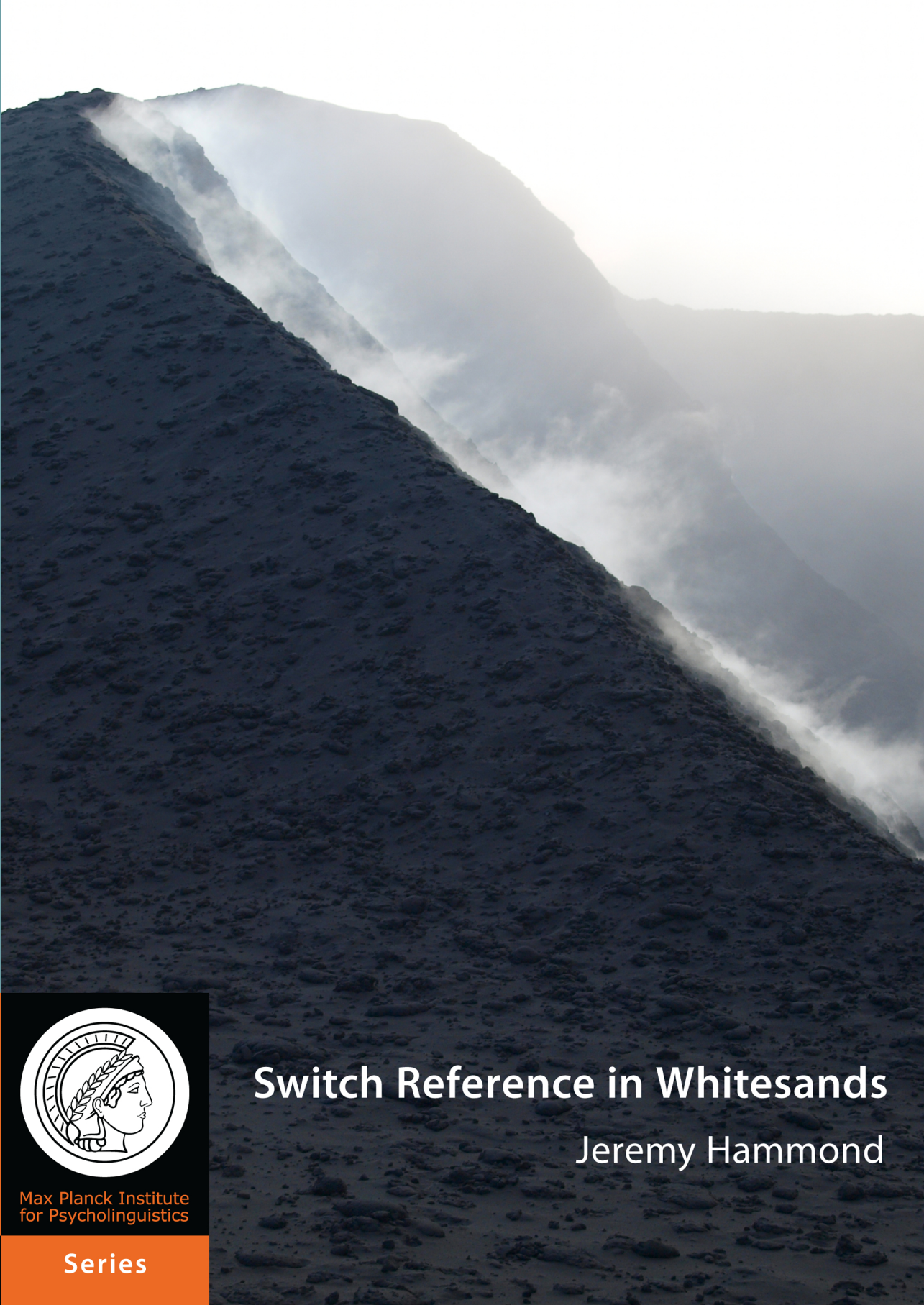

Switch Reference in Whitesands

Jeremy Hammond

Max Planck Institute for Psycholinguistics

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Switch Reference in Whitesands

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Cover photo: the western ridge of Mt Yasur, Vanuatu, 2010

Switch Reference in Whitesands

Theoretical Issues and Experimental Evidence

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ter verkrijging van de graad van doctor
aan de Radboud Universiteit Nijmegen
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volgens besluit van het college van decanen
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door

Jeremy Jon Hammond
geboren op 10 februari 1982
in Bega, Australië

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Switch Reference in Whitesands

Theoretical Issues and Experimental Evidence

Doctoral thesis

to obtain the degree of doctor
from Radboud University Nijmegen
on the authority of the Rector Magnificus Prof. Dr. Th.L.M. Engelen,
according to the decision of the Council of Deans
to be defended in public on Wednesday, 14 January 2015
at 14:30 hours

by

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for curiosity
and all it can achieve

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1 Introduction: Switch Reference in Whitesands

> The message went off, it enunciated
> It repeated once again
> The others answered thank you
> They always said yes, they never said no
> They understood everything
>
> Tannese Song n.d.

1.1 The problem of reference tracking

Reference is a fundamental feature of language, yet each language has a unique set of referential tools at its disposal. Reference tracking allows interlocutors to understand who they are talking about in any given context, and it gives them the machinery to ascribe information to referents with varying levels of specificity. The complexity of different referent tracking strategies is found in their interplay with various linguistic domains, including phonology, syntax, semantics and pragmatics. The difficulty in analysing such systems has been a problem facing descriptive linguists and cognitive scientists for some time (Foley & Van Valin 1984, Chafe 1994). Of particular interest is how to compare systems cross linguistically, especially when they differ formally.

Switch reference is one referential tool that has fascinated linguistics since Jacobsen (1961). Jacobsen's (1961) analysis of Hokan-Coahuiltecan highlighted syntactic properties that were fundamentally different from more well-known Indo-European languages. This 'discovery' of switch reference presented it as a grammatical system that monitors arguments and their grammatical functions. Typically, verbs are marked with morphemes that

indicate whether the subject of the verb is different from, or the same as, the subject from an adjacent clause. Examples (1) and (2) shows this contrast in Imbabura Quechua (Cole 1983), where there are two suffixes *-shpa* 'SAME SUBJECT (SS)' and *-jpi* 'DIFFERENT SUBJECT (DS)' that mark who is doing the "arriving".

(1) *Utavalu-man chaya-**shpa**, ñuka mama-ta*
Otavalo-to arrive-**SS** my mother-ACCUSATIVE
riku-rka-ni
see-PAST-1
When I arrived in Otavalo, I saw my mother.
IMBABURA QUECHUA from Cole (1983: 5)

(2) *Juzi Utavalu-man chaya-**jpi**, paypaj wasi-man ri-rka-ni*
José Otavalo-to arrive-**DS** his house-to go-PAST-1
When José arrived in Otavalo, I went to his house.
IMBABURA QUECHUA from Cole (1983: 5)

These two suffixes are representative of the Imbabura switch-reference system. In general, switch reference allows for the identification of referents and it is responsible for reference tracking across clauses.

Switch reference has been a subject of interest over the decades for at least three reasons: it provides a challenge for grammatical theory, especially in the discussions on syntactic pivots and clause structure; it seemingly breaks categorical iconicity, where the formal instantiation of a semantic distinction does not appear on the grammatical category to which it is associated; and it exemplifies how textual structure, i.e. the discourse, affects sentence (or clausal) structure.

In this study I describe and analyse switch reference as it occurs in Whitesands, an Oceanic language of southern Vanuatu. In Whitesands, the switch-reference system derives from a verbal prefix which is glossed the ECHO REFERENT (ER). The ER creates a coreferential construction that is anaphoric and shares person, tense and illocutionary force operators across its antecedent and anaphor clauses. This prefix contrasts with full agreement patterns, where typically the former creates same subject constructions and the latter different subject constructions.

The ER is ubiquitous and has specialised functionality. It can be used to form clause chains of high complexity or length that are "pervasive" in day-to-day language use (Crowley 1998: 247). Therefore, any description of the echoing verbs relies heavily on a clear understanding of the grammar, function and historical development of the paradigm. For a full understanding of the phenomenon of switch reference, we need to refer to all of these dimensions. This study takes precisely this view, focusing on a comprehensive

single-language description, in order to allow us to better understand this switch-reference system a little better.

There are two main goals of the project: the description of Whitesands complex clauses; and an account of the switch-reference system. The description of the ER construction is as comprehensive as possible, and aims to clearly identify the formal components of the system. Because complex sentences do not stand alone, it is also necessary to augment their description with a grammar sketch.

The second goal accounting for how switch reference generates meaning is more open-ended. For this, I draw on both language-internal and language-specific evidence, which is essential for comprehensive cross-linguistic typology. The final claim of this study is that speakers use a pragmatic contrast of full agreement patterns and the ER as a referential Horn scale (Levinson 2000). The specific meaning of the forms can be derived from this functional opposition, and variation in the system's use can be explained through syntactic and pragmatic restrictions.

In order to achieve these goals, I define the investigation around the available data set. This is synchronic study, so the primary source of data is the modern-day Whitesands language, as it is spoken by native speakers who reside in the Whitesands community. The idea is to use as much of this contemporary data as possible to account for any postulated theoretical claims. While I avoid high-detailed formalisations (i.e. tree structures), I use tools and principles from Role and Reference Grammar (Foley & Van Valin 1984, Van Valin 2005) to assist with the description on linkages and clause structure. I propose that the ER construction in Whitesands is an example of co-subordination — not an uncontroversial stance, but an analysis that is warranted when one considers all the facets of the ER system. I augment this natural language data with experimental evidence from tasks specifically designed to investigate aspects of the ER system.

Cross-linguistic typology can benefit from rich case studies of individual languages. It would be reasonable to assume that pragmatically-sensitive grammatical constructions — which I argue is the case for switch-reference systems — are quite likely to differ across languages and dialects (see Reesink 2014 who argues a similar case for topic constructions in Trans-New Guinea languages). The description of this switch-reference system is applicable in broad terms to Whitesands and the closely related North Tanna language, and for some features it may be constrained to the local *Ienamakel* dialect. That said, by restraining the debate to a singular but detailed account, it is hoped that this analysis will provide solid building blocks for any future work on the topic.

This study contributes to the ongoing evolution of what constitutes 'traditional' fieldwork methodology, borrowing analytical techniques in order to strengthen the overall analysis. One might attempt to evaluate the extra time spent studying one feature in depth and through a variety of techniques

or lenses. Is there something special about the switch reference phenomenon which deserves the extra attention? Or is it appropriate to study all aspects of the grammar of Whitesands (or any language) in this way? I would suggest that scientific disciplines should always look to expand their methodological foundations. Technology changes and this gives us opportunities to better understand specifics of systems. The value comes in two parts: one testing the robustness of claims; and two, adding ideas to the investigative 'toolbox' for future work.

In an ideal world all data would be questioned and analysed with a multitude of appropriate tools. This might not necessarily be the methods I choose here, as these may not be compatible with a particular investigation. Reality, however, is that there are limited resources — time, money, expertise, technology — for any academic endeavour, and in that context, it would not be appropriate to study every minute detail and feature of a language with multifarious techniques. Instead, it would be more useful for the linguist to identify the richest areas of investigation for a particular language, and marry these troves with the techniques — traditional or otherwise — that allow for a clear analysis to be constructed. In the case of Whitesands, the ER system is unique to its language subgroup and a fundamental part of the language in use. It allowed for an exploration using non-traditional techniques and as a result, I hope the final analysis is more robust.

1.2 Organisation

The study starts with this introductory chapter, establishing the background for the investigation. Chapter 1 includes an overview of the aims and scope, an ethnographic summary of the Whitesands speakers, and notes on methodology and data collection.

Part I is a grammatical sketch of Whitesands. The goal of this sketch is to 1) briefly document the Whitesands language, and 2) provide readers with sufficient information that will enable them to understand the discussion of the ER construction in the following chapters. The introduction to Part I provides a typological summary of Whitesands.

Chapter 2 starts with a description of the phonological system. The sections include information on consonant and vowel inventories, phonotactics and stress assignment. It then investigates word classes, making a distinction between nominal and verbal constituents. In §2.2 (nominals), data is presented on pronominalisation, noun morphology, demonstratives, number, adjectives and the structure of the noun phrase. There are also detailed examples of possessive constructions, highlighting the distinction between inalienable and alienable forms, and their *eat*, *drink*, and *plant* classifiers. This section also contains an analysis of relative clauses in Whitesands, which appear to be structurally different from the ones found in related languages.

Section 2.3 describes the verbal morphosyntax, including tense and aspect categories, negation strategies and subject agreement. Subject agreement is particularly important because it is the neutralisation of the agreement patterns described in §2.3.3 that creates the switch-reference system.

Chapter 3 describes the syntax of clauses and sentences. Section 3.1 describes the word order and argument structure, including information on verbless clauses and their constituents. This section contains an analysis and description of finite clauses, focusing on privileged arguments, complements, oblique arguments and adjuncts. This section also includes a discussion on the prepositions found in Whitesands. Section 3.2 outlines the different types of conjunctions, only briefly however, as these are discussed in more depth in §5.4. Section 3.3 sketches the different illocutionary force forms, with an emphasis on imperatives, polar interrogatives and content interrogatives. The chapter concludes by summarising the integration of Bislama loan words into vernacular utterances.

Part II is a detailed description and analysis of the Whitesands switch-reference system. In Chapter 4, I introduce the descriptive background of switch-references systems in general, and of the *echoing* systems found in the southern Vanuatu languages neighbouring Whitesands.

Chapter 5 focuses on complex clauses — how they are formed, their grammatical restrictions and their typical use in natural discourse in Whitesands. This includes a more detailed discussion of subject agreement, how the ER marker contrasts with full finite agreement patterns, and how they form a same subject/different subject paradigm. It also presents preliminary information on the relationship of the anaphor *m-* to its antecedent, although this is refined in later chapters. Chapter 5 also formulates the interaction of tense, aspect and negation and illocutionary force within the system, showing that different clausal operators are shared differently across the complex ER clauses. In §5.4, conjunctions are revisited from the perspective of clause chaining. Section 5.5 contains an important analysis on embedding within the context of clauses with coreferential arguments. Section 5.6 provides a summary of the grammatical features of the ER system.

Chapter 6 starts by detailing the behaviour of the competing verbal agreement forms as part of a system. Using natural discourse, I investigate in §6.1.1 the functioning of switch reference in narrative, public speaking and conversation extracts. Following this, in §6.1.2, is a presentation of the frequency of switch-reference constructions in the context of a broader corpus. Findings include measurements on how often ER clauses occur by genre and subject person, and how often the system diverges from the canonical forms presented in Chapter 5. This corpus-based section also includes a discussion on word order and noun phrases, and the lack of unique intonation patterns found across the ER clauses. Chapter 6 concludes with two sections, looking at the formal properties of anomalies especially in regards to the grammatical description of Chapter 5. These variations come in two forms — §6.2

examines instances of coreference where there is no ER construction, and §6.3 outlines a categorisation of the antecedent types that are fundamentally different from the canonical 'subject of the preceding clause' of Chapter 5. It is in this section that discourse topicality is first mentioned as a pertinent input to the ER antecedent properties. The discussion in this chapter links these findings to earlier descriptions of related languages, and sets up the experimental investigation of Part III.

Part III presents the first-ever experimental evidence on how speakers produce and perceive switch-reference clauses. It aims to test hypotheses and analyses from the corpus description of Part II, as well as provide preliminary evidence towards a theoretical account of how the ER system works. The introduction to Part III presents a brief argument as to why this is a useful exercise.

Chapter 7 presents the methodology — participants, stimuli and procedure — and results of the first experiment. This was a task where speakers had to develop their own narratives based on controlled inputs. There are a number of results discussed in §7.3, and the findings suggest that grammatical number marking on the verb is not critical to the systematicity of reference. Further, there is good evidence confirming the topicality hypothesis of Chapter 6.

Chapter 8 mirrors the format of Chapter 7, but the central focus is on how well hearers understand same- and different-subject constructions when given different contexts. The methodology and results of a forced-choice comprehension task are followed by a discussion. This discussion claims that adjacency is key to resolution, but that at this stage of investigation, it is not entirely clear that there are processing contrasts in different inter-clause grammatical constructions.

Finally, Part IV synthesises some of the key findings of Parts II and III. It situates the ER problem within two phenomenological domains — switch reference and anaphora. It begins in Chapter 9 by outlining the relevant theoretical background, and by summarising the issues at stake. The switch-reference domain has two key discussion points: firstly, the grammatical theory of clause nexus; and secondly, definition of the pivot of switch-reference systems. Anaphora is shown to be a useful descriptive tool for the Whitesands system because of the features of the *m-* prefix.

Chapter 10 wraps up, revisiting the grammatical and experimental descriptions of the Whitesands system from the three discussion points. I discuss the meaning and implications of the system's features such as the interaction with conjunctions, the gravity towards topical antecedents, and cross-clause operator sharing. I use a pragmatic-based background — in particular implicature — to account for the variation within the system. The chapter concludes with a summary and some final thoughts on the future areas of research.

1.3 Data

1.3.1 Language background

Whitesands is spoken on the island of Tanna, located in the south of the archipelago nation Vanuatu (Figure 1.2 on page 11). It has a variety of indigenous names: *Narak*[1] or *naŋhatiien* 'talk' being the two most commonly used. However, speakers use *Whitesands* also as their endonym for both themselves and their language. Further, the language is also named Whitesands in most linguistic research (Hammond 2009, Lewis 2009, Lynch 2001) and I continue with this tradition.

Whitesands is an Austronesian language belonging to the southern Vanuatu subgroup of the Oceanic family. This subgroup consists of nine current-day languages that are indigenous to Tafea province of Vanuatu (Figure 1.1 on the next page). Sye (Crowley 1998) and the moribund (or possibly extinct) Ura (Crowley 1999) are spoken on Erromango. Anejom̃ is the sole language spoken on the island of Aneityum (Lynch 2000). On the island of Tanna, there are around six languages, but there is not always a clear boundary between every language group as dialect continua or chains often exist (in particular between Whitesands, North Tanna and Lenakel). Figure 1.4 on page 13 displays the geographic locations of the island's languages.

Nowadays, Whitesands is spoken by roughly 7500 people who live in family-oriented hamlets immediately north *iehwei* (the volcano Mt Yasur). The northern border of the Whitesands dialect is the bay of *Waisisi/Weasisi* where the language has changed enough so that it is no longer intelligible to Whitesands speakers. Most Whitesands speakers live on the east coast of Tanna, although there is a significant population of Whitesands speakers in the capital Port Vila.

The communities on Tanna that speak Whitesands are densely populated in relative to other Tanna and Vanuatu communities. The people of Tanna are known as *ietem enteni* 'man-Tanna', and they engage in practices related to a wide range of socio-religious beliefs, including: various Christian denominations (e.g. Anglican, Seventh Day Adventists, Church of the Latter Day Saints (Mormon), Catholicism, etc.); John Frum cargo cult; and *kastom* (custom) practices. They are patrilineal subsistence farmers, practicing slash-and-burn horticulture on community-owned land. The Whitesands region is renowned for its crops of yams, manioc (cassava), and strong varieties of kava. The scope for agriculture development is limited by population pressure. Thus, tourism and public service are the two biggest cash employers, and there are also recent temporary migration patterns for seasonal work in New Zealand and Australia.

The majority of speakers are bilingual in (at least) the national language

[1] *Narak* does not have a transparent meaning in contemporary Whitesands, but the indigenous etymology is that *narak* was once the "proper" word for 'what' in the Whitesands language.

Figure 1.1: *Whitesand's genealogical position within Austronesian, spoken languages are in italics (from Lynch 2001 and Lynch et al. 2002)*

Bislama (an English-based creole), and many are competent speakers of surrounding indigenous languages. Further, more so than for the other Tanna languages, Whitesands is often considered the lingua-franca, used by other language groups for inter-group communication — especially in ceremonial situations where Bislama might not be appropriate. This lingua franca status of Whitesands is decreasing as Bislama becomes more widespread due to its wide acceptance as the lingua franca of the nation. Children are monolingual Whitesands speakers until at least the age of eight or nine. Many Whitesands children in Port Vila grow up as native Bislama speakers, and only become fluent in Whitesands after an extended period of living on Tanna while visiting relatives. The education practices of the region are also changing, where in the past schooling opportunities were limited, and most adults only attended primary school for a few years. Nowadays, many children complete junior high school (approximately grade eight), where they become competent Bislama speakers, and receive instruction in English or French. Levels of literacy are extremely low — observed to be less than 5% for adults in their native language. Written documents and other correspondence (e.g. text messaging on phones) are typically in Bislama or English.

1.3.2 Language data

The Whitesands data presented in this study was collected in Vanuatu. The fieldwork period consisted of 14 months in total: November 2007 – June 2008; February 2009 – March 2009; March 2010 – July 2010; May 2011 – June 2011; and January 2012 – February 2012. I was based primarily in the geopolitical centre of the Whitesands community — *Ienamakel*[2] village and its surrounding hamlets (see Figure 1.3 on page 12). The data collected consists of video and audio recordings of native speakers, a participant group which totals more than forty different people. These texts have been transcribed and translated with native speakers, totalling approximately twelve hours of transcribed and glossed texts across various genres and registers. There are a further three hours of recordings that have been transcribed but not glossed. Table 1.1 on the following page summaries the Whitesands corpus.

The recordings include discussions and natural conversations of up to eight people, set elicitation tasks and individual monologues such as personal narratives, traditional stories and procedural tasks. The natural conversations were recorded in a variety of contexts, e.g. the men sitting around while preparing kava, women weaving mats or just general chat while relaxing. The recordings typically last for more than one hour, but the transcriptions usually start only part-way in. This was to mitigate the effects of the novelty of the camera, and to allow speakers a chance to relax back into a more natural state. There is also a significant collection of public forum

[2] 19°30'27"S 169°27'02"E

discussions — speeches held in the open air meeting spaces called *imaiim* in Whitesands or *nakamals* in Bislama.

GENRE/REGISTER	NUMBER OF RECORDINGS	LENGTH (hours:minutes)
Conversation	14	11:43
Public Speaking	15	4:42
Procedural	3	1:00
Narrative	16	1:45
Prompted elicitation	10	4:13

Table 1.1: *The Whitesands corpus*

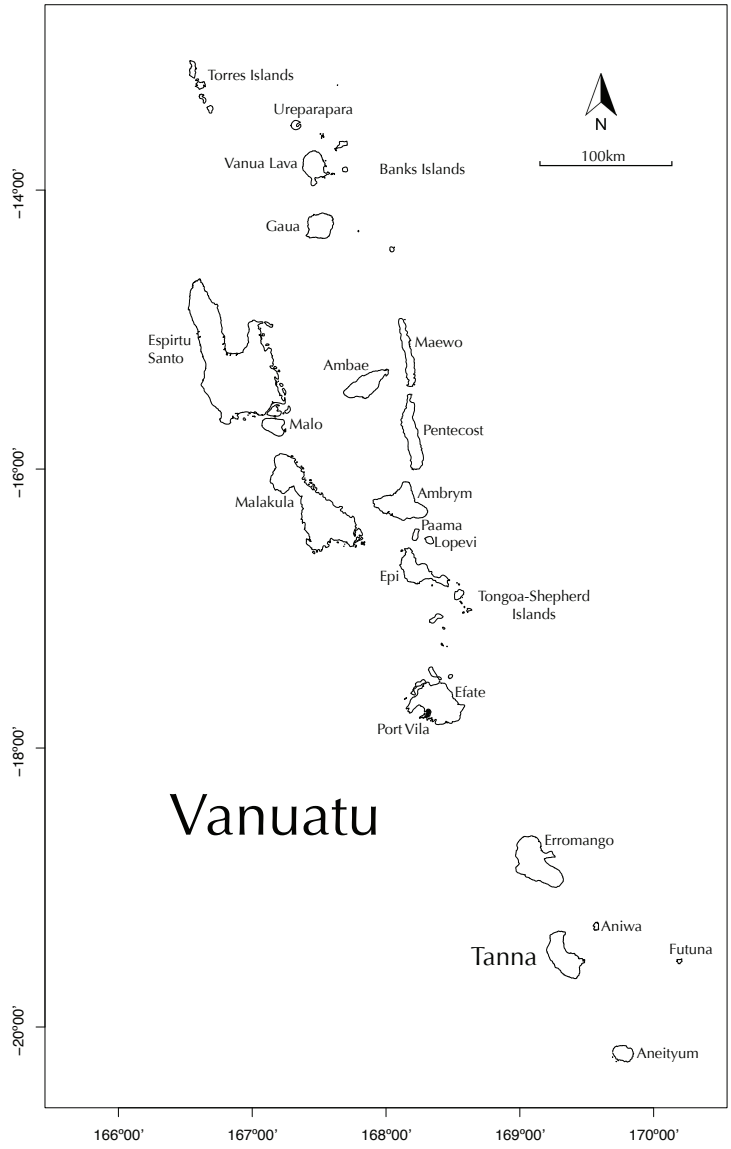

Figure 1.2: *Map of Vanuatu*

Figure 1.3: *Map of Tanna, Vanuatu. The language data was primarily collected in Ienamakel village (in red).*

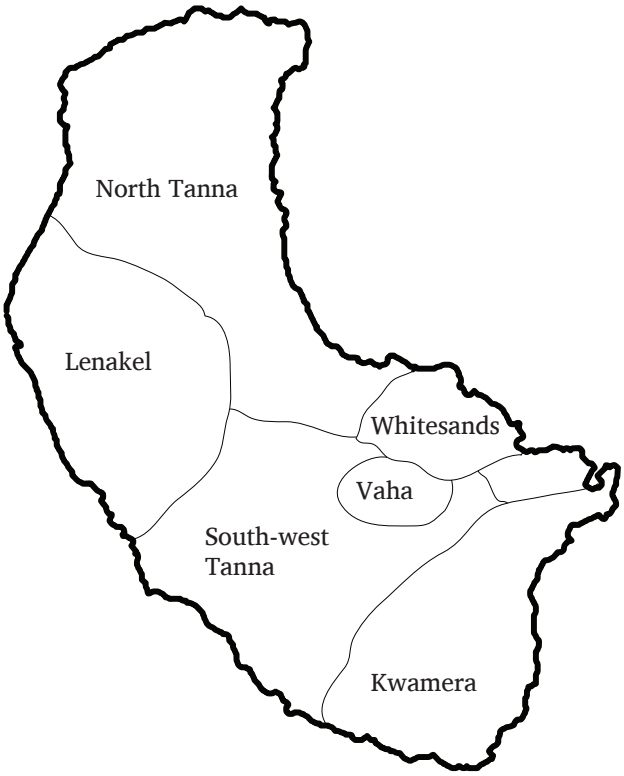

Figure 1.4: *The languages of Tanna, Vanuatu. The borders represented here are approximations of language boundaries. In reality, there is widespread multilingualism and dialectal variation on the island.*

1.3.3 Fieldwork methodology

The video recording (the bulk of the corpus) of conversations, speeches, etc. were recorded on a JVC GY-HM100U HD video camera with two Sennheiser ME64 external microphones. Permission to record and archive was asked of all speakers, and the video camera was always in plain sight. The microphones were usually on 10m XLR cables so that they stood as close as possible to the speakers while allowing the camera to be farther away and not in the middle of the interaction. I typically left the scene of the recording once everything was set up, so that I was not addressed too often.

Each video was then transcoded using an FFmpeg command line interface into a full HD file using a mpeg2 codec (Hammond 2011). The audio quality was kept in sync but down-sampled to an mp2 codec audio stream at 224 kHz. A full wav version of the audio stream was also extracted at this point and both the mpeg2 and wav streams can be found in The Language Archive at the Max Planck Institute for Psycholinguistics(Hammond 2013).

Transcriptions and translation were done with native speakers on a 14" Panasonic Toughbook CF-F9 using the software package ELAN (Wittenburg et al. 2006). A lexical database was created in Toolbox, and then used in ELAN for glossing. Elicitation sessions were undertaken primarily in the Whitesands language, with Bislama or English occasionally used. They were recorded by hand into notebooks (scanned and archived), and simultaneously recorded using an Olympus LS 10 flash recorder. Any grammatical judgements are those of native speakers of the *Ienamakel* dialect.

The natural-language data is the primary source for the analysis presented in this study. I prefer to only rely on elicitation for negative evidence. McKenzie (2012: §1.3) points out experimental evidence is often hard to collect in smaller languages (so elicitation is often used as an alternative). This does not entail that we should not try, as experimental evidence is possible provided one has a big enough community to draw participants from, and that one has a good working relationship with that community. I am fortunate to have both in Vanuatu and this has allowed me to run some preliminary experimental investigations into switch-reference structures in a small, non-written language. The experimental data is key to the results of Part III. The experiments' methodology sections (§7.1 and §8.1) sketch out the technical setup for the task-based investigations.

1.3.4 Conventions

In this study, I rename the echoing verb agreement pattern of Tanna as the ECHO REFERENT (ER). Previously, it has been called the ECHO SUBJECT (starting with Lynch 1983), but this creates potentially erroneous presuppositions about the grammatical relations of the prefix. I prefer the more neutral term REFERENT, in order to reduce the risk of confirmation bias or the creation of a misnomer.

The abbreviations for the grammatical glosses are listed in Appendix A. Where personal names compromise the anonymity of a speaker they have been changed or abbreviated. The presentation of data follows the Leipzig glossing rules (Comrie et al. 2008). Each example is presented as in (3), where a hyphen indicates a morpheme boundary, an equals sign indicates a clitic boundary and a period within a gloss indicates multiple English words/grammatical functions within one single Whitesands morpheme.

(3)

1	AK	*swiŋfil*	*u*	*t-akaku*
		swivel	PROX	3SG.NPST-small
		This swivel is small.		
2		(0.79)		
3		*s-ø-ahmen=iie*		
		3SG.NEG-SG-enough=NEG		
		It isn't enough.		

WS5-120128-conver 00:36:00.315–00:36:03.355

A change in speaker across turns is indicated by the initials in the second column (e.g. AK in (3.1)). A line with no transcription but instead with a number, e.g. (0.79), indicates a pause or silence in seconds. The tag after the free translation is the filename and time reference for the extract, e.g. WS5-120128-conver 00:36:00.315–00:36:03.355. The audio/video file and transcription file can be found in the Whitesands corpus at the Max Planck Institute for Psycholinguistics archives (Hammond 2013). Examples without such a reference are from elicitations or experiments.

