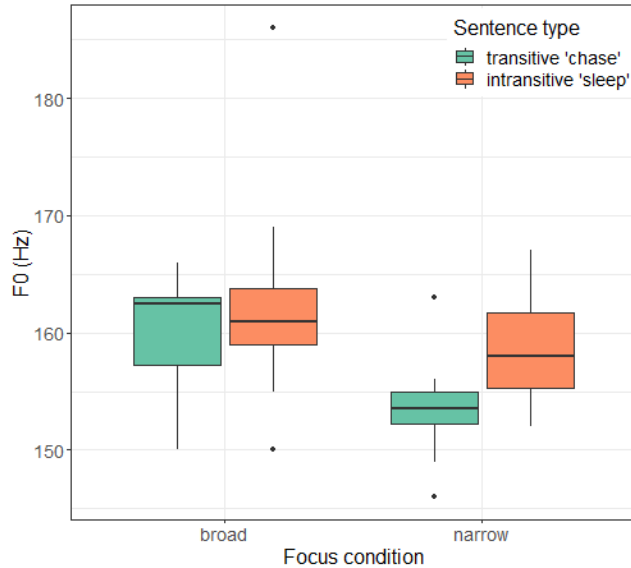


Figure 38: F₀ at vowel midpoint of final syllable of transitive and intransitive sentences, by focus condition and sentence type

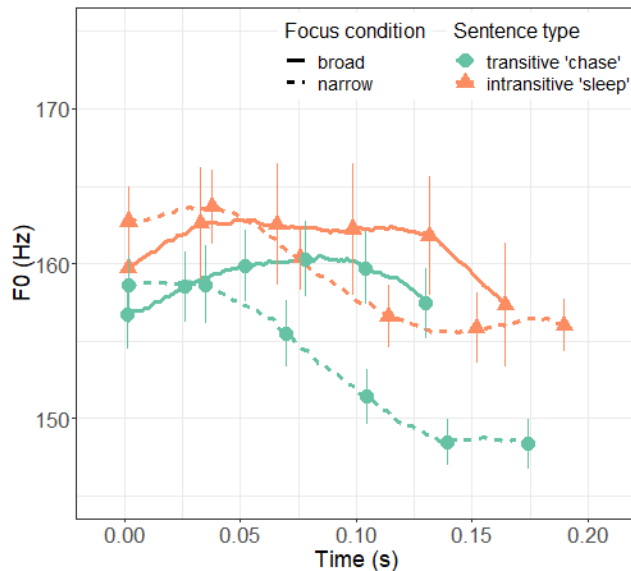


Figure 39: F₀ trajectory across vowel portion of final syllable of sentence. Error bars represent standard deviation halved.

We can see that F_0 is lower in narrow focus than in broad focus, though the difference was larger in the transitive sentences than in the intransitive ones. The results of a one-way ANOVA support this picture, i.e. a significant difference was found between the two focus conditions, $F(1,52) = 13.147, p < .001$, as well as between the sentence types, $F(1,52) = 5.804, p = .02$; but no interaction effect was found, $F(1,52) = .811, p = .37$. The difference in F_0 across the two focus conditions is evidence of post-focal compression of F_0 . However, the fall in F_0 between focus conditions was greater in the transitive ‘chase’ sentence, compared to the intransitive ‘sleep’ sentence.

5.4.5 Summary of Production Analysis

In summary, the focus condition appeared to have effects on (i) the duration of =*no*; and (ii) post-focal compression of F_0 . No interaction effect with sentence type was found to affect the duration of =*no*, but there was an interaction effect with sentence type for post-focal compression, whereby F_0 showed a drop on the final syllable of the sentence between the broad and narrow focus conditions, but the drop was greater for the transitive ‘chase’ sentence than the intransitive ‘sleep’ sentence.

However, I am cautious to assume that it is focus condition that is driving the difference in duration here. Rather, the difference might also be attributed to processing constraints associated with the elicitation task. In the broad focus condition, the speaker was asked to answer the question “What is happening?” with no verb prompt, while in the narrow focus condition, she was asked the question “Who is chasing/sleeping/bigger?” with the predicate provided in the prompt. The longer duration of =*no* in the broad focus condition might then reflect additional processing time needed for the speaker to select the correct verb. Nevertheless, this is not incompatible with a focus interpretation, since in a narrow focus condition, the predicate is already presupposed, and presumably “activated” in a speaker or listener.

5.5 Results of Perception Experiment

The results of the perception experiment were converted to a 2-point scale for verbless sentences and a 4-point scale for transitive and intransitive sentences, where “1” corresponds to a narrow focus interpretation and “4” to a broad focus interpretation.

Figure 40 presents a violin plot showing that sentence type affected listeners' interpretation of sentences with the enclitic =no more than any prosodic cues associated with broad vs. narrow focus. In general, listeners rated verbless sentences as having narrow focus. Listeners tended to rate transitive sentences with =no as having narrow focus on the subject; and intransitive sentences with =no as having broad focus.

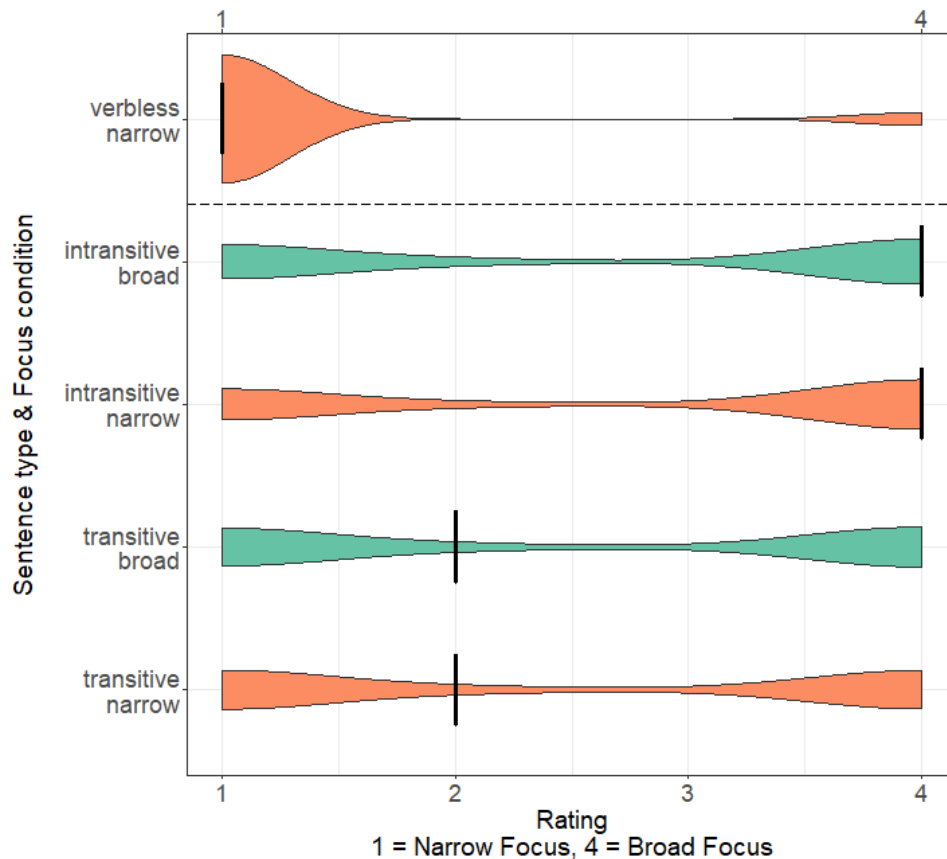


Figure 40: Violin plot with rating scores of =no by sentence type and focus condition. Crossbars indicate the median score.

The responses to the transitive and intransitive sentence stimuli were analyzed using a mixed effects model with sentence type, focus condition, and the interaction between sentence type and focus as fixed factors and participant as a random effect (intercept). The results support the picture presented above: only sentence type is a significant predictor of rating, ($\chi^2(2) = 10.143, p = .006$). On the other hand, focus condition was not a significant predictor of rating ($\chi^2(2) = 2.061, p = .357$), nor was the interaction between sentence type and focus condition ($\chi^2(2) = .394, p = .530$). These

results reflect the trend seen above, whereby listeners are more likely to rate the transitive sentences as having narrow focus on the subject; and intransitive sentences as having broad focus. Estimates and *t*-values from the best fitting model are presented in Table 33.

Table 33: Estimates and *t*-values for best fitting model for interpretation score.

Fixed effect	Estimate	Standard error	<i>t</i> value
Sentence type	.283	.160	1.776
Focus condition	.075	.160	.470
Sentence-Focus Interaction	.142	.226	.628

5.6 Discussion

The results of the study show that the agentive and narrow focus forms of *=no* are not distinguished by listeners via prosodic cues. Despite the presence of acoustic differences in the stimuli, i.e. a shorter enclitic duration and post-focal F_0 compression in the narrow focus condition regardless of sentence type, listeners relied only on sentence type to interpret the function of the enclitic.

An unexpected finding was that listeners tended to rate intransitive sentences with *=no* as having broad focus, and not narrow focus, given that the enclitic is not always used on intransitive subjects of the verb ‘sleep’, and previous language consultants had also treated *=no* as a focus marker in such sentences. It was similarly unexpected that listeners tended to rate transitive sentences as having narrow focus, instead of broad focus. Here, I consider the possibility of a task effect because the method involved playing sentences that included the verb. In natural speech, speakers can unambiguously achieve narrow focus by producing the subject noun phrase alone, so the inclusion of the verb in the stimuli may have led listeners to rate the intransitive sentences as having broad focus. This effect may have also been present in the transitive stimuli but was mitigated by the omission of the grammatical object.

Nevertheless, the presence of such a task effect does not negate the main findings. In fact, the interpretation of the intransitive sentences as having broad focus may reflect language change. The language consultants who would interpret *=no* in intransitive sentences as a narrow focus marker were often older than many of the experiment

participants, and they usually came from more rural areas. The mismatch between the results of the production task and this perception experiment suggests that younger speakers are aware that other speakers use =no as an agent marker in such intransitive clauses with no contrastive focus interpretation, even if they themselves do not use =no in those clauses. The bias towards interpreting =no as an agentive marker in these clauses, however, may be the first indications that future speakers will mark S arguments of verbs like ‘sleep’ with =no more generally.

In addition, Dr Kinny reported that if speakers *really* wanted to emphasize the subject of a transitive or intransitive sentence, one could add the definite suffix -u to the noun, as in (404) and (405), but not to subjects of verbless sentences. This suffix when attached directly to nouns is usually reserved only for definite human referents. This supports the findings above of the sentence / construction-specific nature of focus marking interpretation, with focus interpretations arising from the use of an original agentive =no in constructions where it is not expected.

404. *Atsüu no ha cheni.*

à-tsi-ū=no hā tʃě-nī
 NRL-dog-DEF=no chase CONT-PRES

‘The dog (not something else) is chasing (something).’ (elicited)

405. *Atsüu no zü ani.*

à-tsi-ū=no zì à-nī
 NRL-dog-DEF=no sleep PROG-PRES

‘The dog (not something else) is sleeping.’ (elicited)

406. **Atsüu no akijeu.*

‘The dog (is) the bigger one.’

Although clear examples of -u are used to mark narrow focus have not been attested in more naturalistic speech, there is at least one example, shown in (407), of a speaker adding the definite marker after =no (cf. *a-kü-pükü-u* ‘NRL-NZP-steal-DEF’ ‘the thief’, which would be used when the thief has been mentioned previously). Even though the sentence was a response to the question “What is happening?” it appears the speaker was marking the transitive subject as unusual, i.e. it is unexpected for a thief to be

stopping a police officer, when compared to the inverse, as in (408). This surprise/mirative interpretation points to the existence of other types of focus and focus strategies in Sümi that could be the subject of future research.

407. *kü-püka-mi=no=u* *police-mi* *lakha a-ni.*
 NZP-steal-person=no=DEF police-person stop PROG-PRES
 ‘A thief is stopping a policeman.’ [TA2-transitivity, lines 100-101]

408. *police=no* *kü-püka-mi* *hakha a-ni.*
 police=no NZP-steal-person catch PROG-PRES
 ‘A policeman is arresting a thief.’ [TA2-transitivity, lines 46-48]

The different location of the definite morpheme in (407) suggests that this is a different construction to the ones in (404) and (405). Alternatively, this use of the definite morpheme might be a strategy that has only recently emerged to mark additional focus on A arguments, which may account for its rarity in the corpus, as well as its inconsistent location within the NP or on the clitic =no.

5.7 Summary

The study showed that the two functions of =no, to mark agentive and narrow focus, are not distinguished by listeners via prosodic cues, in spite of acoustic differences in the stimuli. Overall, the findings support the broader view that speakers of some languages with DCM of A and S are using sentence type to interpret the case marker. This is consistent with the idea that the polyfunctionality of the case marker is determined by the sentence frame construction it is in, i.e. =no is associated with contrastive focus in verbless clauses, and not from differences in form signalled by prosody. The finding that listeners are not using prosodic differences to identify the different functions of =no might also be due to some extent to Sümi being a tonal language, in which F₀ is already used for lexical differentiation. It would therefore be useful to compare this finding with atonal languages that have DCM of A to see if the lack of prosodic differences is due to the tonal nature of Sümi or to some more general pattern found across languages with DCM.

In the absence of prosodic differences to signal these two functions, it was suggested by the language consultant that speakers could use an additional morpheme, the definite *-u* to mark focus A and S, but this is not attested in the corpus and may be a fairly recent development that has not been conventionalized across all speakers in the community.

One interesting finding was that listeners tended not to rate *=no* in intransitive clauses with the verb ‘sleep’ as marking narrow focus. This is surprising, since in production, not all speakers use *=no* with S arguments of verbs like ‘sleep’ and previous language consultants had judged such sentences with *=no* as marking narrow focus on S. The bias towards an agentive interpretation of *=no* in intransitive clauses even by speakers who do not use *=no* in those contexts may lead to future speakers extending the use of *=no* to intransitive clauses.

CHAPTER VI

CROSS-LINGUISTIC COMPARISON OF DIFFERENTIAL CASE MARKING

6.1 Overview

The results presented in the previous chapters demonstrate that the factors influencing case marking of intransitive subjects (S), transitive subjects (A) and transitive objects (P) are different for each argument type in Sümi. While A arguments are typically marked by *=no*, with some effect of volitionality of A and animacy of P, P case marking is only done by a few speakers, for whom neither volitionality of A nor animacy of P appear to be relevant factors. S case marking is much more variable than A case marking, and although there appears to be some effect of animacy and volitionality of S, variation across speakers suggests that S case marking is more sensitive to discourse context.

In the literature, much has been made about the cross-linguistic use of DCM for disambiguation (Comrie 1978, 1989; Dixon 1994), as well as other factors such as the unusualness of A (McGregor 2006) or the role of topicality of P (Aissen 2003). However, although DCM is often discussed as if it were a single linguistic phenomenon driven by similar underlying factors, this assumption needs to be questioned. Is DCM in Sümi the same as DCM in other languages? Do we find the same underlying semantic/pragmatic factors conditioning DCM cross-linguistically? Alternatively, given similar semantic/pragmatic conditions across languages, do we also see similarities in observable patterns of case marking?

Looking at the last question, there is already evidence that the configuration of the same factors results in very different patterns of case marking cross-linguistically. For example, as we saw in Chapter 3, the use of agentive *=no* is the pragmatically unmarked choice for prototypical A arguments in Sümi, while null/unmarked A is possible only in certain contexts. This is a similar pattern to that described for some Australian languages such as Warrwa (McGregor 2006) and Jaminjung (Schultze-Berndt 2006) where the presence of an ergative marker in transitive clauses is the default. On the other hand, in some Australian languages described as having optional ergativity, e.g. Gurundji Kriol

(Meakins 2009) and Murrinh-Patha (Nordlinger 2011), the ergative rarely surfaces on A arguments, except under certain pragmatic conditions.

Therefore, in this chapter I ask: given similar semantic and pragmatic contexts, how similar are the observed patterns of Sümi case marking to those found in other languages described as having DCM? To answer this question, I use a corpus-based approach to typology that relies on parallel text data.

In §6.2, I first present some background on current approaches to case marking typology and the rationale for using a corpus-based approach, the method for which I explain in §6.3. In §6.4, I then present some preliminary results based on an analysis of parallel text data before discussing the results in §6.5 and summarizing the findings of the study in §6.6.

6.2 Case Marking Typology

In this section, I start by first describing some current ways and challenges of typologizing across case marking systems, especially ones with DCM, using examples from the Tibeto-Burman family.