Part I

A Grammar Sketch of Whitesands

Introduction

The following two chapters provide a grammar sketch of Whitesands. The goal of this sketch is to provide the reader with sufficient information that will enable them to understand the discussion of the ER construction in the following chapters, and to parse the examples. The data presented here is based on field notes and recordings I made from 2007 until 2012 (as outlined in §1.3).

It is written in the style of the series of grammar sketches by Lynch et al. (2002), and will present information on the phonology, nominal and verbal morphosyntax, and clausal syntax. It is worth noting here the criteria used for determining word classes (which is not typical of the Lynch et al. sketches because that volume has a comprehensive typological study instead). The primary criterion used is that there must be a clear syntactic distinction between two classes — typically distribution (including affixes) or argument structure (generally following the principles set out in Role and Reference Grammar Van Valin & LaPolla 1997, Van Valin 2005).

Whitesands, like many other Oceanic languages, does not always make a clear lexical distinction between nouns and verbs. Many roots (or stems) can be used in either nominal or verbal constructions, and no clear phonotactic evidence has been discovered to distinguish the major word classes. Further, many affixes themselves can flit between nominal or verbal clauses and are not substantially restricted in their meaning or placement. In these cases, the presence of clausal operators and the distribution of constituents indicates word class-hood.

Typological summary

Whitesands has nominative-accusative alignment with a word order of SVO in pragmatically unmarked contexts. It is mainly head marking, where the verb has prefixing agreement and tense, aspect and mood, distinguishing (in order) subject person (1.EXCL, 1.INCL, 2 and 3), a PAST/NON-PAST tense axis, various aspectual markers, and subject number (SG, DU, TRI and PL). Similar number and person distinctions are available for nominal constituents and

pronouns when appropriate. There is no case, and oblique arguments are indicated by prepositions. An inflected verb constitutes a potential clause and there is frequent pro-drop found throughout the language, not only for the subjects indexed on the verb, but for all (contextually recoverable) constituent types, including a noun in a prepositional phrase.

2 Phonology and Word Classes

> The inhabitants of Tanna often have two different names for one object, one of which is foreign whereas the other one was related to the languages of the Friendly Islands, which is not a surprise given how close these islands are
>
> Johann Christoph Adelung 1806

2.1 Phonology

This section provides an outline of the phonology of Whitesands — the consonant and vowel inventories, which are followed by phonotactics and stress patterns.

2.1.1 Consonants

Whitesands distinguishes five places of articulation, with seven different manners of articulation. The consonant inventory is presented in Table 2.1 on the next page, where within a single column a consonant in the left position is voiceless and in the right position is voiced. There is no productive voicing distinction in the stops. However, the position of phonemes within the word can determine its voicing qualities — word medial stops are generally voiced. A consonant adjacent to /h/ is voiceless.

The approximant series in the Tanna languages has been used in many discussions about phonological theory (Kager 1999: 96). Of particular interest is the status of the approximants [j] and [w] and their relationship to the vowels [i] and [u] (Rosenthall 1997). I assume they are two single phonemes, with realisations of [j] and [w] in the onset position of a syllable, and [i] and [u] in either the nucleus or coda position.

	bilabial	labio-dental	alveolar	velar	glottal
plosive	p		t	k	
nasal	m		n	ŋ	
trill			r		
fricative		f	s		h
approximant (rounded)	w				
approximant (unrounded)	v				
lateral approximant			l		

Table 2.1: *Consonant inventory*

There are some other salient descriptive issues that require more investigation in the future. Most particularly, the descriptions of other Tanna languages have identified a velarised series of some consonants (/p^w/, /m^w/, /k^w/). However, it appears this contrast is no longer productive, or regular, in the *Ienamakel* dialect and is not represented as a phonemic distinction here. The proposed bilabial /f^w/ is not a phoneme in this dialect (cf. Lynch 2001: 7).

Borrowings from Bislama are written in their Bislama form, and so include a series of voiced stops. Lindstrom (2007) claims that these borrowings do not have an effect on the underlying phonology (e.g. a lack of voice distinction in Whitesands) but the long term stability of such claims is unclear.

2.1.2 Vowels

The Whitesands' vowel space is represented with six contrastive vowels in this study (Figure 2.1 on the following page). This is congruent with Lynch (2001), but diverges from Nehrbass (2012), who posits a seven vowel system. It is not clear that there is phonetic evidence to support an extra vowel phoneme.[1] Schwa is a phoneme as well as an allophone for other low vowels in unstressed positions, and it is an epenthetic vowel to break up consonant clusters (although the latter two environments are not produced by all speakers). Long vowels are represented as a geminate, e.g. /ee/. There are possible diphthongs in /ei/, /ai/, /əi/, /au/, /ou/, and /ua/.

[1] For example, Nehrbass reports for Whitesands the lexeme *akəl* 'to dig' with a schwa but its instrumentive (*k-*) derivative as *kakɨl* 'digging stick' with the barred *ɨ* high central vowel (Nehrbass 2012: 81). The orthography used here would present it as *kakəl* 'digging stick' or *k-akəl* 'NMLZ-dig' because it would be more plausible for these to be the same underlying phoneme with slight allophonic variation in different environments than the alternative analysis which proposes a seventh vowel.

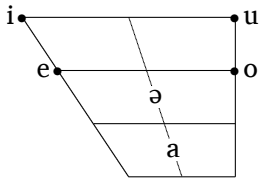

Figure 2.1: *Vowel inventory*

2.1.3 Phonotactics and stress

Syllables in Whitesands are canonically (C)V(C), where any consonant may occur in the coda. The sequences (C)VV(C) and (C)VVV are also attested but if there is a high vowel (/i/ or /u/) in this sequence then it will surface as a glide (for similar phenomena in Lenakel see Rosenthall 1997).

The surface form of consonant clusters varies for each speaker. Most speakers allow /h/ to form clusters with other consonants, where the /h/ plus consonant coalesce to form a voiceless stop. For other consonant cluster options, the most liberal speakers will allow stop-glide or nasal-glide onsets: therefore, CCV(V)(C) is a potential syllable for some speakers. The most conservative speakers will prohibit any consonant cluster — even mid-word — and will have an epenthetic vowel (*ə*) to break up the adjacent consonants (and for some speakers this also applies to /h/ + C). A nasal consonant can be syllabic in a pre-stop position as in *ŋpetan* 'women' or *nte* 'ok'.

Primary stress is generally on the penultimate syllable, but can fall on long vowels or diphthongs that occur in the final or antepenultimate position. Vowel lengthening also indicates pragmatic force or semantic alternations, such as lengthening to indicate a longer duration of an event. Intonation phrasing tends to have a contrastive phrase-final accent — i.e. the final segment of the phrase is where intonation contrast is distinguished.

2.2 Nominals and the noun phrase

Nominal words in Whitesands exhibit four-way number agreement (SINGULAR, DUAL, TRIAL and PLURAL. There is no case marking, and the semantic roles of both oblique arguments and adjuncts are marked by prepositions.

2.2.1 Pronouns

The independent pronouns exhibit a four-way number distinction, and a four-way person distinction. When used as free standing utterances, or as arguments in the nominative or accusative, these pronouns take the forms shown in Table 2.2 on the next page. There are some analysable morphological

components of the non-singular pronominal set: *-lau* 'DUAL'; *-(V)hal* 'TRIAL'; *-ah* 'PLURAL'; *ite-* '1 EXCLUSIVE'; *k-* '1 INCLUSIVE'; *itə-* '2'; and *il-* '3'. The morphemes were probably distinct historically, but this is no longer the case as in other Tannese languages. There are no reflexive pronouns in Whitesands.

There is a second set of suffixal pronouns, called the possessive pronouns, presented in Table 2.3. These are used in a variety of grammatical functions, including in possessor (genitive) constructions, or as dative arguments.

The dative case *la-* takes singular pronominal suffixes, giving *lak* '1SG.DAT', *lam* '2SG.DAT', and *lan* '3SG.DAT'. The non-singular pronouns use *e* 'DAT' with the appropriate possessive suffix (Table 2.4 on the next page). A similar process occurs with the benefactive, where there is a reduced set of pronouns for the singular pronouns (Table 2.4 on the following page) and the non-singular forms use *e* plus the possessive suffix from Table 2.3. Table 2.4 on the following page includes the equivalent preposition which is used for a full noun referent.

	SINGULAR	DUAL	TRIAL	PLURAL
1 EXCLUSIVE	*iou*	*itemlau*	*itemə̀hal*	*itemah*
1 INCLUSIVE	–	*kilau*	*kitə̀hal*	*kitah*
2	*ik*	*itəlau*	*itəmə̀hal*	*itəmah*
3	*in*	*ilau*	*ilə̀hal*	*ilah*

Table 2.2: *Independent and direct pronouns*

	SINGULAR	DUAL	TRIAL	PLURAL
1 EXCLUSIVE	*-(ə)k*	*-tamlau*	*-tamə̀hal*	*-tamah*
1 INCLUSIVE	–	*-(ta)lau*	*-tahal*	*-tah*
2	*-(ə)m*	*-təmlau*	*-təmə̀hal*	*-təmah*
3	*-(ə)n*	*-lau*	*-lə̀hal*	*-lah*

Table 2.3: *Possessive pronouns*

	SINGULAR	NON SINGULAR	EQUIVALENT PREPOSITION
Dative			
1 EXCLUSIVE	*lak*	*e* + possessive pronoun	*e*
1 INCLUSIVE	–		
2	*lam*		
3	*lan*		
Benefactive			
1 EXCLUSIVE	*oniou*	*e* + possessive pronoun	*o*
1 INCLUSIVE	–		
2	*onik*		
3	*ohni*		

Table 2.4: *Irregular pronouns*

2.2.2 Nouns

The vast majority of nouns are morphologically simple, and are not derived from other word classes. They can be divided into various subclasses, such as the distinction made by the two possessive constructions (§2.2.8). There are further subclasses such as temporal and locative nouns. Proper nouns behave the same way as other nouns in terms of syntactic distribution.

There are four productive affixes that are used to derive nouns from verbs. There is a general nominaliser circumfix *n- -ien* 'NMLZ', a general nominaliser prefix *n-* 'NMLZ', a personal nominaliser prefix *i-* 'NMLZ.PERSON' or *peta-* 'NMLZ.PERSON.FEMININE', and an instrument nominaliser prefix *k-* 'NMLZ.INST'. Some examples are presented in Table 2.5. It is not always possible to predict the precise meaning of nouns derived from verbs using the general nominaliser affixes. Borrowed lexemes do not use this nominalisation morphology.

-aŋhati	'to converse'	*n-aŋhati-ien*	'talk/discussion'
-awan	'to eat.INTRS'	*n-awan-ien*	'food/feast'
-arowieh	'to shine (of sun)'	*n-arowieh*	'sunshine'
-aŋatun	'to show'	*i-aŋatun*	'teacher'
akaku	'small'	*peta-akaku*	'girl'
-akəl	'to dig'	*k-akəl*	'spade'

Table 2.5: *Whitesands derivational morphology*

2.2.3 Articles and demonstratives

There are no articles in Whitesands. The demonstrative system makes a core distinction of proximate-speaker (*-u* 'PROX'), proximate-hearer (*ko* 'PROX2') and distal (*aha* 'that'). These three forms are demonstratives that occur in a post-nominal position, e.g. (4).

(4)

1 NN *ah, kot* ***aha***
yes court **that (distal)**
Yes, that court.

2 (1.00)

3 EK *na-k-ø-eru* *mə* *swah* ***u***
2-NPST-SG-see COMP man **PROX**
You see that this man.

WS4-110521-family1 00:07:47.540–00:07:50.550

None of the demonstratives make a number distinction. The complete set of forms, and their spatial meanings are presented in Table 2.6 on the following page below. The post-nominal demonstrative forms can also be used for non-deictic textual references. All three can also occur after the verb to give spatial orientation to an event (5).

(5) *in* *aha* *ia-am-ø-eni,* *na-k-ø-ua* ***u*** *ima*
3SG that 1.EXCL-PST-SG-say 2-NPST-SG-come **PROX** inside
m-ø-eru
ER-SG-see
This one that I told, you come here inside (to the kitchen) and you see that ….

WS4-110521-family1 00:22:32.520–00:22:34.680

There are also other forms which have a demonstrative-like function but appear as a preposition (6) or in a locative phrase (7).

(6) *ia-k-ø-uven* ***apaha*** *ienimah*
1.EXCL-NPST-SG-go **LOC (distal)** Enimah
I will go to (distant) Enimah.

WS4-110524-imaiim 00:06:11.070–00:06:11.880

(7) *ia-k-ø-ani* *m-ø-ua* *m-at-ø-iet-pah*
1.EXCL-NPST-SG-sing ER-SG-come ER-PROG-SG-leave-oceanwards
ukunu, *ietemi* *t-əkə* ***ukunu***
here person 3SG.NPST-none **here**
I sang coming here, there was no one here.
ISJHWS3-20100329JVC-02-all 00:12:45.886–00:12:48.156

There is a non-verbal predicate *apwa* that is used to convey two simultaneous meanings — it is used for new information that is near the speaker, e.g. an answer to a question about where something might be (8).

(8) *in* ***apwa,*** *namu*
3SG **NEW.INFO** fish
It is this here, the fish ….
WS5-120128-conver 00:13:32.013–00:13:32.784

There is a prefix *k(e)-* 'DEIC' that is used when a gestural action of pointing co-occurs with a demonstrative or pro-form (9).

(9) *swah* ***k****-aha*
man **DEIC**-that
That man.
WS4-110524-imaiim 00:14:16.760–00:14:17.410

	PROXIMAL SPEAKER	PROXIMAL HEARER	DISTAL
POST NOMINAL	*u*	*ko*	*aha*
LOCATIVE DEMONS.	*ukunu*		
PREPOSITION PHRASE			*(a)pa(ha)*

Table 2.6: *Syntactic distribution of demonstrative-like functions*

2.2.4 Numerals

Numerals follow the head noun and traditionally follow a quinary system, with a compound word for twenty (Table 2.7 on the next page). Nowadays, most speakers use Bislama loans for numerals higher than three.

1	*katiah/kati*	6	*kariləm katiah*
2	*keiiu*	7	*kariləm keiiu*
3	*kəsəl*	8	*kariləm kəsəl*
4	*kuwet*	9	*kariləm kuwet*
5	*kariləm*	10	*kariləm kariləm*
		20	*ietemi katiah* ‘one person’

Table 2.7: *Whitesands numerals*

2.2.5 Number

There is number marking on human and highly animate (or salient) nouns. This makes the same number distinction as the pronouns, giving the forms *ø* ‘SG’, *mil* ‘DU’ (10), *milahal* ‘TRI’, *mən* ‘PL’ (11). These are treated as words in this study, as there is no evidence they are clitics.

(10) *polis* ***mil*** *k-w-elis*
police DU 3.NPST-DU-hold
The two police took him.
WS4-110521-family1 00:11:48.430–00:11:49.370

(11) *m-w-olkeikei ilah* ***mən***
ER:1-DU-like 3PL **PL**
We like these ones (rules).
WS4-110521-family1 00:19:25.600–00:19:28.340

This number marking can be used together with pronouns (11), and with the matching numerals (12).

(12) *nati aha* ***mil keiiu,*** *ietemimi k-on-ot-atiŋ*
thing that **DU two** people 3-PRF-PL-live
At the time of those two things, there were already people living.
WS5-120108-nako 00:06:24.618–00:06:26.215

There is a plural prefix *n-* ‘PL’ for a select group of human nouns, so contrasting *petan* ‘woman’ with *npetan* ‘women’, and *man* ‘man’ with *nman* ‘men’. This prefix is very restricted in its distribution.

2.2.6 Adjectives

There is a very small class of true adjectives, with perhaps a total of a dozen uninflected and morphologically simple words that can modify a head noun. Most express some kind of attribute, such as *vi* ‘new’, *itoŋa* ‘foreign’, *rarpen* ‘wild’ and *metu* ‘dry’. Some examples are:

(13) *ko t-eŋahan-pa mən ie niŋi* ***metu***
then 3SG.NPST-lend-to1 again INST wood **dry**
She lends me firewood again.
ISJHWS3-20100711JVC-02-ma 00:02:35.184–00:02:37.321

(14) *man, pəkah* ***rarpen*** *n-əkə rakis apaha*
man pig **wild** 3SG.PRF-none already LOC
nakale-n peisi
boundary-3SG south
Man, there are already no more wild pigs in the area of the south.
WS4-110525-imaiim 00:38:53.451–00:38:55.178

All other attributive meanings are expressed using intransitive verbs in a relative clause, the adjective slot of a noun phrase, or as a full sentence. There is no clear correspondence between classes of true adjectives and stative verbs, for example *-akaku* 'small' is an intransitive verb, whereas *asoli* 'big' is an adjective.

2.2.7 Basic noun phrase structure

The noun phrase in Whitesands is head-initial, so the basic order of a (non-possessive) noun phrase is:

(15) *Schema of Whitesands noun phrase*
NOUN (ADJECTIVE) (NUMBER) (NUMERAL) (QUANTIFIER) (DEMONS.)

Example (16) shows a more complex noun phrase.

(16) *n-etemi asoli mən u*
PL-man big PL PROX
These big men.
WS5-120108-nako 00:05:04.393–00:05:06.621

There is a conjunction *mənе* 'and.NP' that can only be used for the coordination of noun phrases (17).

(17) *iəmə na-k-ø-os pəkah kati* ***mənе*** *nakəwə kati*
1.say 2-NPST-SG-carry pig one **and.NP** kava one
I said, you should take a pig and a kava.
WS4-110525-imaiim 00:01:22.950–00:01:24.630

Commitative coordination can also be formed using the appropriate free pronoun, as in (18). It is not necessary in this case to use a preposition to mark 'with'.

(18) *t-aharaŋ* ***ilau*** *kaka* *Eileen*
3SG.NPST-sit **3DU** in-law Eileen
He was sitting with in-law Eileen.
WS4-110525-imaiim 00:06:55.040–00:06:56.800

2.2.8 Possession

Whitesands makes a distinction between direct and indirect possession. This distinction is a syntactic one, with each type having different morphosyntactic properties (this nomenclature is used with other Oceanic languages, see Lynch et al. 2002: 40-42). The direct and indirect possessive constructions generally map onto the semantic distinction of inalienable versus alienable, respectively.

2.2.8.1 Direct (inalienable) possession

The direct construction typically marks inalienable possession. Directly possessed nouns is constituted by semantic classes such as body parts, part/whole relationships, and some kin terms. The structure is such that a possessum noun, such as *notoha-* 'younger brother' in (19), takes a suffix marking the possessor, such as *-lah* '3PL'.

(19) *notoha-lah*
younger.brother-3PL
Their (PL) younger brother (SG).
WS4-110524-imaiim 00:08:11.860–00:08:12.560

The complete paradigm of pronominal possessors is presented in Table 2.3 on page 24 in §2.2.1. It is also possible for the possessor to be a noun phrase, as in (20), forming a compound word.

(20) *nelke-pet*
leg-bed
The leg of a bed.
WS4-110525-imaiim 00:39:41.396–00:39:42.022

A crucial feature of this direct type of construction is that this possessor — be it a pronoun, noun etc. — is obligatory. That is, the directly possessed noun is bound, and cannot stand alone, as in (21) and (22).

(21) * *notaha*
younger.brother

(22) * *nelke*
leg

These roots are always obligatorily possessed. They do not use the indirect possession construction. Thus, directly possessed nouns form a word class that is distinct from other (indirectly possessed) nouns. It is a syntactic distinction rather than a semantic distinction, because the semantic differentiation between the two classes does not always hold. Some kin terms and some body parts use only the indirect construction, and cannot take the direct construction.

The minimal surface form of a directly possessed noun is with the pronominal possessor. For example, if a directly possessed noun is used in a verbless clause, such as (23), then it will take a pronominal possessor and the coreferential possessor argument can then stand alone as the comment.

(23) ***narme-n*** *iepis*
image-3SG squid
It is a copy of a squid.
WS5-120128-conver 00:09:41.313–00:09:42.041

2.2.8.2 Indirect (alienable) possession

All nouns that do not take the direct construction use the indirect construction to express possession. This construction is not obligatory, and is only used when it is necessary to express possession. The construction consists of a possessive classifier which hosts the possessor marker, followed by the unmarked possessum noun. In (24), the possessor *-k* '1SG' is attached to the possessive classifier *raha-* 'POSS.GEN' coming before the possessum noun *naw* 'knife'.

(24) *ie-m-ø-elis* ***raha-k*** ***naw***
1.EXCL-PST-SG-carry POSS.GENERAL-1SG knife
I took my knife.
WS4-110608-imaiim 00:08:14.470–00:08:15.580

The indirect possessive construction is used to indicate a variety of meanings, from possession proper, to part/whole relationships, to superlative and elative meanings. If the possessor is not a pronoun, then the possessive classifier construction follows the possessum noun, as shown in (25), where the possessum *tiampion* 'champion' comes first.

(25) *tiampion raha wol*
champion POSS.GENERAL world
(Ronaldinho is) the champion of the world.
WS4-110525-imaiim 00:11:55.840–00:11:57.710

The possessive classifier comes in four different forms that make a distinction between general, eating, drinking and planting possession. It is generally unusual for one lexeme to be the possessum noun in all four kinds of possession, but in (26), *nien* 'coconut' does precisely this.

(26) *Whitesands alienable possessive classifiers*

a. *raha-k nien*
POSS.GENERAL-1SG coconut
My coconut (e.g. for cooking with)

b. *nem-ək nien*
POSS.DRINK-1SG coconut
My coconut (e.g. I am drinking)

c. *niŋ-ək nien*
POSS.FOOD-1SG coconut
My coconut (e.g. I will eat)

d. *nai-k nien*
POSS.PLANT-1SG coconut
My coconut (e.g. My coconut plantation)

The possessive classifier is indicating the type of relationship between the possessor and the possessum, and not any inherent properties of either of the two nouns. These classifiers can mark non-possessive meanings, like the event-bound meaning of *nem-ək nien* 'My coconut (I am drinking)' in (26b). In contrast, example (27) shows that the drink classifier can mark a simple possessive relationship.

(27) *itemah ie-m-awt-amei* ***nakəvə***
1PL.EXCL 1.EXCL-PST-PROG.PL-masticate **kava**
nem-tata-mən
POSS.DRINK-father-PL
We all chewed fathers' kava.
WS4-110525-imaiim 00:37:30.484–00:37:35.492

There is also a complementary verbal predicate *-əmnəm* 'to drink', and this is often used in an intransitive context like *I am drinking*, where there is no direct object.

There is variability in the word order of possessive constructions with pronominal possessors. The possessum can occur before or after the possessive classifier (cf. (28) and (29)).

(28) *namə na-k-ø-os* ***raha-m*** ***petan***
if 2-NPST-SG-hold **POSS.GENERAL-2SG** **woman**
If you take your wife.
WS4-110521-family1 00:23:17.730–00:23:20.360

(29) *mə in u, na-k-ø-elis* ***neŋaw*** ***raha-m***
COMP 3SG PROX 2-NPST-SG-take **canoe** **POSS.GENERAL-3SG**
Like that, you take your ship.
WS5-120108-nako 00:36:33.068–00:36:35.574

The exact difference in meaning, if any, is not immediately transparent, and the variation could be a result of contact-induced change — Bislama has a post-possessum possessive strategy, and it is the only right-headed construction in Whitesands.

Finally, it is possible for the possessive classifier plus possessor to be a constituent without a possessum noun. That is, the possessor can be the head of the phrase, like in example (30), where the food classifier *niŋ-* 'POSS.FOOD' plus possessor stands alone in all four clauses as the object argument.

(30) *Henri t-os* ***niŋ-ən,*** *Genri t-os*
H. 3SG.NPST-hold **POSS.FOOD-3SG** G. 3SG.NPST-hold
niŋ-ən, *ia-k-ø-os* ***niŋ-ək,*** *tom*
POSS.FOOD-3SG 1.EXCL-NPST-SG-hold **POSS.FOOD-1SG** T.
t-os ***niŋ-ən***
3SG.NPST-hold **POSS.FOOD-3SG**
Henry took his food, Genri took his food, I took my food, and Tom took his food.
JHWS2-20090301-ak02 00:04:18.808–00:04:22.498

2.2.9 Relative clauses

The relative clause in Whitesands does not take any special morphosyntactic marking. There is no obligatory relativiser, nor any indication of the subordinate nature of the modifying clause. The modified noun phrase comes first, and this is then followed by the modifying clause. There is no apparent restriction on the modified noun phrase (in bold) — it can be any of the arguments of the modifying clause, e.g. the subject (31) or the object (32).

(31) *m-awt-eru ama* ***n-aŋhati-ien*** ***asoli*** ***mən***
ER-PROG.PL-see just **NMLZ-converse-NMLZ** **big** **PL**
t-at-ua u
3SG-PROG-come PROX
They just see all the big meetings that come here.
ISJHWS3-20100329JVC-01-hi 00:00:17.163–00:00:20.313

(32) *in ko menə* ***in aha*** *Bruce t-at-os*
3SG PROX2 and **3SG that** Bruce 3SG-PROG-hold
This one and that one that Bruce is holding.
WS5-120128-conver 00:19:57.051–00:19:59.011

There is a tendency for demonstratives to be used in the head noun phrase of the relative clause. However, this is not definitive criteria for the identification of a relative clause. The word *tem* was probably a relativiser in the past. However, in contemporary Whitesands, *tem* is no longer used as such. It is used as a subject head noun of a relative clause, or it is used optionally as a marker of the relative clause when the relativised argument is not the subject (33).

(33) *n-eni-ien* ***tem*** *ia-at-ø-uven* *onhi*
NMLZ-say-NMLZ **man** 1.EXCL-PROG-SG-go BEN.3SG
The story that I am getting to.
WS4-110521-family1 00:18:47.450–00:18:50.420

Tem is not used as a relativiser when the head of the relative clause is another subject NP (cf. Lynch 1978: 105).

2.3 Verbs

The verb is a crucial part of the sentence in Whitesands — it is often sufficient as an utterance. Many verbs can be strung together with or without nominal reference (utilising the ER system discussed in Part II). The inflectional morphology of the verb is the most complicated in the language. Example (34) shows a schema of the prefixing and suffixing morphemes.

(34) *Schema of Whitesands verbal morphology*

a. (MOOD/TENSE) - (SUBJ.PERSON) - (TENSE) - (ASPECT/NEGATION) - (SUBJ.NUMBER) - root

b. root - (DIRECTION/GOAL.PERSON) = (NEGATION)

While the ordering of these operators generally holds true, it is not the case that they are always discrete morphemes — there are various combinations that collapse into a single portmanteau form. We can see this in (35), where the third person singular non-past (possibly the most common configuration) is marked with the sole morpheme *t-* '3SG.NPST'.

(35) *rum-u* ***t****-akaku,* *itehi* *u-aha,* *isiwi*
space-PROX **3SG.NPST**-small saltwater PROX-that Siwi
u-aha
PROX-that
This space is small, the sea is here and Lake Siwi is here.
ISJHWS3-20100329JVC-01-hi 12:23.970–12:26.505

There is no special verbal morphology in Whitesands for voice, causatives, purposive etc. — these types of interpretations are arrived at by combinations of conjunctions, the juxtaposition of full clauses, and inference.

2.3.1 Tense and aspect

Whitesands distinguishes two main tenses: past in the form *(V)m-* 'PST'; and non-past in the form *t-* '3SG.NPST' or *k-* 'NPST'. If it is a single morpheme (i.e. not a portmanteau), then the tense marker comes immediately after the subject person and before any aspect markers or subject number agreement, as in (36) and (37). While it is typologically unusual because it splits constituents of the pronominal reference, it is a typical approach found in the Southern Vanuatu languages.

(36) *na-****am****-ot-aŋhati* *rah*
2-**PST**-PL-talk bad
You were all talking rubbish.
WS4-110524-imaiim 00:07:37.870–00:07:38.670

(37) *no-****k****-ot-os* *nati* *ko*
2-**NPST**-PL-carry thing PROX2
You will take that thing.
WS4-110524-imaiim 00:09:21.560–00:09:26.610

The non-past tense is used typically to refer to the present and future (37). It is also commonly used as a narrative tense — even if the event being described is in the past. For example, the correct interpretation in (38) is that the talking was in the past, overlapping with the hearing.

(38) *na-am-an-ot-ətou* ***k****-ot-aŋhati* *e* *nu*
2-PST-PRF-PL-hear **1.INCL.NPST**-PL-talk DAT yam
You'll have heard, we talked about yam.
ISJHWS3-20100329JVC 00:00:59.322–00:01:00.774

at- 'PROG'	progressive/habitual (non-plural: SG, DU, TRI)
awt- 'PROG.PL'	progressive/habitual (plural)
(V)n- 'PRF'	perfective
anat- 'PROS'	prospective (non-plural)
anawt- 'PROS.PL'	prospective (plural)
apan- 'SEQ'	sequential, subsequent action

Table 2.8: *Aspect markers*

The inflectional category of aspect (there are also free words that modify the aspectual status of the clause) is marked by a morpheme that comes immediately to the left of the subject number marking. There are four different aspectual distinctions made, as presented in Table 2.8.
The various aspect markers most often occur without an overt tense operator, as in (39), (40) and (41).

(39) *pale, **ie-n-ø-alu,** ie nariŋə-n, Kapi*
pale **1.EXCL-PRF-SG-forget** INST name-3SG Kapi
pale, I have forgotten its name, (was it) Kapi?
WS4-110608-imaiim 00:23:38.735–00:23:41.040

(40) *ko **na-apan-ø-etow***
then **2-SEQ-SG-hear**
You will next hear that...
ISJHWS3-20100329JVC-02-all 00:07:35.448–00:07:38.943

(41) *February **k-awt-aŋhati** u o in-u*
February **1.INCL-PROG.PL-talk** PROX BEN 3SG-PROX
In February, we are here talking about this one.
ISJHWS3-20100329JVC 00:13:43.091–00:13:47.841

It is possible for there to be both a tense and aspect prefix in the past (38), and in the non-past, as in (42).

(42) *nati kati ia-**k-at**-ø-uven mə*
thing one 1.EXCL-**NPST-PROG**-SG-go COMP
iə-k-ø-əkə
1.EXCL-NPST-SG-none
One day I will go and I will die.
WS4-110608-imaiim 00:18:21.640–00:18:23.270

It is ungrammatical for a perfective to co-occur with a non-past tense operator. A future perfect meaning is indicated by non-past tense with the post-verb modifier *rakis* 'already'.

There is one final prefix that occupies a unique morphosyntactic slot before all other prefixes. I gloss the morpheme *o-* 'FUT', but this is not a claim to the precise meaning of this operator, as there does seem to be an element of modality encoded by it, perhaps similar to English *should*. Further evidence that it is modal is that *o-* is combinable with another tense (non-past). It is found on inflected verbs, like (43) and (44), but it also occurs on non-verbal constituents, as exemplified in (45).

(43) ***o**-t-emiaŋem* *mən*
FUT-3SG.NPST-alive again
It will live.
WS4-110524-imaiim 00:14:09.190–00:14:12.020

(44) *metou* *ia-am-ot-ani* *la-n-u* *məmə*
but 1.EXCL-PST-PL-say DAT-3SG-PROX COMP
***o**-ia-k-o-het-iŋəm* *pah* *ukunu*
FUT-1.EXCL-NPST-PL-leave-out seawards here
But we (EXCL.PL) have said like this that we will come out here.
ISJHWS3-20100329JVC-03-all 00:01:15.339–00:01:18.545

(45) ***o**-nieh*
FUT-two.days
The day after tomorrow.
ISJHWS3-20100329JVC-03-all 00:03:16.225–00:03:18.841

In fact, all temporal adjuncts that are in the future start with *o-*, although some of them are not morphologically transparent as above in (45). The *o-* is not common in natural discourse, and it is not obligatory to use this with events based in the future — non-past marking on the verb is a sufficient indicator of future tense.

2.3.2 Negation

There are two main strategies for predicate negation in Whitesands. First, the most prevalent form is a circumfix around the verb root; a prefix which occurs between the subject person prefix (and tense if overt) and the (optional) aspectual operators, and an enclitic that is found after the predicate root and some post-verbal items.

(46) *t-**əs**-aiiu* *=**iie***
3SG-**NEG**-run =**NEG**
It doesn't run.
WS5-120128-conver 00:17:54.446–00:17:54.256

(47) *nuweiin ha-iken t-am-**əs**-os =**iie,** nəmimei-menaŋ*
some that-PLACE 3SG-PST-**NEG**-hold =**NEG** feather-bird
menə
and
There are some that he didn't get, the bird feathers etc..
WS5-120128-conver 00:08:26.871–00:08:29.639

The negative prefix takes two different forms: *(ə)s-* 'NEG' in the singular, dual (48) and trial; and *os-* 'NEG' in the plural (the plural negative prefix can also fuse together with the plural number prefix *ost-* (49)). The enclitic is of the form *=iie(n)* 'NEG'.

(48) *italau n-**əs**-i-awan =**iie** ia-k-ø-ol stori,*
2**DU** 2-**NEG**-**DU**-go =**NEG** 1.EXCL-NPST-SG-make story
u-eni to
DU-say try
You two didn't come, I will tell you, you two say something!
WS4-110524-imaiim 00:04:33.560–00:04:35.000

(49) *in u k-**ost**-ol wahai =**iie***
3SG PROX 3-**NEG**.PL-make quick =**NEG**
This one, we won't do it quickly.
WS5-120128-conver 00:25:59.157–00:26:00.717

Sentences with circumfix negation retain number marking, and can be used in a variety of illocutionary force situations. For example, imperatives are negated using this circumfix strategy, as in (50).

(50) ***s**-ø-ek =**iie** ama, wiŋow*
NEG-SG-touch =**NEG** only boil
Just don't touch it, the boil.
WS4-110524-imaiim 00:05:06.780–00:05:09.400

While the enclitic can appear after certain post-verbal modifiers, such as *wahai* 'quickly' in (49), it comes before any explicit object argument. In (51) *nati u* 'this thing' comes after the negative circumfix *=iie* 'NEG'.

(51) *ko namu t-əs-afu =iie **nati u***
then fish 3SG-NEG-see =NEG **thing prox**
And then the fish won't see this thing.
WS5-120128-conver 00:15:11.232–00:15:12.462

(52) * *ko namu t-əs-afu **nati u** =iie*
then fish 3SG-NEG-see **thing PROX** =NEG

The second strategy for negation is using a sentence initial negator *səma* 'not' which is followed by non-finite, i.e. nominal, predication, such as a possessive phrase (53) or existential clause (54).

(53) *metou **səma** raha-m nefteni*
because **not** POSS-2SG earth
Because, it is not your land.
ISJHWS3-20100329JVC-01-hi 00:17:08.829–00:17:10.290

(54) ***səma** ilah u uhŋin t-em-eni*
not 3PL PROX God 3SG-PST-say
They aren't the one that God tells.
WS4-110521-family1 00:19:25.600–00:19:28.340

This negator is a variant on the complementiser form, that is, it is the complementiser with regular negation prefix (see §3.1.3).

The lexeme *-apwa* 'no' is a morphosyntactically productive verb, and it encodes meanings of negation independent of the negation morphology.[2,3] Thus, it has a range of meanings, such as *stop* (55), *give up* (56), and the interjection *no* (57).

(55) *ie-k-ø-afu naliŋ t-en-eles in i*
1.EXCL-NPST-SG-see trap 3SG-PRF-hold 3SG TRNS
*ke-in-u, kani iou **ia-k-ø-apwa***
DEIC-3SG-PROX and 1SG **1.EXCL-NPST-SG-no**
I saw the trap had this one, and I stopped (chasing the other boy who had stolen the pig).
JHWS2-20090301-ak02 00:02:32.300–00:02:37.910

(56) ***l-apwa** n-aŋhati-ien*
TRI-no NMLZ-talk-NMLZ
You (TRI) give up the talk!
WS4-110524-imaiim 00:10:59.910–00:11:00.880

[2] The opposite word *awah* 'yes' is solely an interjection — it cannot take verbal morphology.
[3] This is also homophonous with the locative *apwa* 'LOC.NEW.INFO', but they are two different words because they have distinct syntactic and semantic properties.

(57) *t-et-amul* *mə* *t-iatu* *metou* ***k-apwa,***
3SG.NPST-PROG-chew COMP 3SG.NPST-break but **3-no**
nohle-n *n-ahme* *i*
lip-3SG 3SG.PRF-hurt TRNS
It tries hard to break it, but no, its mouth is sore.
WS5-120128-conver 00:50:40.589–00:50:43.389

2.3.3 Person

Person marking is found in the first prefix slot (excepting the modal *o-*). Whitesands makes a four-way distinction in person — first person exclusive of hearer, first person inclusive of hearer, second person, and third person. The forms are: *ia-* '1.EXCL'; *k-* '1.INCL'; *na-* '2'; and *t-/k-* '3'. Table 2.9 shows the combination of these persons and number in the non-past. This person distinction is neutralised in ER clauses as we will see in Chapter 5.

	SINGULAR	DUAL	TRIAL	PLURAL
1 EXCLUSIVE	*iak-*	*iaki-/iakw-*	*iakl-*	*iakot-/iak(o)h-*
1 INCLUSIVE	–	*ki-/kw-*	*kl-*	*kot-/k(o)h-*
2	*nak-*	*naki-/nakw-*	*nakl-*	*nakot-/nak(o)h-*
3	*t-*	*ki-/kw-*	*kl-*	*kot-/k(o)h-*

Table 2.9: *NON-PAST person agreement prefixes*

2.3.3.1 Impersonal construction

There is only one construction that does not require the use of the otherwise obligatory number prefix, and that is the impersonal construction. In this construction, the verb takes the third person non-singular prefix, but with no other subject indexing, as in (58-59).

(58) *metou* ***k-am-elafa*** *Pəken* *apaha* *ilis*
but **3-PST-give.to1** Pəken LOC on.top
But they gave Pəken to us to be in charge.
WS4-110524-imaiim 00:08:04.990–00:08:06.540

(59) ***k-ivi*** *lah* *i*
3-pull 3PL TRNS
They are fished for with it.
WS5-120128-conver 00:46:16.185–00:46:16.655

It is also often used in relative clause constructions as the modifying clause, as in (60).

(60) *t-amen e ieloufin metou, namu* ***k-at-iwi***
3SG.NPST-same DAT yellowfin but fish **3-HAB-pull**
lapen
night
It is the same as a yellowfin [tuna], but it is the fish that is caught at night.
ISJHWS3-20100526JVC-05-sm 00:02:33.012–00:02:35.707

Functionally, it is similar to a passive voice as it has an unspecified agent. However, unlike a passive, there is no possible promotion of another argument into the privileged status, as there is no subject in the impersonal construction. It is not always the case that the argument is irrelevant. The impersonal construction is also used by speakers when they do not want to specify who is doing the action, or when they do not know who was doing the action. In this sense, it is opposite to the ER clause which is saying the hearer already knows who is being referred to. Thus, it is ungrammatical for an impersonal construction to be the antecedent for an ER clause, as in (61).

(61) * ***k****-am-awpwen* ***m****-afet-iŋəm ierman*
3-PST-first **ER**-put-out male

Chains of impersonal constructions can be formed simply by juxtaposition of impersonal clauses, as in (62).

(62) ***k****-am-awpwen* ***k****-afet-iŋəm ierman*
3-PST-first **3**-put-out male
And man was put first.
WS4-110521-family1 00:19:47.150–00:19:48.640

2.3.4 Number

The subject agreement on the verb distinguishes four number categories, and this is obligatory on all verbs except those in the impersonal construction (§2.3.3.1). The subject number is a prefix that is distinct from the subject person prefix, and comes immediately to the left of the verb root. The forms are: *ø* 'SG' (39, repeated here), *u-/i-* 'DU', *l-* 'TRI' (63), and *o(t)(h)-/h-* 'PL'.[4]

(39) *pale, ie-n-****ø****-alu, ie nariŋə-n, Kapi*
pale 1.EXCL-PRF-**SG**-forget INST name-3SG Kapi
pale, I have forgotten its name, (was it) Kapi?
WS4-110608-imaiim 00:23:38.735–00:23:41.040

[4] *pale* is an interjection in Whitesands and Bislama, something similar to *man* in contemporary Australian English.

(63) *m-a:-**l**-uven* *m-**l**-ol* *mən pas aha*
ER:3-PROG-**TRI**-go ER-**TRI**-make also pass that
And they (TRI) also passed that (place).
ISJHWS3-20100322JVC-pear-EK 00:04:03.061–00:04:15.022

There are some irregular verbs that alternate in the root. These are primarily verbs of motion, and the alternation takes place in the dual.[5] In (64a) and (64c) the verb root *-uven* 'go' for singular and trial alternates with *-an* 'go.DUAL' in (64b).

(64) *Verb root alternation in DUAL*

a. *in t-uven*
3SG 3SG.NPST-go
He goes.

b. *ilau k-i-an*
3DU 3.NPST-DU-go
They (DUAL) go.

c. *ilahal k-l-uven*
3TRI 3.NPST-TRI-go
They (TRIAL) go.

This alternation may be an important factor in the description of complex clauses for two reasons: because ER clauses are often used with direction or other verbs of motion; and because number is a potential factor in disambiguating antecedents (see §5.1.2).

2.3.5 Directionals

There are a series of suffixes on the verb that either mark the direction of an intransitive event, or the goal of a transitive event. This set of markers can distinguish towards first (*-pa*), second (*-pene*) and third person (*-pen*), as well as geographic-based directions such as seawards (*-pah*), landwards (*-pari*), up (*-peri*), down (*-petiŋəm*), etc.. Some examples are (65), (66), and (67).

(65) *tom t-en-iet-iŋəm-**pen*** *apaha n-asum-ien*
tom 3SG-PRF-leave-out-**to3** LOC NMLZ-garden-NMLZ
m-at-ø-awn
ER-PROG-SG-call.out
And Tom came came to the garden and called out.
JHWS2-20090301-ak02 00:02:43.017–00:02:45.647

[5] This rough semantic distinction is neither productive — some verbs of motion do not have the irregular dual, nor is it exclusive — some verbs with the irregular dual are not verbs of motion.

(66) *neŋau k-ot-asu-**pah** la-n*
canoe 3.NPST-PL-paddle-**seawards** DAT-3SG
They paddled the canoe to the sea.
WS4-110608-imaiim 00:24:44.170–00:24:45.240

(67) *ø-alu-**peri** m-ø-ateh t-amei*
SG-put-**upwards** ER-SG-look 3SG.NPST-fall
Put it up! Look out!, it might fall.
WS4-110525-imaiim 00:32:13.517–00:32:14.347

Additionally, some verbs, such as *uven* 'go', obligatorily make this direction distinction in the verb root, as seen in (68).

(68) *Verb root alternation of direction*

a. *t-uven*
3SG.NPST-go.to3
She will go.

b. *t-une*
3SG.NPST-go.to2
She will come to you.

c. *t-ua*
3SG.NPST-go.to1 (come)
She will come to me.

When the suffix is indicating a direction of movement, it is obligatory. However, if it is marking the goal then this can alternatively be marked using a preposition phrase.

3 Syntax: Clauses and Sentences

> Grammar, which knows how to control even kings
>
> Jean-Baptiste Poquelin (Molière) 1672

3.1 Word order and argument structure

3.1.1 Verbless clauses

There are clauses that do not contain verbal constituents — non-verbal predications. In these cases the normal ordering is ARGUMENT PREDICATE, where the predicate (or comment) consists of a noun phrase (69), a demonstrative (70), a directional suffix (71), a preposition phrase (72), or a possessive phrase (73).

(69) *nariŋə-n u* ***worukaŋo***
name-3SG PROX **kingfish**
Its name is worukango (kingfish).
ISJHWS3-20100526JVC-05-sm 00:02:37.404–00:02:38.417

(70) *apaha pahau wə in* ***ukunu***
LOC north or 3SG **here**
It is in the north or here?
WS5-120128-conver 00:44:03.239–00:44:04.949

(71) *raha-n nanmetaw* ***pen*** *u*
POSS-3SG hook **to3** PROX
Its hooks go here.
WS5-120128-conver 00:25:06.955–00:25:07.995

(72) *ilau, ilau* ***apaha pahau***
3DU 3DU **LOC** **north**
They, they live up north.
WS4-110524-imaiim 00:05:37.740–00:05:38.500

(73) *ee, nakavə* ***nem-swa-mən*** *ko*
ee kava **POSS.DRINK-man-PL** PROX2
E, that kava is those men's drink.
WS4-110525-imaiim 00:32:01.982–00:32:03.284

There is some evidence that adjectives can also be the comment constituent, but these are rare for indigenous lexemes (as there are few true adjectives, and they tend to have an intransitive verb equivalent). More common would be a Bislama loan in a ARGUMENT PREDICATE construction, like *kraŋki* 'crazy' in (74).

(74) *mmm, in u* ***kraŋki***
mmm 3SG PROX **crazy**
M, this one is awesome.
WS5-120128-conver 00:44:00.184–00:44:01.514

3.1.2 Privileged syntactic argument

Whitesands has nominative-accusative alignment pattern. There is no morphological distinction between a nominative and accusative noun phrase — both are zero marked for nominals and pronouns (§2.2). Thus, the argument structure is marked by the word order of the clause (SVO), and the subject agreement prefixes on the verb (§2.3.3), as is seen in (75).

(75) *brata aha t-am-os menəŋ məne nəkavə kati*
brother that 3SG-PST-carry fowl and.NP kava one
SUB PRED OBJ
That brother took a fowl and a kava.
ISJHWS3-20100329JVC-02-all 11:31.151–11:33.201

The privileged syntactic argument (Van Valin & LaPolla 1997: Chp 6) is either the subject of an intransitive clause (S), or the actor of a transitive clause (A_T). Both of these argument types are indexed via the agreement prefixes, and both of them can potentially be the controller for clause chains (regardless of the semantic role of S).

In Whitesands, unlike typical Oceanic languages, there is no longer any productive or obligatory marking of transitivity on clauses. However, there is a clear lexical distinction between transitive and intransitive predicates.

Some events, such as *eat*, have two distinct lexemes to represent each type of argument structure, as in (76-77) and (78-79) respectively.

(76) *imaiim ko k-om-ot-**un** netei*
nakamal PROX2 3-PST-PL-**eat.TRNS** taro
That nakamal, they have eaten the taro.
ISJHWS3-20100711JVC-01-ma 00:03:12.920–00:03:16.090

(77) * *imaiim ko k-om-ot-**un** **Ø***
nakamal PROX2 3-PST-PL-**eat.TRNS**

(78) *t-at-**awan** ukunu, m-at-ø-eh nati-u wə*
3SG-PROG-**eat.INTRS** here ER-PROG-SG-see thing-PROX or
kapwa?
no
It eats here, did it see it (the problem) or not?
ISJHWS3-20100329JVC-04-all.wav 00:00:40.363–00:00:43.363

(79) * *t-at-**awan** netei ukunu*
3SG-PROG-**eat.INTRS** taro here

There is an enclitic *=i* 'TRNS' that is a reflex of the Proto Oceanic close transitive suffix **-i*. However, synchronically it is used as a resumptive marker, indicating that the object argument of the transitive clause is recoverable from context.

There are no attested clauses with three direct arguments. Three-place predicates, such as *put* and *give*, do not take an obligatory recipient or locative argument. This gives (at least) two argument structure patterns for these three place predicates, where the indirect object can be marked by either a dative, or by a directional. It is also possible for some predicates to have a secondary object, e.g. the dative in (66, repeated here) or the instrumentive argument in (13, repeated here).

(66) *neŋau k-ot-asu-pah **la-n***
canoe 3.NPST-PL-paddle-seawards **DAT-3SG**
They paddled the canoe to the sea.
WS4-110608-imaiim 00:24:44.170–00:24:45.240

(13) *ko t-eŋahan-pa mən **ie niŋi metu***
then 3SG.NPST-lend-to1 again **INST** **wood** **dry**
She lends me firewood again.
ISJHWS3-20100711JVC-02-ma 00:02:35.184–00:02:37.321

In fact, the verbs such as *-efen* 'give' and *-elahu* 'put' can often occur without an object argument, if it can be recovered from the context, as in (80).

(80) *ko, John* ***t-em-elahu***
PROX2 John **3SG-PST-put**
There, John put (it).
WS4-110524-imaiim 00:14:49.430–00:14:50.470

There are no voice changing processes, such as a passive, applicative or causative. The impersonal construction (§2.3.3.1), however, is functionally similar to a passive.

3.1.3 Complement clauses

Complement clauses are preceded by the complementiser *(mə)mə* 'COMP'. The complement itself is potentially a finite clause, in which case it has the full argument structure of an independent clause, as observed in (81).

(81) *t-evur* ***mə*** ***k-ot-ol*** ***vivi*** ***raha***
3SG.NPST-good **COMP** **3.NPST-PL-make** **good** **POSS**
tepatu. *n-n-ø-eru* *narme-tepatu* *pa-iken*
swordfish 2-PRF-SG-see image-swordfish LOC-PLACE
It is good if we fix it for a swordfish. You can see that there is a picture of a swordfish on it.
WS5-120128-conver 00:39:17.559–00:39:21.250

Example (82) shows that it is possible to embed complements within another complement — the verbless clause *in ieni* 'he is a chief' is the second complement, dependent on the first complement "he come (to be)".

(82) *in* *t-olkeikei* ***mə*** ***in*** ***t-ua*** ***mə***
3SG 3SG.NPST-want **COMP_1** **3SG** **3SG.NPST-come** **COMP_2**
in ***ieni***
3SG **chief**
He wanted that he would also come to be chief.
WS5-120108-nako 00:52:18.781–00:52:20.991

The complement allows for the left displacement of its constituents to the matrix clause, as seen in (83) where *John* occurs before the matrix clause, and again as a resumptive pronoun *in* '3SG' inside the complement clause .

(83) ***John$_i$,*** *niamaha* *t-em-eru* *mə* ***in$_i$*** ***ko*** *k-am-eni*
John anger 3SG-PST-see COMP **3SG** **PROX2** 3-PST-say
nerek *i*
poison TRNS
John$_i$ was angry because they said that he$_i$ is poisonous.
(literally: John, the anger saw him because he was said to be poisonous.)
WS4-110524-imaiim 00:13:37.330–00:13:39.620

As seen in (82), constructions with *-olkeikei* 'want/like' have a complement (also see §5.5.2.1 for further discussion on these), but *try* is expressed using the post-verb particle *to* 'try'. Causatives do not take a complement, and are expressed by juxtaposition of two full clauses.

There are also different forms of the complementiser used for reported speech and cognition. In these grammaticalised cases, there is no matrix level verb, and the complementiser takes a limited agreement set matching with the sayer: *i-əmə* '1-say' (84); *n-əmə* '2-say/if'; *t-əmə* '3SG-say' (85); and *k-əmə* '3NSG-say/maybe'.

(84) ***i-əmə*** *k-on-ot-elis* *neŋaw* *m-on-h-ua*
1-say 1.INCL-PRF-PL-hold ship ER-PRF-PL-come
m-en-o-hiet
ER-PRF-PL-leave
I think that we should carry the ship and we will come out.
WS4-110524-imaiim 00:06:03.180–00:06:05.250

(85) *Jelson* ***t-əmə*** *t-evur* *olawoŋ*
Jelson **3-say** 3SG.NPST-good tomorrow
Jelson said that tomorrow is fine.
WS4-110525-imaiim 00:05:12.420 - 00:05:13.650

3.1.4 Oblique arguments

There are two strategies to mark oblique arguments in Whitesands. The first is through the directional suffixes as presented in §2.3.5. The second is through prepositional phrases — the prepositions and their meanings are presented in Table 3.1 on page 51. The prepositions *la-/e-*, *o-*, and *raha-* take the pronominal suffixes if appropriate (see §2.2.1). The rest are free standing words and take any kind of noun phrase as their complement, as in (86), (87) and (88).

(86) *iou ia-k-ø-aŋhati* ***kam*** *ik*
1SG 1.EXCL-NPST-SG-converse **to** 2SG
I will talk to you.
WS4-110521-family1 00:31:19.930–00:31:20.980

(87) *k-awt-ameli* ***apaha*** *lahwanu*
3-PROG.PL-stay **LOC** house
They are all at the house.
WS4-110525-imaiim 00:38:19.519–00:38:20.297

(88) *t-etei* ***ie*** *kapas*
3SG.NPST-cut **INST** axe
He will cut with an axe.
WS4-110608-imaiim 00:09:50.721–00:09:51.301

La-/e 'DAT' is the default preposition, used as the prepositional argument of verbs that require one, as in (89) and (90).

(89) *kani m-ot-os iou m-at-ot-apəsiŋ* ***la-k***
and ER:3-PL-hold 1SG ER-PROG-PL-close **DAT-1SG**
And they take me, and lock me up.
WS4-110521-family1 00:33:56.820–00:33:59.040

(90) *metou ra-təməhal mən n-etemimi, ra-tamah mən*
therefore POSS-1TRI.EXCL PL PL-person POSS-1PL.EXCL PL
k-ot-asiru ***e-təməhal***
3.NPST-PL-help **DAT-1TRI.EXCL**
Therefore, our (TRI.EXCL) people, ours help us (TRI.EXCL).
JHWS3-20100329JVC-01-hi 00:13:06.782–00:13:09.368

The dative case preposition has an additional, frequent function as a resumptive pronoun. In this case it can occur without any suffix, and so stands alone in-situ (91) (and also (95)).

(91) *ra tiapen mən aha n-am-at-ø-ivi* ***la***
POSS tuna PL that 2-PST-PROG-SG-pull **DAT (resumptive)**
For those tunas, you fish them.
WS5-120128-conver 00:23:01.575–00:23:03.006

Preposition	Meaning
la-/e 'DAT'	default preposition: arguments, resumption, purpose
ie 'INST'	instrumentive
o-/o 'BEN'	benefactive (deputative, etc.), malefactive, in order to
raha- 'POSS'	(recipient) benefactive
kam 'to'	goal
apa(ha) 'LOC'	distal locative

Table 3.1: *Prepositions*

3.1.5 Adjuncts

There are three kinds of peripheral adjuncts in Whitesands — prepositional phrases, temporal phrases, and locative phrases. The prepositions and their meanings are presented in Table 3.1 in §3.1.4. Some examples of prepositional phrases are (92) and 93).

(92) *kapwa, iou ie-t-ø-amul ana **o** nəma-k*
no 1SG 1.EXCL-PROG-SG-persevere still **BEN** DRINK-1SG
nakəwə
kava
No, I am still trying hard in order to have my own kava.
WS4-110525-imaiim 00:37:44.025–00:37:45.723

(93) *m-ø-ahrun n-atiŋ-ien **raha** wan iəa wə tu iəa,*
ER:2-SG-know NMLZ-live-NMLZ **POSS** one year or two year
ko m-ø-iet-iŋam mən
then ER-SG-leave-outwards again
You can live there for one year or two years, and then go out again.
ISJHWS3-20100329JVC-01-hi 00:09:58.873–00:10:02.182

There are a set of temporal nouns, such as *neniu* 'yesterday', *nieh* 'day before yesterday', *nueh* 'more than one day before yesterday'. These specify the time of the predication with respect to the utterance. Some of these have alternate forms, using the prefix *o-*, for future temporal states, as observed in (94) and (95).

(94) *n-am-l-ol* *tiaŋtiə* *kati,* *raha-təməhal* *u-aha,*
2-PST-TRI-make change one POSS-2TRI PROX-that
neniu ***nieh*** *mənə*
yesterday **day.before.yesterday** and.NP
You made a change for yourselves here, from yesterday or the day before etc..
ISJHWS3-20100329JVC-02-all 00:08:51.095–00:08:54.022

(95) *iəmə* *ia-am-an-ø-ol* *declarim* *la* *after*
1SG.say 1.EXCL-PST-PRF-SG-make declare DAT after
onieh *t-uven* *ie* *natiapa*
day.after.tomorrow 3SG.NPST-go INST umm
I think I have just declared this, that after the day after he went and umm.
ISJHWS3-20100329JVC-03-all 00:03:16.226–00:03:20.513

It is possible to form a temporal phrase with an uninflected verb like *awpwen* 'before'. Example (96) shows this lexeme as part of the core of the clause, and (97) shows it in the periphery of the clause.

(96) ***k-ot-awpwen*** *m-ot-os* *in* *mən* *aha*
1.INCL.NPST-PL-before ER-PL-hold 3SG PL that
We'll first take these ones.
WS5-120128-conver 00:55:34.799–00:55:37.049

(97) ***awpwen*** *t-am-ol* *pisin*
before 3SG-PST-make different
Before it was different.
WS5-120108-nako 00:54:43.475–00:54:44.615

Finally, there are locative phrases. Many of these are just a simple noun that expresses some kind of locative meaning. These do not require the use of a preposition, and can stand alone as an adjunct, especially if there is a direction suffix expressed on the verb. When they do occur in a prepositional phrase, it is with *apaha* 'LOC' or *ie* 'INST'. Some examples include *niki-* 'inside' (98), *nakale-* 'boundary' (99), and *ilis* 'on.top' (100).

(98) *m-ø-etow* *iou,* *t-elis* *m-ø-uven* *pen* *ko*
ER:3-SG-hear 1SG 3SG.NPST-hold ER-SG-go to3 PROX2
niki*-nəwu*
inside-hibiscus
He heard me, he took it and went there, into the cottonwood trees.
JHWS2-20090301-ak02 00:01:59.513–00:02:01.793

(99) *raha Tahu mənə t-am-uven ie* ***nakale****-imaiim*
POSS Tahu and.NP 3SG-PST-go INST **boundary**-nakamal
For Tahu and the others, she went to the side of the nakamal.
WS4-110524-imaiim 00:10:39.140–00:10:41.030

(100) *t-atu rakis ama u* ***ilis***
3SG.NPST-cut off only PROX **on.top**
He only cut off the bits on top?
WS4-110527-pig-4 00:16:00.560–00:16:01.440

Indigenous place names typically start with *i-*, and they can also stand as a locative phrase without a preposition. This prefix is semi-productive, so that some foreign place names have a Whitesands derivative, e.g. *ivila* 'Port Vila' or *ienakel* 'Lenakel'.

3.2 Conjunctions

There are four free form clausal conjunctions in Whitesands, as presented in Table 3.2 and shown in examples (101) and (102).

(101) ***kani*** *in mən u raha-n waiə t-əkə*
and 3SG PL PROX POSS-3SG wire 3SG.NPST-none
And this one here, it doesn't have a wire.
WS5-120128-conver 00:37:15.372–00:37:17.782

(102) *iou ia-k-ø-os nufunu m-at-ø-ua nian*
1.SG 1.EXCL-NPST-SG-carry nufunu ER-PROG-SG-come day
mən ***metou*** *ia-am-ø-ol lait*
PL **but** 1.EXCL-PST-SG-make late
I am the one that normally brings nufunu (post-kava snack), but (today) I was late.
WS4-110525-imaiim 00:41:34.450–00:41:37.020

They often occur at the beginning of an intonation phrase. The nature of the nexus type is discussed in more detail in §5.4.

kani	'and'
ko	'and.then' (sequential actions/events)
wə	'or'
metou	'but/because'

Table 3.2: *Conjunctions*

3.3 Illocutionary force

3.3.1 Imperatives

An imperative sentence omits the subject person prefix, but retains the appropriate number marking to match the recipients of the instruction. Examples (103), (104) and (105) show this construction.

(103) *ø-aharaŋ*
SG-sit
Sit down!
ISJHWS3-20100329JVC-03-all 00:04:24.789–00:04:25.244

(104) *l-apwa n-aŋhati-ien*
TRI-no NMLZ-talk-NMLZ
You (TRI) give up the talk!
WS4-110524-imaiim 00:10:59.910–00:11:00.880

(105) *ot-askilim mahamaha*
PL-hold fast.RDP
Hold fast (PL)!
ISJHWS3-20100329JVC-05-all.wav 00:05:46.118–00:05:46.681

A negative imperative uses the negation circumfix, as exemplified by (106) and (107).

(106) ***s**-u-aharaŋ* **=*iien***
NEG-DU-sit **=NEG**
Stop sitting (DU)!
ISJHWS3-20100329JVC-03-all 00:09:31.794–00:09:34.892

(107) *ø-aiiu ø-aiiu,* ***s**-ø-aliwok* *metiŋ* **=*iie*** *la-n* *ko*
SG-run SG-run **NEG**-SG-walk slow **=NEG** DAT-3SG PROX2
Run along! Don't walk slowly like that!
WS4-110525-imaiim 00:33:21.110–00:33:22.603

There is a polite form of the imperative, using a post-verbal particle *to* 'try', as in (108). This particle also forms an imperative with a fully inflected verb, as seen in (109).