6.2.1 Current Approaches to Case Marking Typology

Case marking patterns can vary along a few dimensions cross-linguistically and intra-linguistically across speakers. Two of these include: (i) which core argument(s) can get marked for case i.e. A, S, P arguments, and combinations of these; and (ii) whether case marking is obligatory, i.e. consistent for the same syntactic role, or optional.

Most typological studies of case marking look at which combinations of A, S and P arguments share similar patterns of case marking. In the *World Atlas of Language Structures* (WALS) chapter on the alignment of case marking of full noun phrases (NPs), Comrie (2013a) posits six broad alignment types to which languages are assigned: (i) neutral ($A = S = P$); (ii) “standard” nominative-accusative ($A = S \neq P$) with marked P; (iii) “marked nominative” nominative-accusative ($A = S \neq P$) with marked A and S; (iv) ergative-absolutive ($A \neq S = P$); (v) tripartite ($A \neq S \neq P$); and (vi) active-stative or split-S ($A = S_a \neq S_p = P$).

In such studies of alignment, it is generally understood that case marking is only one type of evidence for alignment in a language which has to be considered together with other parameters such as word order and verb agreement. Typologists also acknowledge that languages may display different alignment patterns in different parts of the grammar. For example, *WALS* has two chapters on alignment of case marking: one for full NPs and one for pronouns (Comrie 2013b).¹⁴ Dryer (2007: 252-253) also distinguishes “accusative languages”, where P is treated distinctly from S and A, from “ergative languages”, where A is treated distinctly from S and P, but admits that even in languages where case marking has ergative alignment, one might find accusative alignment somewhere in the grammar, e.g. in verb agreement.

Nevertheless, even such attempts at more nuanced classifications necessarily rely on the typologist’s assessment of what alignment pattern is most “basic” in a language for that part of the grammar, whether based on intuition, clearly defined criteria, or a combination of both. Comrie (2013a) proposes a number of principled ways to decide if one type of alignment of case marking is more “basic” than another, but since traditional typology has been concerned with what is *possible* in human language, one stated goal is to “maximize the occurrence of otherwise cross-linguistically rare types”. This means that in a situation of split ergativity, where case marking of NPs shows ergative alignment only in the perfective aspect, the language is still classified as “ergative-absolutive”. Crucially, such typologies have struggled to accommodate DCM – the current policy in *WALS* is “to maximize the occurrence of overt case marking” (Comrie 2013a). This means that if a language has an optional P case marker, the language is classified as having nominative-accusative case marking alignment.

As mentioned in Chapter 2, many Tibeto-Burman languages have case marking systems where the flagging of A and S arguments with an “optional” agentive (sometimes called “ergative”¹⁵) marker in natural discourse depends on semantic/pragmatic factors (DeLancey 2011). A number of Tibeto-Burman languages

¹⁴ As an example, in English, full NPs display neutral alignment in case marking, but pronouns display nominative-accusative alignment.

¹⁵ LaPolla (1995) has suggested using the term “ergative” only for cases where the A argument is systematically marked, and the term “agentive” for cases where A is “optionally” marked, often as a result of semantic factors. However, once we look at discourse data, systematic ergative marking is actually very rare in Tibeto-Burman languages.

also have optional case marking of P. In the next section, I illustrate this diversity of case marking patterns with examples from various Tibeto-Burman languages and show why these are problematic for current typologies of case marking alignment.

6.2.2 Alignment of Case Marking in Tibeto-Burman Languages

In this section, variation in Tibeto-Burman case marking systems will be exemplified using 6 languages: Mizo (Kuki-Chin); Rabha (Bodo-Garo); Boro (Bodo-Garo); Tenyidie / standard Angami (Angami-Pochuri); Mongsen Ao (Ao/Central Naga); and Meithei (Meithei). Table 1 provides a summary of the different alignment systems coded by case marking that these six Tibeto-Burman languages illustrate. A short summary of case marking patterns in Sümi, which I have described in other chapters, is also included at the bottom for comparison.

Table 34: Summary of different case marking systems in Tibeto-Burman

	A	S	P
Mizo	marked with <i>-in</i> (obligatory)	unmarked	
Rabha	unmarked		marked with <i>=o</i> (optional)
Boro	marked with <i>=a</i> (optional; common)		marked with <i>=k^hu</i> (optional)
Angami/ Tenyidie	marked with <i>-ê</i> (optional; rare)		unmarked
Mongsen Ao	marked with <i>=nə</i> (optional; depends on intentionality, discourse factors)	marked with <i>=nə</i> (optional; rare; depends on intentionality, discourse factors)	unmarked
Meithei	marked with <i>-nə</i> (optional; depends on verb semantics, discourse factors)	can be marked with <i>-nə</i> , analyzed as a contrastive focus marker, homophonous with agentive <i>-nə</i>	marked with <i>-pu</i> (optional)
Sümi	marked with <i>=no</i> (common, optional in some contexts by some speakers); <i>=ye</i> or unmarked (rare)	marked with <i>=no</i> or <i>=ye</i> (optional; rare; depends on animacy, discourse factors)	marked with <i>ulo/vilo</i> or <i>=lo</i> (only some speakers)

If this summary appears to be a gross simplification of the language facts of Sümi that were presented in Chapters III to V, it should serve as a reminder that the summaries for the other languages, taken from grammatical descriptions of these languages, are also likely simplifications of these case marking systems.

In Mizo (Kuki-Chin), case marking has ergative-absolutive alignment (Chhangte 1989: 171-172). S and P arguments are unmarked, as in (1a) and (1b) respectively, while A arguments are obligatorily/consistently marked with the ergative postposition *in*, as in (1b).¹⁶

(1) Mizo (Kuki-Chin)

a. [Dou1-a] a1 zuang1¹⁷
 [PN-MSUF]_S 3NOM jump

‘Dova is jumping.’ (Chhangte 1986: 121)

b. [nau1-pang2 le? ui1 in] [aar1] a-n uum3
 [child and dog ERG]_A [chicken]_P 3NOM-PL chase
 ‘A child and a dog are chasing a chicken.’ (Chhangte 1989: 123) (author’s own glosses)

There are also nominative-accusative systems of case marking of lexical NPs in Tibeto-Burman. In Rabha (Bodo-Garo) (Joseph 2007: 357-358), S and A arguments are unmarked, as in (2a) and (2b) respectively, while P arguments take an accusative *-o*, as in (2b). In general though, the accusative is omitted in Rabha: Joseph notes that *-o* is optional, as in (2c), unless P is being emphasized or “used in a determinative sense.” I interpret this as a P argument that is definite.

(2) Rabha (Bodo-Garo)

a. [kai sak-sa] réŋ-ata
 [person CL-one(NOM)]_S go-PST

‘One person went.’ (Joseph 2007: 357) (own glosses)

¹⁶ Note that verb agreement in Mizo displays nominative-accusative alignment. Here, the words *a* and *a2-n* show agreement in number with the S and A arguments, but not P.

¹⁷ The numbers represent tone categories in the language.

- b. *[kaisábra] [kí-o] gi-jar-nata*
 [child.NOM]_A [dog-ACC]_P CAUS-run-PST
 ‘The child chased the dog away.’ (Joseph 2007: 358)
- c. *[ná maŋ-aniŋ] mán-nata*
 [fish CL-two]_P get-PST
 ‘(Subject) got two fish(es).’ (Joseph 2007: 358)

Boro (Bodo-Garo) is described as having a nominative-accusative system of case marking for lexical NPs (Boro 2012). However, non-pronominal S and A arguments are often marked by an optional subject marker =*a*, as in (3a) and (3b), while P arguments generally take an optional accusative =*k^{hu}*, seen in (3b) but not in (3c). The distribution of this subject marker does not appear to be determined by agentivity or verbal semantics, but by discourse pragmatic factors, though the details remain unclear. Similarly, it is unclear if factors affecting the distribution of the optional accusative are the same as that for the optional accusative in Rabha.

(3) Boro (Bodo-Garo)

- a. *[got^{ho}-p^{hur}=a] t^{ha}ŋ z^{ub}-bai.*
 [child-PL=SUBJ]_S go end-PERF
 ‘All the children have left.’ (Boro 2012: 92)
- b. *[got^{ho}=k^{hu}] [mosa=a] za z^{ub}-bai.*
 [child=OBJ]_P [tiger=SUB]_A eat end-PERF
 ‘The tiger has eaten up the child.’ (Boro 2012: 92)
- c. *[aŋ] [k^{ha}-se mansui] nu bu-du.*
 [1SG]_A [CLS-one man]_P see pull-AFF
 ‘I saw a man on (my) way.’ (Boro 2012: 97)

In Tenyidie/Standard Angami (Angami-Pochuri), Kuolie (2006: 65) notes a nominative marker -*ê* that flags S and A arguments as in (4a) and (4b). However, in examples from other parts of Kuolie’s grammatical description, as in (4c) and (4d), as well as in recordings of the Pear Story (my own notes), S, A and P are almost never distinguished by case marking. It is presently unclear what motivates the appearance of

the nominative marker, but it appears to be much less common in Tenyidie than the subject marker is in Boro.

- (4) Angami/Tenyidie (Angami-Pochuri)
- a. [jon-ê] vór-Zé
 [PN-NOM]_S come-PRS.PROG
 ‘John is coming.’ (Kuolie 2006: 65)
- b. [mí-ê] [ú] thé-yâ.
 [fire-NOM]_A [us]_P burn-HAB
 ‘Fire burns us.’ (Kuolie 2006: 65)
- c. [thêmiè-û] â kí vór.
 [man-DEF]_S me DAT come
 ‘The man came to me.’ (Kuolie 2006: 169)
- d. [vǐô] [thêbǎ può] chǎ-Sǎtá.
 [PN]_A [seat one]_P make-REM
 ‘Vio had made a seat.’ (Kuolie 2006: 133)

In Mongsen Ao (Ao/Central Naga), there is an agentive marker *nə* that can flag both A and S arguments (Coupe 2007: 160-164, 173-174). In general, A and S arguments are unmarked, as in (5a), but in some cases, speakers might use *nə* to construe a referent as being deliberately hurtful, as in (5b), or a referent with greater intentionality, as in (5c)¹⁸. What separates this from more prototypical active-stative systems that divide up S flagging based on semantic alignment, is that the choice of *nə* on both A and S is determined by both semantic and discourse pragmatic factors. Furthermore, describing *nə* as an optional nominative marker would ignore the observation that A arguments, which more commonly refer to agents, are also more often marked by *nə* than S arguments.

- (5) Mongsen Ao (Ao/Central Naga)
- a. [a-hən] [a-tfak] tǎǎʔ-àɪ-ùʔ
 [NRL-chicken]_A [NRL-paddy]_P consume-PRES-DEC
 ‘The chickens are eating paddy.’ (Coupe 2007: 157)

¹⁸ This is the only clear example of marked S provided by Coupe (2007). Although it has a pronominal S, I assumed that lexical NPs follow the same pattern.

- b. [a-hən nə] [a-tfak] tʃäʔ-à-ùʔ
 [NRL-chicken AGT]_A [NRL-paddy]_P consume-PRES-DEC
 ‘The chickens are eating paddy.’ (implying they are stealing it) (Coupe 2007: 157)
- c. [ni nə] akhət
 [1SG AGT]_S cough.PST
 ‘I coughed.’ (i.e. on purpose, to get your attention) (Coupe 2007: 161)

The situation in Meithei (Chelliah 2009: 386-393) is similarly complex: the agent marker *-nə* is used when a speaker “wishes to indicate agent involvement in a noteworthy or unexpected instance of an activity – compare (6a) with (6b). However, *-nə* can also appear in generic statements where its use does not imply a volitional actor, as in (6c). S arguments are generally unmarked but can be marked by what Chelliah calls a homophonous marker *-nə* that places an entity in contrastive focus to another entity or set of entities, as in (6d). Chelliah argues that the contrastive focus marker is separate from the agentive, though the former likely developed from the latter, but there are examples in transitive clauses where one could interpret *-nə* as either an agentive or a contrastive focus marker, since the two markers cannot be stacked. Finally, in contrast to Mongsen Ao, Meithei also has a system of differential object marking, where specific P arguments are typically marked with the patient marker *-pu/-bu*. as in (6e).

(6) Meithei (Meithei)

- a. [tomba] [chá] čá-i.
 [Tomba]_A [meat]_P eat-NHYP
 ‘Tomba ate meat.’ (Tomba is a non-vegetarian.) (Chelliah 2009: 387)
- b. [tomba-nə] [chá] čá-i.
 [Tomba-AGN]_A [meat]_P eat-NHYP
 ‘Tomba ate meat.’ (A noteworthy activity, not expected for this vegetarian.) (Chelliah 2009: 387)
- c. [hindu-síŋ-nə] [lukun-si] thán-í.
 [Hindu-PL-AGN]_A [sacred.thread-PDET]_P wear-NHYP
 ‘Hindus wear the sacred thread.’ (Chelliah 2009: 391)

- d. *[u-pák-tu-nə]* *láy-nə* *tebl*
 [wood-plank-DDET-CNTR]_S easy-ADV table
- lán-nə* *ín-sin-í.*
 cross.over-ADV slid-IN-NHYP
 ‘The plank slides easily across the table (but the hammer does not).’ (Chelliah 2009: 393)
- e. *[má-hák-nə]* *[təbul-pu]* *káw-í.*
 [he-here-AGN]_A [table-PAT]_P kick-NHYP
 ‘He kicked a particular table.’ (Chelliah 2009: 381)

6.2.3 Challenges for Typology of Case Marking

A general issue in typological studies is how fine-grained typological categories should be for cross-linguistic analysis. For example, in current typological approaches that rely on “maximizing the occurrence of overt case marking” (Comrie 2013a), Rabha, Boro and Tenyidie would all be classified as having nominative-accusative case marking alignment. However, only in Rabha and Boro are P arguments optionally case marked, while only in Boro and Tenyidie are A and S arguments optionally case marked. On the other hand, A and S case markers appear to be much rarer in Tenyidie than in Boro, where the subject marker =*a* occurs frequently in both elicited and naturalistic data (Boro, *pers.comm.*). Do we then need one, two or three separate categories of nominative-accusative for the three languages, and how useful are such divisions for cross-linguistic comparison?

Importantly, most typological studies of case marking alignment have also been unable to capture cross-linguistic differences in optional vs. consistent case marking, as well as the degree of optionality of case marking in usage. Should Rabha, Boro and Tenyidie also be distinguished from languages where core arguments are marked for case regardless of factors such as definiteness, animacy or discourse prominence? There are further problems classifying languages like Mongsen Ao, Meithei and Sümi according to case marking: although the same case marker can appear on A and S arguments, their distribution on A vs. S appears to be determined by different factors. Assigning these languages to categories in the traditional typology would require one to make decisions

that obscure details of each language. For example, Meithei is classified as (standard) “nominative-accusative” (not “marked nominative”) in the *WALS* chapter on case marking of full NPs (Comrie 2013a). Given the myriad of semantic/pragmatic factors (see Malchukov 2008, Chelliah & Hyslop 2011) that could determine case marking, it therefore becomes increasingly impossible to find principled ways to identify types and sub-types of alignment to which we can assign languages.

Finally, in Sümi, we noted that P case marking was possible but only for a few speakers in the sample. Current approaches to typology also do not deal well with such intra-linguistic variation, forcing one to select a particular variety of the language to compare with others, which may be an idealized standard variety or simply a variety that has been documented and described.

In response to these challenges, I explore a corpus-based approach to alignment of case marking typology in these languages that relies not on a classification through a list of abstract features or arbitrarily defined criteria, but rather on parallel text data, in which discourse context is controlled across different language samples. In the next section, I describe the basis for this approach.

6.2.4 Rationale for Study

Rather than divide up languages into gross types, more recent quantitative approaches to typology have sought to make statistical generalizations about the distributions of linguistic properties and to seek principled explanations for their distributions (e.g. Bickel 2007). For example, Epps & Michael (2017) illustrate the areal diffusion of grammatical features in a subset of Northwest Amazonian languages: they present a NeighborNet split graph, based on 226 features, and show that the regions of the split graph correspond better to geographic regions where the languages are spoken than to genetic classifications. Gray *et al.* (2010) compare NeighborNet split graphs generated using typological features vs. basic vocabulary to support the idea that typological features are more prone to diffusion.