(108) *ø-etou* ***to***
SG-listen **try**
Listen here!
WS4-110525-imaiim 00:39:37.038–00:39:37.719

(109) *no-k-h-uven* ***to*** *m-ot-afu* ***to*** *Elsi u nete-Jonas*
2-NPST-PL-go **try** ER-PL-see **try** Elsi PROX child-Jonas
You (PL) should go see Elsi! The child of Jonas.
WS4-110525-imaiim 00:39:51.812–00:39:53.914

3.3.2 Interrogatives

3.3.2.1 Polar questions

Polar questions come in two forms. The first is morphosyntactically identical to a declarative sentence. The interrogative status of the clause in this case is marked by intonation cues (usually, but not limited to, final rising). Utterances in second person are not required to follow these intonation patterns, as in (110).

(110) *na-n-ø-afu natipa ko?*
2-PRF-SG-see thing PROX2
Have you seen that thing next to you?
WS4-110521-family1 00:02:08.920–00:02:10.120

The more common form of the polar interrogative sentence is with a final particle *wə* 'or'. This tag does not agree for person or number (111-112), and often it alone carries the intonation cues.

(111) *polis kati t-et-atul* ***wə?***
police one 3SG-PROG-stand **or**
A police man is standing, isn't he?
WS4-110521-family1 00:04:27.610–00:04:28.970

(112) *o-k-i-an k-i-an to na-k-ø-afu*
FUT-1.INCL.NPST-DU-go 1.INCL.NPST-DU-go try 2-NPST-SG-see
to mamə o-k-w-oh ***wə?***
try COMP FUT-1.INCL.NPST-DU-hit **or**
We will go, you will see and say should we kill it or not?
JHWS2-20090301-ak02 00:03:14.160–00:03:16.980

3.3.2.2 Content questions

Content questions can be asked in two ways. First, there is the set of interrogative pronouns and adverbs, as set out in Table 3.3 on the following page. These occur in-situ. Some examples are given in (113), (114), (115), and (116).

(113) *ietem m-iet-ingam **iieh?***
person ER:3-leave-out where
Where did she come out?
WS4-110524-imaiim 00:07:52.300–00:07:53.150

(114) *raha **pəh** ko nufunu, Roy*
POSS **who** PROX2 nufunu Roy
Whose nufunu (post-kava snack) is that, Roy?
WS4-110525-imaiim 00:39:14.310–00:39:15.152

(115) ***nahŋen** apaha k-aŋhati*
when LOC 3-converse
When was this said?
WS5-120108-nako 00:20:22.140–00:20:23.090

(116) *no-om-ot-eni apatu … m-ot-elu-pen iken **peruen***
2-PST-PL-say inform … ER-PL-put.down-to3 PLACE **which**
Did you say … where did you put her?
WS4-110524-imaiim 00:07:55.800–00:07:57.160

pəh	'who'
iieh	'where'
na(k)	'what'
ona	'why (lit. for what')'
(o)nahŋən	'(FUT)when'
parue(n)	'which'
kueh	'how many'

Table 3.3: *Content interrogative pro forms*

The second strategy is the interrogative verb *-aroh* 'how/why'. This can either be used in a free-standing clause, as in (117), or in an ER clause chain, as in (118). In the latter case, the interrogative verb can either carry full agreement, or be in the dependent clause. I address this issue further in §5.3.

(117) *k-ot-etowtow mə **t-aroh***
3.NPST-PL-hear.RDP COMP **3SG.NPST-how**
They were all hearing this. How did it go?
WS4-110524-imaiim 00:07:36.960–00:07:38.310

(118) ***na-m-ø-aroh*** *m-ø-uven apaha imaiim*
2-PST-SG-why ER-SG-go LOC nakamal
Why was it that you went to the nakamal?
WS4-110525-imaiim 00:41:50.600–00:41:53.073

3.4 Borrowing

In contemporary spoken Whitesands there is extensive borrowing from Bislama, the national language of Vanuatu, by almost all speakers (see Lindstrom 2007). Borrowed forms are incorporated using periphrastic constructions, both in the nominal and verbal domains. In the former, there is usually no difference between an indigenous noun and a borrowed noun (119).

(119) ***let*** *keiiu k-am-ol pen u aha*
lead two 3-PST-make to3 PROX that
There are two leads (fishing sinkers) that they have made here.
WS5-120128-conver 00:33:43.395–00:33:44.840

There can be changes in noun-phrase word order, as in (120) where borrowed numerals come before the head noun (cf. 121).

(120) *t-əs-eru =iien* ***wan manis***
3SG-NEG-see =NEG **one month**
She hasn't seen him for one month.
JHWS1-20080417-ALL01 00:09:04.676–00:09:05.610

(121) *t-əs-eru =iien mowəŋ katiah*
3SG-NEG-see =NEG month one
She hasn't seen him for one month.

There are more strict restrictions in the possessive phrase construction — no borrowed noun can use the direct possessive suffix (§2.2.8), it must use the possessive classifier construction. This is a syntactic restriction, as loans that could semantically and phonologically fit into the direct constructions must behave in this manner too, as in (122).

(122)

a. *pia-k*
brother-1SG
My brother. (INDIGENOUS)

b. * *brata-k*
brother-1SG

c. *raha-k* *brata*
POSS-1SG brother
My brother. (LOAN)

All borrowed verbs use a dummy verb to carry tense, subject agreement and other verbal morphology (including the ER prefix). The dummy verb is *-ol* 'make', as in (123) and (124).

(123) *k-ot-**ol*** ***lusem*** *la*
1.INCL.NPST-PL-**make** **lose.TRNS** DAT
We will lose them.
WS5-120128-conver 00:29:49.989–00:29:50.859

(124) *səmə* *k-ot-**ol*** ***flas,*** *(<flash)* *k-ot-əfeli*
not 3NPST-PL-**make** **decorated** 3NPST-PL-decorated
It's not *kotol flas*, but *kotəfeli*.
JHWS1-20080417-ALL01 00:07:44.070–00:07:45.755

This last point is important in the context of the analysis of the ER system. Example (124) shows a linguistically-aware Whitesands speaker berating another Whitesands speaker for using the Bislama word *flas* 'decorated' instead of the native *əfeli*. Borrowed verbs cannot take the ER marking on the borrowed root and instead the dummy verb is marked for switch-reference clauses.

Part II

Multi-clause Constructions and Switch Reference in Whitesands

4 Introduction

> Everywhere in the island men would hear his words in their dreams
>
> Joël Bonnemaison 1994

Speakers create complex constructions in a variety of registers, such as narratives, speeches and conversation, and they do this for a variety of purposes. In Part II, I analyse one such complexity, one that is ubiquitous in Whitesands texts regardless of genre or register. This is a fascinating phenomenon that marks coreference across clauses — the Echo Referent (ER). The term Echo Referent refers to a multitude of grammatical facets in the Whitesands language. Depending on the discussion, it is the marker, the clause, the construction or the referred-to entity. The link between all these facet is the presence of a morpheme *m-*.

The starting point is the verbal prefix *m-* 'ER'. This is most probably a reflex of the Proto Oceanic clausal coordinator **ma* 'and'. In modern-day languages, it appears to replace full subject agreement and tense, indicating that the subject of the clause is co-referential with a preceding referent. That is, it 'echos' the preceding referent as a kind of grammatical shortcut. Example (125) illustrates this, where the person who is 'giving' is an echo of the person that is 'prying' — they are co-referential, i.e. they are the same person.

(125) ***ia-k-ø-ow*** *ie paŋ* ***m-ø-efen*** *natipa ha-iken*
1.EXCL-NPST-SG-pry INST hole **ER-SG-give** thing that-PLACE
I will pry open the hole and I will put the thing in there.
WS5-120128-conver 00:11:23.636–00:11:24.740

The key point to note there is that ER forms a tightly-knit unit, and as we investigate the data this feature will become more and more apparent.

This is anaphora in the narrowest sense, and I argue that syntax *and* pragmatics — the relationship of form to communicative interaction — are key to its description (Levinson 1987; 1991, O'Connor 1993). However, as a starting point the prefix raises questions about its interactions with other

grammatical features of the language. It provides some challenging issues for descriptive and theoretical linguistics. These grammatical interactions are the focus of this chapter: how does the construction work in regard to nexus, anaphor-binding, infiniteness and person? I use the principles of Role and Reference grammar (Van Valin 2005) that descriptive accounts must have language-specific motivation. I avoid over-formalisation in an attempt to keep the discussion on track and to allow the Whitesands data to speak for itself.

The following chapters present the first comprehensive description of the Whitesands ER system, particularly focusing on various clause linkages and their interaction with reference tracking. I highlight the key grammatical features of the construction. Chapter 5 is a descriptive chapter presenting information on operators, clausal linkages and embedding constructions. Following this in Chapter 6, I use natural language data to lead into a discussion about reference tracking, frequency of use and antecedent type. For the rest of this introductory chapter, I present the descriptive history of switch-reference systems and in particular the ER.

4.1 Descriptive background

4.1.1 Switch reference

SWITCH REFERENCE

A grammatical process that marks a referential relationship between two (or more) verbs' arguments in a clause chain

This is a preliminary definition to help guide us through this chapter (we will see later that it does get much more complicated). What it means is that minimally there are two verbs in sequence. Further, on one of these two verbs there is some kind of contrast. A set of markers indicates that an argument of the verb is the same as, or different from, an argument that is found on the other verb. This contrast is usually obligatory in the languages where it is possible, and it is independent of lexical (nominal) identification. Switch reference is often found in clause chains — verbs grouped together to form larger chunks of discourse — if a language uses such a strategy.

Typically, switch reference has been characterised as an inflection pattern on the verb itself, marking same subject or different subject categories separately — and in fact sometimes concurrently — from traditional person or number marking. The Papuan language Usan provides us with a classic grammatical minimal pair. This verb-final language uses a set of suffixes on the medial verb *su* 'cut' to indicate that the subject of 'cut' is the same *-ab* 'SS' (126a) or different *-ine* 'DS' (126b) from the subject of the final verb 'go.down' (Reesink 1983b: 217-218).

(126) SAME SUBJECT VS. DIFFERENT SUBJECT

a. *ye nam su-**ab** isomei*
1SG tree cut-SS I.went.down
I cut the tree and (I) went down.

b. *ye nam su-**ine** isorei*
1SG tree cut-DS it.went.down
I cut the tree down.

USAN from Reesink (1983b: 217-218)

This is not the entirety of the Usan system. To the contrary, Reesink has explained in much detail the pragmatic manipulation available to the system in a series of papers Reesink (1983a;b; 1986; 1987; 1994; 2004; 2014). The example highlights some minimal parts required to identify a true switch-reference system: verbal morphology that marks coreference or disjoint reference *across* clauses, independent of person or number operators.

While first coined in Jacobsen (1961), the seminal descriptive volume on switch reference is *Switch reference and universal grammar* (Haiman & Munro 1983) and it still stands out as the best collection for descriptions of a variety of switch-reference systems. Haiman & Munro (1983), and the chapters within, identify that both functional and structural forces are at play in switch reference and that both need accounting for. Outside of the Haiman and Munro volume, recent additions of individual languages, like Reesink's series of papers for Usan, have explored the syntactic variation as a reflex of pragmatic control. These languages cover a variety of linguistic areas, for example (but not limited to) Australia (Austin 1981, Wilkins 1988), Papua New Guinea and West Papua (Roberts 1988a; 1997, Comrie 1998, de Sousa 2006, Jendraschek 2009), North America (Rising 1992, Mithun 1993, Watkins 1993, Berge 2011, Boyle 2011, McKenzie 2012), South America (Overall 2014, Vuillermet 2014) and elsewhere (Bergelson & Kibrik 1995, Nedjalkov 1998, Treis 2012).

These analyses exemplify the diversity of switch-reference systems from a typological perspective (Dryer & Haspelmath 2013). There is also discussion of the issues surrounding switch reference or clause chains (Berge 2011, Kibrik 2011, van Gijn 2012) and further, how to integrate switch reference into syntactic theoretical frameworks (Givón 1983, Foley & Van Valin 1984, Stirling 1988, Van Valin 2005, McKenzie 2012). I return to discuss these in more depth in §9.1, but a summary of the main investigative themes surrounding switch-reference is useful at this point: What is the nature of the dependence — do we have to postulate new kinds of linkages?; What are the canonical antecedents — is it strictly a relationship between grammatical roles, or is there evidence of discourse level roles interacting with the syntax?; Do they have peculiar collocations or semantic denotations?; Are there restrictions on temporal or spacial relationships between the clauses? These issues are at the heart of switch-reference description, and it has not always been possible

to explain them in a comprehensive and conclusive manner (see Chapter 1 of Stirling 1988 for an excellent summary of the issues at stake).

To my knowledge, all of the descriptions presented in this section rely on textual (oral and non-oral) or elicitation evidence. Without the statistical power of large annotated corpora, these analyses often rely on linguists' interpretations of, or intuitions about, textual meaning. The results may not be replicable by another linguist (e.g. see Stirling's (1988) criticism of Finer (1985)). There is also a prevalence of narrative texts as the genre or register of choice, a reflection of what kinds of linguistic methodology have prevailed in past investigations. The aim is to use not only elicited data and narrative-type texts, but also augment these with conversational materials and experimental data targeting switch reference specifically. But first, we will look at the descriptive history of ER, the switch-reference form from southern Vanuatu.

4.1.2 Echo Referent constructuctions in closely related languages

4.1.2.1 Lenakel

The ER system is restricted to Oceanic languages — specifically, it is an innovation of the southern Vanuatu sub-group. The languages are distributed across three islands, a tripartite division that also distinguishes morphosyntactic features such as word order (see §1.3).

The first grammatical commentaries or descriptions of the southern Vanuatu languages make no mention of the prefix (Adelung 1806, Gray 1891, MacMillan 1930). While Whitesands' grammar remained un-described, John Lynch investigated the closely-related language Lenakel which is spoken in the west of Tanna (see Figure 1.3 on page 12). In the first decade of Lenakel description, the *m-* was presented only as part of the verb prefix paradigm (Lynch 1971; 1974; 1978). Lynch initially didn't give it a gloss, despite having a section devoted to a preliminary description of the prefix:

> "In the following examples, the m will be *arbitrarily* glossed '36', since this is the decade-number assigned to it on p.7" (Lynch 1971: 9, my italics)

He crucially notes that the *m-* denotes "an identifiable NP" (Lynch 1971: 8) — an insight that is integral to the description of the phenomena. Some other key facts about the Lenakel system are: The *m-* replaces the subject pronoun; tense/aspect markers are usually, but not obligatorily, deleted; number markers are kept on *m-* prefixed verbs; unless number is mismatched, there is strict identity between *m-* and the previous verb's subject (Lynch ibid.). I return to discuss some of these points in §6.3.

Lynch presents further, more substantial information on the Lenakel *m-* in the published grammar of Lenakel (Lynch 1978: 45-47). In this monograph,

the prefix gets its first true gloss, *m-* 'and', to accompany new examples and details in usage. Lynch clearly states that most of the time the *m-* is co-referential with the subject of the preceding verb. But he also claims that:

> "The prefix *m-* may, however, also refer to any NP other than the subject of the previous verb under certain conditions. These conditions are: (i) that the NP to which m- refers has been previously mentioned; (ii) that the NP to which m- refers is of a different number from the subject of the previous verb or, if of the same number, that the verb with m- is semantically such that it could not take as subject the subject of the previous verb." (Lynch 1978: 46)

It was becoming clear that there was something linguistically interesting in the Lenakel *m-*. There is integration into the grammar, but there was also clearly a specific functional load and an integration into semantics and pragmatics that needed consideration. It is this observation for Lenakel that has provided some of the motivation for this study.

In Haiman & Munro (1983), the Lenakel *m-* makes its debut as a developed switch-reference system in the appropriately-named chapter *Switch-Reference in Lenakel*. Lynch (1983) presents a preliminary functional framework in which the prefix works, that is, what contexts drive the use of the *m-*. What Lynch argues is that the (newly-named) *m-* 'ECHO SUBJECT' is used in complementary distribution with full agreement morphology, and these two alternatives give a same subject/different subject paradigm. Lynch notes that significantly:

> "Lenakel possesses a SR-system similar in complexity to those of many Papuan languages" Lynch (1983: 219)

It is here that the prefix gets its earlier name — the Echo Subject — but the Lenakel system has not been further investigated. Any theoretical accounts (see §9.1 and references therein) of the system primarily rely on the data presented in this 1983 book chapter or the 1978 grammar.

Lynch (1983) highlights the synchronic problem — there is a canonical dichotomy between same and different subject alignments but there is some variation in antecedent type. He additionally suggests that there is a historically related process found in all the nine or so (currently) spoken languages of the southern Vanuatu subgroup:

> "even this small amount of data suggests that *some* kind of SR-system operates throughout the whole Southern Vanuatu Subgroup" Lynch (1983: 219)

We will now take a brief look at the coverage of the *m-* prefix in those languages.

4.1.2.2 Sye, Anejom̃ and southern Vanuatu

Sye is the last indigenous language spoken on Erromango, the island directly to the north of Tanna.[1] With Lenakel and Anejom̃, Sye is the most comprehensively described language of the subgroup. The *m-* prefix is clearly important in Sye syntax.

> "(There is) the echo verb construction, which involves verbs marked with a reduced set of subject and tense-aspect-mood categories appearing after a fully inflected initial verb." (Crowley 1998: 246)

There are some important morphological facets of the Sye grammar that make it distinct from the Tanna languages. In particular, it appears that number does not "constitute a clearly definable morphotactic slot" in Erromangan verbs (Crowley 2002: 196), which is in stark contrast to Tanna languages which do have such a slot. But for the purposes of this chapter, it will suffice to understand that the Sye ER constructions are formally different from their Tanna counterparts.

There are two main sources of information for the Sye ER, starting with the monograph *An Erromangan (Sye) Grammar* (Crowley 1998: 100-101, 114-116 and 246-261). Crowley separates the morphology from the syntax, which in turn is divided into two subsections where he contrasts "non-grammaticalized echo verbs" vs. "grammaticalized echo verbs". The former categorisation is rather like the descriptions of the ER in other languages, including the description in this study on Whitesands. He outlines the normal syntax of ER constructions, the normal anaphoric properties and describes the more common semantic contexts in which the echo verbs are used (for instance, sequential, direction, manner, and iterative frames). The latter categorisation is somewhat unique in the various descriptions of ER constructions. It presents some semantic irregularities that occur when particular verbs use the ER form. As Crowley argues there are echo verbs where there are a "number of grammatical functions that are not predictable from the lexical meanings of their roots" (Crowley 1998: 254). For example, in Sye, the verb *ocu* 'say' can be used with the ER marker to give a quotative construction. Or the verb *ompi* 'do' can be used in an echo verb construction to give a causative-like frame:

> "This verb also appears with singular echo marking with the particular grammatical function of indicating that the event encoded by the following clause takes place as a direct result of the event encoded in the preceding clause. This construction therefore translates as 'so' or 'therefore' in English." (Crowley 1998: 259)

[1] There were probably as many as five indigeinous languages on Erromango, but post-contact population shift has reduced this to one viable language, Sye, and one moribund language, Ura (Crowley 1999).

For example, in (127), the verb *ompi* does not have the same number marking as the antecedent (which is typically the case for an ER construction), nor the subsequent ER verbs in the chain.

(127) *kaml-omonki* ***m-ompi***
1PL.EXCL:DISTPAST-BR:drink **SG:ES-BR:make**
ml-etu-taru-hai *armai*
PL:ES-NEG-BR:think-NEG.EMPH properly
We drank so we didn't think properly at all.
ERROMANGAN (SYE) from Crowley (1998: 259)

The Erromangan data show that the system is (or has been) grammaticalised beyond its original function to some extent. In certain conditions, the ER form has fused together with particular verbs, and in some cases there is no clear decomposition of ER clauses. These are creating new semantic functions or replacing existing ones. What still needs to be investigated is the exact nature of this original clause-linking function of the echo verbs in this language.

The second analysis, which is more interesting from a functional perspective, is Crowley's integration of the ER clause into a typology of serial verb constructions (Crowley 2002). He situates the southern Vanuatu echo verbs in a broader typology of serialisation. This is not to say that they are the same (or even related) constructions, but instead Crowley argues that echo verbs are a construction complementary to serial verb constructions, and in many contexts provide non-serialising Oceanic languages with a grammatical equivalent tool for the expression of complex predicates. That is, where serialising languages use serial verbs to express complex event structures, or perhaps to even introduce additional arguments, 'echo verbing' languages will use an echo construction. We will return to the functional importance of serialisation momentarily, but first let us briefly survey the description of another system, Anejom̃.

Anejom̃ is the language spoken on the island to the south of Tanna and it also has a comparable construction. Lynch (2000) shows that Anejom̃, like Sye, is formally quite different from the Tanna languages. This is not surprising given the typological differences between the languages, e.g. Anejom̃ is VOS, compared to the other southern Vanuatu languages which are SVO. This divergence is evident in the ER structure too, for example, it is a clitic placed in the pre-verbal slot in Anejom̃, whereas elsewhere in the southern Vanuatu family it is a prefix on the verb. Moreover, the data in the Anejom̃ grammar suggest that there has to be a strict one-to-one mapping of antecedent to anaphoric device for grammatical roles — i.e. it is solely a *same subject* marker for co-referential clauses. There is still some contrast with different subject constructions.

Anejom̃ also provides a variety of strategies for conjoining clauses with same subject, such as clause chaining, conjunctive aspect-markers, ER clauses, and serialisation (in Whitesands all of this is primarily achieved with an ER clause). Lynch cannot identify the exact contexts in which a speaker would use one complex sentence strategy over another:

> "It is difficult to characterise the contexts in which each strategy occurs, and it seems to me that there is a reasonable amount of freedom here" (Lynch 2000: 153)

So while Anejom̃ has a cognate of the ER system present in the contemporary grammar, the description of the language suggests that it is quite a different kind of animal. It is more restricted grammatically, and functionally just one part of a more diverse system.

Throughout this descriptions, within the realm of functional usage, there is one thing that stands out: ER verbs are frequent in texts. Crowley notes that the Sye ECHO SUBJECT constructions are "pervasive" in the grammar of everyday and formulated speech.

> "A count of nearly two thousand verbs in sequence over seven texts gathered from three different speakers produced an average incidence of such verbs of about 37% of the total of inflected verbs." (Crowley 1998: 247)

That is, around one in three verbs in Sye have the *m-* prefix. In fact, it is perhaps more complicated than that. If you consider that these ECHO SUBJECT constructions need an antecedent, many of these antecedents are going to be fully inflected verbs. Therefore, if we count these fully inflected verbs as part of an ECHO SUBJECT construction, then the actual number of verbs involved in such constructions is going to be considerably higher. One in three verbs *use* the ECHO SUBJECT prefix, but many more are *in* ECHO SUBJECT constructions. This, I would argue, is in line with the Tanna languages (but not Anejom̃) and we will revisit this in Chapter 6.

This exact percentage might be of a trivial nature, but upon closer examination there two things that are important. As Crowley notes, the usage of the Sye ECHO SUBJECT constructions "compares with Paamese serial verb constructions, which constitute only about a quarter of textual attestations of verbs" (Crowley 2002: 181). That is, ER prevalence is comparable to, if not greater than, for example, serial verb constructions in nearby Oceanic languages that have these constructions (in fact, ER clauses and SVCs share quite a bit in common Crowley 2002)). SVCs (both in Austronesian languages and in general) have, in recent linguistic history, been subject to in-depth discussion and investigation (Crowley 2002, Aikhenvald & Dixon 2005, Senft 2008). From the perspective of switch-reference typology, understanding particular ER ecologies is important and grammatical descriptions themselves will benefit from updated discussions.

Secondly, switch-reference clauses such as ER constructions are not just limited to isolated sentences. In many languages where switch reference is found, such as those of southern Vanuatu, it is integral to cohesion and text interpretation. Its pervasiveness suggests that it is crucial in understanding these grammars, and it is necessary to master it in order to become a fluent speaker. A better understanding of the ER system could result in richer description and documentation of the southern Vanuatu languages.

While the Sye system is morphologically more complex, and arguably the Anejom̃ system simpler (at the least it is more restricted and so potentially easier to define), there are enough formal characteristics in common for the historical reconstruction of the system. Lynch (2001: 177-178) proposes the proto form **m=* for the ER in the southern Vanuatu subgroup, showing the ER system to be a probable reflex of the Proto Oceanic coordinator **ma* 'and', a marker signifying tight clausal coordination. This is a plausible proposition and it is not contended here.

De Sousa (2007) takes this proposal further, and provides an analysis for how the system would come about. The syntactic and functional variation found in the various ER systems is a real-time picture of how such a system would grammaticalise from a coordinator into a switch-reference paradigm. However, de Sousa takes a slightly different standpoint. His contention was that the ER system of southern Vanuatu is fundamentally different from the switch-reference systems found elsewhere (PNG particularly) not only formally but also functionally. I return to address these issues in Chapter 6. What is clear is the historical path: vowel deletion and reduction of coordination constructions into a prefixing system. What is left open for further research is a comprehensive synchronic understanding of the grammar of man-Tanna's languages.

4.1.3 Summary

The ER system of southern Vanuatu is not new to descriptive linguistics. Further, as I discuss in Chapter 9, there has been some analysis of the ER system in various theoretical stances. However, some issues remain and these are the motivation for this thesis. Firstly, Whitesands itself is un-described, with only preliminary work having been done on the grammar (Hammond 2009). Secondly, the descriptions of the ER in Lenakel and Sye are not complete — further detailed discussion on the grammatical restrictions and natural usage of the system is required. Thirdly, prior work has discovered that this system is fundamentally an anaphoric system, but it left certain properties unclear, such as what is the preferred antecedence and what is its usage in natural language. I not only add Whitesands to this cross-linguistic typological account of ER, but I also consider these more open questions.

Thus, it is Whitesands' turn. We continue on from the work of Lenakel and Sye, but with the interaction between grammar and information struc-

ture being at the forefront of theoretical abstraction. First though, we start with the description of the contemporary Whitesands ER system as used by speakers in their everyday interactions.

5 | Complex Clauses and Coreference

> To master the verb of the Tannese language is to master the language itself. I claim to have done neither, but shall endeavour to set forth here what I know of the verb in this dialect
>
> Rev. William Gray 1891

This chapter describes multi-clause constructions in Whitesands — how they are formed, their grammatical restrictions and their typical use in natural discourse. In this chapter, I deal with the canonical system, leaving other usages to be discussed in the next chapter (Chapter 6). This chapter should therefore be taken as a slightly simplified description of ER clauses. When we have a clear understanding of how the system works, we will then be in a better position to understand further complexities.

The type of clauses of significance are those which consist of multiple inflected predicates (i.e. verbs) that are found in sequence. I use the term 'main level' clause to refer to an initial finite clause that is the start or core of the utterance. This clause is potentially the antecedent for subsequent dependent clauses. These 'dependent clauses' take the ER marking. The switch-reference system is the combination of these two types of clauses.

To orient ourselves, here is an overview of how disjoint reference and coreference work in Whitesands: when adjacent verbs take full agreement pattern, indicating tense and person, they indicate that the subjects of the two verbs are not the same.

> ADJACENT FINITE PREDICATE ANTECEDENT RULE
>
> Adjacent finite verbs with full agreement have different subjects even if their number matches

In contrast, verbs can be marked as having coreferential subjects by using the ER agreement pattern.

ECHO REFERENT ANTECEDENT RULE

Verbs with the ER prefix have a subject that is coreferential with the subject of the preceding verb

This is not a final definition — it is intended as a guide to assist through the passage of this chapter.

We first start by examining the interaction of various features, and clausal & core operators of complex clauses — subject (§5.1), tense & aspect (§5.2) and illocutionary force (§5.3). We then move on to examples that highlight the dynamics of the ER with conjunctions (§5.4) and other types of embedding (§5.5) constructions.

5.1 Subject agreement

This section is key to understanding the switch-reference paradigm, because it is the behaviour of subject marking that is crucial to the ER phenomena. There are two main observations to make here. Firstly, the subject person distinction is reduced in ER clauses, allowing for a same subject versus different subject paradigm, though contrast with fully inflected verbs. Secondly, the subject person and subject number are treated differently in ER clauses, where the former is a shared feature and the latter is independently marked in each clause.

The Whitesands' subject is the syntactic argument which is indexed via prefixing, and it is restricted to the sole argument of any intransitive clause (S) or the agentive argument of a transitive clause (A_T) (see §3.1.2 for examples and canonical word order).

SUBJECT IN WHITESANDS

The argument in transitive (A_T) or intransitive (S) sentences that is indexed via prefixing on the verb

There is an alternative, the passive-like impersonal construction (§2.3.3.1), a third person agreement pattern which is unmarked for number that is used to denote an unspecified actor or actors. This kind of argument cannot be a controller — it is restricted to single clauses — so it is not considered a true subject.

The number and person values of the subject prefixing in Whitesands occur in two easily identifiable and unique morphosyntactic slots (see §2.3). They behave differently in the context of switch reference, and I address them individually, starting with person.

5.1.1 Person

In order to have a switch-reference system there needs to be some opposition of form to indicate coreference or disjoint reference across two or more adjacent predicates. In Whitesands this is achieved with two forms; full agreement vs. ER agreement. Typically, what we observe is that disjoint reference is marked with the former, and coreference is marked with the latter, as represented in Table 5.1. There are exceptions to this generalisation which I address in Chapter 6, but it provides a good starting point for understanding how texts, and the complex sentences within them, can be organised.

Person \ Reference	SS	DS
1 EXCLUSIVE	*m-*	*ia-*
1 INCLUSIVE	*m-*	*k-*
2	*m-*	*na-*
3	*m-*	*k-*

Table 5.1: *Same subject (SS) and different subject (DS) agreement patterns*

At the heart of this switch-reference system is a neutralisation of the person feature in same subject configurations. Explicitly, if a subsequent clause is marked with full agreement, that subsequent clause will be construed as having different subject reference. If the subsequent verb is ER-marked, then it will be construed as having the same reference. This is regardless of the actual person value, as we can see in the following examples (128), (129), (130) and (131). The antecedent (i.e. first finite clause) in each example is different, changing for 1PL.EXCL, 1PL.INCL, 2PL or 3PL respectively. The subsequent ER clause has the same agreement pattern in all four examples: *m-ot-* 'ER-PL-'.

(128) ***ia-k-ot-os*** *naw kani ko* ***m-ot-oh*** *rakis*
1.EXCL-NPST-PL-hold knife and and.then **ER-PL-hit** off
nima
house
We (PL.EXCL) get a knife and then we take off its handle.
JHWS2-20090301-ak01 140.572–144.018

(129) *nati nak kitah* ***k-om-ot-ol*** ***m-ot-os***
thing what 1PL.INCL **1.INCL-PST-PL-make** **ER-PL-hold**
That thing that we (PL.INCL) made and took.
WS4-110525-imaiim 00:37:51.169–00:37:52.934

(130) ***n-ok-ot-os*** *nati ko m-h-ua* ***m-ot-ol***
2-NPST-PL-carry thing PROX2 ER-PL-come **ER-PL-make**
tapolem la-m
double.TRNS DAT-2SG
You (PL) will take that thing and go and double it for yourself.
WS4-110524-imaiim 00:09:21.560–00:09:26.610

(131) ***k-ot-whapu*** ***m-ot-elis*** *pəken mən iahweli John*
3.NPST-PL-trespass **ER-PL-hold** fast again elder John
məne
and
They (PL) trespassed and came against old man John and the others.
WS4-110524-imaiim 00:11:36.460–00:11:39.680

The use of the ER prefix prohibits the use of an overt person prefix (132), even if there is coreference between the subjects of the two clauses.

(132) ***ia-m-ot-whapu*** ***m-(*ia)-m-ot-elis*** *pəken John*
1.EXCL-PST-PL-trespass **ER-(1.EXCL)-PST-PL-hold** fast John
We trespassed and came against John.

The ER is not *just* marking a whole clause as having a coreferential subject, more precisely the ER is marking a clause as dependent and that this dependent clause necessarily has a coreferential subject. Moreover, the distribution of ER marking is not restricted to one construction type but ER clauses can be found in various different grammatical constructions.

There are two interesting observations to be made here. Firstly, the prefixing system outlined in §2.3.3 is reduced in same subject configurations. All person agreement in non-initial clauses can be reduced to the ER prefix. What this means from a structural perspective is that person (as a syntactic feature of the clause) is obligatorily shared across this clause boundary. The multi-clausal ER clauses are completely dependent on the preceding clause for reference of the subject. Without context an ER is ambiguous and ungrammatical as observed in (133) or (134).

(133) * ***m-ø-əmnəm*** *nəkavə*
ER-SG-drink kava
And drink kava.

(134) * ***m-ot-oh*** *rakis nima*
ER-PL-hit off house

This ungrammaticality is because it is missing a requirement of the clause's construction — the lack of a correct antecedent controller for the dependent ER clause. Therefore, it is fundamentally different from pronominalisation within sentences, which is also anaphoric. While out of context pronouns have uncertain reference, they are still grammatical utterances as in the English sentence *She is sitting*. Even in a 'pro-drop' language, such as Spanish, a sentence without an antecedent for the conjugated form is a grammatical utterance (135).

(135) *(ella)* *está* *sentada*
(3SG.FEM) be.PRES.INDICATIVE.3SG sit.PST.PARTICIPLE.3SG.FEM
She is seated.

A similar sentence using an ER form, (136), is not a grammatical utterance on its own, not even with referential gestures or other similar real-world ascriptions of reference. The ER does not qualify as a full pronoun (whatever that may be).

(136) * ***m-at-ø-haraŋ***
ER-PROG-SG-sit
Intended: She is sitting.

Pronouns can refer independently or have arbitrary reference. For pronominalised constituents, their absence from real-world context can make them informationally poor, but they are still grammatical. The ER marker cannot refer independently or have arbitrary reference, and therefore is not a pronoun; in generative terms, it is an anaphor. This raises an interesting question on how identical do sets have to be to qualify for coreference (also see Dalrymple 1993). I return to this issue in the next chapter. For now we can see that ER clauses, an absence from textual context makes them ungrammatical.

The switch-reference resolution is based on grammatical or discourse contingency, not real-world properties. For example, "she" still tells you that it is a female, singular thing, whereas ER only tells you the real-world referent is singular. Without a preceding clause they are undefinable, nonsensical utterances, see (136). They are anaphora in the purest sense, restricted to linguistically-explicit antecedents. The determination of the person value is crucial, as it is recovered from the preceding clause. In contrast to pronouns, ER clauses cannot receive reference from deixis, but exclusively from another pronoun, even if mediated by additional ER markers.

The second observation about this paradigm is that it potentially gives full agreement patterns an additional meaning. Not only are they specifying real-world properties about a referent (e.g. person), but they are also indicating that there is something pragmatically salient about this reference — it is different from the preceding verb's subject. If you are not using the ER prefix

then you are saying that the referent is not coreferential, i.e. full subject agreement on verbs indicates disjoint reference.

In first and second person this might be slightly trivial because person for interlocutors is mostly disambiguated through deictic properties of who is speaking and who is listening when an utterance occurs. Example (137) shows that, even without any explicit nominal arguments, the changes in person prefixes alter the referential properties.

(137) *ia-am-o-ehrakis* *t-oh* *ik*
1.EXCL-PST-PL-let.go 3SG.NPST-hit 2SG
We (PL.EXCL) let go and it hit you.
ISJHWS3-20100329JVC-03-all 02:58.676–03:00.083

Where it really comes into functional play is in consecutive verbs with third person subjects. The juxtaposition of two fully inflected verbs, as exemplified in (138), typically indicates that they are referring to different real-world entities (this is the primary observation presented in Lynch 1983).

(138) ***nuveiin*** ***k****-awt-ue* *i=Vila* ***nuveiin***
some **3**.NPST-PROG.PL-go LOC =Vila **some**
k*-awt-uven* *Santo*
3.NPST-PROG.PL-go Santo
Some are going to Vila, some others are going to Santo.
jhws1-20080417-all01 00:28.460–00:32.204

The only felicitous interpretation of the construction in (138) is that there are two groups of 'some people'. The Whitesands word *pisin* is analogous to English *others*, but unlike the English translation of the sentence, it is not required for this reading. It is not possible to infer that the two *some people* phrases have the same referent (this is replicating similar strategies found in reciprocal constructions Evans et al. (2011)).

The other frequent option is to use adjacent clauses with full verb agreement, but without overt nominal arguments, and (139) exemplifies this. Since the second verb *t-eni=ahu* '3SG.NPST-say=down' is inflected in the full third person, this third person cannot be the same as the third person in *t-iwoŋ* '3SG.NPST-jump'.

(139) *t-iwoŋ* *t-eni=ahu…*
$3SG_i$.NPST-jump $3SG_j$.NPST-say=down
He_i jumped and she_j scolded…
JHWS1-20080308-ma04-25-adapted

This is an important fact as it shows that it is not (only) the quantifier in (138) that is driving the disjoint subject reading, but instead subject agreement — in particular person agreement — is responsible for the understanding that two arguments have different referents. This pattern of indicating different subjects can occur in a variety of ways, including a causative construction (140). What we can see is that the object of the first clause *napen* 'clothes' is now the pronominalised subject in the second clause, and so it takes the different subject construction with finite third person marking.

(140) *narawieh t-aŋhi napen* ***t-asik***
sunshine 3SG.NPST-sunshine clothes **3SG.NPST-dry**
The sun dries the clothes (lit. the sunshine sunshines on the clothes, it is dry).

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In Whitesands, if there is an ER clause, then it is never coreferential with *solely* the object of the preceding clause. Example (141) is a grammatical minimal pair to (140) and the subject of the second clause in (141) is restricted to the sun (despite the semantic priming that the clothes should be dry).

(141) *narawieh t-aŋhi napen* ***m-ø-asik***
sunshine 3SG.NPST-sunshine clothes ER-SG-dry
The sunshine sunshines on the clothes, it (the sunshine) is dry.
#The sunshine sunshines on the clothes, it (the clothes) is dry.

If a hearer is presented with two adjacent predicates that carry full person agreement, then a default or unmarked interpretation is that they are different referents (this is what is tested experimentally in Chapter 7 and Chapter 8).

Before, I somewhat oversimplified saying that the use of first and second persons in disjoint reference is functionally trivial. For example, if you are talking to two distinguishable groups of people, you would have to use a full agreement construction when switching between groups, but you could use ER construction if you continue talking about one of the groups. In this way it would be a functionally productive use of the switch-reference system. In my current corpus there are no examples of this happening, suggesting that while conceivable it is very rare.

I will return to discuss this and some exceptions to these patterns of subject person agreement, particularly in §6.2, and this also features in the design of the experiments. For now let us look at how number interacts with ER clauses.

5.1.2 Number

Subject number agreement of ER clauses behaves differently from person. First remember that in Whitesands there is a distinct (from person) morpho-syntactic slot for number that occurs immediately to the left of the verb root (§2.3.4). For ER constructions, it is (near-)obligatory for both the dependent clauses and the matrix clauses to carry number agreement. So while above we saw subject person agreement being substituted with the ER prefix, there is no such process for number. In (128), repeated below, we can see that plural is marked by *ot-* on both the main level clause and the ER clause.

(128) *ia-k-**ot**-os* *naw* *kani* *ko* *m-**ot**-oh* *rakis*
1.EXCL-NPST-**PL**-hold knife and and.then ER-**PL**-hit off
nima
house
We (PL.EXCL) get a knife and then take off its handle.
JHWS2-20090301-ak01 140.572–144.018

This applies to all number values, such that each individual clause in the examples (142), (143) and (144) carries the appropriate number agreement; singular (SG), dual (DU) or trial (TRI).

(142) *iou* *ia-k-**ø**-ani* *m-**ø**-ol* *finis-i*
1SG 1.EXCL-NPST-**SG**-say ER-**SG**-do finish-TRNS
I will talk and finish it.
ISJHWS3-20100329JVC-01-hi 00:01:37.590–00:01:41.840

(143) *metou* *nəmə* *ilau* *k-**w**-elis* *vivi* *m-**i**-an…*
but if 3DU 3.NPST-**DU**-hold good ER-**DU**-go
But suppose they hold it well and take it…
WS4-110521-family1 00:21:30.640–00:21:33.300

(144) *metou* *ia-k-a-**l**-ue* *m-əs-**l**-eni* *=iien* *mə*
but 1.EXCL-NPST-a-**TRI**-go ER-NEG-**TRI**-say =NEG COMP
ik *u,* *ima-m* *ukunu*
2SG PROX home-2SG here
But when we go there, we don't say that, you here, you are from here.
ISJHWS3-20100329JVC-01-hi 00:15:50.144–00:15:53.886

It is problematic for number to be unspecified, or more accurately to mismatch the matrix clause, in ER clauses (although see §6.2 and §6.3 for further discussion surrounding this issue, as there are two important exceptions). This suggests that the semantics of 'same reference' includes number

specification (see above on anaphora). So in (145), the mismatch of trial in the initial clause with the singular in the second ER clause creates an ungrammatical utterance.

(145) * *metou ia-k-a-**l**-ue m-əs-**ø**-eni =iien mə*
but 1.EXCL-NPST-a-**TRI**-go ER-NEG-**SG**-say =NEG COMP
ik u, ima-m ukunu
2SG PROX home-2SG here

What this entails is that number is a feature of each and every ER clause, and this is no different from clauses with full agreement patterns. Number appears to be crucial to the ascription of a value to the subject referent and this is discussed further in Chapter 6. Number is *coded* in each clause, but as (145) shows, its value is not independent but rather must be the same (or compatible) across ER constructions.

5.2 Tense, aspect and negation

5.2.1 Tense

Tense is the set of operators that represent the external temporal structure of the clause, i.e. the relationship of the event to the utterance time. Whitesands has a basic tense system that distinguishes past vs. non-past, and this opposition is expressed in verb prefixes (§2.3.1). In the context of complex sentences, or the description of ongoing events, tense can be absolute, but it is more often interpreted as relative to a text's timeline. This means that once a temporal space is established by an utterance, then any following finite predicates can be marked with tense relative to the first (or preceding) finite clause (see similar mirror image structures in Mparntwe Arrernte (Wilkins 1988 cited in Van Valin 2005: 201)).

The following example demonstrates this, where in (146) we can see that the predicate *-an* 'go' takes a non-past inflection but, in fact, can only be understood to be in the past.

(146) *t-**am**-awn ie pia-n … **k**-i-an e*
3SG-**PST**-call.out LOC brother-3SG … 3.**NPST**-DU-go DAT
nuan kati
cave one
He called out to his brother … and they went into a cave.
JHWS2-20090227-nn03 00:03.690–00:11.522

This interpretation is due to the preceding predicate's temporal alignment: the past interpretation of the event *-an* 'go' is 'shared' from the preceding clause. The non-past is interpreted as denoting simultaneity.

In practice this means that most finite predication is in the non-past tense. This is not limited to a preference for relative tense structures in 'narrative' genres, but these patterns are frequently also found in natural conversation or even public speeches. Once a person has established a frame for their utterance, then subsequent clauses can be in the unmarked non-past tense.

Example (137), repeated from above, is taken from a community discussion which was held in public. In it, we can see a similar grammatical process occurring — once a sequence of events is established, the continuation of that sequence can occur in the non-past. In this case this is *t-oh ik* 'and it hit you'.

(137) *ia-**am**-o-ehrakis* *__t__-oh* *ik*
1.EXCL-**PST**-PL-let.go 3SG.**NPST**-hit 2SG
We (PL.EXCL) let go and it hit you.
ISJHWS3-20100329JVC-03-all 02:58.676–03:00.083

Thus, the tense system in Whitesands can (but not necessarily) temporally align a finite predicate to the preceding (textual) tense.

A similar — but not identical — process occurs with the dependent ER clauses. We begin with the observation that the ER clauses do not take any inflection for tense (147). The expression of the past tense *(a)m-* "PST" in (148) results in an ungrammatical utterance.

(147) *na-m-ø-uven* *apaha* *lenakel* *neniu,* *m-ø-afu* *na?*
2-PST-SG-go LOC Lenakel yesterday ER-SG-see what
What did you see in Lenakel yesterday?
(Lit. Did you go to Lenakel yesterday and see what?)
JHWS2-2009028-ek02-35

(148) * *na-m-ø-uven* *apaha* *lenakel* *neniu,* *m-**(a)m**-ø-afu* *na?*
2-PST-SG-go LOC Lenakel yesterday ER-**PST**-SG-see what

This behaviour — a restriction of tense being marked on ER clauses — is repeated in the contrast between (149) and (150).

(149) *ia-k-ot-awamtei* *m-ot-os* *m-ot-aiuatiti*
1.EXCL-NPST-PL-split.kava ER-PL-hold ER-PL-take.from.share
We will cut up the kava and take it and divide it amongst ourselves.
ISJHWS3-20100329JVC-02-all 00:10:03.128–00:10:05.656

(150) * *ia-k-ot-awamtei* *m-**(o)k**-ot-os* *m-**(o)k**-ot-aiuatiti*
1.EXCL-NPST-PL-split.kava ER-**NPST**-PL-hold ES-NPST-PL-take

There are no attested exceptions to this characteristic — it seems a robust pattern.

One explanation for the above examples might be a morphosyntactic restriction on the placement of a prefix in the slot between ER and number. There are two reasons that this is not the case. Firstly, we will see in the next section (§5.2.2) that in fact many operators — aspect, negation etc. — can intercede in such a position. Secondly, there is one alternative tense form that acts differently from the other tense markers, typically coming before the person marking when there is just a predicate (151) and (152).

(151) ***o**-io-k-ot-ali* *t-ahau*
FUT-1.EXCL-NPST-PL-send 3SG.NPST-north
We will send it north.
ISJHWS3-20100329JVC-01-hi 00:14:35.011–00:14:36.021

(152) ***o**-t-uven*
FUT-3SG.NPST-go
He will go.
ISJHWS3-20100329JVC-01-hi 00:47:23.252–00:47:24.332

It is a general marker of future. But, like the above restrictions on internal tense expression (the past and non-past prefixes), it is ungrammatical for the verb-initial future tense to be expressed with the ER form (or more precisely it is ungrammatical for the ER to take the future tense). Example (153) is a continuation of (152), and the ER clause is not overtly marked with the future tense. It cannot be marked with the future tense as in (154).

(153) *o-t-uven* ***m**-ø-iatu*
FUT-3SG.NPST-go **ER**-SG-break
He will go and break it.
ISJHWS3-20100329JVC-01-hi 00:47:23.252–00:47:24.332

(154) * *o-t-uven* ***o-m**-ø-iatu*
FUT-3SG.NPST-go **FUT**-ER-SG-break

For a clause to be marked in the future tense, even if it is coreferential with the preceding clause, it must take a full inflection and agreement pattern (155).

(155) *n-elahu* *e* *rafin* *aha* *m-at-ø-awan* *naunun*
3SG.PRF-put DAT every that ER-PROG-SG-eat.INTR end
o-t-isinen
FUT-3SG.NPST-pregnant
It has put everything down (eggs) and has completed eating, it will become pregnant.
WS5-120128-conver 00:48:46.104–00:48:48.554

(156) * *n-elahu* *e* *rafin* *aha* *m-at-ø-awan* *naunun*
3SG.PRF-put DAT every that ER-PROG-SG-eat.INTR end
o-m-ø-isinen
FUT-ER-SG-pregnant

There are no grammatical dependancy relationships between clauses with future tense.

The *o-* 'FUT' prefix is actually quite flexible, enough so that it combines with noun phrases or interrogative pronouns in addition to finite clauses, as in (157) and (158) respectively.

(157) *nieh* *vs.* *o-nieh*
day.before.yesterday day.after.tomorrow

(158) *nahŋən* *vs.* *o-nahŋən*
when FUT-when

There is nothing to suggest there is a problem with the phonology in (154) and (156), and syntactically, the future prefix seems flexible enough. This indicates that the restriction of the use of tense operators in ER clauses is driven by the nature of the linkage, i.e. by the clause itself. This essential feature is that the tense operator is carried over from the preceding clause. The ER clause is temporally unspecified, so that it has to receive its temporal interpretation from the antecedent.

One significant consequence of the interaction of ER clauses with tense is that the dependent clauses are restricted to having a temporal alignment that is simultaneous with or sequential to the preceding antecedent verb. The ER clause must inherit its tense from the preceding clause and as a result its event realisation must occur after its antecedent's clause. That is, an event marked with the ER agreement pattern can: start at the same time as the antecedent event; start during the duration of the antecedent event; or start after the antecedent event provided they are both within the same temporal frame with respect to the utterance. The two notably impossible constructions would be: it is not possible for an event with a past tense to be the antecedent for an ER event of the future; and it is not possible for an ER event to occur before the antecedent event.

In summary, the ER clauses are not only relevant for the computation of person reference, they also play a role in determining stretches of coherent text from a temporal perspective. Fully finite clauses and dependent ER clauses alike can inherit their tense alignment from the preceding text. In the former case, it is an optional process where tense can be independently marked across multiple clauses (e.g. causative constructions) or narrative structures. In the latter, there is no possibility of an independent expression of tense.

5.2.2 Aspect and negation

5.2.2.1 Progessive, perfect and prospective

Aspect is the class of nuclear operators that delimit, or extend, the internal temporal structure of an event. In Whitesands, they are found primarily in the morphosyntactic slot between tense and subject number (§2.3.1). In contrast to tense, aspect is not shared between the main and the ER clause, but has to be marked separately for each. In this section, I present data from the three most common aspect markers (progressive, perfect and prospective) and also negation. It is organised so that we see pairs of examples, where the first shows the operator marked on both the ER clause as well as its antecedent clause, followed then by an example where the operator is marked on only one clause — in general indicating a limited scope of the operator.

The most common aspectual marking in Whitesands is the progressive in the form *at-* 'PROG'.[1] My claim is that aspect is an independent operator — meaning that it must be marked on any clause that is intended to carry that particular meaning. In (159) we can see *at-* 'PROG' is expressed on both the *ol* 'make' clause and the *auah* 'cook' clause.

(159) *k-am-**at**-u-ol* *m-**at**-u-auah* *pisinpisin*
3-PST-**PROG**-DU-make ER-**PROG**-DU-cook different.RDP
They (DU) were making and cooking differently.
ISJHWS3-20100329JVC-03-all 00:00:15.361–00:00:23.744

The immediate scope of the progressive marker is only over the predicate it is marking. This is because it is possible for two clauses in an ER construction to have different aspectual marking. For instance, one clause (*t-etiaw* '3SG.NPST-cry') has simple non-past and its dependent clause (*m-at-ø-awan* 'ER-PROG-SG-eat.INTRS') has the progressive prefix (160).

[1] The progressive prefix also has an alternative meaning of habitual, but there are no morphosyntactic differences between the two, so it is no longer discussed here.

(160) *raha-n* *ama* *ko* *t-etiaw* *m-**at**-ø-awan*
POSS-3SG only PROX2 3SG.NPST-cry ER-**PROG**-SG-eat.INTRS
That is his (way), he only cries and is eating.
WS4-110521-family1 00:20:26.550–00:20:30.160

The ER construction does not provide any restrictions on how aspect is used. In this sense it behaves similarly to finite clauses, so that if speakers want to alter the temporal structure of a particular verb then they are required to mark it explicitly on both the main verb and the dependent ER-marked verb.

This rule — aspect can be marked independently on each clause — holds for each aspect operator. The perfect aspect behaves in a similar fashion to progressive, where each clause in an ER chain takes the perfect marker if necessary. This could be for more than one ER clause, for example (161) has perfect marked on the antecedent clause, and both subsequent ER clauses.

(161) *iəmə* *k-**on**-ot-elis* *neŋaw* *m-**on**-h-ua* *m-**on**-o-hiet*
1.say 1-**PRF**-PL-hold ship ER-**PRF**-PL-come ER-**PRF**-PL-leave
I say that we carry the ship here and we will have come out [of hiding].
WS4-110524-imaiim 00:06:03.180–00:06:05.250

In this case, an unmarked interpretation of the utterance would be that all the events are completed by the end of the sentence. It is not clear that all events are completed before one another in a linear order, as the final event (come out) is expressed with two predicates (and their two perfect markers). Instead, it would be easier to assume that the operators have a restricted scope, that of the clause they are expressed in.

In practice, this means that speakers can express an aspect like perfect on the main clause, but then not on the dependent ER clause (162).

(162)

1 NS *n-**ən**-ø-ivi* *namu* *mən*
2-**PRF**-SG-pull fish PL
You have pulled the fish,

2 (0.4)

3 ***m-ø-emeli*** *aha* *lamen* *katiah* *namas* *kati* *m-at-ø-ivi* *lah*
ER-SG-lie that location one reef one ER-PROG-pull 3PL
you stayed at one place, a reef and you are fishing them.
WS5-120128-conver 00:56:58.558–00:57:01.128

Again, there is an unmarked interpretation — the event completion is restricted to the clause in which the perfect is expressed, in this case *n-ən-ø-ivi* '2-PRF-SG-pull'. It has no scope over the other dependent clauses. In fact, they

can be marked with a different aspect altogether, as observed in the final clause *m-at-ø-ivi lah* 'you are fishing them' (162.3).

The final aspect form I present here is the prospective — indicating that events are about to commence. Here too, there is both an option for prospective to be marked on all clauses of an ER construction, or on just the one clause that it applies to. Example (163) shows it on both the antecedent clause (163.1) and the ER clause (163.3).

(163)

1	NS	*namus n-us rafin ilah, ilah arafin k-**onawt**-owa* hunger 3SG.PRF-bite all 3PL 3PL all 3-**PROS.PL**-come They (the tuna) are all hungry, they (the tuna) will all be about to come.
2		(0.95)
3		*m-**onawt**-asal e nete-venis mən* ER-**PROS.PL**-search DAT child-flying.fish PL They (tuna) are to be looking for the baby flying fish.
4		*nete-venis k-on-ot-owa* child-flying.fish 3-PRF-PL-come The flying fish have come (are born).

WS5-120128-conver 00:50:07.113–00:50:12.959

In contrast, (164) shows prospective aspect marked solely on the ER clause — the main clause *k-on-h-uven* '3-PRF-PL-go' takes a different aspectual marking in the perfect.

(164) *k-on-h-uven m-**onawt**-us pəkah kati naliŋ t-am-eles*
3-PRF-PL-go ER-**PROS.PL**-bite pig one trap 3SG-PST-hold
They had gone and were about to bite the pig caught by the trap.

JHWS2-20090301-ak02 00:01:20.870–00:01:27.780

Aspect is being marked on ER clauses dependent on their actual meaning. There are no restrictions on the coding of aspect on main or dependent clauses. There are no requirements for ER clauses and their antecedent clause to match when one or the other is marked for a specific aspect operator.

5.2.2.2 Negation

One type of negation in Whitesands is a circumfix where the prefix part is between person & tense on the one hand and number on the other — a similar morphosyntactic position to aspect. Like aspect, this kind of negation is not shared across the ER construction and it must be expressed on each clause

within it. The antecedent clause in (165) is *k-as-u-aiprakis* '3-NEG-DU-better' and this is clearly marked with negation (165.2).

(165)

1 IW *k-am-at-u-ol* *m-at-u-auah* *pisinpisin*
3-PST-PROG-DU-make ER-PROG-DU-cook different.RDP
metou
therefore
They (DU) were making and cooking separately, therefore

2 *in-ama* *u* ***k-as-u-aiprakis*** ***=iie*** *ilau* *mən*
3SG-only PROX **3-NEG-DU-better** **=NEG** 3DU also
only this thing, they were not better than themselves

3 (2.44)

4 *kani* ***m-as-u-aiparakis*** ***=iie*** *ietami* *t-at-un*
and **ER-NEG-DU-better** **=NEG** person 3SG-PROG-eat.TRNS
and they (DU) weren't better than the man who is eating.

ISJHWS3-20100329JVC-03-all 00:00:15.361–00:00:23.744

There is also an ER clause in the excerpt, and it too takes negation marking as an explicit operator (165.4). Even though the antecedent is negated, the negated ER clause in (165.4) cannot inherit the negative polarity from its antecedent, but has to be separately marked for negation itself. Furthermore, negation is marked with a circumfix, and importantly the enclitic part of this *=iie(n)* 'NEG' can move to encapsulate other elements of a predication (such as post-verbal modifiers). This element of the negation strategy must also be repeated for each negated ER or main clause.

The second example of the negation operator shows that negation can be independently marked on one clause (166). The third ER in the chain (166.2) is the only clause to carry the negative circumfix.

(166)

1 *m-ø-am* *rakis* *la* *ko* *m-ø-asua-akan,*
ER:2-SG-let.go off DAT and.then ER-SG-paddle-troll
And you will throw it out and troll by paddling,

2 ***m-as-ø-asua*** ***pək=iie***
ER-NEG-SG-paddle **a.lot=NEG**
(but) you don't paddle a lot.

WS5-120128-conver 00:51:13.627–00:51:16.527

The other clauses cannot share its meaning — after all the whole point of the *m-as-ø-asua* 'ER-NEG-SG-paddle' clause is to be a downgrade of the preceding clause. Its meaning is in opposition to the preceding clause, so they cannot

be sharing the negation operator. This behaviour suggests that this form of negation can only have scope over the single clause — it is not shared in an ER construction.

In summary, aspect and negation are potentially marked on each clause as needed, and their scope is limited to that clause alone. If a particular aspectual or negation marker applies to more than one (or in fact all) of the clauses in an ER clause chain, then it must be marked independently and explicitly on each clause. This suggests that this class of operators is *not* shared across a clause — unlike tense or as we will see in the next section illocutionary force.

5.3 Illocutionary force

Illocutionary force — the clausal operator that determines the speech act type — is shared across multi-clause constructions, much like tense. Most of the examples presented so far in this chapter are ER constructions in declarative clauses. Let us move straight onto a predicate occurring in interrogative clauses. In (167) the interrogative pronoun *pəh* 'who' is the privileged argument referenced on the finite verb *t-am-ua* '3SG-PST-come'. This clause is a good antecedent for an ER clause

(167) ***pəh*** *t-am-ua* *m-ø-akleh* *e* *pəkah*
who 3SG-PST-come ER-SG-steal DAT pig
Who came and stole the pig?

fieldnotes

The subject of the ER clause is coreferential with the subject of the finite verb and the finite-tensed clause carries the interrogative illocutionary force, as can be seen in (168) where the chain is extended by adding more verbs with the ER form, with all of them being coreferential.

(168) ***pəh*** *t-am-ua* *m-ø-akleh* *e* *pəkah* *m-ø-ol*
who 3SG-PST-come ER-SG-steal DAT pig ER-SG-make
selem *i*
sell TRNS
Who came and stole the pig and sold it?

fieldnotes

The antecedent referent for each ER clause in (168) continues to be the interrogative pronoun.

Another similar example is presented in (147), repeated below. Instead of having the interrogative pronoun *na* 'what' in the main clause, it now occurs as an argument in the dependent clause as the object of *m-ø-afu* 'ER-SG-see'.

(147) *na-m-ø-uven apaha lenakel neniu, m-ø-afu **na**?*
2-PST-SG-go LOC L. yesterday ER-SG-see **what**
What did you go and see in Lenakel yesterday?
or
What did you see in Lenakel yesterday?
(lit. Did you go to Lenakel yesterday and see what?)

The English free translations for these questions do not quite do justice to the construction. What is crucial though, is that the ER construction only needs one argument to be questioned for the whole construction to be construed as a question as in (147). It does not matter if it is in the main clause or the dependent clause, either will suffice.

Imperative forms are perhaps easier to translate and parse. Imperatives are formed by having a verb with no person marking, instead a number-only agreement (negation is permissible). When there is more than one predicate or action making up the command, then subsequent coreferential arguments are obligatorily marked with ER. Example (169) illustrates the illocutionary force marker with scope over the entire ER construction.

(169) *ø-uven to m-ø-os*
SG-go try ER-SG-hold
Go and get it!
WS5-120128-conver 1444471–1445231

Example (170) is slightly more complex, but shows the same phenomena. The verbs *-awpwen* 'first' and *-əsal* 'search' must have an ER prefix on them.