Previous cross-linguistic studies of case marking in Tibeto-Burman languages (e.g. LaPolla 1995; Coupe 2011; Noonan 2008) have been largely concerned with comparing language-specific categories, such as “agentive” or “ergative”, “ablative” and

“locative”, often taking for granted that the label “agentive” as applied to one language must correspond at least roughly to “agentive” in another. One attempt at developing a list of features relevant to Tibeto-Burman languages comes from LaPolla (2012), who proposes a preliminary “master list” of features that can be used for statistical comparisons across languages of the family and sub-branches of the family. Although using a feature list could allow for greater resolution in the classification of Tibeto-Burman languages by case marking alignment, the main challenge here is that we are not certain enough of the most salient semantic and discourse factors that affect the distribution of case markers in individual languages, even for reasonably well-described languages, to create a cross-linguistic feature list.

Perhaps instead of trying to tease apart the myriad semantic and discourse factors that determine optional case marking cross-linguistically, it might be more useful to measure the likelihood, across languages and speakers, that an argument will receive a case marker when found in similar information structure / discourse contexts. This leads us to a promising alternative: the use of parallel textual data in approaches that fall under the umbrella of “corpus-based typology” or “primary data typology”, as per Wälchli (2006, 2009). Rather than checking languages against a given list of typological features, these approaches use utterances produced in context as the basis for comparison. In a number of such studies, the primary data come from “massively parallel texts”, i.e. translations of the same text in different languages/language varieties that follow the same narrative structure as the original (Wälchli 2006, Cysouw & Wälchli 2007). Despite the various shortcomings of parallel texts, which often represent artificial genres like Bible translations that might contain overly literal translations or “translationese”, the analysis of such texts still represents an attractive alternative to abstract features, especially with the growing availability of machine-readable translations of books and documents.¹⁹

Similar corpus-based methods have already begun to prove useful in areas like in grammaticalization theory, given the gradient nature of grammatical categories and the importance of usage frequency (Mair 2004), as well as in dialectology and register

¹⁹ In addition, methods have been developed to directly compare non-parallel texts in indigenous genres, including the GRAID system of annotation (Haig & Schnell 2011; Haig et al. 2011).

analysis (Wälchli & Szmrecsanyi 2014). Likewise, it is hoped that corpus-based approaches can capture the gradient nature of typological categories, as well as include information about the frequency of a typological feature in a particular text/genre. A further possibility, noted by Haig *et al.* (2011), is the ability to incorporate language-internal variation into studies of cross-linguistic typology.

One particular method of working with parallel texts is demonstrated in Wälchli and Cysouw (2012) and described in more detail in Cysouw (2014). This method first involves identifying “contexts” in a text in a particular language/language variety that contain the grammatical forms and/or lexical items under investigation. The notion of “context” can refer to any element or combination of elements related to the spatio-temporal surrounding of a particular linguistic expression, which includes the surrounding text and location within a larger narrative structure. The next step is to make pair-wise comparisons for all the contexts, to see if the same form/construction is used for each given pair of contexts. The process is repeated for all versions of the text in other language/language varieties. Each pair of contexts is used as the basis for cross-linguistic comparison, thereby precluding the need for making direct comparisons of language-specific expressions to other language-specific expressions.

A detailed explanation of the method used in this study is given in §6.3 and §6.4.1. In general, I looked first for contexts in the text that contained A, S and P-like exemplars, to be described in §6.3.3. For each pair of contexts, I used binary coding to indicate if the same case marker was used in a given translation of the text. Finally, by comparing binary strings across the translations, a dissimilarity matrix for the languages in my sample could be generated. Therefore, rather than force each language into an alignment type/subtype, this approach provides a numerical distance for each language from other languages in terms of case marking. Furthermore, by using exemplars in texts, this approach takes into account the frequency with which such case markers appear in usage.

6.3 Corpus-based Study of Case Marking

6.3.1 *Linguistic Survey of India* Materials

The texts used in this study were taken from the *Linguistic Survey of India* (henceforth *LSI*), the data for which were collected between 1887 and 1900; edited and collated by Sir George Grierson, and subsequently Sten Konow; and published between 1903 and 1928. The work consists of 11 volumes, divided into 19 tomes, that cover all the major language families of the subcontinent, including the Indo-European, Dravidian, Austroasiatic and Tibeto-Burman families. For each language variety in the *LSI*, a short grammatical description is provided, along with a word and sentence list, and one or two short sample texts with an interlinear word for word English gloss / translation in italics. The first of these texts is a translation of the parable of the Prodigal Son (Luke 15: 11-32), while the second, where available, is typically a traditional narrative. Grierson (1927) noted that the Prodigal Son parable was chosen because “[i]t contains the three personal pronouns, most of the cases found in the declension of nouns, and the present, past, and future tenses of the verb.” (Vol I, Part 1: 18). However, he also acknowledged the danger that the translated materials would not be a good representation of natural speech, and included a second more traditional narrative where possible.²⁰

The *LSI* has been digitized and is being made into a text-searchable corpus that will facilitate large-scale linguistic studies.²¹ Borin *et al.* (2014) have already begun to use the lexical word list data to investigate previous claims that South Asia is a linguistic area consisting of genetically-unrelated languages that look more typologically similar as a result of long-term contact between speakers of these languages (Masica 1976; Kachru *et al.* 2008). Their study used the brief phonological description of each language to mitigate errors and inconsistencies in the phonetic transcriptions of the words, but it did not consider grammatical features, nor did it look at the sample texts.

²⁰ Grierson (1927) wrote, “As this [first] specimen would necessarily be in every case a translation and would, therefore, run the risk of being unidiomatic, a second specimen was also to be called for in each case, not a translation, but a piece of folklore or some other passage in narrative prose or verse, selected on the spot and taken down from the mouth of the speaker.” (Vol I, Part 1: 17)

²¹ A non-text-searchable version is currently (freely) available via the Digital South Asia Library (<http://dsal.uchicago.edu/books/lsi/>), while a text-searchable version is available through subscription via the Hathi Trust (<https://catalog.hathitrust.org/Record/002239434>).

For this study, I used translations of the Prodigal Son parable given in the *LSI*. Each translation comes with a transcription written in a Latin-based orthography, with a separate line for a gloss in English. Morpheme boundaries are sometimes marked by hyphens in the transcription line, but the glosses typically inconsistently reflect either word or bound morphemes. A sample of the transcription and glosses used in the Sherpa translation of the Prodigal Son parable is given in (7).

Sample of Prodigal Son translation in Sherpa (LSI Vol III, Part 1: 117)

(7)	Mi	chig-la	bu-jang	nyi	yot-tup.
	<i>Man</i>	<i>one-to</i>	<i>sons</i>	<i>two</i>	<i>were.</i>
	Bu-jung	chhung-na	de	pa-ba-la	shus-pa,
	<i>Son</i>	<i>younger</i>	<i>that</i>	<i>father-to</i>	<i>asked</i>
	‘pa-ba lags,	nga-la nor	thob-gyu	di	goi-nang.’
	<i>father O,</i>	<i>me-to property</i>	<i>getting-for</i>	<i>the</i>	<i>divide-give.’</i>

Although there are some potential issues with the data, these do not automatically disqualify their use in this particular analysis. Some issues include general concerns about translationese and bible translations. Wälchli (2007) addresses many of these concerns related to bible translations, noting that the question of how representative they are of each language is one that is not restricted to such translations, but language description more generally. Cysouw (2014) uses the term *doculect* to describe the language used in such translations and contends that such doculects do still represent a “viable expression of some kind of human language” (26). For this reason, I simply use the term *language variety* in this chapter. Furthermore, even if the Prodigal Son translations do not represent spontaneous conversation, they all follow the same narrative structure. It is this similarity in narrative structure that helps control for some of the varied discourse pragmatic factors that affect the distribution of case marking across languages and speakers.

It is also not always clear which versions of the parable were used as the source for each translation. Although careful instructions were given regarding the collection of texts, Grierson was aware that many of the translators would not know English and

would rely on existing translations of the Prodigal Son parable in other Indian languages (Vol I, Part 1: 19). However, differences between translations can often be spotted with the aid of the English glosses. Finally, despite the fact that the data were being transcribed without any standard phonetic notation, and the morphological glossing varies in quality from language to language, the work still provides a wealth of information on what these languages looked like in the late 19th/early 20th century.

Finally, there were translations that were intentionally modified from the source for reasons of cultural sensitivity.²² For example, in certain translations, the father is said to have ‘killed a calf’, but in others, he simply ‘gave a feast’. If the translated NP differed this greatly across translations, I excluded that NP from the study. I also excluded data that showed obvious issues in translation quality. The sample for one particular language, Sunwar, had to be rejected outright because it showed remarkable similarity to English word order. A comparison with Borchers’s (2008) grammar of Sunwar suggests that the *LSI* sample was a word-for-word translation of the biblical passage from English. However, the quality of this particular sample was a clear exception when compared to translations in other languages: the *LSI* editor was even prompted to write that “the state of affairs in the specimen is probably due to a too close adherence to the English original” (*LSI* Vol III, Part 1: 203).

6.3.2 Languages Sampled

The *LSI* has information and data from 110 Tibeto-Burman languages of South Asia. For this study, translations in 33 Tibeto-Burman language varieties were selected. A list of these languages is given in Table 35, including their appellation in the *LSI*, Ethnologue and Glottolog codes, and genetic sub-group.²³ The geographic distribution of the languages is given in Figure 41, using coordinates from Glottolog 2.7 (Hammaström *et al.* 2016).²⁴

²² Grierson (1927) remarked that “[i]t was then determined that the first specimen should be a version of the Parable of the Prodigal Son, with slight verbal alteration to avoid Indian prejudices.” (Vol I, Part 1: 17-18)

²³ I follow van Driem’s (2011) “Fallen Leaves” model that accepts these subgroups based on comparative evidence but remains agnostic as to the genetic relationships between subgroups.

²⁴ In place of van Driem’s “Brahmaputran” and “Kukish”, I have used the term “Bodo-Garo”, following DeLancey (2012) and “Kuki-Chin”, following Bradley (1997), DeLancey (2013b), *inter alia*. It is also not clear which varieties of Tamang and Magar were documented in the *LSI*: I have assumed the Eastern

Table 35: List of languages, with dialect given in parentheses and older/alternative names given in second column.

No	Language (dialect in parentheses)	Name in <i>LSI</i>	Ethnologue Code	Glottolog Code	Sub-group
1	Balti		bft	balt1258	Bodish
2	Sherpa	Sharpa	xsr	sher1255	Bodish
3	Kagate		syw	kaga1252	Bodish
4	Bunan		bfu	gahr1239	West Himalayish
5	Tamang	Murmi	taj	east2347	Tamangic
6	Newar	Newari	new	newa1246	Newaric
7	Magar	Magari	mgp	east2352	Magaric
8	Limbu (Fedopia)		lif	limb1266	Kiranti
9	Kulung	Khambu	kle	kulu1253	Kiranti
10	Lepcha		lep	lepc1244	Lepcha
11	Boro (Darrang)		brx	bodo1269	Bodo-Garo
12	Garó (Achik)		grt	garo1247	Bodo-Garo
13	Garó (Kamrup)		grt	garo1247	Bodo-Garo
14	Garó (Abeng)		grt	garo1247	Bodo-Garo
15	Garó (Cooch Behar)		grt	garo1247	Bodo-Garo
16	Atong		aot	aton1241	Bodo-Garo
17	Dimasa (N. Cachar)		dis	dima1251	Bodo-Garo
18	Rabha		rah	rabh1238	Bodo-Garo
19	Chungli Ao		njo	aona1235	Ao
20	Angami	Tengima	njm	anga1288	Angami-Pochuri
21	Khezha	Kezhama	nkh	khez1235	Angami-Pochuri
22	Mao	Sopvoma	nbi	maon1238	Angami-Pochuri
23	Sümi (Simi)	Simi	nsm	sumi1235	Angami-Pochuri
24	Sümi (modern)		nsm	sumi1235	Angami-Pochuri
25	Rongmei	Kabui	nbu	rong1266	Zeme
26	Tangkhul		nmf	tang1336	Tangkhul
27	Karbi	Mikir	mju	karb1241	Karbi
28	Meithei	Manipuri	mni	mani1292	Meithei
29	Anal		anm	anal1239	Kuki-Chin
30	Thadou	Thado	tcz	thad1238	Kuki-Chin
31	Mizo	Lushei	lus	lush1249	Kuki-Chin
32	Hakha Chin	Lai	cnh	haka1240	Kuki-Chin
33	Bawm	Banjōgī	pkh	bawm1236	Kuki-Chin
34	Mru		mro	mruu1242	Mru

variety of each language, as Grierson (1927) reports that speakers of these languages were recruited in Darjeeling (Vol I, Part 1: 57).

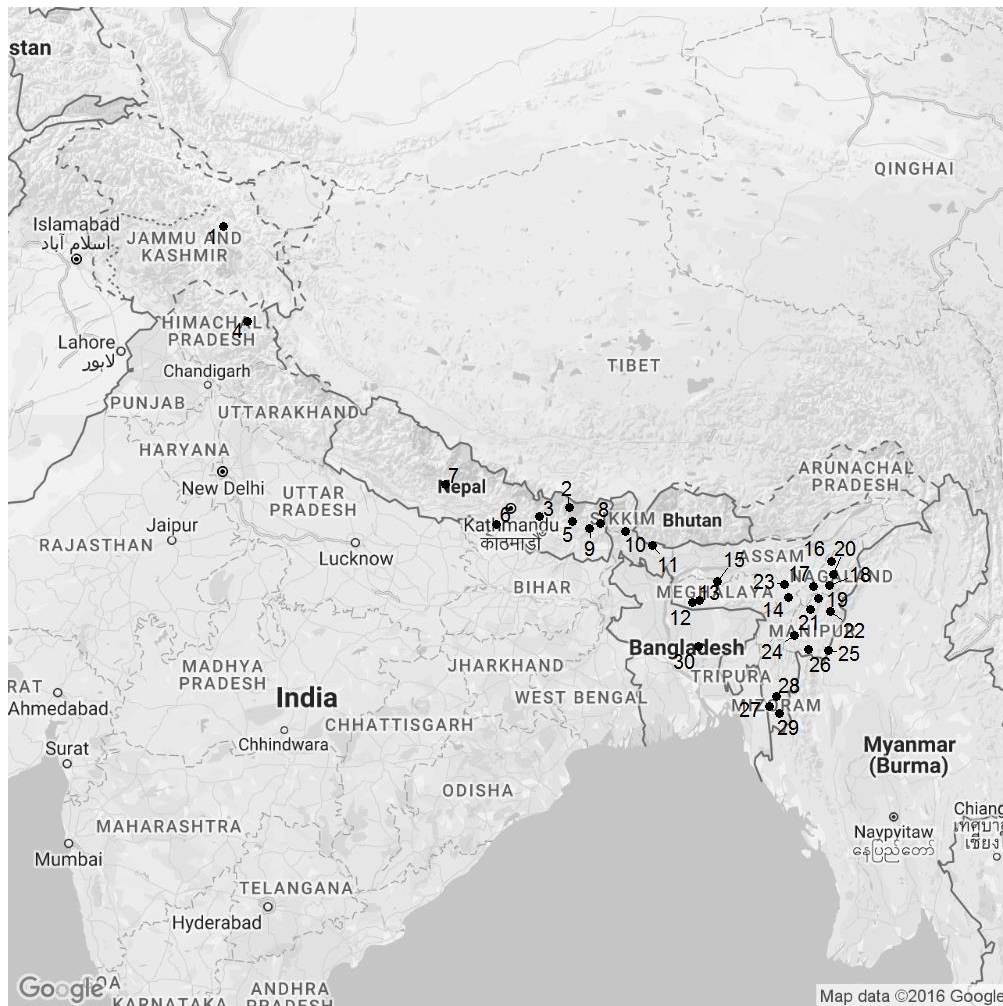


Figure 41: Map showing geographic distribution of languages in sample (Google Maps 2017)

The selection of language varieties was partly determined by the availability of modern linguistic descriptions of these languages. These modern descriptions were used to help determine if any of the *LSI* translations were problematic. For example, the Sunwar translation from the *LSI* had to be excluded from the study because it was almost certainly a word-for-word translation with English word order. For example, the variety of Sümi presented in the *LSI* diverged greatly in phonology and morphology from the ones spoken in Zunheboto and Dimapur. For this reason, the translation of the parable from the modern Sümi Baibel (Bible Society of India) was added to the sample.

The languages in the sample were chosen to represent a wide range of alignment, in order to demonstrate how differences between the languages in terms of case marking of alignment can be quantified. Translations in different varieties of Garo (Bodo-Garo)

were also chosen to illustrate diversity in alignment even among what have been described as varieties of the same language.