(170) *ø-aiiu te **m**-ø-awpwen **m**-ø-əsal kasawət*
IMP.SG-run now **ER**-SG-first **ER**-SG-search buff.banded.rail
Go in front and look for buff-banded rails (kind of bird)!
WS4-110608-imaiim 00:23:50.735–00:24:00.000

(171) * *ø-aiiu te ø-awpwen ø-əsal kasawət*
IMP.SG-run now IMP.SG-first IMP.SG-search buff.banded.rail

It would be extremely dispreferred for each clause in such a string to be marked independently as imperatives, as in (171).

An ER clause chain in the imperative — like the declarative — can have arguments intercede between each predicate. In (172), this is *la-n* 'DAT-3SG', a non-macrorole argument of *-araŋ* 'push', and it occurs in the unmarked postverbal position.

(172) *Jerry ø-araŋ* ***la-n*** *m-ø-iwaiiu petiŋam*
Jerry IMP.SG-push **DAT-3SG** ER-SG-descend downhill
Jerry, push her and go down (to the house)!
WS4-110527-pig-4 00:14:48.590–00:14:50.180

There are no clear structural differences between the different illocutionary force types. The ER construction typically receives its illocutionary force — be it declarative, interrogative or directive — from the antecedent.

Finally, there is also evidence to suggest that if full finite agreement is used, and it is coreferential with the preceding clause, then a speaker will likely interpret this as having a change in illocutionary force. One way of indicating polar interrogatives in Whitesands is to finish an utterance with a rising inflection on *wə* 'or' as in (173.1). This would indicate that this turn of AK is a question, similar to a tag in English.

(173)

1 AK *ah, k-w-awatu in u* ***wə↗***
ah 1.INCL.NPST-DU-cut 3SG PROX **or**
ah, we'll (DU) cut this one, won't we?

2 NS *mhm*
(agrees)

3 (1.56)

4 AK *k-w-ol pen mən in u kati↘*
1.INCL.NPST-DU-make to.3 also 3SG PROX one
And we'll also do this one.
WS5-120128-conver 00:39:47.130–00:39:52.133

In AK's next turn (173.4), however, there is full agreement regardless of the coreferential status between the subjects of the two verbs. This turn, coupled with a change in intonation, cannot be understood as an interrogative, as it is now its own finite clause and would need its own signal of interrogative illocutionary force. When there is no ER marking on the clause, then illocutionary force is not carried over.

To briefly summarise, illocutionary force is an operator that is shared across clauses using the ER prefix construction. If the initial main clause is in the declarative or imperative, then each subsequent ER clause *must* be also interpreted as in the same mood. For the interrogatives, it is only required for one of the clauses in the construction to be marked as an interrogative (e.g. pronoun or yes/no intonation) for the whole construction to be questioned. By being shared in these ways, illocutionary force behaves like tense and differently from aspect or negation.

The behaviour of the ER construction around these different illocutionary forces opens questions on what kind of juncture is present. The RRG notion of

cosubordination predicts the above behaviour, and is presently favoured over an analysis where ER clauses are infinite clauses that are not independently asserted. The nature of the clause juncture are discussed further in §10.1.2.

5.4 Conjunctions and coreference

This section outlines the behaviour of the ER clause with the four clausal conjunctions found in Whitesands.[2] This is important because conjunction is a prime resource in creating multi-clause constructions. I refrain from calling them coordinators, as to not bias any discussion regarding the nature of the clause juncture. What we see is that two (*kani* 'and' and *ko* 'and.then') prefer the use of ER chains, one (*wə* 'or') allows it but it is rare, and one (*metou* 'but/because') does not permit it in any circumstances.

5.4.1 *kani* 'and'

The conjunction *kani* 'and' is used to indicate (at the least) two main organisational strategies — sequentiality and concurrence. It occurs in between two clauses as in (174).

(174)

1	NI	*t-owaŋ*	*pah*	*u*	
		3SG.NPST-open	seawards	PROX	
		It opened up to here.			
2		(1.73)			
3		***kani***	*ie-t-ø-amei*	*nakəvə*	*ha-iken*
		and	1.EXCL-PROG-SG-masticate	kava	that-PLACE
		And I chewed kava there.			

WS4-110608-imaiim 00:19:10.990–00:19:12.740

There are minimal restrictions on ER constructions made with the *kani* conjunction. It is possible to have chains of ER clauses without conjunction, but equally *kani* can be used to conjoin ER clauses. Both examples (175 and 176) given here are typical in that there is usually no explicit actor argument for the ER clause when it is preceded by *kani*.

Example (175) is interesting as it shows that sequential events (being locked up after going away) can be represented without *kani* as well.

[2] There is a fifth conjunction *menə* 'and' but this is strictly restricted to joining nominal constituents — or at the least denoting a referential phrase has more than one item. It cannot be used with any type of clausal juncture and is not important in this discussion.

(175)

1	EK	*t-oh*	*ilau*
		3SG.NPST-hit	3DU
		He hit them (DU),	
2		*kani* *m-ø-uven*	***k-asisaŋ*** *la-n* *wə*
		and ER-SG-go	**3-imprison** DAT-3SG or
		and he went away and was locked up, wasn't it?	

WS4-110521-family1 00:16:36.643–00:16:39.846

Note, the verb *k-asisaŋ* '3-imprison' is not coreferential with the preceding clause and refers to the people locking up the man. It is not part of a clause chain, yet does not need a conjunction to be joined with the preceding text

In (176) the meaning of the turn would be something like he went to sit (on the council) and has been sitting for a long time, and while he was sitting he has given two speeches.

(176)

1	NI	*in*	*ama*	*k-aha*	*ie-m-ø-haraŋ*	*t-apamah*
		3SG	just	DEIC-that	1.EXCL-PST-SG-sit	3SG.NPST-long
		That is enough there, I have sat a long time				
2		***kani***	*m-ø-aŋhati*	*mən*	*keiiu* *ie*	*in-u*
		and	ER-SG-talk	also	two INST	3SG-PROX
		and have spoken again for the second time now (while sitting).				

ISJHWS3-20100329JVC-05-all 00:11:38.571–00:11:42.059

The interpretation of the overlapping events is not based on any aspectual marking although this is another option for Whitesands speakers (see §5.2.2). What then is the difference between ER clause chains without *kani* or those with *kani*?

The presence of *kani* 'and' alone does not indicate temporal alignment as this can be done through the ordering of verbs. More importantly it seems to indicate boundaries of eventhood — my hypothesis would be that predicates split by *kani* 'and' are separate conceptual events.[3] This is not unique to ER clauses as the behaviour of this conjunction is the same for fully finite clauses.

5.4.2 *ko* 'and.then'

The conjunction *ko* 'and.then' has a strict meaning of sequentiality, in contrast to the more flexible *kani* 'and'. With *ko* 'and.then', the first event in a conjoined pair must be completed before the next event starts (177).

[3] This of course would require testing in its own right, but this investigation is beyond the scope of this thesis.

(177) *ia-k-ø-worisoŋ* ***ko*** *na-k-ø-eru* *mə* *in*
1.EXCL-NPST-SG-after **and.then** 2-NPST-SG-see COMP 3SG
t-worisiŋ
3SG.NPST-after
I come after and then you see that he comes after.
WS4-110521-family1 00:23:33.490–00:23:36.550

Like full agreement clauses, it is possible for ER clauses to be conjoined with *ko* 'and.then' as indicated in both (166), repeated from above, and (178).

(166)

1 *m-ø-am* *rakis* *la* ***ko*** ***m-ø-asua-akan,***
ER:2-SG-let.go off DAT **and.then** **ER-SG-paddle-troll**
And you will throw it out and troll by paddling,

2 *m-as-ø-asua* *pək=iie*
ER-NEG-SG-paddle INTENS =NEG
(but) you don't paddle a lot.
WS5-120128-conver 00:51:13.627–00:51:16.527

(178) *ilah* *k-oh-wa* *m-ot-eru* ***ko*** ***m-ot-os***
3PL 3.NPST-PL-come ER-PL-see **and.then** **ER-PL-hold**
m-h-uven *m-ot-ol* *in* *mən* *aha*
ER-PL-go ER-PL-make 3SG PL that
They come and see and then take it and make them there.
WS5-120128-conver 00:51:46.755–00:51:49.535

This construction creates sequential, non-overlapping events and has no restrictions on the use of ER clauses — it is possible with ER clauses, provided any rules about referential properties are followed.

Further, *kani* and *ko* are compatible with each other (provided the meaning is compatible) and can co-occur (179.7).

(179)

1 NN *m-ø-ol* *skul* *ie*
ER:3-SG-make learn INST
and he learnt

2 (1.67)

3 *wok* *raha-n*
work POSS-3SG
his work

4 (0.23)

5 *m-ø-uven m-ø-etilau*
ER-SG-go ER-SG-around
he went around
6 (1.87)
7 ***kani ko*** *m-ø-anghati*
and and.then ER-SG-talk
and then he talked.
WS5-120108-nako 00:35:47.753–00:35:56.312

The conjunction *ko* 'and.then' is probably optional as *m-* ER alone can express sequentiality, but not necessarily completeness. It would be reasonable to assume that in cases where ER constructions are using *ko* 'and.then', then this is either emphasising that it is a sequence of events, or its presence is restricting the events' temporal structure to sequentiality (in case of ambiguity). Like *kani* 'and' this is no different for fully finite clauses.

5.4.3 *wə* 'or'

The third conjunction I present here is *wə* 'or'. Like *kani* and *ko*, it can be used with the ER prefix, although we will see some restrictions on these constructions.

The primary synchronic function of *wə* is actually a clause-final tag indicating a polar interrogative, as seen previously in (173) and here in (180).

(180) *t-aŋhati kam lah,* ***wə?***
3SG.NPST-talk to 3PL **or**
Did he talk to them?
WS4-110521-family1 00:03:50.130 - 00:03:51.220

However, it is still possible to use *wə* as a (simple) conjunction between two declarative clauses, as in (181).

(181)
1 NN *na-am-ø-eni nieli kati* ***wə***
2-PST-SG-sat nieli one **or**
You have called a Nieli (k.o. festival) or
2 *raha-m n-etemimi k-ot-un*
poss-2SG PL-person 3.NPST-PL-eat.TRNS
your people have feasted (on yams).
WS5-120108-nako 00:51:47.814–00:51:52.454

When the subjects of the two clauses conjoined with *wə* 'or' are coreferential, then the ER prefix can be used. In (182), *they* is the subject of both

clauses, and in the second clause, *m-ot-eru* ‘ER-PL-see’, it is represented with the ER. The antecedent for this ER clause is *k-ot-atapua* ‘3.NPST-PL-ask’.

(182)

1	HI	*k-ot-atapua*	*ik*	*la-n,*	***wə***	***m-ot-eru***	*mə*
		3.NPST-PL-ask	2SG	DAT-3SG	**or**	**ER-PL-see**	COMP
		They ask you for it, or they see that					
2		*na-etatu*	*ie*	*paŋnemte-n*	*kati*		
		2SG.NPST-represent	INST	side-3SG	one		
		you stand on behalf of one group.					

ISJHWS3-20100329JVC-01-hi 00:00:11.917–00:00:15.797

Similarly, when the *wə* ‘or’ form is used within a question, as in (183), conjoining two explicit options, then the second verb can use ER patterns — provided it is coreferential of course.

(183)

1	AK	*nəmə*	*na-am-ø-ivi*	*la-n*	*aha,*	
		if	2-PST-SG-pull	DAT-3SG	that	
		If you fished like that,				
2		***na-k-ø-atu***	*pen*	*mən*	*t-et-emiaŋa*	
		2-NPST-SG-thread	to.3	also	3SG-PROG-alive	
		did you thread it on alive				
3		***wə***	***m-at-asua-akan***			
		or	**ER-PROG-paddle-troll**			
		or did you troll it?				

WS5-120128-conver 00:51:31.186–00:51:34.606

The antecedent for *m-at-asua-akan* ‘ER-PROG-paddle-troll’ is before the conjunction *wə* ‘or’.

However, when *wə* ‘or’ is solely expressing the interrogative status of a clause, there is a tendency for subsequent clauses to *not* use ER constructions. We have seen this already in (173), repeated below, where the coreferential subject arguments of the two clauses are independently marked for person.

(173)

1	AK	*ah,*	*k-w-awatu*		*in*	*u*	***wə↗***
		ah	1.INCL.NPST-DU-cut		3SG	PROX	**or**
		aa, we’ll (DU) cut this one, won’t we?					
2	NS	*mhm*					
		(agrees)					
3		(1.56)					

4 AK ***k-w-ol*** *pen mən in u kati*↘
1.INCL.NPST-DU-make to.3 also 3SG PROX one
And we'll also do this one.
WS5-120128-conver 00:39:47.130–00:39:52.133

The first clause (173.1) is marked as a yes/no interrogative with the tag *wə* 'or', and despite coreference the next clause (173.4) takes full agreement pattern.

Why is there this tendency for tag *wə* 'or' to not occur before ER clauses? A plausible answer lies in the state of illocutionary force — it is a shared operator that ER clauses inherit from their antecedent (§5.3). Thus, the contrast in illocutionary force between the two clauses in (173) prohibits the marking of coreference with ER. This is not surprising because the clause-final tag *wə* 'or' indicates that one clause has a different illocutionary force, and when you have different illocutionary force operators across clauses then ER is not allowed.

In summary, the *wə* 'or' conjunction can use ER marking on the second verb it conjoins. However, it is not obligatory, nor preferred, for coreference between two clauses to be ER marked if *wə* 'or' is used to mark illocutionary force.

5.4.4 *metou* 'but/because'

The conjunction *metou* 'but/because' behaves uniquely in respect to ER constructions. It appears that it is incompatible with the anaphoric *m-* 'ER' prefix, even if the subject arguments of two clauses linked with *metou* are coreferential. When two arguments are coreferential then the second must take a full agreement pattern, such as first, second or third person.

In (184.1) there is an antecedent clause in the first person. The next clause in (184.3) is pretty certain to have coreferential subjects — the person agreement is telling us this — but because the clause is headed by *metou* 'but' it takes the full agreement form.

(184)

1 HI *ia-k-a-l-uven* *e* *mitiŋ* *mən aha*
1.EXCL-NPST-a-TRI-go DAT meeting PL that
We (TRI.EXCL) go for such meetings.

2 (0.43)

3 ***metou*** ***ia-k-a-l-ue*** *m-əs-l-eni=iien* *mə*
but **1.EXCL-NPST-a-TRI-go** ER-NEG-TRI-say=NEG COMP
ik u,
2SG PROX
But when we (TRI.EXCL) go there we (TRI.EXCL) don't say that, you here,

4 *ima-m* *ukunu,* *ik* *u,* *ima-m* *ukunu,* *kapwa*
home-2SG here 2SG PROX home-2SG here no
you are from here, you here, you are from here, no.
ISJHWS3-20100329JVC-01-hi 00:15:47.000–00:15:53.886

The *metou* clauses are capable of hosting an ER construction, provided the antecedent clause is also within the *metou* clause (see similar behaviour for complement clauses in §5.5.2). Example (184.3) shows this domain restriction, where the second verb *m-əs-l-eni = iien* 'ER-NEG-TRI-say = NEG' takes the ER prefix — its antecedent is the second *ia-k-a-l-ue* '1.EXCL-NPST-a-TRI-go'. A second explanation is that a but-clause is an independent assertion, and as such it does not fulfil ER structural criteria of creating linked clauses.

The restriction of the use of ER clauses across a *metou* conjunction means that we see a breakdown in the adjacent finite predicate antecedent rule. As a result there is some loss in the functionality of the same and different subject paradigm, especially in third person. This is shown below in (185), where *the grandfathers* is the subject of both clauses, yet takes full agreement on the second verb.

(185)

1 HI *kaha* *mən* *k-on-o-mis* *rakis*
ancestor PL 3-PRF-PL-die already
The grandfathers have passed away already.

2 ***metou*** ***k-om-ot-elahu*** *histri* *kam-tamah*
but **3-PST-PL-put** history BEN-1PL.EXCL
But they handed the history to us.
ISJHWS3-20100329JVC-01-hi 00:16:58.925–00:17:02.649

(186) * *metou* *m-ot-elahu* *histri* *kam-tamah*
but ER-PL-put history BEN-1PL.EXCL
But they handed the history to us.

Without the conjunction this could indicate a switch in subject, but with it, it is potentially ambiguous. In fact, it would be ungrammatical for the second verb, *elahu* 'put' to use the ER prefix to mark coreference (186). That is, disjoint reference and coreference can be formally identical when two clauses are conjoined by *metou.* There is a neutralisation of the Whitesands switch-reference mechanism.

As it happens, clause chains that already have an established ER construction will be broken with the introduction of *metou* 'but'. In (187), there is already an ER clause chain *m-h-etiali-pen* 'ER:3-PL-join-to3'. However, this cannot be an antecedent for the next verb *k-ost-whapu-mən* '3-NEG.PL-trespass-again' despite being coreferential (187.2).

(187)

1 NI ***m-h-etiali-pen*** *pia-lah* *ilah* *pia-lah* *mən* *ama*
ER:3-PL-join-to3 S.S.sibling-3PL 3PL S.S.sibling-3PL PL only
They joined their brothers, and they are all brothers,

2 ***metou*** ***k-ost-whapu-mən*** *pahau* *=iie*
but **3-NEG.PL-trespass-again** northwards =NEG
but they haven't trespassed to the north

WS4-110524-imaiim 00:11:31.480–00:11:35.800

In over five hundred instances of *metou* 'but/because' in the corpus there is not one instance where coreferential arguments across this conjunction use an ER form.

Finally, one tangental issue worth noting is that *kani* and *metou* do not seem to be incompatible — they can combine as a conjoining strategy (188).

(188) ***kani*** ***metou*** *ie-t-ø-aŋen*
and but 1.EXCL-PROG-SG-scared
But I am scared (of it).

WS5-120128-conver 00:07:57.329–00:07:59.652

When *kani* and *metou* do occur together, then their order is fixed, and the restriction on the use of ER clauses still applies.

5.4.5 Discussion

It would be prudent to ask why it is that the ER can combine with some conjunctions and not others. A schema summarising the above sections is presented in Table 5.2.

Clause construction	ER construction
kani 'and'	possible
ko 'and.then'	possible
wə 'or'	possible
metou 'but/because'	not possible

Table 5.2: *Summary of conjunctions and potential ER usage*

I discuss restrictions and motivations for the system more generally in Chapter 10, but in the context of conjunctions it is worth anticipating an answer here. It seems the potential solution lies in two parts: structure and meaning.

One instance of structural incompatibility is the restriction of ER clauses occurring after *wə* 'or' when *wə* is a tag and marking interrogatives. The incompatibility is that there are structural features of ER clauses — such as a shared illocutionary force operator — and it is not possible for the constraint to be violated. If clauses are being delimited as having different illocutionary force, then they cannot use a construct (the ER) that indicates that they are the same. Unfortunately, it is not clear that *metou* 'but/because' clauses have such syntactic constraints that can be used without creating a circular argument, so perhaps the limitations lie elsewhere, namely meaning.

Perhaps then the lack of ER use with but-clauses in particular is entirely semantic. There are two reasonable sources of any semantic incompatibility. Firstly, It is could be that the *m-* retains a vestigial meaning of its ancestor, where in Proto Oceanic *ma* approximately meant 'and' and signified tight clausal coordination (Moyse-Faurie & Lynch 2004). If any kind of minor retention was the case, then it is unsurprising that the contemporary reflex is dispreferred with *but* or *because*. Secondly, the counter expectation meaning in *but* clauses gives a construction meaning that is incompatible with ER. The ER is probably part of a single assertion and while the conjunction *metou* 'but/because' might be coordinating like the other conjunctions, it has an independent assertion (or different presuppositions) and it is these that cause ungrammaticality.

In summary, the ER construction can take an antecedent from a clause before both *kani* 'and' and *ko* 'and.then' conjunctions. It can do so as well for *wə* 'or', so long as it is conjoining explicit clauses. Contrastingly, an ER clause within the *metou* 'but/because' clause cannot take an antecedent from another main clause — an ER construction must be completely constrained within the *metou* 'but/because'. It turns out there are further constraints on various clause types and ER prefixing and we turn to these now in the following section.

5.5 Embedding and coreference

In the previous sections of this chapter, I investigated the behaviour of operators in clause chains, and various coordinate-like junctures. Now, I extend this discussion to show how ER clauses interact with other types of dependent clauses — namely subordination. I assume subordination to be a structural dependence between a main clause and its subordinate, where the subordinate is either an argument or modifier of the main clause (Van Valin 2001; 2005). In Whitesands, the two most prominent subordinating constructions (other than the dependent ER clauses) are relative clauses and complement clauses. Both of these clause types create syntactic restrictions on the use of the continuous reference form. That is, interaction with other types of clauses that prohibits the use of ER even when there is clear coreference

between two discourse arguments.

5.5.1 Relative clauses

Relative clauses in Whitesands have the modified NP followed by the modifying clause without any obligatory marking of the clause boundaries or subordination. In (189) the head *tem* 'person' is modified by the fully finite predicate *t-eepət* '3SG.NPST-big'.

(189) *t-oh* *nete-n* *ko* *[tem* *t-eepət]*$_{\textit{relative clause}}$
3SG.NPST-hit child-3SG PROX2 person 3SG.NPST-big
She hit her eldest child (lit. (she) hit her child, the one is big)

The subject of the relative clause cannot be a controller for same referent ER constructions. More precisely, the argument referenced by finite agreement in a relative clause — the head of the relative clause — is not a potential antecedent for any following matrix (main) level ER clause. In (190) the subject of the next clause is coreferential to the indexed argument of the relative clause (the eldest child). Regardless, the main verb for *t-iuvəŋ* '3SG.NPST-jump' is in the full agreement pattern.

(190)

1 MA *t-oh* *nete-n* *ko* *[tem* *t-eepət]*$_{\textit{relative clause}}$
3SG$_x$.NPST-hit child-3SG PROX2 person$_y$ 3SG.NPST-big
She hit her eldest child

2 ***t-iuvəŋ*** *m-ø-aharaŋ* *apaha* *luan-tehi*
3SG$_y$.NPST-jump ER$_y$-SG-sit LOC deep-saltwater
and he flew out and sat down in the sea.

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If the target clause changes to an ER construction (191), then the assignment of referent to the subject argument must change. The subject is now coreferential with the mother (she) — an argument of the matrix clause, not the relative clause.

(191)

1 *t-oh* *nete-n* *ko* *[tem* *t-eepət]*$_{\textit{relative clause}}$
3SG$_x$.NPST-hit child-3SG PROX2 person$_y$ 3SG.NPST-big
She hit her eldest child

2 ***m-ø-iuvəŋ*** *m-ø-aharaŋ* *apaha* *luan-tehi*
ER$_x$-SG-jump ER$_x$-SG-sit LOC deep-saltwater
and she flew out and sat down in the sea.

The referent tracking system that determines potential antecedents for an ER clause ignores finite clauses that are part of a relative clause construction, even if this means not adhering to the adjacent finite predicate antecedent rule for ER clauses (see introduction to Chapter 5).

A relative clause cannot provide the ER antecedent to the main clause for which it is an argument. Examples (192) and (193) show this contrast, where the main clause cannot take an ER agreement to indicate coreference between the two predicates.

(192) *tem* *t-akaku* ***t-am-elis*** *Namruken*
person 3SG.NPST-small **3SG-PST-hold** Namruken
The smallest took Namruken.
(Lit. The one that is smallest took Namruken)
WS5-120108-nako 00:19:15.120–00:19:16.850

(193) * *tem* *t-akaku* ***m-am-elis*** *Namruken*
person 3SG.NPST-small **ER-PST-hold** Namruken

Similarly, in (194) we can see that the head of the relative clause *in apwa t-efiŋam* 'The one that is heavy' is the argument that is referenced on the main verb *t-et-aiiu* '3SG.NPST-PROG-run', which has full person marking, not *m-* 'ER'.

(194) *in* *apwa* *t-efiŋam* ***t-et-aiiu*** *apaha*
3SG LOC 3SG.NPST-heavy **3SG.NPST-PROG-run** LOC
petiŋam *wə*
bottom or
The one there that is heavy, it runs along the bottom, does it?
WS5-120128-conver 24:11.136–24:13.895

Despite these instances of coreference within a clause, it is not possible for the main clause to use the ER construction. This means that adjacent full agreement clauses with coreferential subjects are possible — a relative clause followed by a main clause — but crucially this arrangement does not trigger an ER prefix (unlike two adjacent coreferential main clauses).

However, the ER construction can be used *within* the relative clause, if the relative clause has more than one predicate. In this case, the head of the relative clause functions as the antecedent for all the predicates in the relative clause, of which only the first has full agreement, with any others being in the ER construction form. In (129), repeated below, there is a two part predication in the relative clause — both *ol* 'make' and *os* 'hold'.

(129) *nati nak kitah* ***k-om-ot-ol*** ***m-ot-os***
thing what 1PL.INCL **1.INCL-PST-PL-make** **ER-PL-hold**
That thing that we (PL.INCL) made and took.
WS4-110525-imaiim 00:37:51.169–00:37:52.934

Since it is the same actor for both making and holding, and the relative clause is its own domain, the complex predication can use the coreferential ER form. Most of these dual-verb forms would typically include a directional verb as the second part of the relative clause, but as we saw in (129), this is not an absolute restriction.

To recapitulate, the relative clause does not play a role in the establishment of potential ER antecedents except internally. Relative clauses are a closed domain, allowing for ER constructions within, but this is somewhat restricted as they do not allow for interaction with other main clauses. This constraint follows on from the notion that a main clause plus an ER clause form a close unit. You can get ER within a relative clause because it forms such a unit. Relative clauses — despite being finite with coherent referential properties — are not grammatical antecedents for same subject clause chains.

5.5.2 Complement clauses

We see a similar pattern of ER usage with the complement clauses in Whitesands. Complement clauses are marked with the complementiser *mə ~məmə* (195).[4,5] In this example we can see that complement clauses do not use the *m-* 'ER' even if the subject of the complement clause is coreferential with the subject of the matrix clause. The second person referent is the same but the clause within the complement is obligatorily marked with full agreement.

(195) *na-k-ø-olkeikei* ***mə*** ***na-k-ø-ol*** *raha-m=ikən,*
2-NPST-SG-like **COMP** **2-NPST-SG-make** POSS-2SG=PLACE
namai *vi*
yam.mound new
You want to make your place, the new yam mounds.
ISJHWS3-20100708JVC-01-joe-011 00:33.566–00:37.459

[4] It should be noted here that although the forms of the complementiser and the ER marker are very similar, they are probably not historically related as the ER is a reflex of the Proto Oceanic **ma* conjunction. The complementiser *məmə* is historically related to a quotative verb (Lynch 2001: 178).

[5] There is another interesting facet of the complementiser in that it can take a unique reduced inflection agreement for person: *iəmə* '1.COMP'; *nəmə* '2.COMP'; *təmə* '3SG.COMP'; and *kəmə* '3.IMPERSONAL.COMP'. This would suggest that the unmarked complementiser *məmə* is actually already an ER form (as it starts with *m-*), and of course this just means that the actor of the complement clause is coreferential with the actor of the *say* or *think* verb. There are other examples of similar phenomena widely attested cross-linguistically, e.g. in Serbian, Siberian languages (Matić & Pakendorf 2013) and African languages (Güldemann 2008).

This is clearly different from prototypical pronouns as seen, for example, in English pronouns, which typically show control patterns across non-finite constructions with verbs such as *want*. Even if there is a highly established referent that has already had ER coreference, the complement clause must start anew and be fully inflected for subject agreement (196).

(196) *m-ø-eru* *apu* ***mə*** ***t-am-eti*** *na*
ER:3_x-SG-see truth **COMP** **$3SG_x$-PST-write** what
And he_x would see the truth so that he_x would write what (it was).
WS5-120108-nako 01:04:33.243–01:04:35.340

(197) * *m-ø-eru* *apu* ***mə*** ***m-ø-eti*** *na*
ER:3_x-SG-see truth **COMP** **ER_x-SG-write** what

(198) *m-ø-eru* *apu* ***m-ø-eti*** *la-n*
ER:3_x-SG-see truth **ER_x-SG-write** DAT-3SG
He would see the truth and then write about it.

The use of the ER constructions is ungrammatical in a complement clause (197), yet it would be fine if no complement clause was used, such as (198).

This restriction on complement clauses using ER clauses holds true only for those in which the antecedent comes from outside the complement clause. Complement clauses — like we saw for relative clauses, but more frequently so — can have a predicate with *m-* 'ER' as in (199), but the antecedent must be within the complement clause itself. The antecedent for *m-awt-uven* 'ER-PROG.PL-go' is inside the complement itself.

(199) *na-k-ø-eru* *m-ø-eru* *mə* ***k-ot-atiŋ***
2-NPST-SG-see ER-SG-see COMP **1.INCL.NPST-PL-live**
m-awt-uven
ER-PROG.PL-go
You see that we (PL.INCL) live on.
jhws1-20080417-all01 00:00:22.008–00:00:24.653

Note that the ER construction in this example forms a tightly knit unit that is similar to how some languages form units with serial verb constructions (see Crowley 2002 for further discussion on the typology of serial verb constructions and how ER and serial verb clauses potentially overlap in function).

There does not seem to be a restriction in the complexity of the complement clauses in which switch reference occurs. That is, a complement clause is grammatical and coherent when it adheres to the rules of same and different subject constructions, provided it does not use participants from the main level clause for coreference. Here we have a complement clause that

consists of an initial temporal clause, followed by an ER form about going fishing (200.3).[6] Note, this is the complement starting an assertion, where the main clause is not explicit — a common natural-language occurrence in Whitesands.

(200) (there are three men talking about various fishing tales)

1 AK *pale* ***mə*** ***[taem t-evur]***$_{Temporal}$ *k-oh-ven*
pale **COMP** **time** **3SG.NPST-good** 1.INCL.NPST-PL-go
pale, I reckon when it is a good time, we'll go,

2 (3.25)

3 ***m-ot-ivi*** *to ilah apaha imit*
ER-PL-pull try 3PL LOC Aniwa
we'll fish for them out at Aniwa.

WS5-120128-conver 00:41:07.766–00:41:13.656

The complement clause is its own domain, so *m-ot-ivi* 'ER-PL-pull' is only coreferential to an antecedent within the complement — i.e. the same syntactic level. Now let us turn to some specific cases to see how this manifests itself.

5.5.2.1 Differences in embedding: *-olkeikei* 'like' and *-keikei* 'must'

There is evidence that these restrictions on complement clause and ER constructions are potentially connected with the specific properties of lexemes. This is seen in the two similar words, *-olkeikei* 'like/want'[7], and *-keikei* 'must'. The former must use a complement structure for its non-subject arguments, and therefore cannot use an ER construction. The latter must use an ER construction on its additional predicates.

In example (201), there is the main level clause *in t-olkeikei* '3SG 3SG.NPST-want', followed by its complement marked by the complementiser *mə* 'COMP'.

(201) *in t-olkeikei* ***mə*** ***in t-ua*** *mə in*
3SG 3SG.NPST-want **COMP** **3SG** **3SG.NPST-come** COMP 3SG
ieni
chief
He wanted that he would also come to be chief.

WS5-120108-nako 00:52:18.781–00:52:20.991

[6] *pale* is a word that is difficult to translate. It is used throughout Tanna and has a similar usage to English *hey*.

[7] (< *ol* + *keikei* 'do + must')

Just like the complements we saw above, the required complement argument of *like* cannot use the ER prefix, despite the subject argument of the complement being coreferential with the subject of the main clause.

In contrast, clauses using the lexeme *-keikei* 'must' do not use a complement construction. Instead, the identity of the subjects of the modal *-keikei* and the lexical verb whose modality *-keikei* indicates is obligatorily marked with the ER prefix on the second verb. In (202) and (204), the two lexical words take number agreement matching the modal, and use the ER marker.

(202) *Tom o-t-a-keikei* ***m-ø-ol*** *kati*
T FUT-3SG.NPST-V-must **ER-SG-make** one
Tom, he must make something.
WS4-110525-imaiim 00:04:00.730–00:04:02.100

(203) * *Tom o-t-a-keikei* *kati m-ø-ol*
T FUT-3SG.NPST-V-must one ER-SG-make

(204) *k-ot-keikei* ***m-oh-ua*** *u laen u iou-iken*
3.NPST-PL-must **ER-PL-come** PROX line PROX 1SG-PLACE
They have to all come to this age that I am at.
WS4-110525-imaiim 00:04:46.260–00:04:47.870

In these cases, there is always coreference between the subject of the matrix clause and the subject of the second dependent clause. Because the *must* clause does not take complement-type arguments (203), the coreference between the two subject arguments is referenced using the ER prefix. One potential account of this behaviour is that a complement clause *mə* 'COMP (that)' is already non-finite, so the non-finiteness characteristics of ER clauses would be a double marking of this grammatical property.

In summary, these two related words show that the specific properties of a construction can determine the presence, or absence, of an ER clause in coreferential constructions.

5.5.3 *Nəmə* 'if' constructions

One special case of embedding in Whitesands is the conditional construction *nəmə* 'if'. Unlike the complement clauses we saw in §5.5.2, the embedded condition clause (protasis) *X* precedes the main result clause *Y* in these constructions (205) — if *X* is true then *Y* will happen.

(205) *nəmə X Y*
if Condition Clause Result Clause

There is no particle or morphosyntactic device that occurs between the two clauses (cf. *then* in English). The embedding structure is only marked by the initial word *nəmə* with no clear indication of the boundary between the two clauses.

In terms of the switch-reference system, *nəmə* constructions behave similar to complement clauses. Both the subject of the condition clause and the subject of the result clause are marked with full agreement even if the two are coreferential. In (206), there are coreferential arguments in the adjacent clauses, both with full agreement in the second person.

(206) ***nəmə*** *na-k-ø-apwa* ***na-k-ø-afen*** *in u wə*
if 2-NPST-SG-no **2-NPST-SG-give** 3SG PROX or
If you don't want to, you can give him this one, can't you?
WS5-120128-conver 00:52:36.723–00:52:38.613

It is ungrammatical for this coreference across the two clauses to be marked with the ER prefix (207), or for the ordering of constituents to be changed (208).

(207) * ***nəmə*** *na-k-ø-apwa* ***m-ø-afen*** *in u wə*
if 2-NPST-SG-no **ER-SG-give** 3SG PROX or
If you don't want to, you can give him this one, can't you?

(208) * *na-k-ø-afen in u* ***nəmə*** *na-k-ø-apwa*
2-NPST-SG-give 3SG PROX **if** 2-NPST-SG-no
You can give him this one if you don't want to.

Like the complement clauses, the conditional *nəmə* 'if' clauses allow for ER constructions within each part of the construction. That is, the condition clause (or result clause) itself can comprise of a multi-clause sentence containing clause chains. For example, in (209), there is a short condition clause *in t-ahrun* 'it knows'. This is followed by a long, eleven-word result clause, starting with *t-os* '3SG.NPST-hold' — the antecedent clause — and three ER clauses.

(209) *nəmə in t-ahrun* ***t-os*** ***n-ahrun=ien***
if 3SG 3SG.NPST-know **3SG.NPST-hold** **NMLZ-know=NMLZ**
m-ø-ua ***m-ø-aŋatun*** ***Vanuatu la-n*** ***m-ø-atiaŋ***
ER-SG-come **ER-SG-teach** **Vanuatu** **DAT-3SG** **ER-SG-utilise**
Vanuatu t-ahmen ***e stoa***
Vanuatu **3SG.NPST-same** **DAT** **store**
If it knows then it brings the knowledge here and teaches Vanuatu, and then it will then use Vanuatu like a store (of players).
WS4-110525-imaiim 00:35:31.117–00:35:34.926

We have seen so far that ER constructions are not used in subordinate configurations across clause boundaries. This would then be used evidence that the following example (210) is not a subordinate construction since there are two ER clauses.

(210) *ne-k-ø-eepət* *m-ø-olkeikei* ***m-ø-oh*** *nati* *u*
2-NPST-SG-big ER-SG-want **ER-SG-hit** thing PROX
When you are bigger you should play this.
(lit. You will get bigger, you will want (it) and then you will play this thing).
WS4-110525-imaiim 00:08:35.085–00:08:36.995

This example shows that it is possible to get conditional interpretations, even if no embedding construction is present. My analysis is that the simple juxtaposition of multiple dependent clauses forces the pragmatic interpretation of conditional interdependency. This means that it is possible to have conditional-type meaning without the embedding restrictions on ER agreement. The alternative analysis is that this is the only case of ER marking across embedded clause boundaries. There is no evidence of subordination, e.g. the presence of a subordinator, so a more accurate analysis would be the *when* clause can be reframed in a linear dependent, but flat, structure.

A second relevant observation is that this is a second type of construction for the lexeme *-olkeikei* 'want' — there is clearly no overt object or complementiser argument. It is possible to have an overt pronoun within the chain, as in (211), and this suggests that all the verbs each have normal argument structures, but the object pronoun is optional in this chain-medial verb (like it would be in any other Whitesands clause).

(211) *ne-k-ø-eepət* *m-ø-olkeikei* *in* *m-ø-oh* *nati* *u*
2-NPST-SG-big ER-SG-want 3SG ER-SG-hit thing PROX
When you are bigger you should play this.
(lit. You will get bigger, you will want it and then you will play this thing).

This is evidence that this chain is a linear structure, and that it is fundamentally different from the examples seen earlier, as in (202) in §5.5.2.1, where there is no possibility of an overt pronoun within the clause chain for the lexeme *-keikei* 'must'.

To conclude, the conditional interpretation in (210) is an inference, not something coded lexically or syntactically, as in (202). Thus, the syntactic restrictions on embedding still apply, and the flexibility we see is found solely in the pragmatics.

5.6 Summary

This chapter has presented an in-depth description of the Whitesands ER clause. I have focused on the formal instantiation of ER clauses through their interactions with various syntactic properties of the clause — subject agreement, clausal operators, conjunctions and embedded clauses. A summary of key grammatical features is presented in Table 5.3 on the following page. Table 5.2 on page 97 is extended further in Table 5.4 on the following page to include a summary of other clause types. In the background of this discussion is the functional load of the ER construction — the contrast of ER agreement with full agreement patterns potentially gives a switch-reference paradigm.

There is a clear distinction made between main level clauses and embedded clauses. Main level clauses can be extended on for a very long time by using the ER construction. But if there are interceding complement clauses, or other types of embedding, then they cannot be part of this same subject chain even if their subjects are coreferential. They must be independently marked for person for all initial references. Any ER clause must be resolved solely within the embedded clause. Further, each lexeme must be analysed in a case-by-case basis, as similar meanings can use different nexus strategies and so have different structural properties.

Having discussed the generalities of multi-clause constructions, especially those which are coreferential, we can start thinking about where to proceed from here. I propose there are three main areas, each of which is addressed in the rest of this thesis. Firstly, there appears to be some core formal properties of switch-reference systems — a restriction against the system being used in relative or complement clauses, for instance (Roberts 1988b, Van Valin 2005). There is a fundamental preference for switch-reference clause chains to ignore other types of dependent clauses in their schema. This seems to be regardless of other typological properties, such as word order or what types of operators are shared. Is this reflective of some inherent formal property in general? Is it perhaps the nature of information structure in switch-reference clauses, prohibiting their integration with other clause types that have complex syntactic relationships with the sentence? These are some of the questions that are addressed in Part IV.

Secondly, assuming that there will be anomalies in any system, can we start testing for these in a systematic way? I have chosen for two experimental approaches — one production and one comprehension experiment — to do precisely this. They are presented in Part III. However, these experiments would require knowledge of the variation within the system. We have seen some in this chapter and there are more cases which provide descriptive challenges.

Thus, thirdly, we can explore in more depth the usage of ER clauses, from a combined grammatical and functional perspective. This is what I embark

Coreference The ER prefix is coreferential with an antecedent from a preceding clause

Person ER clauses share person operators with their antecedent clause, it is unspecified for person reference

Number Number is marked independently on each clause, including ER clauses

IF ER clauses can share illocutionary force with their antecedent clause

Tense Both ER clauses and other narrative structures share tense operators with their preceding clause, and for ER clauses this is obligatory

Aspect ER clauses are marked with aspect and negation independently of their antecedent clause

Conjoining Conjunctions *kani* and *ko* can optionally intercede between an ER clause and its antecedent (but *metou* does not allow this)

Embedding It is not possible for an ER clause to have an antecedent that is within a subordinate clause

Complements A complement clause must start anew for any ER construction — i.e. have a new finite verb before any ER clause

Table 5.3: *Key features of ER clauses in Whitesands*

Clause construction	ER construction
kani 'and'	possible
ko 'and.then'	possible
wə 'or'	possible
metou 'but/because'	not possible
-olkeikei 'must'	necessary
nəmə 'if'	not possible
Complement clauses	not possible
Relative clauses	not possible

Table 5.4: *Summary of clause linkages and potential ER usage across the linkage boundary*

on now in Chapter 6. Starting with this chapter's overview of the system and its generalisations about form, I investigate in more depth the function of the same subject and different subject contrast. I also explore other instances where the antecedent rules seem to break down and search for what are the best types of antecedents for the anaphoric ER.

6 Antecedents and Anaphora in Discourse

> Were a language ever completely "grammatical" it would be a perfect engine of conceptual expression. Unfortunately, or luckily, no language is tyrannically consistent. All grammars leak
>
> Edward Sapir 1921

This chapter discusses the leaks in the Whitesands coreference canoe.[1] In order to account for the ER data in the natural language corpus, there are two questions that help us understand the system completely: does the ER prefix always occur in clauses containing coreferential expressions?; and are antecedents of ER clauses completely predictable? The short answer is no, and there are both kinds of anomalies in the Whitesands ER system. There are the cases in which coreference across clauses does not permit ER constructions. Additionally, there are antecedents for ER clauses that are not simply the subject of the immediately preceding clause.

The chapter is divided into three parts, starting with the best kinds of antecedents for ER clauses (§6.1). Some of these we have already observed in Chapter 5, but further analysis is presented here, starting with some text extracts to give us an idea of how the features of Chapter 5 are implemented by speakers. I then investigate cases where coreference does not trigger the use of an ER prefix (§6.2), augmenting what we have seen in §5.5. Some of these restrictions are structural, but there are also cases where there are no clear syntactic constraints. Finally, I look at the cases where the antecedent for a particular ER clauses is not as straightforward as suggested in §6.1. Of particular interest are cases where the antecedent is a combination of different grammatical functions, that is not just a subject 'echo' (§6.3.1), and

[1] Sapir's metaphor turns out to be rather appropriate because in typical Whitesands rhetoric, including meta-discussion of language use, many metaphors use parts of a canoe or ship, e.g. *kani naklos nelowis raha neŋau* 'and you three will lead the community (lit. and you three will hold the rope of the canoe)' (also see Bonnemaison 1994).

further where ER clauses take their antecedent from a non-adjacent clause (§6.3.2).

The main conclusion of this chapter is that the principles governing the interpretation of ER clauses are a set of preferences. Like many other systems, there is an imbalance within the paradigm. The *m-* 'ER' is the stronger of the two sides, leaving the the full agreement forms (particularly third person) as the weaker part of the dichotomy. This is counterintuitive because the ER prefix is referentially less specific as it does not carry person reference. The full agreement does carry more referential information, but it is used only in contrast with the ER form to imply a different subject. This is just an implicature and so more easily contravened, making the different subject construction less systematic. An alternative way to think about the system is in terms of markedness. The unmarked form would be the ER indicating topic continuity, i.e. the status quo. The opposing marked form would be the full agreement forms, indicating discontinuity of topic. I return to this discussion in Chapter 10.

Thus, the system rules are not strict, and I argue that it would be rather difficult to make such rules, as communication is flexible and speakers can push boundaries and manipulate grammar for many reasons. The point of departure, though, must be what constitutes a typical utterance and how often do they occur. We turn to this now and look at the canonical antecedents.

6.1 Canonical antecedents

This is a descriptive study with accompanying experimental evidence, and while I use a corpus of Whitesands collected in the field, it is not a corpus study in the narrow sense. Thus, the frequencies of occurrence of any particular form (or combination of forms) given in this section are not provided as definitive proof but instead as general indicators (due to small sample sizes). Corpus frequencies allow for more meaningful comparative analyses between the ER system in Whitesands, and what is known about its sister systems throughout southern Vanuatu, or other switch-reference or serialising languages.

6.1.1 The functioning of switch reference in natural discourse

In this section I present three extracts — a sample of discourse from the Whitesands corpora. They are of three different genres or registers — traditional narrative, public speech and informal conversation — and together they give us a feel for how a speaker can use the ER construction or the complementary full agreement pattern. They show the function of the canonical switch-reference forms. These examples show the systematic structure

described in this thesis, providing a point of comparison for non-canonical forms. They also provide a platform for further discussion on the relationship between ER clauses and other syntactic devices. They are presented with minimal commentary, in the manner an illustrative text might be included at the end of a grammar. Thus, I will highlight only the most relevant features in each text.

6.1.1.1 Narrative

The following extract (212) is from a narrative text in which one speaker was explaining how a family functions on Tanna. There is a native speaker listener who also talks during the recording, but it is clear that at this stage of the discussion, speaker NN has the floor and the right to speak without interruption. We join the discussion when the speaker is about to describe what a household with a good husband would look like.

(212) (A man talking about the family unit and how it is important to a happy life.)

1 NN *in aha ia-m-ø-eni, na-k-ø-ua u ima*
3SG that 1.EXCL-PST-SG-say 2-NPST-SG-come PROX inside
m-ø-eru
ER-SG-see
This one that I told (the life of a good man), you come inside (the kitchen) and you see that

2 (0.49)

3 *nima t-ol klin*
house 3SG.NPST-make clean
the house is clean.

4 (0.41)

5 *kani* ***na-k-ø-ua*** ***m-at-ø-aliwok*** ***m-at-ø-ua***
and **2-NPST-SG-come** **ER-PROG-SG-walk** **ER-PROG-SG-come**
m-at-ø-eru *t-aon on ik*
ER-PROG-SG-see 3SG.NPST-call.out BEN 2SG
And you will come and walk and come and see (mother) will call out for you.

6 (1.21)

7 *na-k-ø-ue iie, m-ø-ue iie? ø-ua m-ø-eru*
2-NPST-SG-go where ER-SG-go where SG-come ER-SG-see
mə nima t-areiwan
COMP house 3SG.NPST-warm
Where are you going? Where are you going? Come and see, the house is warm.

8 (0.97)

9 *t-ol la-n-u wə*
3SG.NPST-make DAT-3SG-PROX or
It is like that, isn't it?

10 (0.63)

11 *metou, nowkate-n*
because root-3SG
Because, the foundation (lit. stump) (of the relationship),

12 (0.23)

13 *in ukunu*
3SG here
It is here.

14 (0.34)

15 *metou*
because
because

16 (0.09)

17 *nowkate-n-atiŋ-ien, powa ukunu*
root-3SG-NMLZ-live-NMLZ power here
Because the foundation of life, its strength is here.

18 (0.88)

19 *swah u, in u t-eni,* ***petan t-atiŋ***
man PROX 3SG PROX 3SG.NPST-say **woman 3SG.NPST-live**
vivi, swah u in u t-eni petan
good man PROX 3SG PROX 3SG.NPST-say woman
t-atiŋ rah
3SG.NPST-live bad
This man here, he says if a women lives well. (On the other hand) This (different) man here, he says if a woman lives badly.
WS4-110521-family1 00:22:32.520–00:23:07.320

The function of the switch-reference system is to flag changes or continuations in the reference of the subject of the clause. In (212.5) both of these functions occur. Initially, there is continued reference to the second person (hypothetical), which is first marked with full agreement *na-k-ø-ua* '2-NPST-SG-come'. The continuation is marked with three ER verbs — the third of these is *m-at-ø-eru* 'ER-PROG-SG-see'. Following on from this, in the same utterance, there is a change in subject, i.e. the actor of the next clause is different from the actor of the preceding clause(s). This change is marked in the most minimal way possible, simply using third person *t-aon* '3SG.NPST-

call.out'. There is no nominal reference, and since the other other salient referent in the discussion is a woman, then this must be the referent that is calling out, the referent indexed by the *t-*.

Another salient point is that, as predicted by §5.3, clauses with different illocutionary force can be linked using the ER, as in (212.7), where the interrogative is linked in this way. Also, later in the same line, there is shared imperative force, exemplifying the operator-sharing nature of ER clauses. Further, different subject constructions can take nominal reference if there is a potential ambiguity, as in (212.19), where *petan* 'woman' is used as the subject of a third singular clause. The change in subject is being marked twice, with the full NP and full agreement, even though it would be possible to do this without the nominal reference. Thus, while the full agreement is sufficient to mark a change in subject, this can often be augmented with extra referential information.

6.1.1.2 Public speech

The next selection (213) is from a public speech, where the speaker is debating the role of *kastom* (custom) and the church. The topic of the debate is *tupunis* — a figurehead who owns a series of prayers and ceremonies related to the harvest of crops. In the Whitesands region the most important *tupunis* crop is yams. Again, like the narrative, the speaker has the floor and once speaking will typically not lose the right to speak until he is ready to give it up.

(213) (A man is questioning the right of the church to break *kastom* law. The allegation is that three church-going men have ignored the traditional yam harvest calendar.)

1 JN *na-k-ø-apirakis, punishment aha-iken*
2-NPST-SG-better.than punishment that-PLACE
If you beat it (the kastom rules), then there is a punishment for it.

2 *nati-u t-amali patiŋam ama, nati-u isou aŋin*
thing-PROX 3SG.NPST-sleep down.place only thing-PROX far very
This is rather obvious, it has been like this for a long time (lit. this thing is very far away).

3 (1.06)

4 *k-ot-keikei m-ot-eru nati-u mə t-am-aroh*
3.NPST-PL-must ER-PL-see thing-PROX COMP 3SG-PST-how
la-n m-ø-ətaŋit
DAT-3SG ER-SG-break.by.dropping
They must see that thing, (and ask) how did it (the custom) break?

5 (0.94)

6 *tupunis t-am-aroh m-ø-ətaŋit, ot-eru*
tupunis 3SG-PST-how ER-SG break.by.dropping PL-see
nati-u!
thing-PROX
The tupunis, how did it break? Look (PL) at this thing!

7 (0.62)

8 *metou nafakiien raha-n, nafakiien raha-n suaru raha-n*
but church POSS-3SG church POSS-3SG road POSS-3SG
t-arwaru raha kastom t-arwaru
3SG.NPST-straight POSS kastom 3SG.NPST-straight
But his (the perpetrator's) church, his church, its road is lawful, (the road) of kastom is lawful.

9 (0.53)

10 ***k-on-os-os =iie kastom*** *m-ø-uven aha ie*
1.INCL-PRF-NEG.PL-hold =NEG kastom ER-SG-go that LOC
nafakiien-iken,
church-PLACE
We (PL.INCL) can't take kastom to where the church is,

11 ***m-os-os =iie nafakiien*** *m-ø-ua u*
ER-NEG.PL-hold =NEG church ER-SG-come PROX
kastom-iken
kastom-place
we can't take the church to where the kastom is.

12 (0.23)

13 *sua-mil aha raha-lau suaru t-arwaru*
boy-DU that POSS-3DU road 3SG.NPST-straight
Those two guys, their road is lawful.

14 (0.4)

15 *ot-eh ama nati-u*
PL-see only thing-PROX
See (PL) that thing here!

16 (1.61)

17 *ot-eru ama natiu! mə t-am-aroh la-n*
PL-see only thing COMP 3SG-PST-why DAT-3SG
Just see that thing! Why is it like that?

18 *na-k-ot-eru ama nati-u, mə tupunis ama*
2-NPST-PL-see only thing-PROX COMP tupunis only
You will understand this thing, that only tupunis (is important).

19 (0.41)

20 *tupunis ama u k-ot-aŋhati ohni*
tupunis only PROX 1.INCL.NPST-PL-talk BEN.3SG
This tupunis here we pray for it.

21 (0.23)

22 *mə* ***t-am-aroh m-ø-ətaŋit***
COMP **3SG-PST-how ER-SG-break.by.dropping**
(but) How did it break?

ISJHWS3-20100329JVC-03 00:12:42.404–00:13:15.357

Figure 6.1: *Screen shot of public speaking event*

This speaker does not develop longer inter-clausal ER constructions in this (type of) text because he is continually changing what he is talking about. There is no real chance to develop same subject chains and the only coreferential clause chain is (213.11), and this is done using the ER construction. Notice that the negation operator is expressed on both the antecedent clause *k-on-os-os =iie kastom* 'We can't take kastom' in (213.10), and the ER clause *m-os-os =iie nafakiien* 'We can't take the church' in (213.11).

There are three other features of the ER system that are worth highlighting. Firstly, we see instances of the ER construction being used in a linkage to form a predicate, where two verbs are joined together but only presenting one event or state. In particular, they are found in the rhetorical questions being repetitively asked *t-am-aroh m-ø-ətaŋit* 'How did it break?' in (213.22). There is also the use of the ER clause in a *must* construction (213.4), as described in §5.5.2.1. In this context these are far more frequent than clause chains denoting independent events.

Secondly, there are the two forms *muven* in (213.10) and *mua* in (213.11), and they appear to be isolated ER clauses with no antecedent. They are in the singular, which is clearly the wrong number marking if preceding plural verbs are taken to be their antecedents. Instead, they are examples where motion verbs are potentially used in a reduced form. When this occurs they are semantically bleached units only used to indicate direction. These reduced direction verbs probably fall somewhere in between a fully grammaticalised preposition system, and the event chains they originated from. I return to discuss this process of grammaticalisation in §6.2.1.1.

Thirdly, we can contrast (213.10) and (213.22). In the first case, the ER is coding an intransitive actor, whereas in the second case the ER is coding an intransitive undergoer. This means that only transitive actors can be coded by ER clauses, but both intransitive actors and undergoers can be coded by ER. That is, the ER is linked to the subject of the clause, and not to any particular semantic role.

6.1.1.3 Informal conversation

The final example (214) comes from a natural conversational setting between four men. They are sitting around preparing kava one evening, talking about one of their fathers (long deceased) and the dogs this father used to own. In this extract, there are no turn taking constraints like those found in institutional settings (cf. the narrative or public debate). So the order of speakers, and what they talk about, is negotiated as the text develops.

(214) (Three men are talking about an old dog called Tampo that they used to own, and about how smart it was.)

1	NI	*kuri*	*ko*	*raha-n,*	*nariŋə-n*	*ko*	*nak*	*apa*
		dog	PROX2	POSS-3SG	name-3SG	PROX2	what	LOC
		His (father's) dog, what was its name?						
2		(1.59)						
3	NI	*pale,*	*ie-n-ø-alu,*		*ie*	*nariŋə-n,*	*[Kapi*	
		pale	1.EXCL-PRF-SG-forget		INST	name-3SG	Kapi	
		pale, I have forgotten its name, (was it) Kapi.						
4	KW						*[xxx*	
							<inaudible>	

5 (1.03)

6 NI *ha*
What?

7 KW *Tampo*

8 (0.3)

9 NI *Tampo kati ko Kapi, Tampo Tampo Tampo*
Tampo one PROX2 Kapi Tampo Tampo Tampo
Tampo was one, and then Kapi, Tampo Tampo Tampo

10 (0.1)

11 NI *Tampo, trak t-at-ua, ø-am rakis ie*
Tampo truck 3SG.NPST-PROG-come SG-let.go off INST
trak
truck
Tampo, a truck is coming, come away from the truck!

12 K *ø-am rakis ie trak*
SG-let.go off INST truck
Come away from the truck!

13 (1.35)

14 NI *[ø-am rakis ie trak*
SG-let.go off INST truck
Come away from the truck!

15 K *[ø-am rakis ie trak*
SG-let.go off INST truck
Come away from the truck!

16 (1.49)

17 NI *t-am rakis, ø-ua m-ø-worisiŋ*
3SG.NPST-let.go off SG-come ER-SG-after
And he moved away. Come follow behind!

18 (0.21)

19 *t-ua m-ø-worisiŋ*
3SG.NPST-come ER-SG-after
And he came following behind.

20 (1.01)

21 *ilah rafin,* ***ø-aiiu*** *te* ***m-ø-awpwen*** ***m-ø-əsal***
3PL all **SG-run** now **ER-SG-first** **ER-SG-search**
kasawət
buff.banded.rail
(He knew) All of them (the commands). Go in front and look for buff banded rails (kind of bird)!

22 (0.32)

23 *t-ua* *m-ø-awpwen*
3SG.NPST-come ER-SG-first
He would go first.

24 (0.11)

25 T *<laughs>*

WS4-110608-imaiim 00:23:36.735–00:24:01.040

Figure 6.2: *Screen shot of conversation*

In this extract there are noticeably fewer instances of the ER prefix than in the narrative. There is one three part ER chain in the imperative (214.21), but the rest of the ER clauses are two-part constructions with a directional antecedent such as 'come' and then another verb such as 'before' or 'after'. This lack of ER occurrence may be a function of text length (the extract is slightly shorter than the other two), but I would argue that the switches in illocutionary force (and speaker) are also important. Each command is repeated as a statement — he first tells the dog what to do, and then the dog

does it. As illocutionary force is an operator shared across the two clauses of the ER construction (see earlier discussion on this), full finite agreement must be used each time an utterance with a different illocutionary force starts. So while the referent is continually referred to, a syntactic restriction prohibits the use of the same subject ER chain. It is not plausible to claim that (all) conversations (or public speeches above) are devoid of any long-type ER chains, i.e. that they are restricted to narratives or similar discourse arrangements, just because they are infrequent in this text.

In summary, these three extracts exemplify that genre, register and the textual topicality all influence the frequency of ER clauses and its associated switch-reference system. A sensible claim would therefore be that the rate of ER clauses relies on context, what it is that people are speaking about, and the series of events, states etc. that are being encoded. If an appropriate form of predication is done using non-finite means, then this too would impact the usage of finite clause chains. Alternatively, there are constructions where it is appropriate or necessary to use an ER clause. In the next section, I discuss the frequency of such occurrences in more detail and provide preliminary statistical evidence based on the Whitesands corpus.

6.1.2 Frequency of switch-reference constructions

The ER prefix can be used with any number combination to represent any person antecedent. This is precisely what makes it a switch-reference system as outlined in Chapter 5. It reduces the explicit person contrast in chains of clauses, and therefore gives a reading of coreference. But does a speaker have to use this strategy if arguments of two consecutive clauses are coreferential, or is there flexibility within the system? The latter possibility seems to be closer to the truth. It appears that Whitesands speakers can use full agreement clauses when ER clauses are possible, and vice versa, they sometimes use ER clauses when full agreement might be a more appropriate strategy.

Crowley 1998, 2002 provides the only other investigation into frequency of use in the language of Sye from Erromango (the island to the north of Tanna). What he observes is that:

> "A count of nearly two thousand verbs in sequence over seven texts gathered from three different speakers produced an average incidence of such [ER] verbs of about 37% of the total of inflected verbs." (Crowley 1998: 247)

To provide some comparative data for Whitesands I start with a similar count, but what we find is that such a simple analysis is misleading, and that further investigation is needed.

In Whitesands a count of 1837 verbs in sequence over four texts gathered from fourteen speakers produced an average incidence of ER verbs of about

19% of the total of inflected verbs.[2] This rate of overall incidence is lower than Sye, perhaps indicating language specific preferences. However, if the texts are looked at individually, it is clear that genre or register can have a significant influence on the ER rate of incidence. Table 6.1 shows that the rate of incidence can range from 14% to 63% dependent on text genre. The range here is much greater than the difference between the two languages.

	Genre	Rate of ER incidence
Text 1 (n = 1261)	casual conversation	14%
Text 2 (n = 412)	public speaking	20%
Text 3 (n = 59)	instruction	28%
Text 4 (n = 95)	personal narrative	63%
Total (n = 1827)		**19%**

Table 6.1: *Rate of incidence of ER clauses compared to all inflected verbs*

The claim that there is an average rate of usage for ER clauses is therefore not really useful. In fact, one could argue that it is potentially misleading — it overestimates the frequency of ER in regular day-to-day speech. While Crowley (1998) is not explicit about the types of texts that he used for the analysis, it seems that he is primarily using single-person narratives, or similar styles of language use. Moreover, he compiled seven texts with only three speakers. While it is conceivable that all seven texts are conversations between three people, this is unlikely given his fieldwork methodology (Crowley 2007; 1998). Thus, for such a claim about prevalence or usage to be made, a serious, in-depth investigation into discourse types is needed. This is beyond the scope of this study, but we can look at these texts in a more detailed manner to see if ER structures are used when required, i.e. investigate how much flexibility there is in the system.