Modern descriptions of the languages in the sample show that alignment of case marking correlates somewhat with established language sub-group: Bodo-Garo languages tend to have Nominative-Accusative alignment, while Kuki-Chin languages tend to have Ergative-Absolutive alignment in case marking. However, there is also diversity in alignment of case marking within sub-groups and within varieties of the same language: within Angami-Pochuri, Mao displays both optional A and optional P marking on NPs (Giridhar 1994), while Tenyidie/Angami has an A and S marker (Kuolie 2006), though it is rarely used (author's own fieldnotes).

6.3.3 Selection and Tagging of Contextual Roles in *Prodigal Son* Text

For this study, the basic unit used for comparison across parallel texts is the “contextual role”. These are the roles which a participant is said to perform within a “contextually embedded situation” (Wälchli 2010, Wälchli & Cysouw 2012). They are similar to familiar “semantic roles” such as “agent” or “patient”, but are specific to the predicate, e.g. “dier”, “comer” and specific to the location within a narrative. 14 contextual roles in the text were identified for comparison. They are listed in Table 36 in their sentential contexts. For ease of reference, contextual role names based on the English translations (e.g. ‘speaker’ and ‘speakee’) have been assigned to each contextual role. How each contextual role was assigned to one of S, A or P is described below.

Only contextual roles that occurred with similarly translated verbal predicates across translations were considered. One exception was made for contextual role 11, which appears in some translations as *your father has killed the (fattened) calf* and in others was *your father had given/thrown a feast*. Despite differences in the verbal predicate, *father* was still included in the study because both translations correspond to prototypical transitive clauses, with ‘killer’ and ‘giver’ both considered to be prototypical A arguments. On the other hand, *calf* and *feast* were excluded since the former has an animate referent while the latter does not. Given that animacy has been shown to play a role in optional P marking, the inclusion of this contextual role in the study would make case marking alignment in certain languages appear either more similar to or different

from others, not due to differences in case marking systems, but to the translator’s choice to represent the event as the killing of the calf or the throwing of a feast.

Table 36: Noun phrases used for alignment study, given in sentential context with corresponding contextual role names

No.	Noun phrase in sentential context (NP underlined)	Contextual role	S/A/P
1	And <u>the younger of them</u> said to his father,	speaker	A
2	So the man divided <u>his property</u> between them.	divided object	P
3	Not many days later, <u>the younger son</u> gathered all he had and took a journey into a far country.	gatherer/seller + goer	A
4	But while he was still a long way off, <u>his father</u> saw him and felt compassion, and ran and embraced him and kissed him.	see-er (+ hugger)	A
5	And <u>the son</u> said to him,	speaker	A
6	But <u>the father</u> said to his servants,	speaker/caller	A
7	Bring quickly <u>the best robe</u> , and put it on him, and put a ring on his hand, and shoes on his feet.	brought object	P
8	For <u>this son of mine</u> was dead, but now he is alive	dier	S
9	And he called one of the servants	summonnee/callee	P
10	“Your brother has come,	comer	S
11	and <u>your father</u> has killed the fattened calf / given a feast	killer/giver	A
12	<u>His father</u> came out and entreated him	comer + entreater	S
13	But when this son of yours came	comer	S
14	for <u>this your brother</u> was dead, and is alive	dier	S

Case marking of contextual roles was defined as any morphosyntactic coding of arguments, which includes: suffixes, enclitics and postpositions, but also the lack of any overt morphological marking on a full lexical NP. I relied on the details provided in the *LSI* and modern grammatical descriptions where available, to decide what forms should be treated as case markers. I also relied on these descriptions when deciding if case markers in two different contextual roles should be treated as the same or different: for example, attested allomorphs of case markers such as *-bu* and *-pu* in Meithei, were treated as examples of the same case marker, based on the short descriptions in the *LSI*, as well as their phonological similarity.²⁵ All tagging was done manually, and similarity

²⁵ Suppletive allomorphy did not appear to be a major issue in the *LSI* data, except in the Sherpa text where *-i* and *-s* were described as allomorphs of the same “agent” morpheme. Contrary to the grammatical description, an examination of their distribution in the text itself showed that the alternation was neither phonologically nor lexically conditioned. For this reason, they were treated as separate morphemes.

was treated as a binary variable, i.e. for a given language variety, if two contextual roles used the same case marker, that pair-wise comparison received a value of ‘0’; if they used a different case marker, that pair-wise comparison received a value of ‘1’.

In order to determine which contextual roles corresponded to S, A or P, Cysouw’s (2014) method of calculating dissimilarity distances between each pair of contextual roles was used. A dissimilarity matrix was calculated by looking at the percentage of languages in the sample that marked each pair of contextual roles with a different case marker. For example, between contextual role 6: *But the father said to his servants* and contextual role 12: *His father came out and entreated him*, out of the 34 language samples, 17 used the same case marker for ‘father’ in both contexts, while 17 marked ‘father’ in these two contexts differently. Therefore, the degree of similarity between the two contextual roles was calculated as $17/34 = 0.5$ (0 = most similar, 1 = most different).

To visualize the similarities/differences between all pairs of contextual roles, a multi-dimensional scaling (MDS) analysis was performed on the dissimilarity matrix. Each contextual role was plotted along the two first dimensions²⁶ of the resulting MDS plot, which is presented in Figure 42. The MDS algorithm²⁷ attempts to arrange each contextual role in an n -dimensional space ($n = 2$) that maintains the between-contextual role distances given in the dissimilarity matrix. In the MDS plot, the contextual role names are used as labels, while the colors and hand-drawn ellipses represent the different clusters that each contextual role belongs to, based on an additional k -medoids cluster analysis.²⁸ The ellipse labels were manually added after it was determined that the members of each cluster corresponded to particular syntactic arguments, e.g. S, A and P. To show that the contextual roles classified as P arguments were clustering together, an additional set of contextual roles corresponding to addressees of speech verbs was included in the analysis.

²⁶ Two dimensions were found to already capture 94.6% of the variance in the data used here.

²⁷ Here, the `cmdscale()` function in the ‘stats package’ of R (version 3.2.2) (R Core Team 2015). This is the same function used by Cysouw (2008). Note that this function applies classical MDS to a distance matrix calculated using Euclidean distance. Similar results were obtained by applying non-metric MDS to distance matrices calculated using Bray distance and Manhattan distance.

²⁸ For details of the cluster analysis, including the silhouette plot, see Appendix A.

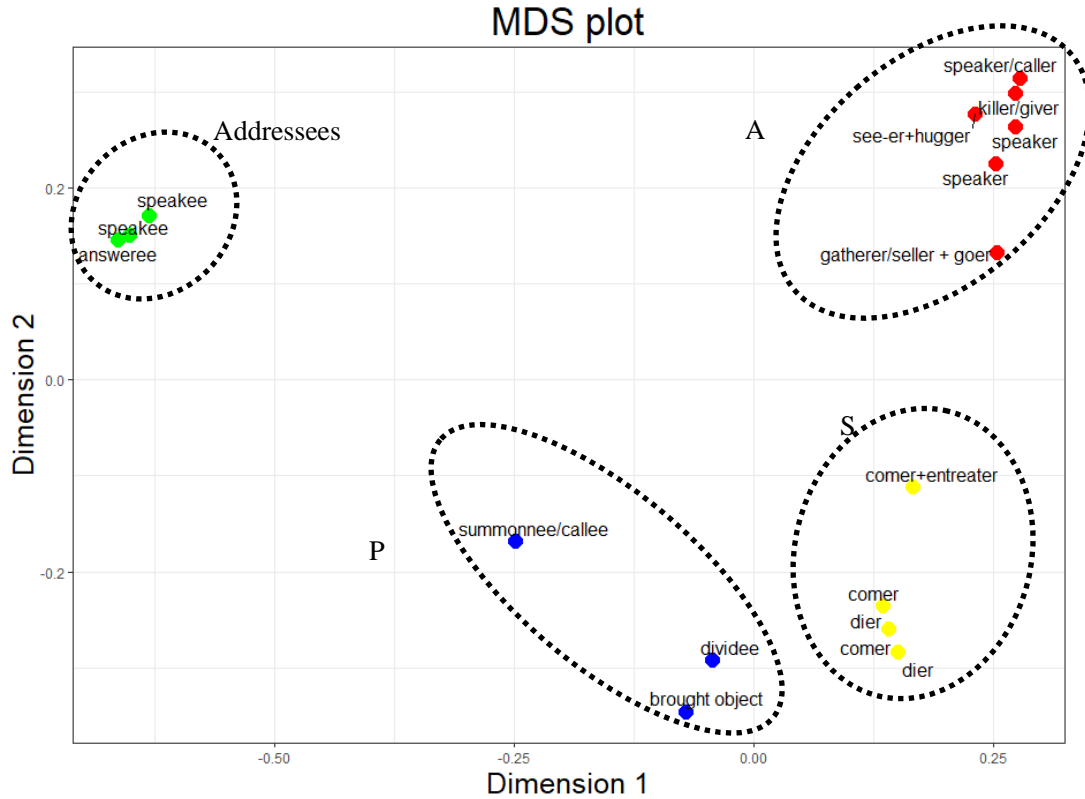


Figure 42: First two dimensions of a multi-dimensional scaling analysis with hand-drawn ellipses and labels showing the relative degree of similarity/difference between contextual roles in Prodigal Son text. Contextual roles that share the same case marking in more language varieties are plotted closer together.

The interpretation of the nature of each dimension is not as important as the relative distances within and between groups of contextual roles. Contextual roles that consistently share the same kind of case marker across language samples appear closer together in geometric space, while pairs of contextual roles that are often marked differently in languages will appear further away. From the positions of the contextual roles in the MDS plot, one can visually identify a cluster of roles (red) in the top-right corner of the plot which include a prototypical A: ‘killer/giver’, as well as other contextual roles that get marked like this role in this sample of languages, including ‘speaker’ and ‘see-er + hugger’. In the bottom-right portion of the plot, the *k*-medoids clustering analysis helps to identify a cluster of roles (yellow) such as ‘dier’ and ‘comer’, which we might identify as S arguments. The bottom cluster (blue), located close to the S argument cluster, consists of roles that we might identify as P arguments. The cluster at top-left corner (green), consists of addressees of speech verbs.

Within the cluster of P arguments, the space between the “summonee/callee” contextual role and the “dividee” and “brought object” contextual roles reflects differences in the case marking of animate vs. inanimate P arguments in some languages in the sample. Unfortunately, these are the only P-like contextual roles found in the data set and future work should examine texts with more examples of P arguments, both animate and inanimate. Nevertheless, there are enough languages in this current sample which mark P arguments differently from both S arguments and addresses of speech verbs that we can see a P argument cluster emerging.

Note that the plot in Figure 42 represents the average distances between contextual roles across languages in the sample. On the other hand, individual languages rarely show a clear tripartite alignment pattern in the flagging of S, A and P. As an example, Figure 43 shows the MDS plot for Sümi case markers using the same positions and ellipses as in Figure 42. In this plot however, the colors represent the actual forms of the case markers: blue: =no, red: =ye, green: null; yellow: *vilo*. We can see that in the sample, most A arguments get marked with =no, while most S arguments get marked with =ye, though some As get =ye and one S gets =no. All the P arguments are unmarked.

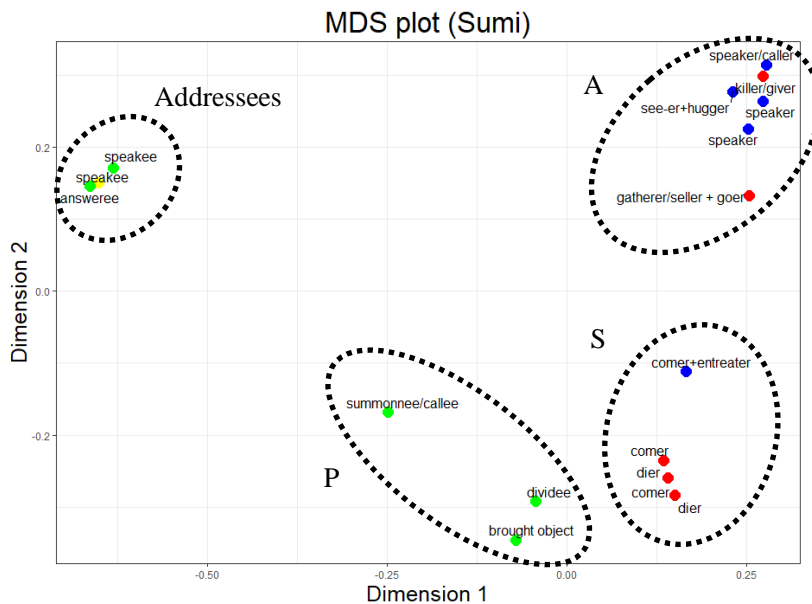
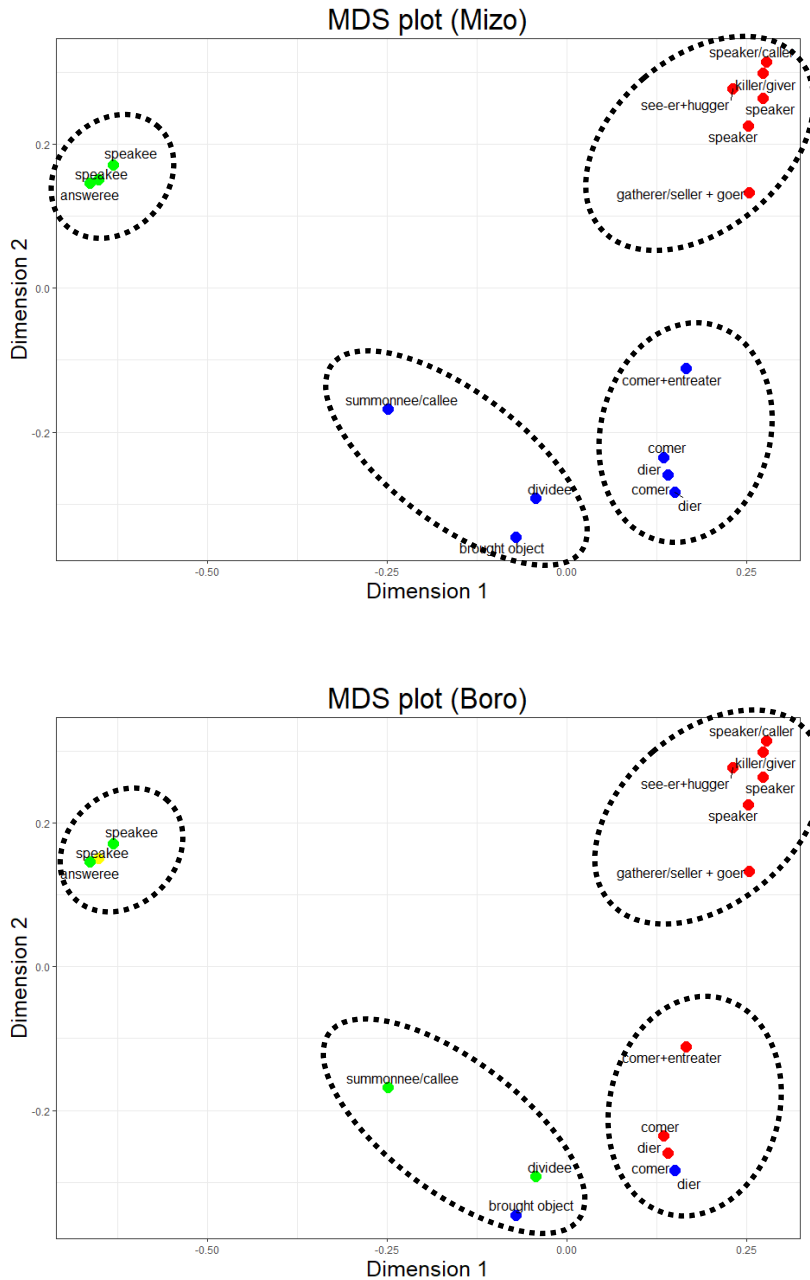


Figure 43: Multi-dimensional scaling plots showing contextual role case marking in Sümi translation. The position of the contextual roles and the hand-drawn ellipses are identical to those presented in Figure 42. Contextual roles with the same color indicate they share the same form.

Figure 44 gives language-specific MDS plots for four of the languages described earlier in §6.2.2, Mizo, Boro, Angami/Tenyidie and Meithei. As in the Sümi-specific plot, the contextual roles are plotted in same positions as in Figure 42, but the colors represent language-specific forms of the case markers.



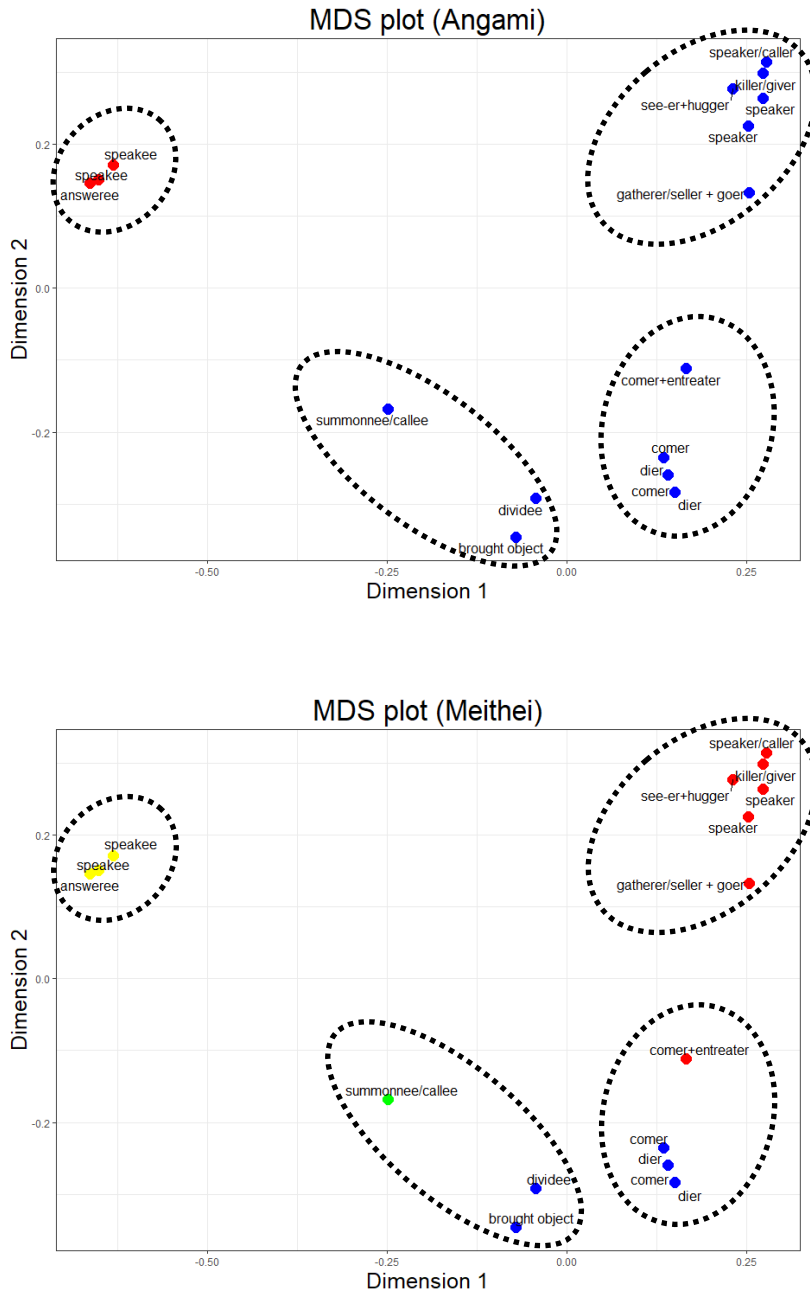


Figure 44: Multi-dimensional scaling plots for contextual role case marking in (a) Mizo; (b) Angami/Tenyidie; (c) Boro; and (d) Meithei. The position of the roles and the hand-drawn ellipses are identical to those presented in Figure 42. Contextual roles with the same color indicate they share the same form in that particular language variety.

The findings for each of these four languages demonstrate the case marking patterns described previously in §6.2.2. In the Mizo sample, we find a clear split in case marking between the A arguments marked by *-in* (red) vs. unmarked S and P (blue). This

matches previous descriptions of Mizo case marking as having systematic ergative-absolutive alignment in case marking (Chhangte 1989). In the Boro sample, we find a case marker *-a* (red) that appears on most A and S arguments, while most P arguments are marked with *-khō* (green). These match previous descriptions of the language as having an overt A and S (marked nominative) case marker that is optional but common, as well as an optional P case marker. In the Angami/Tenyidie sample, A, S and P arguments are all unmarked (blue). Although Angami is described as having an A and S marker *-e*, this marker is very rare in usage, so it is unsurprising not to find it in a small sample of contextual roles. Finally, in the Meithei sample, we find a case marker *-nā* (red), transcribed as *-nə* by Chelliah (1997), on all A arguments but also one S argument. In Meithei, only the animate P argument is marked by *-bu*.

Although these MDS plots allow for a visual comparison of Sümi case marking patterns with case marking patterns in other languages, it is still difficult to tell how similar or different Sümi is to each of the other languages. In the next section, I explain how I calculate and visualize differences between the language varieties in the sample.

6.4 Cross-linguistic Analysis of Case Marking Alignment

6.4.1 Method and Proof-of-concept

The method described here uses intra-linguistic pairwise comparisons of contextual roles as the basis for cross-linguistic comparison, as per Cysouw (2014). For every language variety in the sample, a language-specific matrix, in which each contextual role was compared with all others ($14 \times 13/2 = 91$ pairs of contextual roles), was generated. A value of '0' was given if the language used the same case marker for that pair of contextual roles, and a value of '1' was given if different case markers were used. A dissimilarity matrix for all the languages in the sample was then generated by computing the Hamming distances between binary strings. A NeighborNet algorithm, as implemented in the Splitstree program (version 4.14.2) (Huson & Bryant 2006), was then used to generate an unrooted network that visually represents the distance between the languages based on how similarly/differently they code each pair of contextual roles in the text sample.

The main difference between the approach used in this study and that described in Cysouw (2004) is that the latter looked at *all* available contextual roles in translations of a Bible pamphlet that contained the word *Bible*. However, some of these would not be considered relevant for alignment of case marking, e.g. *the Bible is the basis*, *the Bible was copied*. Consequently, the resulting NeighborNet split graph is difficult to interpret with regards to case marking alignment typology. For this study, I refined Cysouw’s method by choosing only contextual roles in the text that correspond to S, A and P. In addition, I included 4 model languages named “Accusative”, “Ergative”, “Tripartite” and “Neutral” that represent theoretical prototypes in which case marking of S, A and P is not sensitive to semantic or discourse pragmatic factors, i.e. obligatorily marked.

To demonstrate proof-of-concept, single exemplars of S, A and P contextual roles were selected from the data. These are presented in Table 37, along with their sentential contexts.

Table 37: Selected NPs in context with corresponding contextual role and traditional S/A/P labels

No.	Noun phrase in sentential context (NP underlined)	Contextual role	S/A/P
1	For <u>this son of mine</u> was dead, but now he is alive	dier	S
2	And he called one of the servants	summonnee/callee	P
3	and <u>your father</u> has killed the fattened calf / given a feast	killer/giver	A

A dissimilarity matrix of the languages, including the four model languages that represent alignment prototypes, was generated by computing the Hamming distances between the binary strings for these $3 \times 2/2 = 3$ unique pairs of contextual roles. The corresponding NeighborNet split graph is presented in Figure 45.

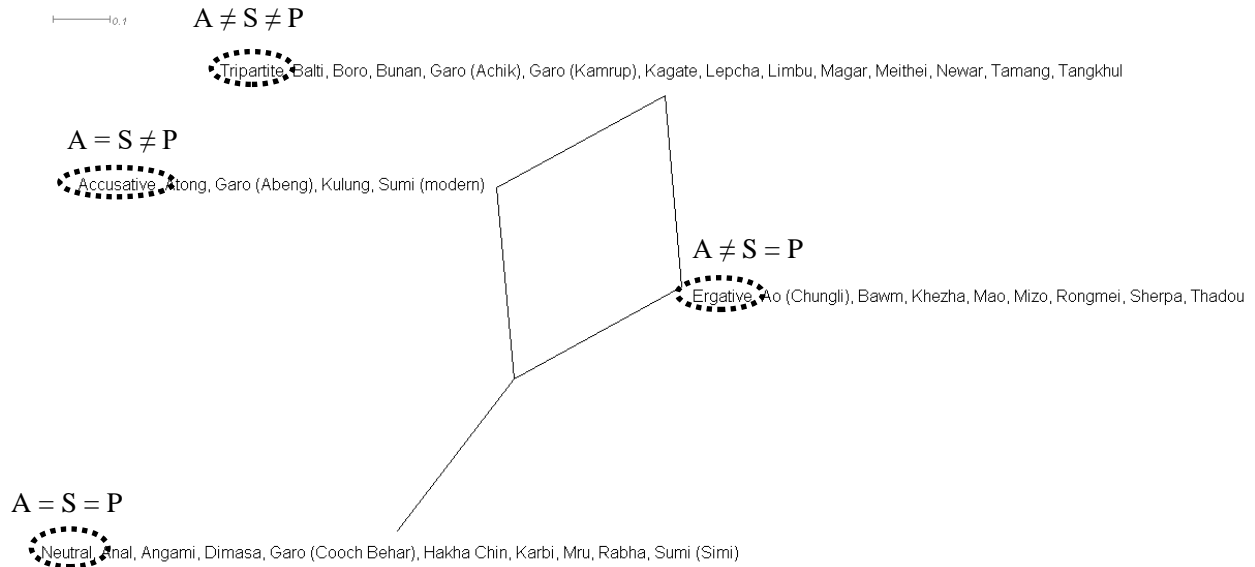


Figure 45: NeighborNet split graph of languages according to similarity of case marking of ‘killer/giver’, ‘dier’ and ‘summonee/callee’ contextual roles. The four model languages, where case marking on S/A/P/combination of arguments is obligatory, are circled.

The split graph presented here demonstrates that by using just 3 exemplars of S, A and P contextual roles, we can obtain a classification of languages into 4 types, based on case marking patterns. This is akin to using prototypical S, A and P arguments to determine “basic alignment” in a language. However, the crucial difference is that these contextual roles represent language in use: if a case marker is optional, i.e. its distribution is determined not just by syntactic factors but also by semantic and discourse pragmatic factors, it is therefore possible that the chosen exemplars may not contain a potential case marker.

As we saw in §6.2.2, most Tibeto-Burman languages have optional/probabilistic case marking systems. The probabilistic distribution of case marking can account for some odd language classifications. For example, modern Sümi is grouped with the Accusative model language, because both A and S contextual roles happened to be marked by =ye in the translation. Similarly, Boro is grouped with the Tripartite model language, despite being described as having an overt nominative (A and S) case marker -a. This is because the single S exemplar in this sample happened to be unmarked, while the A and P exemplars received their respective markers.

If we expand the selection of exemplars of A, S and P, we can see more fine-grained differences between languages. Figure 46 shows a NeighborNet split graph based on simulated data. In the data set, 10 artificial languages are considered, each with 100 exemplars of S, A and P. In four languages, case marking is consistent for S, A and P, e.g. 100% of P arguments are case marked; in two languages only 20% of P arguments are case marked; in another two languages 20% of A arguments are case marked; in one language 50% of P arguments are marked; and in one language 50% of A arguments are marked.

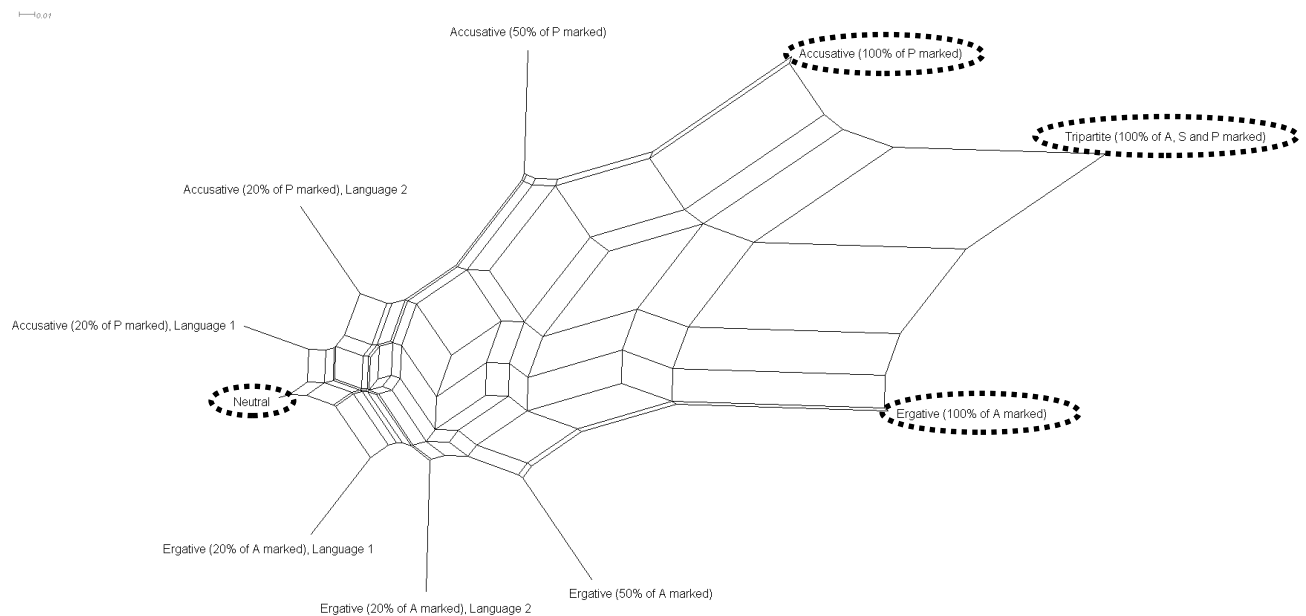


Figure 46: NeighborNet split graph of simulated languages according to similarity of case marking of contextual roles. The four model languages, where case marking on S/A/P/combination of arguments is obligatory, are circled.

In the split graph, that the Neutral model language (no case marking at all) and Tripartite model language (different case markers for A, S and P) appear on opposite ends. The simulated languages with only 20% of A or P arguments marked appear closer to the Neutral model language compared to the ones where 50% of A or P arguments are marked. Importantly, we can see differentiation within the “Accusative” and “Ergative” languages, between languages that consistently mark A or P (100%) and those with different degrees of optionality in case marking.

6.4.2 Results

In this section, I present the cross-linguistic analysis using the 14 contextual roles presented in Table 36. As mentioned in §6.4.1, a dissimilarity matrix of the languages, including the four model languages that represented obligatory case marking, was generated by computing the Hamming distances between the binary strings for these $14 \times 13/2 = 91$ unique pairs of contextual roles. The full dissimilarity matrix, based on Hamming distance, is given in Appendix B. The corresponding NeighborNet split graph is given in Figure 47.

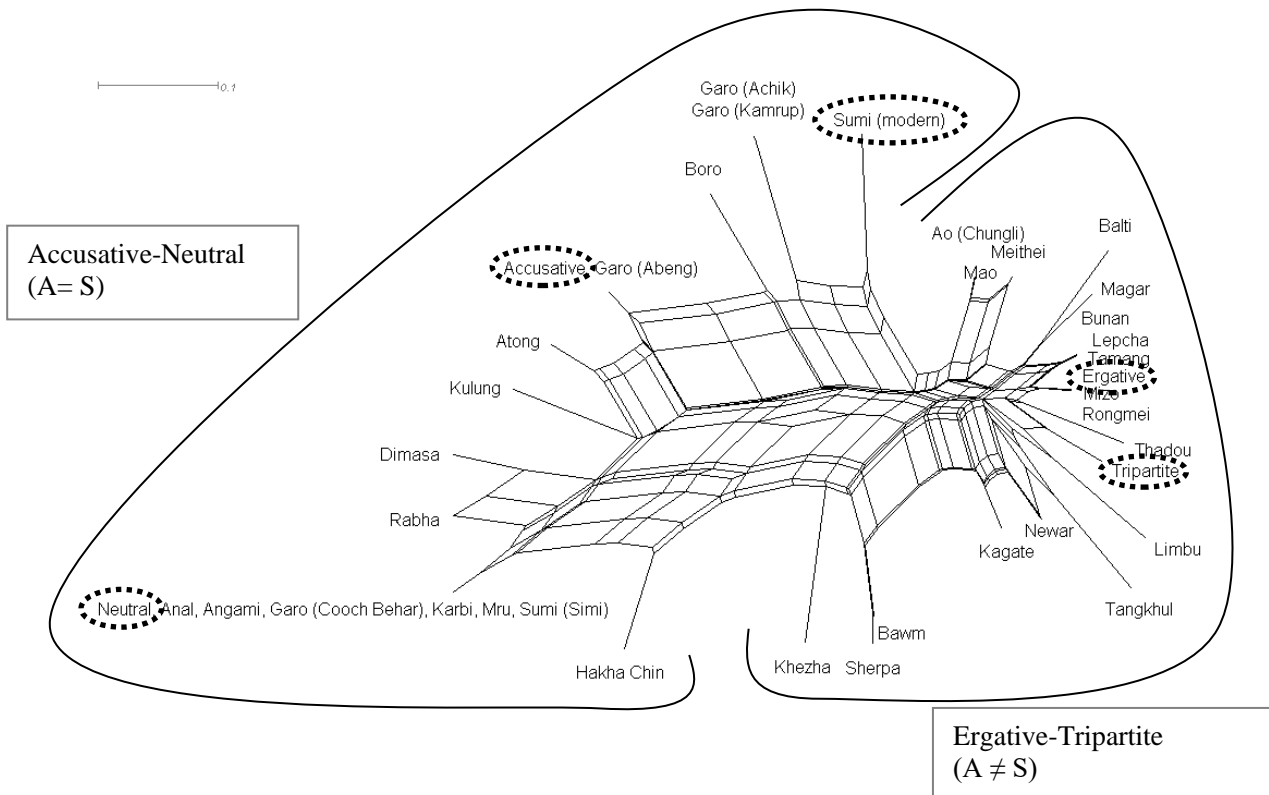


Figure 47: NeighborNet split graph of languages according to similarity in case marking of A, S and P-like contextual roles with alignment type labels manually added. The four model languages, where case marking is obligatory, are circled.

With the inclusion of more than a single exemplar of S, A and P contextual roles, we can see that very few languages have obligatory case marking: only the Abeng Garo sample patterns like the model Accusative language (obligatory P marking), while only the Mizo and Rongmei samples pattern like the model Ergative language (obligatory A

marking). A number of language varieties – Anal, Angami, Cooch Behar Garo, Karbi, Mru and the variety of Sümi in the *LSI* – also show no case marking on core arguments, patterning like the model Neutral language. We can also see inter-varietal differences for the same language Garo (Bodo-Garo): case marking in the Abeng variety matches that of the Accusative model language, with no S/A flagging and consistent flagging on all P contextual roles. On the other hand, the Kamrup and Achik varieties of Garo have consistent P flagging, but they also have an optional subject marker that appears on a few of the A and one of the S exemplars, which explains their position towards the Ergative-Tripartite region. The most different is the Cooch Behar variety, which lacks S/A/P case marking altogether and patterns like the Neutral model language.

Two broad regions can be identified in the network, as manually drawn in Figure 47: (i) an “Accusative-Neutral” region on the left that includes the Accusative and Neutral model languages; and (ii) an “Ergative-Tripartite” region on the right that contains the Ergative and Tripartite model languages. The main division in the split graph is therefore whether A is coded the same as S (Accusative-Neutral) or not (Ergative-Tripartite), which appears to be driven by the larger proportion of A and S contextual roles found in the text, compared to P contextual roles. Nevertheless, the locations of individual languages within these two main regions generally fit previous descriptions of alignment in these languages.

Modern Sümi is located within the Accusative-Neutral portion of the split graph, but closest to the Ergative-Tripartite side. This matches with what we saw in the Sümi-specific MDS plot in Figure 43, where A and S arguments in the Prodigal Son text always take a case marker, unlike all the P arguments which are unmarked, i.e. like a marked nominative language. On the other hand, since *=no* is more common on A arguments, while *=ye* is more common on S arguments, this also makes the pattern of case marking look more like a tripartite system.

Looking at the four languages presented in §6.2.2, Mizo patterns exactly like the Ergative model language, with all A exemplars marked and all S and P exemplars unmarked in the sample. This finding is expected, in light of previous descriptions of the language. The position of Boro close to the model Accusative language also matches the finding that apart from one unmarked S argument, all other A and S arguments in the

sample were marked by *-a*, while only one P argument was unmarked. Angami/Tenyidie is grouped with the Neutral model language: since the rare A and S case marker *-e* did not appear in the sample. Finally, Meithei appears in the Ergative-Tripartite area, which is also expected since all A arguments were marked by *-nā* in the data, and though one S argument was also marked by *-nā*, the other S arguments were unmarked. Meithei also has an optional P marker, which in the text only appears on an animate P.

In the next section, I discuss the findings and benefits of this method of typological analysis, before addressing some of the challenges and potential criticisms to this approach. I end with suggestions for future research.

6.5 Discussion

The typological analysis presented here demonstrates how it is possible to obtain quantifiable measures of differences in case marking alignment between languages/language varieties by using associations between *contextual roles* across translations of the same text. A network analysis can be applied to the corresponding distance matrix to visualize the differences between languages and checked against existing descriptions of these languages. The study improves on Cysouw's (2014) method, which was also applied to parallel text data but used all contextual roles in the text, resulting in a split graph that is difficult to interpret with regards to alignment typology. If single examples of contextual roles that each correspond to S, A, P are used, as in §6.4.1, we can obtain discrete groupings of languages into types, e.g. "Accusative", "Ergative", comparable to more traditional typological approaches. By then expanding the number of exemplars in the text, we start to see a more fine-grained differentiation of language, such as between Accusative languages with marked A/S vs. marked P. We also see differences between languages in how frequently S/A/P case marking occurs in each language sample. Even using a small number of contextual role exemplars, we are still able to find trends in the data that match most descriptions of alignment in a given sample of languages.

One of the strengths of the method is its potential for typological analysis without first assuming alignment types or universal categories into which every language must fit. This bottom-up approach, based on exemplars, aims to be as inductive as possible, by

using as much empirical data as is available. This is in contrast to the more usual practice of placing languages into specific types or typological categories that are often abstracted from a small set of data: for instance, languages are usually labeled “ergative” as long as a single part of their grammar displays this alignment pattern. This also does not mean that we should not posit different types or typological categories. Typological categories are necessary, but they need to be useful in some way, such as being able to say that speakers of languages in one category are more likely to behave differently from speakers of languages that belong to another category in some psycholinguistic task. A more fine-grained approach to dividing up languages, such as the one proposed, gives us more flexibility in identifying where important boundaries lie between languages.

Furthermore, by including “model” languages in the set, I can calculate the extent to which this sample of languages might diverge from languages that consistently mark syntactic roles (S/A/P) independent of semantic/discourse pragmatic factors. The incorporation of token frequency information²⁹ is important, given the context-dependent and probabilistic nature of case marking in Tibeto-Burman languages, although the use of frequency requires some more discussion (see below). Optional and differential argument marking is also across the world, in the languages of Australia and New Guinea (McGregor 2010); South America, e.g. Tariana (Aikhenvald 1994); and Europe, e.g. Spanish (Company 2003).

Using language-internal associations as the basis for cross-linguistic comparison avoids having to make comparisons based on language-specific categories that may not be comparable. For example, two languages may be described as having an “agentive” morpheme, but the factors that condition its distribution will differ in each language. The method also does not depend on language-specific categories explicitly posited by an analyst, which may not be consistent from one analyst to another, especially as markers get grammaticalized.

This method also shows potential for incorporating language-internal variation into typological analysis. As we saw, various varieties of Garo were included in the analysis, and the differences between them, in terms of case marking alignment, were

²⁹ Here, the distinction between type and token frequency depends on whether each contextual role is viewed as a representative of a single type, or as a token of a larger macro-category like S/A/P.

quantified. In particular, the grouping of the Cooch Behar variety with the “Neutral” model language is of interest. It is worth noting again that the Cooch Behar variety of Garo is described in the *LSI* as a “corrupted jargon” that has been heavily influenced by non-Indo-Aryan languages spoken in the area (Vol III, Part 2: 89). The loss of case marking in such pidginized/“creoloid” varieties may support the hypothesis that grammatical divergence in Tibeto-Burman languages was driven largely by pidginization/creolization processes (DeLancey 2013a).

Although claims have been regarding the objectivity of applying such quantitative methods to typology,³⁰ such claims need to be problematized. Some limitations with this current study include: (i) the contextual roles available in the text; (ii) the selection of contextual roles for typological analysis; and (iii) the tagging of the data for case marking. Although issues of representativeness and questions of tagging are common to most corpus-based approaches to typology, there are specific concerns that will be addressed here.³¹

Firstly, the viability of the method depends on the number of types of contextual roles available in the data. Contextual roles are not identical to semantic roles like ‘killer’ or ‘addressee’ since they also contain information about the larger discourse in which they occur. Ideally, one would want to use texts that contain different instances of S/A/P that can be distinguished by case marking, and which provide a representative sample of case marking possibilities in a given sample of languages. For instance, in the *LSI* data, there are only a few examples of P arguments, with few good animate ones. Nevertheless, despite the small number of S/A/P exemplars used in the current study, we already see trends appearing with regards to cross-linguistic similarities and differences in alignment of case marking. Increasing the number of exemplars would make these trends more clearly visible, as we saw when I expanded the selection of S/A/P from single exemplars to all available exemplars in the text.

³⁰ Hartmann et al. (2014), who apply a similar method to a database of verbal arguments, claim that their approach “yields an objective, quantitative alignment typology that is not based on any deeper language particular analysis” (476) (emphasis added).

³¹ With regards to the data used, I already noted in §6.3.1 that although the texts are in translationese, they still represent viable expressions of each language and that the similarity in the narrative structure across parallel texts actually helps control for some of the various discourse pragmatic functions associated with some of these case markers.

In terms of contextual role selection, this study simply used as many exemplars of S/A/P as were found in the text. This resulted in unequal numbers of S, A and P exemplars used for the second typological analysis. It was noted in section 5.2 that the shape of the split graph was the result of having more S and A exemplars in the study, compared to P. With a smaller proportion of P exemplars, differences in how P is marked across languages contribute less to the calculated distance scores between languages, compared to S and A, which explains why the split graph is divided into two sections: $S=A$ and $S \neq A$, and not $S=P$ and $S \neq P$. Some solutions to this might be to randomly sample equal numbers of exemplars from each category, or to duplicate exemplars from categories with fewer tokens. However, this leads to broader questions about the nature of the categories that these tokens represent: do I count an exemplar as a token of the S category, or a joint S and A category? Do I treat animate P as a separate category from inanimate P? Certainly, the proportions of each category depend on the research question being asked, but to understand how changing proportions affects the split graph, future work should look at the effects of adjusting proportions of S/A/P and token frequencies on the calculated distances between languages, whether using simulated data or data from longer texts.

Regarding the tagging of data, one might argue that the binary tagging of pairs of contexts as having the “same” or “different” argument-like marking is too coarse: in situations where two or more case markers appear to be stacked up, the resulting sequence is treated as equally different from each of the two component case markers as from any other case marker in the language. This means that contextual roles coded with stacked case markers appear further away from contextual roles coded with only one of each case marker than they should. An alternative approach might be to use the orthographic form of each case marker as the basis for a number of dissimilarity measures, including computing the Levenshtein distance between markers, treated as strings of characters; or by simply comparing the length of each case marker, as in Cysouw (2008). Although such methods of calculating dissimilarity in a more fine-grained way can help in understanding diachronic change (see Cysouw & Forker [2009] for such an application). Certainly, the extent to which I can apply the method to

phonological similarities and differences between words requires better transcribed material and better descriptions of each language.

This leads us to the question of what even gets tagged as “case marking”. Despite being a largely data-driven approach to typology, some theoretical assumptions still have to be made when tagging the data. For instance, morphemes that were described as “definite” markers were viewed as outside the realm of case and therefore not tagged for this study. This ignores the fact that each exemplar is a complex intersection of many semantic/pragmatic factors and that definite markers and case markers may share overlapping functions, e.g. definiteness is viewed as a motivating factor in differential object marking (e.g. Aissen 2003). It may be possible that morphemes glossed by the editors of the *LSI* as “definite” are actually case markers that are sensitive to definiteness. Consequently, even though the analytical primitive/comparative concepts used for cross-linguistic comparison are at the level of concrete utterances, and not abstracted categories, these exemplars are not as basic as is often assumed. This highlights the continued need for good linguistic descriptions of these languages in the absence of linguists with native speaker intuitions.³²

One suggestion for future work is the inclusion of multiple versions of the text in the same language in order to capture intra-linguistic variation. Even if such variation has not been mentioned in language descriptions, I would expect inter-speaker (and intra-speaker) variation to exist, given the context-dependent nature of case marking in many of these languages. Using a single Prodigal Son sample for each language/variety might therefore reflect specific translation choices made by an individual and may not be representative of the population of language speakers. Although this is not feasible for the *LSI* data, which typically has a single Prodigal Son sample in each language variety, it does have implications for typological work using texts such as the Pear Story (Chafe

³² An alternative approach would be to do typological analysis based on constructions that contain such case markers, and not single morphemes/stacked morphemes. For instance, even in languages that we have good descriptions for, it may not always be possible to definitively decide whether two morphemes should be tagged as being examples of the same case marker if we look at the form alone, e.g. Chelliah (1997) analyzes Meithei as having an agentive marker *-nə* that is homophonous with a contrastive focus marker. This would require tagging the data by constructions, which depends on having good grammatical descriptions that include information about the larger constructions in which case marking occurs. A constructional approach to the typology of alignment should also incorporate other coding properties, such as verb indexation, even if these are not features found in all languages.

1980), and the Frog Stories (Mayer 1969), of which multiple recordings as told by different speakers often get recorded in language documentation. Intra-linguistic variation has largely been ignored by traditional typological analysis, but as typology moves towards making statistical statements about linguistic variation, such variation should become incorporated into studies of cross-linguistic variation.

As typology moves to questions of what linguistic phenomena are present, where do they are found, and why they are found there (Bickel 2007), another avenue worth pursuing in the future would be to do a study with languages from other families, e.g. Indo-Aryan, Austroasiatic, Dravidian. Examining areal patterns that might inform us about whether and how such case marking patterns might spread. Within Tibeto-Burman, it might also be worthwhile to look for correlations between case marking patterns and geospatial data.

6.6 Summary

In this chapter, I demonstrated a method of measuring quantifiable differences between languages/language varieties in terms of case marking alignment and how the pattern of case marking in Sümi fits in with related languages. It follows Cysouw's (2014) use of intra-linguistic associations between linguistic forms across different translations of a text. However, unlike Cysouw, who used *all* available contextual roles in a particular text, I selected different subsets of contextual roles: specifically, exemplars of S, A and P arguments that were identified using a clustering analysis of the roles. I also added model languages that represented certain theoretical alignment prototypes. Restricting the typological analysis to a single exemplar of S, A and P, I showed that it is possible to obtain a more traditional classification of languages into types like "Accusative" and "Ergative". Increasing the number of S, A and P exemplars then produced a much more fine-grained differentiation between languages. I showed, by adjusting the selection of contextual roles, how typological differences in alignment case marking can be calculated and visualized, at different levels of granularity, but also discussed some issues with the method and expressed caution regarding the overreliance on quantitative methods at the expense of good grammatical descriptions. Finally, I emphasize the potential for, and the need to, include intra-linguistic variation in such

quantitative studies of linguistic typology, looking at case marking as a sociolinguistic variable.

CHAPTER VII

CONCLUSION

7.1 Overview

This dissertation has provided the first in-depth description of differential case marking (DCM) in an under-described Tibeto-Burman language. It is also the first study of DCM to incorporate both quantitative and experimental methods to better understand the phenomenon. In this chapter, I summarize the key findings of this dissertation, their importance and suggestions for future research. I end by reflecting on their larger significance for linguistic theory.

7.2 Summary of Findings and their Significance

7.2.1 Construction-based Approaches to Grammar

The findings from this dissertation confirm that the factors influencing DCM in Sümi are different for S and A arguments. For this reason, I argue against labels such as “optional nominative” or “optional subject” for *=ye* and *=no*. Put another way, even though these case markers appear on intransitive subjects, transitive subjects and subjects of verbless clauses, their functions are different in each clause type. For example, the use of *=no* in transitive clauses is usually associated with conveying the semantic information of agent, while *=no* in verbless clauses marks narrow focus. The findings from the perception experiment also support the idea that speakers are relying on clause type, not differences in the form of the morpheme, to arrive at a different pragmatic interpretation of *=no*. Furthermore, even within transitive clauses, the functions of *=ye* can be quite different, pointing to at least two historical sources for *=ye*: one, a locative marker in experiencer subject constructions; the other, a copular verb in cleft constructions.

This work therefore highlights the need to look at the distribution of case markers not just across broad argument types like A and S, but also at subjects of specific predicates. The current analysis could also be expanded by added verb or predicate type as a variable in the classification tree model, if more tokens of each verb and predicate

type are collected. By taking a construction-based approach to transitivity in which specific predicates like *pi* ‘speak’ or *kūghashi* ‘assume’ can have their own sentence frames and case marking patterns due to different diachronic origins, we are not forced rank these predicates on some transitivity continuum based on features such as volitionality of A and affectedness of P (e.g. Naess 2007) which only define a prototype.

Importantly, by showing that case marking in Sümi is used to signal both semantic information, such as the agent or experiencer, and pragmatic information, such as narrow focus, this support calls for “constructions” i.e. pairings of form and function, to include both semantic and discourse pragmatic information (Leino 2013). For example, a sentence frame such as “NP V” with a single core argument also needs to be specified as introducing a referent for the first time in a narrative. However, the nature of discourse and information structure functions still remains to be clarified.

7.2.2 Disambiguation and Ease of Production

The findings from Sümi do not support the disambiguation hypothesis that DCM is mainly used to help identify the agent where there is potential for confusion, since most speakers mark A arguments with =*no* even when there is no risk of confusion between the agent and patient. Rather, the findings show that for some younger speakers, it is case marking that is dropped when there is no potential confusion, not added when there is. This finding is important for a number of reasons. One, the Sümi system of DCM contrasts with languages such as Gurindji Kriol (Meakins 2009), where A arguments are more often null marked, and only receive the ergative marker under certain discourse conditions. This optionality of A marking has been attributed to language attrition, since Gurindji, the lexifier language for Gurindji Kriol, which has obligatory case marking. Two, it appears to contradict Kurumada and Jaeger’s (2015) study of Japanese that finds that optionality of case marking is associated with ease of production in grammatical encoding, i.e. speakers were found to produce case markers on P arguments more if the unmarked argument would bias a listener towards an incorrect interpretation of the sentence.

These raise questions about why most speakers of Sümi mark A arguments, even where there is no potential confusion. One possible explanation is that the DCM pattern

of Sümi has fundamentally different origins and is motivated by fundamentally different factors than DCM in these other languages. An alternative explanation is that Sümi is at a different stage in the development of optional markers: the prevalence of *=no* on A arguments may reflect its recent origin as an obligatory instrumental marker on non-core arguments that was reanalyzed as an agent marker. The fact that some younger speakers living in the commercial capital have started dropping *=no* in some contexts might be attributed to either language attrition due to increasing Nagamese and English use, production pressures or a combination of both. One way to test this would be to look at the development of case marking patterns in future generations of Sümi speakers, comparing city dwellers with rural dwellers.

7.2.3 Inter-speaker Variation

In this dissertation I showed there was inter-speaker variation in DCM, but also intra-speaker consistency. For instance, only some younger speakers were more likely to drop *=no* on A arguments when P is inanimate, while the consistent marking of P with *=lo* or *ulo* was restricted to only two speakers. Such examples were not considered acceptable by older language consultants and show potential changes in the language. These observations can support hypotheses about the origin of DCM in Sümi, e.g. *=no* on A arguments of verbs of manipulation come from the reanalysis of an obligatory instrumental marker but are becoming more optional on certain A arguments. Similarly, the fact that not all speakers mark subjects of verbless clauses under narrow focus with *=no* suggests that *=no* has come from another construction and has not been extended to verbless clauses by all speakers.

One interesting finding was that listeners in the perception experiment tended to rate intransitive sentences, in which the subject of the verb ‘sleep’ was marked with *=no*, as having broad focus. This was despite the observation that in production, many speakers did not mark the subject of the verb ‘sleep’ with *=no* under broad focus. This mismatch between production and perception suggests that speakers are aware of how other speakers use these case markers, even if they do not use them the same way. This finding can lead to hypotheses about how such case markers will develop in future. It also

raises questions about how speakers learn to use these markers and to what extent they might be used as sociolinguistic markers of identity.

7.2.4 Alignment Typology

Given fundamentally different factors motivating A, S and P marking, as well as differences across speakers in how these core arguments are marked, this raises questions about how current case marking alignment typology is done. Assigning a language like Sümi, or most Tibeto-Burman languages, to an established category such as “nominative-accusative” and “ergative-absolutive” is problematic because it obscures a lot of the details about the distribution of case marking.

This is not to say that positing such categories is a pointless exercise, but such categories need to be useful in some way: for example, they might help predict how certain types of languages develop over time, or how speakers of certain types of languages might behave differently in some psycholinguistic task from speakers of another type of languages. In this dissertation, I have begun to address this issue by describing a more fine-grained approach to dividing up languages that incorporates more intra-linguistic (inter-speaker) variation and also gives us more flexibility in identifying where important boundaries lie between languages.

7.3 Final Remarks

While conceiving this project, I was inspired by the story of the blind men and the elephant, in which several blind men touch different parts of the same elephant and come to different conclusions about what they are touching. In a sense, one could imagine the phenomenon of DCM as the elephant and the various approaches I have taken to investigate different aspects of the phenomenon in Sümi represent the various blind men touching different parts of the elephant. Each study in this project reveals some aspect of DCM that I hope contributes to a greater understanding of the phenomenon in Sümi as a whole.

Moving beyond the details of the system of DCM found in Sümi, one should ask what the findings tell us about DCM more generally. Is it really a system? How does it

originate? Does it represent a transitional stage from one kind of obligatory or paradigmatic system of case marking to another kind?

To answer the first question, it is clear that DCM is a system in which speakers always have to make a choice to use case marking or not. Moreover, the term *optional*, which is sometimes used to describe these systems, is a misnomer, because speakers are not free to simply use or not case marking. When given grammaticality judgements, speakers may find it difficult to articulate the differences in meaning between two sentences that only differ in case marking, but it is only by a careful investigation of usage patterns that we can see that there are certain semantic and pragmatic factors that underline speakers' choices of case marking. Furthermore, like other linguistic systems, variation exists at the level of the speaker, as well as across speakers. More grammatical descriptions need to treat grammatical features such as DCM as linguistic variables and to show that this variation is structured. In my work on Sümi, I have started to treat case marking as such, but future work needs to also consider other social variables that I have not considered.

In thinking about the origins of DCM, the prevailing view, based on work on Australian languages, is that DCM represents a shift away from an obligatory ergative case marking system as a result of language attrition. However, if we look at the findings of Chapter 6, DCM in Tibeto-Burman languages is clearly the norm, with only a few languages showing obligatory case marking. Is it necessary to assume that all these systems of DCM are the result of eroded obligatory systems? In this project, I have proposed various diachronic origins for case marking in different parts of the grammar, sometimes by appealing to synchronic inter-speaker variation in case marking, or a lack thereof. Given these multiple sources of DCM, I find no strong evidence that Sümi ever had an obligatory ergative case system.

On the other hand, given the probabilistic nature of DCM, it is worth asking if DCM represents a transitory phase in language evolution. How stable are such systems in the long run? We know very little about how speakers acquire the use of these case markers in such languages, and if and how they change how they use them over time. Yet, in the absence of any language acquisition studies, one can hope that, decades in the future, someone will revisit the case marking system of Sümi, and that this work and

accompanying corpus will serve as a useful point of comparison for revealing insights into the evolution of the Sümi case marking system.

APPENDIX A: GLOSSING ABBREVIATIONS

1	1st person	MED	medial
2	2nd person	NEG	negative
3	3rd person	NRL	non-relational / unpossessed
ABIL	abilitative	NZP	nominalizing prefix
ABL	ablative	NZR	clausal nominalizer
ADV	adverbalizer	PL	plural (additive)
AGT	agentive	POS	possessive
ALL	allative	PRES	present tense
AM	associated motion	PRF	perfective aspect
ASSOC	associative plural	PROG	progressive
CAUS	causative prefix	PROS	prospective aspect
CONJ	conjunction	PRX	proximal
CONN	connective	PST	past tense
CONT	continuative aspect	Q	question particle
COP	copula	REL	clause relativizer
DEF	definite	SG	singular
DIST	distal	SIM	simultaneous action
DP	discourse particle	SUPR	superlative
DU	dual	TOP	topic
EMPH	emphatic	VM	verb marker
EXIST	existential verb		
EXP	experiencer		
FOC	narrow focus		
FUT	future tense		
HAB	habitual aspect		
IMP	imperative		
IMPRF	imperfective aspect		
INCEP	inceptive aspect		
INST	instrumental		
LOC	locative		

APPENDIX B

Cluster analysis of 18 contextual roles

For this study, I wanted to (a) demonstrate that there are arguments in the text that can be distinguished from each other in terms of case marking,³³ and (b) use this analysis, along with a theoretical understanding of transitivity, as the basis for selecting A-like, P-like and S-like arguments that are relevant for a typological study of alignment. In order to do this, I followed Cysouw's (2014) method of "inducing" semantic roles, including macro-roles like S and A, by generating a dissimilarity/distance matrix based on case marking, Agent" and "Undergoer" from parallel text data by treating such contextual roles as exemplars and by examining how they group together in terms of argument marking across languages.³⁴

The first step was to go through the Prodigal Son text and identify as many contexts as possible in which NPs occur. A total of 51 contextual roles were initially identified in the text, using the King James's version of the English translation. However, to illustrate the method, a subset of 18 contextual roles across the translations of the Prodigal Son text is given in Table 38.³⁵ For ease of reference, contextual role names based on the English translations have been assigned to each contextual role. These names do not reflect any *a priori* grouping of roles but are simply convenient labels for the contextual roles. Although the names often reflect the main verb of the clause in which an argument occurs, it should be remembered that each contextual role encompasses other factors, including its definiteness status and the larger discourse context, i.e. where the argument appears within the narrative structure.

³³ If, for instance, I could not identify roles like S/A/P that are distinguished by case marking in this set of languages, then the typological analysis would not be informative at all.

³⁴ This approach reflects Van Valin's (2004) grouping of "verb-specific semantic roles" into the larger "semantic macroroles" of "Actor" and "Undergoer". In place of "verbs-specific semantic roles", context-specific roles are used.

³⁵ The numbering in Table 38 reflects the order in which these contextual roles appear within the original set of 51.

Table 38: Contextual roles, given in sentential context with corresponding contextual role name.

No.	Noun phrase in sentential context (NP in italics)	Contextual role name
3	And <i>the younger of them</i> said to his father,	speaker
4	And the younger of them said to <i>his father</i> ,	speakee
8	So the man divided <i>his property</i> between them.	divided object
10	Not many days later, <i>the younger son</i> gathered all he had and took a journey into a far country.	gatherer/seller + goer
23	But while he was still a long way off, <i>his father</i> saw him and felt compassion, and ran and embraced him and kissed him.	see-er + hugger
24	And <i>the son</i> said to him,	speaker
28	But <i>the father</i> said to his servants,	speaker
29	But the father said to <i>his servants</i> ,	speakee
30	Bring quickly <i>the best robe</i> , and put it on him, and put a ring on his hand, and shoes on his feet.	brought object
35	For <i>this son of mine</i> was dead, but now he is alive	dier
38	And he called <i>one of the servants</i>	summonnee/callee
40	“ <i>Your brother</i> has come,	comer
41	and <i>your father</i> has killed the fattened calf / given a feast	killer/(feast)giver
43	<i>His father</i> came out and entreated him	comer + entreater
45	But he answered <i>his father</i>	answeree
48	But when <i>this son of yours</i> came	comer
51	for <i>this your brother</i> was dead, and is alive	dier

To understand how these 18 selected contextual roles group together beyond the visual MDS plot presented in §6.3.3, I performed a cluster analysis using the Partitioning Around Medoids (PAM) algorithm: the *k*-medoids algorithm is similar to the *k*-means algorithm but differs in that exemplars (i.e. contextual roles in this study) are chosen as the centre points of clusters. The silhouette plot in Figure 48 visualizes the coherence of the clusters, assuming a 4-cluster analysis.

The numbers on the left side are the contextual role numbers corresponding to the order in which they appear in the text (see Appendix A for the corresponding sentential contexts). The numbers on the right represent: the cluster number, the number of members in the cluster; and the average (mean) silhouette width for that cluster. For example, cluster 1 (red) consists of 6 members and has a mean silhouette width of 0.74. A larger mean silhouette width, i.e. one with a value closer to 1, is indicative of higher cluster-internal cohesiveness, as well as distinctiveness from the other clusters.³⁶

³⁶ As a rule-of-thumb, a width of .71-1.0 is evidence of strong structure; 51-.70 reasonable structure; .26-.50 weak structure; and anything less than .25 suggests no structure.

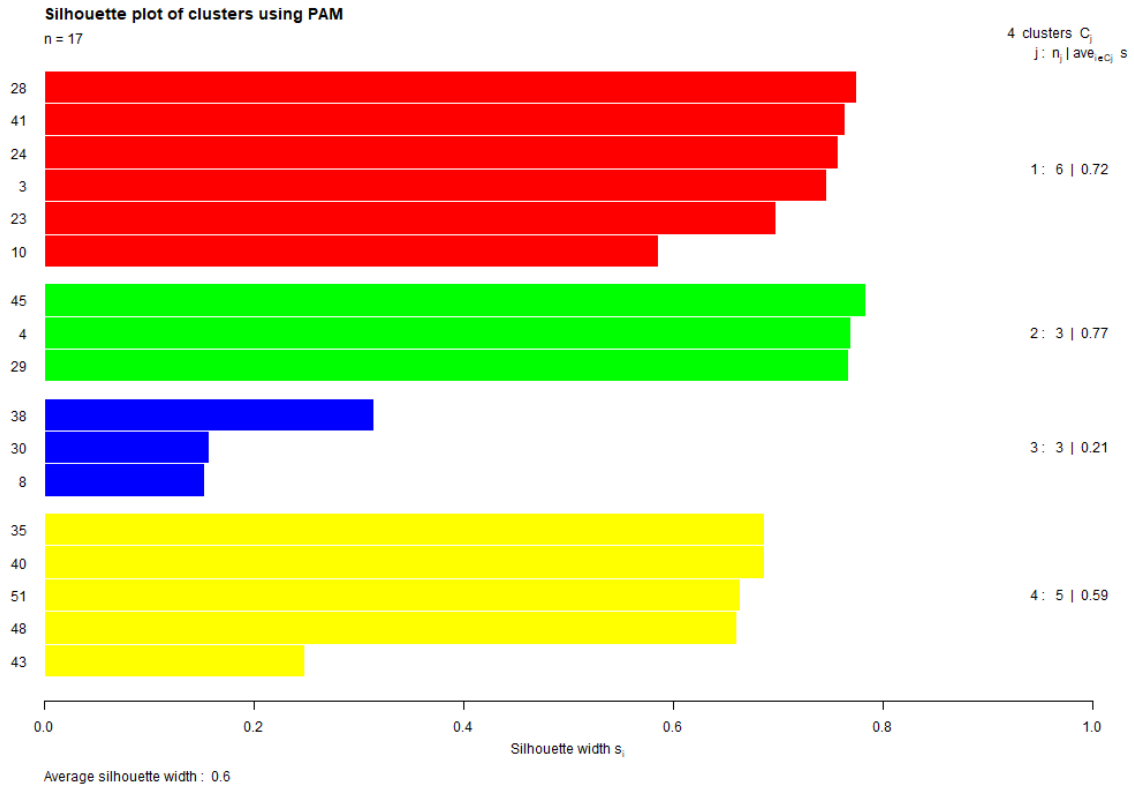


Figure 48: Silhouette plot based on a 4-cluster analysis, with contextual role numbers used as labels

APPENDIX C

Table 39: Hamming distances between languages

	Ergative	Accusative	Neutral	Tripartite	Balti	Sherpa	Kagate
Ergative	0.000	6.708	6.928	3.873	4.359	5.196	4.359
Accusative	6.708	0.000	5.745	5.477	7.071	7.211	6.633
Neutral	6.928	5.745	0.000	7.937	7.937	6.557	7.280
Tripartite	3.873	5.477	7.937	0.000	4.690	6.481	4.899
Balti	4.359	7.071	7.937	4.690	0.000	6.325	4.899
Sherpa	5.196	7.211	6.557	6.481	6.325	0.000	4.899
Kagate	4.359	6.633	7.280	4.899	4.899	4.899	0.000
Bunan	2.646	6.481	7.416	3.464	3.742	5.831	3.464
Tamang	2.646	6.481	7.416	3.464	3.742	5.831	3.464
Newar	3.894	7.045	7.700	4.697	4.068	4.982	2.348
Magar	4.359	6.633	7.280	4.899	3.742	6.325	4.690
Limbu	4.796	6.633	8.062	4.472	5.292	6.325	5.831
Kulung	7.000	5.657	5.000	7.071	7.211	7.211	6.481
Lepcha	2.646	6.481	7.416	3.464	3.742	5.831	3.464
Boro	6.245	4.690	7.141	5.292	6.164	7.348	6.325
Garó (Achik)	6.708	4.899	7.550	5.477	6.481	6.633	6.481
Garó (Kamrup)	6.708	4.899	7.550	5.477	6.481	6.633	6.481
Garó (Abeng)	6.708	0.000	5.745	5.477	7.071	7.211	6.633
Garó (CB)	6.928	5.745	0.000	7.937	7.937	6.557	7.280
Atong	6.928	3.606	4.899	6.557	7.280	7.141	6.557
Dimasa	6.856	5.657	5.000	7.211	7.483	6.325	7.071
Rabha	7.000	4.899	3.606	7.348	7.746	6.928	7.348
Ao (Chungli)	3.606	6.325	7.000	4.690	5.292	6.000	5.292
Angami	6.928	5.745	0.000	7.937	7.937	6.557	7.280
Khezha	5.745	6.928	6.708	6.481	6.000	5.831	5.477
Mao	3.606	6.325	7.000	4.690	5.292	6.000	5.292
Sümi (Simi)	6.928	5.745	0.000	7.937	7.937	6.557	7.280
Sümi (modern)	6.245	5.477	7.937	4.899	6.325	6.782	5.657
Rongmei	0.000	6.708	6.928	3.873	4.359	5.196	4.359
Tangkhul	5.831	7.280	8.124	5.916	5.568	6.245	5.568
Karbi	6.928	5.745	0.000	7.937	7.937	6.557	7.280
Meithei	4.359	6.164	7.416	4.472	4.899	6.481	4.690
Anal	6.928	5.745	0.000	7.937	7.937	6.557	7.280
Thadou	3.606	6.928	7.000	4.243	5.292	6.000	5.292
Mizo	0.000	6.708	6.928	3.873	4.359	5.196	4.359
Hakha Chin	6.325	6.708	4.899	7.416	7.141	4.796	6.403
Bawm	4.899	7.000	6.325	6.245	6.245	1.732	4.583
Mru	6.928	5.745	0.000	7.937	7.937	6.557	7.280

	Bunan	Tamang	Newar	Magar	Limbu	Kulung	Lepcha
Ergative	2.646	2.646	3.894	4.359	4.796	7.000	2.646
Accusative	6.481	6.481	7.045	6.633	6.633	5.657	6.481
Neutral	7.416	7.416	7.700	7.280	8.062	5.000	7.416
Tripartite	3.464	3.464	4.697	4.899	4.472	7.071	3.464
Balti	3.742	3.742	4.068	3.742	5.292	7.211	3.742
Sherpa	5.831	5.831	4.982	6.325	6.325	7.211	5.831
Kagate	3.464	3.464	2.348	4.690	5.831	6.481	3.464
Bunan	0.000	0.000	2.348	3.464	4.899	6.481	0.000
Tamang	0.000	0.000	2.348	3.464	4.899	6.481	0.000
Newar	2.348	2.348	0.000	3.713	5.251	6.847	2.348
Magar	3.464	3.464	3.713	0.000	5.831	6.481	3.464
Limbu	4.899	4.899	5.251	5.831	0.000	7.348	4.899
Kulung	6.481	6.481	6.847	6.481	7.348	0.000	6.481
Lepcha	0.000	0.000	2.348	3.464	4.899	6.481	0.000
Boro	5.831	5.831	6.642	6.325	6.164	6.633	5.831
Garó (Achik)	6.481	6.481	6.431	6.633	5.831	6.325	6.481
Garó (Kamrup)	6.481	6.481	6.431	6.633	5.831	6.325	6.481
Garó (Abeng)	6.481	6.481	7.045	6.633	6.633	5.657	6.481
Garó (CB)	7.416	7.416	7.700	7.280	8.062	5.000	7.416
Atong	6.557	6.557	6.947	6.557	7.280	4.796	6.557
Dimasa	7.211	7.211	7.045	7.071	7.483	6.481	7.211
Rabha	7.348	7.348	7.789	7.348	7.746	5.831	7.348
Ao (Chungli)	4.243	4.243	5.251	5.292	5.477	6.928	4.243
Angami	7.416	7.416	7.700	7.280	8.062	5.000	7.416
Khezha	6.164	6.164	5.871	5.477	6.782	6.633	6.164
Mao	4.243	4.243	5.251	5.292	5.477	6.928	4.243
Sümi (Simi)	7.416	7.416	7.700	7.280	8.062	5.000	7.416
Sümi (modern)	6.000	6.000	5.987	6.481	5.831	7.071	6.000
Rongmei	2.646	2.646	3.894	4.359	4.796	7.000	2.646
Tangkhol	5.196	5.196	3.523	5.385	5.385	6.708	5.196
Karbi	7.416	7.416	7.700	7.280	8.062	5.000	7.416
Meithei	3.464	3.464	4.394	4.690	5.477	6.481	3.464
Anal	7.416	7.416	7.700	7.280	8.062	5.000	7.416
Thadou	4.243	4.243	5.251	5.292	5.477	6.782	4.243
Mizo	2.646	2.646	3.894	4.359	4.796	7.000	2.646
Hakha Chin	6.856	6.856	6.847	7.141	7.416	6.403	6.856
Bawm	5.568	5.568	4.982	6.245	6.557	7.000	5.568
Mru	7.416	7.416	7.700	7.280	8.062	5.000	7.416

	Boro	Garó (Achik)	Garó (Kamrup)	Garó (Abeng)	Garó (CB)	Atong	Dimasa	Rabha
Ergative	6.245	6.708	6.708	6.708	6.928	6.928	6.856	7.000
Accusative	4.690	4.899	4.899	0.000	5.745	3.606	5.657	4.899
Neutral	7.141	7.550	7.550	5.745	0.000	4.899	5.000	3.606
Tripartite	5.292	5.477	5.477	5.477	7.937	6.557	7.211	7.348
Balti	6.164	6.481	6.481	7.071	7.937	7.280	7.483	7.746
Sherpa	7.348	6.633	6.633	7.211	6.557	7.141	6.325	6.928
Kagate	6.325	6.481	6.481	6.633	7.280	6.557	7.071	7.348
Bunan	5.831	6.481	6.481	6.481	7.416	6.557	7.211	7.348
Tamang	5.831	6.481	6.481	6.481	7.416	6.557	7.211	7.348
Newar	6.642	6.431	6.431	7.045	7.700	6.947	7.045	7.789
Magar	6.325	6.633	6.633	6.633	7.280	6.557	7.071	7.348
Limbu	6.164	5.831	5.831	6.633	8.062	7.280	7.483	7.746
Kulung	6.633	6.325	6.325	5.657	5.000	4.796	6.481	5.831
Lepcha	5.831	6.481	6.481	6.481	7.416	6.557	7.211	7.348
Boro	0.000	5.831	5.831	4.690	7.141	5.196	6.782	6.481
Garó (Achik)	5.831	0.000	0.000	4.899	7.550	6.083	7.071	6.928
Garó (Kamrup)	5.831	0.000	0.000	4.899	7.550	6.083	7.071	6.928
Garó (Abeng)	4.690	4.899	4.899	0.000	5.745	3.606	5.657	4.899
Garó (CB)	7.141	7.550	7.550	5.745	0.000	4.899	5.000	3.606
Atong	5.196	6.083	6.083	3.606	4.899	0.000	6.403	5.745
Dimasa	6.782	7.071	7.071	5.657	5.000	6.403	0.000	3.464
Rabha	6.481	6.928	6.928	4.899	3.606	5.745	3.464	0.000
Ao (Chungli)	5.477	6.325	6.325	6.325	7.000	6.708	6.928	6.928
Angami	7.141	7.550	7.550	5.745	0.000	4.899	5.000	3.606
Khezha	6.782	6.782	6.782	6.928	6.708	7.000	6.633	6.928
Mao	5.477	6.325	6.325	6.325	7.000	6.708	6.928	6.928
Sümi (Simi)	7.141	7.550	7.550	5.745	0.000	4.899	5.000	3.606
Sümi (modern)	5.657	5.292	5.292	5.477	7.937	6.557	7.071	7.348
Rongmei	6.245	6.708	6.708	6.708	6.928	6.928	6.856	7.000
Tangkhul	6.708	5.745	5.745	7.280	8.124	7.348	7.550	8.062
Karbi	7.141	7.550	7.550	5.745	0.000	4.899	5.000	3.606
Meithei	5.099	6.164	6.164	6.164	7.416	6.403	7.211	7.211
Anal	7.141	7.550	7.550	5.745	0.000	4.899	5.000	3.606
Thadou	6.325	6.928	6.928	6.928	7.000	7.000	6.928	6.928
Mizo	6.245	6.708	6.708	6.708	6.928	6.928	6.856	7.000
Hakha Chin	7.416	7.141	7.141	6.708	4.899	6.325	6.403	5.745
Bawm	7.141	6.708	6.708	7.000	6.325	6.928	6.245	6.708
Mru	7.141	7.550	7.550	5.745	0.000	4.899	5.000	3.606

	Ao (Chungli)	Angami	Khezha	Mao	Sümi (Simi)	Sümi (modern)	Rongmei	Tangkhol
Ergative	3.606	6.928	5.745	3.606	6.928	6.245	0.000	5.831
Accusative	6.325	5.745	6.928	6.325	5.745	5.477	6.708	7.280
Neutral	7.000	0.000	6.708	7.000	0.000	7.937	6.928	8.124
Tripartite	4.690	7.937	6.481	4.690	7.937	4.899	3.873	5.916
Balti	5.292	7.937	6.000	5.292	7.937	6.325	4.359	5.568
Sherpa	6.000	6.557	5.831	6.000	6.557	6.782	5.196	6.245
Kagate	5.292	7.280	5.477	5.292	7.280	5.657	4.359	5.568
Bunan	4.243	7.416	6.164	4.243	7.416	6.000	2.646	5.196
Tamang	4.243	7.416	6.164	4.243	7.416	6.000	2.646	5.196
Newar	5.251	7.700	5.871	5.251	7.700	5.987	3.894	3.523
Magar	5.292	7.280	5.477	5.292	7.280	6.481	4.359	5.385
Limbu	5.477	8.062	6.782	5.477	8.062	5.831	4.796	5.385
Kulung	6.928	5.000	6.633	6.928	5.000	7.071	7.000	6.708
Lepcha	4.243	7.416	6.164	4.243	7.416	6.000	2.646	5.196
Boro	5.477	7.141	6.782	5.477	7.141	5.657	6.245	6.708
Garó (Achik)	6.325	7.550	6.782	6.325	7.550	5.292	6.708	5.745
Garó (Kamrup)	6.325	7.550	6.782	6.325	7.550	5.292	6.708	5.745
Garó (Abeng)	6.325	5.745	6.928	6.325	5.745	5.477	6.708	7.280
Garó (CB)	7.000	0.000	6.708	7.000	0.000	7.937	6.928	8.124
Atong	6.708	4.899	7.000	6.708	4.899	6.557	6.928	7.348
Dimasa	6.928	5.000	6.633	6.928	5.000	7.071	6.856	7.550
Rabha	6.928	3.606	6.928	6.928	3.606	7.348	7.000	8.062
Ao (Chungli)	0.000	7.000	4.899	0.000	7.000	5.477	3.606	5.385
Angami	7.000	0.000	6.708	7.000	0.000	7.937	6.928	8.124
Khezha	4.899	6.708	0.000	4.899	6.708	6.000	5.745	6.245
Mao	0.000	7.000	4.899	0.000	7.000	5.477	3.606	5.385
Sümi (Simi)	7.000	0.000	6.708	7.000	0.000	7.937	6.928	8.124
Sümi (modern)	5.477	7.937	6.000	5.477	7.937	0.000	6.245	5.745
Rongmei	3.606	6.928	5.745	3.606	6.928	6.245	0.000	5.831
Tangkhol	5.385	8.124	6.245	5.385	8.124	5.745	5.831	0.000
Karbi	7.000	0.000	6.708	7.000	0.000	7.937	6.928	8.124
Meithei	2.449	7.416	5.477	2.449	7.416	5.292	4.359	4.796
Anal	7.000	0.000	6.708	7.000	0.000	7.937	6.928	8.124
Thadou	4.899	7.000	6.325	4.899	7.000	6.481	3.606	6.403
Mizo	3.606	6.928	5.745	3.606	6.928	6.245	0.000	5.831
Hakha Chin	6.708	4.899	6.708	6.708	4.899	7.141	6.325	7.616
Bawm	5.745	6.325	5.745	5.745	6.325	6.708	4.899	6.481
Mru	7.000	0.000	6.708	7.000	0.000	7.937	6.928	8.124

	Karbi	Meithei	Anal	Thadou	Mizo	Hakha Chin	Bawm	Mru
Ergative	6.928	4.359	6.928	3.606	0.000	6.325	4.899	6.928
Accusative	5.745	6.164	5.745	6.928	6.708	6.708	7.000	5.745
Neutral	0.000	7.416	0.000	7.000	6.928	4.899	6.325	0.000
Tripartite	7.937	4.472	7.937	4.243	3.873	7.416	6.245	7.937
Balti	7.937	4.899	7.937	5.292	4.359	7.141	6.245	7.937
Sherpa	6.557	6.481	6.557	6.000	5.196	4.796	1.732	6.557
Kagate	7.280	4.690	7.280	5.292	4.359	6.403	4.583	7.280
Bunan	7.416	3.464	7.416	4.243	2.646	6.856	5.568	7.416
Tamang	7.416	3.464	7.416	4.243	2.646	6.856	5.568	7.416
Newar	7.700	4.394	7.700	5.251	3.894	6.847	4.982	7.700
Magar	7.280	4.690	7.280	5.292	4.359	7.141	6.245	7.280
Limbu	8.062	5.477	8.062	5.477	4.796	7.416	6.557	8.062
Kulung	5.000	6.481	5.000	6.782	7.000	6.403	7.000	5.000
Lepcha	7.416	3.464	7.416	4.243	2.646	6.856	5.568	7.416
Boro	7.141	5.099	7.141	6.325	6.245	7.416	7.141	7.141
Garó (Achik)	7.550	6.164	7.550	6.928	6.708	7.141	6.708	7.550
Garó (Kamrup)	7.550	6.164	7.550	6.928	6.708	7.141	6.708	7.550
Garó (Abeng)	5.745	6.164	5.745	6.928	6.708	6.708	7.000	5.745
Garó (CB)	0.000	7.416	0.000	7.000	6.928	4.899	6.325	0.000
Atong	4.899	6.403	4.899	7.000	6.928	6.325	6.928	4.899
Dimasa	5.000	7.211	5.000	6.928	6.856	6.403	6.245	5.000
Rabha	3.606	7.211	3.606	6.928	7.000	5.745	6.708	3.606
Ao (Chungli)	7.000	2.449	7.000	4.899	3.606	6.708	5.745	7.000
Angami	0.000	7.416	0.000	7.000	6.928	4.899	6.325	0.000
Khezha	6.708	5.477	6.708	6.325	5.745	6.708	5.745	6.708
Mao	7.000	2.449	7.000	4.899	3.606	6.708	5.745	7.000
Sümi (Simi)	0.000	7.416	0.000	7.000	6.928	4.899	6.325	0.000
Sümi (modern)	7.937	5.292	7.937	6.481	6.245	7.141	6.708	7.937
Rongmei	6.928	4.359	6.928	3.606	0.000	6.325	4.899	6.928
Tangkhol	8.124	4.796	8.124	6.403	5.831	7.616	6.481	8.124
Karbi	0.000	7.416	0.000	7.000	6.928	4.899	6.325	0.000
Meithei	7.416	0.000	7.416	5.292	4.359	7.141	6.245	7.416
Anal	0.000	7.416	0.000	7.000	6.928	4.899	6.325	0.000
Thadou	7.000	5.292	7.000	0.000	3.606	6.708	5.745	7.000
Mizo	6.928	4.359	6.928	3.606	0.000	6.325	4.899	6.928
Hakha Chin	4.899	7.141	4.899	6.708	6.325	0.000	4.899	4.899
Bawm	6.325	6.245	6.325	5.745	4.899	4.899	0.000	6.325
Mru	0.000	7.416	0.000	7.000	6.928	4.899	6.325	0.000

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