This preliminary investigation into ER usage brings forward some more data that is worth presenting here. First, we can look at the rate of incidence of ER in the person form it is referencing. Table 6.2 on the following page shows the rate of incidence of ER clauses (compared to full agreement) broken down by person, where *n* is the total number of inflected clauses. The table reads as follows: in Text 1, for instance, out of the 284 times first person is referenced, it was in 17% of cases that this was done with the ER prefix. Or, for the imperative (IMP) in Text 2, the public speaking extract, 9% of 11 imperative clauses are marked with ER.

[2] The recordings and their transcriptions can be found in the Whitesands archive at persistent identifier handles:
Text 1: http://hdl.handle.net/hdl:1839/00-0000-0000-0017-838F-2;
Text 2: http://hdl.handle.net/hdl:1839/00-0000-0000-0017-80FE-2;
Text 3: http://hdl.handle.net/hdl:1839/00-0000-0000-0017-8163-F;
Text 4: http://hdl.handle.net/hdl:1839/00-0000-0000-0017-81AE-5.

		Person			Mood
	Genre	First	Second	Third	IMP
Text 1	casual conversation	17% (n = 284)	22% (n = 215)	11% (n = 689)	12% (n = 73)
Text 2	public speaking	24% (n = 149)	22% (n = 65)	17% (n = 191)	9% (n = 11)
Text 3	instruction	39% (n = 31)	- (n = 0)	18% (n = 33)	- (n = 0)
Text 4	personal narrative	76% (n = 71)	0% (n = 1)	25% (n = 24)	- (n = 0)
Total		28% (n = 535)	22% (n = 281)	13% (n = 937)	12% (n = 84)

Table 6.2: *Rate of incidence of* ER *clauses compared to all inflected verbs sorted by person reference*

A look at the table shows that there is little correlation or relationship between person and the use of ER (although further analysis *might* show there is one). That is, there is still much more variation between texts than there is between different person values. For example, it clearly the case that a personal narrative requires a significant amount of first person agreement, and if this is a continued stream of reference then one expects a high use of the ER device as seen in Table 6.2 (76%, i.e. 54 out of 71 verbs use ER).

The only tendency in the data apparent so far is that first and second person are notably more likely than third person to use the ER form in coreferential situations. Speech act participants seem to be more acceptable antecedents for the *m-* prefix and there are several considerations that may explain this variation. One potential explanation for this is that people refer to what is topical to them — themselves. However, if we look at the raw count of verbs, we see that the speech act participants (i.e. first, second and imperative (IMP)) combined are roughly equal to third person reference. Speech act participant reference has a higher rate of ER incidence despite this. One possible reason is that third person referents are more often elements of peripheral events or states, without topical persistence in the text. Any long form of continued reference towards a series of events could be biased towards the interlocutors, as they are most important in the context of events in these texts.

There is another potential explanation as to why first and second person are more likely to use ER for coreferential clauses — there is less ambiguity in the reference of speech act participants. Speech act participants are sitting around under the same tree, visible and accessible to all speakers. Third person reference is prone to ambiguity as they are not necessarily present. This is compounded further if the world knowledge of the two interlocutors

does not sufficiently overlap. It is therefore understandable that third person uses ER a little less, as the ER prefix requires that the referent is well known, accessible and useful for the context. I would argue that the reason for the comparable rarity of ER constructions in reference to third person is a combination of these factors, and it would be very hard to tease them apart in a corpus study. In the experiments presented and discussed in Part III, I shall try to reduce the effects of these factors in experimental settings, and investigate coreference and disjoint reference in only third person.

Another interesting question is the obligatoriness of its use — i.e. do speakers always use ER when possible? The answer to the question on *possibility* comes in two parts. Using the same data set (4 texts, 1837 inflected verbs), I coded each clause for ER or finite inflection, and also whether that clause was a potential case for ER inflection or not. The criteria for the evaluation of wellformedness were the canonical properties presented in Chapter 5: full coreference across clauses; no use of embedding; tense or illocutionary force sharing; unmarked intonation; and correct use of conjunctions. For example, the following is a good potential clause: the subject of the clause was coreferential with the subject of the immediately preceding clause; there was no evidence of embedding; tense and illocutionary operators were shared; and there was no conjunction (215).

(215) *ierman t-am-efen nau kam in m-ø-uven*
man 3SG-PST-give knife to 3SG ER-SG-go
The man gave the knife to her, and he left.

If such a clause took ER marking, then this was considered well formed, but if it took full finite agreement then this was considered anomalous. Equally, if a clause had disjoint reference, or mixed tense operators, then this was a good candidate for full agreement, and would be considered anomalous if the ER prefix was used.

Table 6.3 on page 125 shows this analysis for the conversation (Text 1), where each row is a person reference value. The first column shows the number of potential coreferential clauses, and the second column shows the rate of incidence of the ER prefix. So for first person, there were sixty potential clauses that could take ER marking but only 72% of them actually did, i.e. 28% of coreferential clauses were marked with full agreement instead of a possible ER. In total, the ER clause is used in 74% of such situations — it is a much better than chance estimation of ER usage. The other 26% of clauses, those which are not canonical, take full finite inflection even though they are coreferential.

The use of ER clauses in Text 1 (the conversation) is the lowest of all four texts. Tables 6.4, 6.5 and 6.6 on page 125 present the same data for the other three texts. What we see is that the rate of incidence for an ER clause is much higher — something in the order of 95%. This means that in any given coreferential clause chain there is a higher than ninety percent

likelihood of a speaker using the ER construction, and this is regardless of person reference.

An additional question that this more detailed count can address is the nature of the antecedent. How often do non-canonical antecedents occur (these cases are discussed in more detail in §6.3)? In this case, the antecedent for the clause is not simply the subject of the preceding finite clause. Table 6.7 on page 126 shows the rate of incidence for the sub-corpora presented in this section. In this table, *n* is the total number of ER clauses for any particular condition and the percentage is how many of them were non-canonical. The total rate of non canonical antecedents was 9% — i.e. one out of ten ER clauses has an antecedent that is not solely the subject of the immediately preceding clause.

This count was done conservatively, so that any borderline case was counted as canonical. For example, the use of exact repetition of a turn for emphasis can have either ER agreement or full finite agreement. Either case was counted as canonical for this survey, so as to not inflate the non-canonical count. The frequency of these non-canonical forms is low. This means that the construction has a low countability status, and this could inhibit any large scale corpus analysis — i.e. there are not enough examples to make a testable set. Moreover, the variation in the multitude of contexts would be too diverse to be able to make meaningful claims. Like the canonical cases before, these results show that person does not play a role in determining the use of the ER prefix — i.e. person is not a good indicator of when a non-canonical antecedent is used. A further conclusion — that is somewhat counterintuitive — is that while the ER system is functionally more meaningful as a paradigm in the third person (i.e. same versus different subject without any deictic information), this is not reflected in usage patterns.

Finally, we can combine the two anomalous cases together to give an overall impression of the predictability of the system. The question is, assuming there is a default canonical state, how often does Whitesands deviate from the script by either not using an ER form where possible, or by having a non-canonical antecedent? That is, how often does the switch-reference system deviate from the principles outlined in the previous chapters? Table 6.8 on page 126 presents these cases per text and in total.

In Whitesands, we find that approximately 5% of all clauses do not adhere to the switch-reference rules outlined in Chapter 5 on page 71. These are either when the *Adjacent Finite Predicate Antecedent Rule* is not followed, or when coreference clauses are not marked with ER, or ER clauses have a non-canonical antecedent. These are not ungrammatical utterances as there is no indication of repair by speakers or hearers for this 5%, nor are they rejected by consultants in grammaticality judgements. One way of thinking about this is that the model presented in this study correctly accounts for 95% of a random sample. I return to discuss this further in the summary of this chapter (§6.4).

Person	Number of coreferential clauses	*m*- rate of incidence
First	60	72%
Second	56	80%
Third	90	74%
Imperative	14	57%
Total	220	74%

Table 6.3: *ER clause occurence in coreference situations: conversation*

	Number of coreferential clauses	*m*- rate of incidence
First	35	94%
Second	12	100%
Third	31	100%
Imperative	1	100%
Total	79	97%

Table 6.4: *ER clause occurence in coreference situations: public speaking*

	Number of coreferential clauses	*m*- rate of incidence
First	13	92%
Second	0	-
Third	6	100%
Imperative	0	-
Total	19	94%

Table 6.5: *ER clause occurence in coreference situations: instruction*

	Number of coreferential clauses	*m*- rate of incidence
First	50	96%
Second	0	-
Third	6	100%
Imperative	0	-
Total	56	96%

Table 6.6: *ER clause occurence in coreference situations: narrative*

	First	Second	Third	IMP	All
1 conver.	10% (n = 48)	6% (n = 48)	12% (n = 76)	11% (n = 9)	10% (n = 181)
2 public	8% (n = 36)	14% (n = 14)	6% (n = 33)	0% (n = 1)	8% (n = 84)
3 instru.	0% (n = 12)	- (n = 0)	0% (n = 6)	- (n = 0)	0% (n = 18)
4 narrative	11% (n = 54)	- (n = 0)	0% (n = 6)	- (n = 0)	10% (n = 60)
Total	9% (n = 150)	8% (n = 62)	9% (n = 121)	10% (n = 10)	9% (N = 343)

Table 6.7: *Rate of incidence of ER clauses with a non-canonical antecedent compared to a canonical antecedent*

	First	Second	Third	IMP	All
1 conver.	8% (n = 284)	7% (n = 215)	5% (n = 689)	10% (n = 73)	6% (n = 1261)
2 public	3% (n = 149)	3% (n = 65)	1% (n = 191)	0% (n = 11)	2% (n = 416)
3 instru.	3% (n = 31)	- (n = 0)	0% (n = 33)	- (n = 0)	2% (n = 64)
4 narrative	11% (n = 71)	0% (n = 1)	0% (n = 24)	- (n = 0)	8% (n = 96)
Total	7% (n = 535)	6% (n = 281)	4% (n = 937)	8% (n = 84)	5% (n = 1837)

Table 6.8: *Rate of incidence of non-canonical switch-reference function*

A further interesting observation from the Table 6.8 is in the Total row — we see that there is a significantly lower percentage associated with the third person. This was tested using mixed effects logistic regression, controlled by genre. Third person is significantly different from both first ($\beta = 0.675$; $z = 2.77$; $p < 0.01$) and imperative ($\beta = 0.883$; $z = 2.04$; $p < 0.05$) agreement. Third person is also significantly different ($\beta = 0.638$; $z = -2.90$; $p < 0.005$) from all speech act participants combined (first, second, and imperative).

This is congruent with the claim that in the third person a switch-reference system is at its most conventionalised. Speech act participants are fixed and finite referents, yet there are an infinite number of potential third person referents. This means that reference to first and second person can be less informative, and third person should therefore be encoded in the most sys-

tematic fashion for productive comprehension.

To sum up this section, what we have seen is that broad summaries about rate of incidence are not the best way to approach a description of the ER phenomena. Instead, I have presented data showing that genre and discourse topic are important in determining how often the construction is used. That is not a claim that there is interdependence between any particular genre form and the switch-reference system, but more a claim that the topical nature of each genre is what determines the use of the switch-reference system. Further, it is clear that the canonical description covers most of the agreement patterns found in the sample analysed, but there are cases where the typical rules of antecedence and switch-reference function do not apply.

6.1.3 Word order and arguments

6.1.3.1 Word order

Whitesands has a relatively strict word order for pragmatically unmarked sentences and clauses. The privileged argument always precedes the verb, while other arguments typically follow the verb: most adjuncts are sentence final as well. What this means for ER clauses is that the overwhelming majority of clauses have a word order of *m*-Verb (Object) (Oblique) since no subject is expected. Any peripheral constituents come at the end of the clause. It is preferred for the *m-* verb to come first, or at the least immediately after a conjunction such as *kani* 'and' or *ko* 'and.then'.

One interesting point is that fronting of objects for contrast or focus does not necessarily disrupt an ER clause chain. That is, a deviation from the canonical word order does not trigger a fully inflected clause. What is remarkable in such cases is that not only does an argument appear immediately before the ER clause — as a full referential phrase — but also that this argument is not indexed by the ER prefix.

Example (216) is an extract from a procedural text on how to craft a bow and arrow using traditional supplies found around the island. We pick up the narrative at a point where it is time to make the string. What is important is that once the referent (1SG.EXCL) has been established with the full agreement in (216.1), then the string of events in (216.2-216.4) utilising the same referent all use the ER agreement pattern.

(216) Excerpt: how to string a bow and arrow.

1	AK	*ko*	*ie-k-ø-uven*	*m-ø-eti*	*raha-n*	*towəl,*
		and.then	1.EXCL-NPST-SG-go	ER-SG-hit	POSS-3SG	string.of.bow

noke-nepək
root-k.o.bunyan.tree
And then I go and cut down its string which is Banyan root.

2 *towəl* *m-ø-os* *m-ø-ua*
string.of.bow ER-SG-carry ER-SG-come
The string, I bring it back.

3 *ko* *m-ø-awi*
and.then ER-SG-string.wood
Then I pull the string out of it.

4 *m-at-ø-arawieh-i* *m-ø-elahu* *narawieh*
ER-PROG-SG-sun ER-SG-put sun
I put it in the sun.

5 *t-ahŋi* *ia-k-ø-eru* *mə*
3SG.NPST-sundry 1.EXCL-NPST-SG-see COMP
It dries it and when I see that

6 *n-asik* *n-eur*
3SG.PRF-dry, 3SG.PRF-good
it has become dry, it is good.

7 *ko* *ia-k-ø-uerin-uerin* *ko*
and.then 1.EXCL-NPST-SG-twist-RDP and.then
Then I twist it together and

8 *m-ø-etu=pen* *e* *nima-nfaŋa* *m-ø-orain*
ER-SG-join=to3 DAT house-bow.and.arrow ER-SG-bind
put it on the bow and bind it.

jhws2-20090301-ak01 00:36.565–00:52.512

The argument 1SG.EXCL is shared across the chain of clauses — creating a same-referent chain with all the dependent predicates using the initial verb *ie-k-ø-uven* '1.EXCL-NPST-SG-go' for resolution. These switch-reference constructions are typically sensitive to arguments from intervening finite clauses. In line (216.5), when the distinct actor argument of the 'sun' is used, the reintroduction of the 1SG.EXCL actor necessitates full agreement on *ia-k-ø-eru* '1.EXCL-NPST-SG-see'. We can see here that the change in subject between clauses is marked minimally via verb inflection.

On the other hand, non-finite predication (e.g. the post-utterance clarification in (216.1)) or sentential-level topicalisation do not necessarily trigger the use of full agreement. We can see in (216.2) the object *towəl* 'string.of.bow' is topicalised by fronting to the left of the clause.

(216.2) ***towəl*** *m-ø-os* *m-ø-ua*
string.of.bow ER-SG-carry ER-SG-come
The string, I bring it back.

Yet the ER chain remains. The same-referent clause chain can use other information structure procedures without breaking down. The argument typically to the left of a predicate is the subject, but by showing that the subject is

coreferential (i.e. by using ER) it allows for immediate comprehension that *towəl* 'string.of.bow' is not a subject, but instead it is an out-of-place, and functionally loaded, object. While preferred, it is not necessary for the *m-* verb to be the first constituent of a clause.

To sum up, once a highly salient referent is established and there is no serious conflict in resolution, then the ER and full finite inflection is sufficient for argument assignment. The ER system in Whitesands is not necessarily building the most salient participant of a text, but instead it is using an already established one for control over a clause chain. This forces a standard word order for the clause chains found in texts, and variation from this order is very rare and contains some additional pragmatic function.

6.1.3.2 Explicit arguments

An ER prefix marks that the main argument of the clause is known and immediately recoverable from the preceding discourse. While the prefix itself anaphorically refers to an argument of another clause, it is also possible for the ER clause itself to have an explicit pronominal form of the argument matching the antecedent. It is grammatical to have an explicit, in-situ pronoun that is the subject argument of an ER clause. Examples (217) and (218) show precisely this. In both of these examples, there is a pronoun before an ER clause, and that pronoun is the same referent as the antecedent for the ER clause.

(217)

in	***m-es-ø-efe***	*=ien*	*nefteni*	*kam*	*lah*	*kati,*	
3SG$_{SUBJ}$	**ER:3**-NEG-SG-give.to3	=NEG	earth	to	3PL	one	
iewə							
yes							

He didn't give his land to them at all, that is so?

WS4-110524-imaiim 00:13:23.910–00:13:25.970

(218)

itəmah	***m-əh-wen***	*o*	*ungin*	
1PL.EXCL$_{SUBJ}$	**ER:1**-PL-go	BEN	God	

We (1PL.EXCL) go to God.

ISJHWS3-20100329JVC-03-all 00:02:51.365–00:02:52.853

This is one feature where the grammars of Whitesands (and North Tanna) differ from Lenakel — a pronoun form before a Lenakel *m-* is not grammatical (de Sousa 2007).

I would argue that it is not accurate to claim that this explicit argument is the antecedent for the anaphor expressed by the *m-* 'ER-'. In all attested incidences of ER occurring with an explicit argument there also exists a preceding clause that provides a typical antecedent for the ER such as (219) and (220). In (219), for example, there is the preceding clause *ia-k-ø-apwa* 'I stopped'

which is a good antecedent candidate for the ER clause *iou* ***m-ø-uven*** 'and I go'.

(219)
ia-k-ø-apwa *kani ko* ***iou*** ***m-ø-uven*** *o naliŋ*
1.EXCL-NPST-SG-no and then **1SG$_{SUBJ}$** **ER**-SG-go BEN trap
mən ko ilahal kesəl
PL PROX2 3TRI three
I stopped and then I went for the other traps, the three of them.
JHWS2-20090301-ak02 00:02:11.412–00:02:14.262

The ER clause in (219) would be an ungrammatical without that antecedent clause, and this behaviour confirms that it is the explicit pronoun that is the optional extra in these doubly-marked constructions.

Example (220) shows a similar pattern: it is necessary to have an antecedent clause (220.2) for an ER clause even if there is an explicit pronominal argument (220.3).

(220)

1 *iou ia-k-ø-ol nahwel*
1SG 1.EXCL-NPST-SG-make laplap
I make pudding,

2 *t-os m-ø-ue*
3SG.NPST ER-SG-go
and he takes it

3 ***in*** ***m-ø-ol*** *narme-mahawmahaw i,*
3SG $_{subj}$ ER-SG-make image-star.RDP TRNS
and he makes a star game with it,

4 *in ierman,*
3SG man
he is the man,

5 *t-alhwaiŋ la*
3SG.NPST-hide DAT
he hides it.
ISJHWS3-20100711JVC-01-ma 00:02:57.014–00:03:02.941

This doubling up of argument with ER prefix is rather rare in natural texts. In a genre-diverse sample of 800 ER verbs from the natural language corpora, only ten clauses (i.e. the four above and six others) have an explicit pronoun argument — around one percent. There is no evidence to suggest these cases are ungrammatical nor speech errors: they were not self- or other- corrected and native speakers judgments suggest they are fine utterances. What is this pronoun doing then? There is no clear functional grounds for why these examples should have explicit arguments, although some kind of contrast

does appear to be important in their presence. If it was contrast this would then be congruent with the use of explicit pronouns without ER and thus unexceptional. Because explicit arguments are so rare with ER agreement, and importantly they do not change the meaning (or attribution of referents), they warrant no further investigation in this thesis.

6.1.4 Intonation

It should be clear by now that the ER construction is used in a multitude of contexts. It is a tool for creating narrative structure, but equally it is used to create units with integrated arguments and meaning. Further, like most natural languages, intonation in Whitesands plays a role in how speakers "distinguish" possible variations in meaning, or pragmatic force (Hirschberg 2004: 535). So the questions we must eventually ask are: is there a relationship between intonational meaning & function and ER clauses? Is intonation phrasing a necessary part of the construction? At present it is not possible to answer this question satisfactorily because the corpus does not have clear enough audio signal for individual speakers to measure intonation tunes accurately. I will leave these questions open for further research. A couple of key observations will have to suffice here.

A preliminary observation would be that an ER clause can use whatever intonational cues are necessary for that particular utterance — much like other clauses. There are potential meanings for different contours, and the anaphor is not bound to any particular one, or in fact, any particular segment of one. For example, we have already seen that interrogatives can be formed using ER clauses (§5.3). In (221), there is a question formed that contains an ER clause. The interrogative status of the illocutionary force is indicated by the combined use of *wə* 'or', and a rise/fall contour at the end of the clause — the contour for (221) is seen in Figure 6.3 on the following page.[3]

(221)	*ia-k-ø-ol*	*traem*	*m-ø-elis*	*in*	*u*	*wə*
	1.EXCL-NPST-SG-make	try.TRNS	ER-SG-hold	3SG	PROX	or
	Should I try and tie this one?					

WS5-120128-conver 848566–849718

In this case the utterance uses an interrogative intonation (final rise/fall). The placement of the final intonation segment is determined not by the use of a particular syntactic construction, but instead it occurs at the clause's right-edge boundary. The ER clause *m-elis* is not considered a special segment of the contour, it shares the same type of contour as its preceding and following constituents.

[3] The contours presented in this chapter were obtained with the pitch detector in Praat set to default parameters.

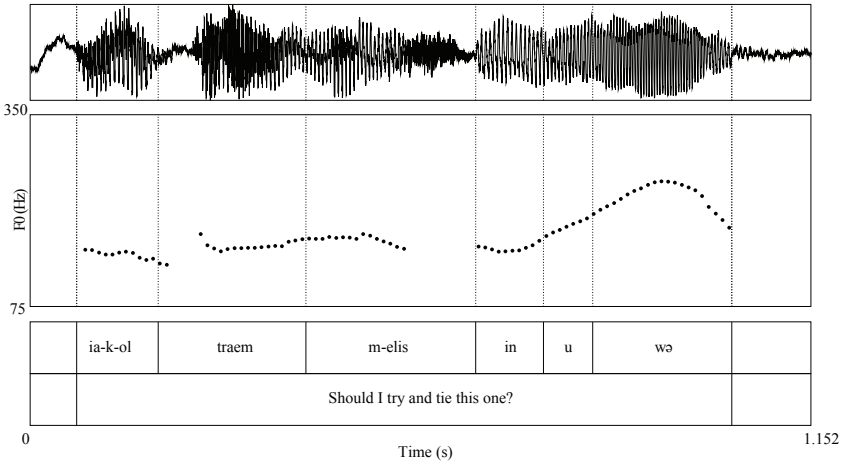

Figure 6.3: *Intonation contour of* ER *linkage within an interrogative*

This means that if the ER clause is in a different sentence position (i.e. final), then it can carry a different segment of the contour. Example (222) shows this contrast, as *mos* is in a different position and carries the rise part of this imperative contour — the contour for (222) is seen in Figure 6.4 on the next page.

(222) *ø-uven to m-ø-os*
SG-go try ER-SG-hold
Go and get it!

WS5-120128-conver 1444471–1445231

My analysis is that the contour is not determined by the presence of a clause chain, but the ER clause is expressing its share of the tune. In this case, the ER clause is at the end of the utterance, and the utterance has a final rising imperative contour, therefore the ER clause has a rising accent on it. Of course, this requirement for the utterance-final rising tone could conceivably be manipulated by speakers to keep their turn, or to add more information to the imperative. But, this is no different from a non-ER clauses, just a reflection of what content is going into an utterance.

The final pitch contour presented in this chapter, (223) and Figure 6.5 on page 134, is more complex than the two I have already analysed. Nevertheless, the hypothesis that ER clauses do not carry unique intonational cues still holds. The alternative hypothesis is that the juncture was prosodically marked but without a perceivable information shift or pause (but see further on for counter examples to this hypothesis).

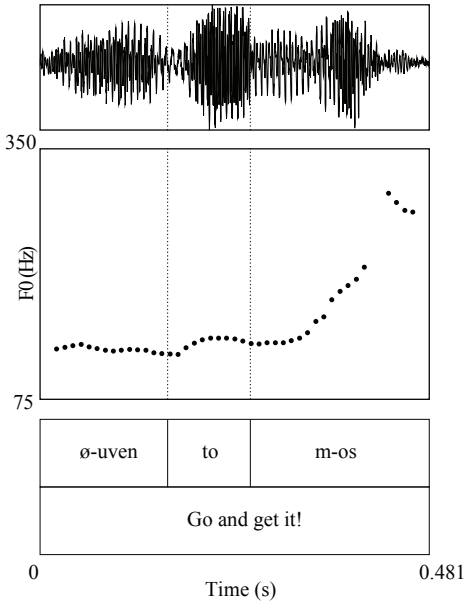

Figure 6.4: *Intonation contour of* ER *linkage within an imperative*

There are a few noteworthy features of these intonation patterns. Firstly, like the examples above, the three ER clauses appear to be integrated into an utterance, and they carry no identifying intonation. In this case, it is a declarative intonation phrase, in contrast to the interrogative or imperative examples we saw above.

(223) *olawoŋ raha-n mama t-elis m-ø-uven apaha*
tomorrow POSS-3SG mother 3SG.NPST-hold ER-SG-go LOC
i taon m-ø-os nati kati m-ø-efen t-un
TRNS town ER-SG-hold thing one ER-SG-give 3SG.NPST-eat
Tomorrow his mother will take him to town, and she will get something for him to eat.

srp1-15left 3083275–3088215

Secondly, the extract is longer, consisting of three distinct parts, and at the end of the first two parts there is a (low-high rising) continuation contour on the words *olawoŋ* 'tomorrow' and *toan* 'town'. One might assume that this type of contour could be restricted to clause chains, as speakers use it to indicate that they are in the middle of an unfinished utterance with more information to come on that particular topic. However, this assumption does

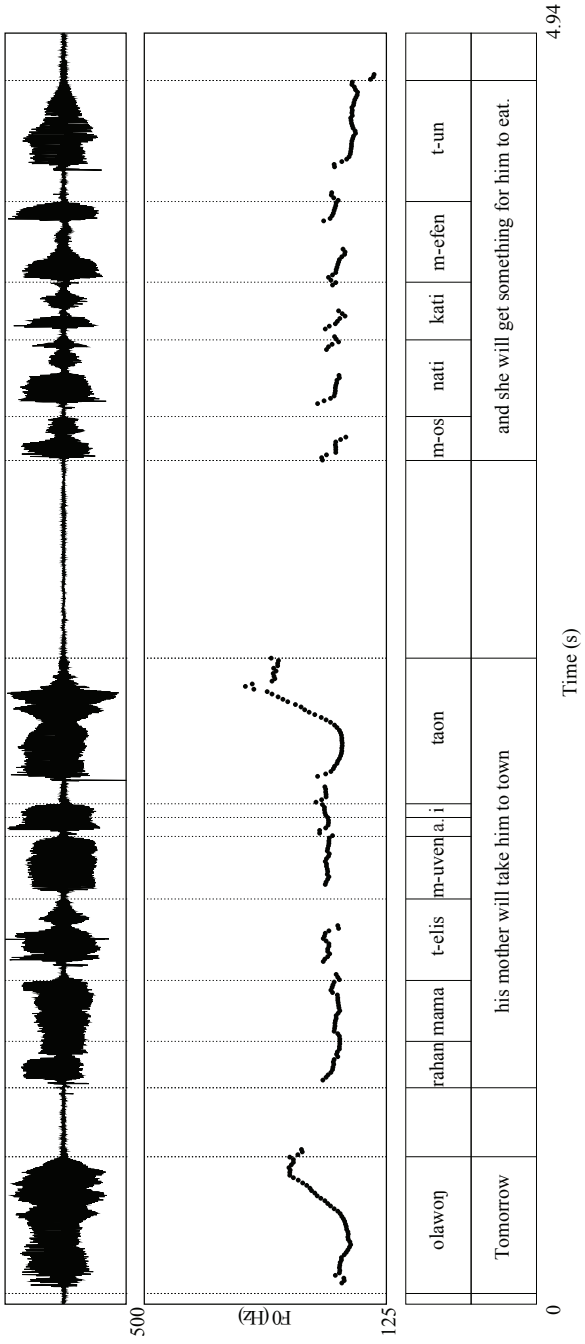

Figure 6.5: *Intonation contour of ER linkages within a declarative*

not hold. The clause immediately after the first continuation rise has a full noun phrase and full agreement (*raha-n mama t-elis*). The clause after the second continuation rise is an ER clause (*m-ø-os nati kati*). Clearly both full agreement clauses and the ER clauses can occur after such a continuation rise. The identification of such a contour does not help predict what is going to occur next — the same contour is used to mark an adjunct to clause relationship, as is used to mark a continuation of an ER chain.

Thirdly, and this point is important, there is no noticeable difference in the intonation cues between a same subject construction and a different subject construction. In the third part of (223) there is the clause *mefen*, a same subject construction which takes *mos* as its antecedent clause. There is also a different subject construction *tun*, and the switch in subjects is only expressed using the minimal full agreement pattern. Both of these constructions carry the same level intonation, that is, a steady continuation of the tune. There are no intonation cues leading up to *tun* that suggests the ER chain is about to be broken by a different subject construction. The different subject construction follows the same intonation pattern as the ER construction, and the switch in reference is achieved solely by the morphosyntactic contrast.

Fourthly, there is also a noticeable break intervening between the ER clause and its antecedent clause — there is a silence of 0.80 seconds before the clause *mos*. These silences do not break an ER clause chain, and there is no conclusive evidence in either the corpus or elicitation that suggests that silences necessarily constitute a break in a clause chain. Of course, in (223) this pause is not surprising given the use of the continuation contour, but it is not always necessary to use such a contour before an in-chain pause.

The last example is presented without a pitch contour, but it provides further evidence that there are limited restrictions on the timing of ER clauses. That is, it is not a requirement of ER clauses to be bound within a continuous, unbroken intonation frame — pauses and disruptions without evidence of a continuation strategy are not a problem for creating clause chains. This is not always the case for narrative structures, where there is often clear evidence that some narrative structures require continuity for wellformedness (Senft 2010). Example (224) exhibits such a break, and this is longer than the pattern seen in (223). There is a 1.36 second pause, and a complement clause, between the anaphor *m-awt-eru* and its antecedent. The preceding clauses all have falling intonation, and do not carry the sharp low-high rising we saw in (223) above.

(224)

1	EK	*k-ot-atapua*	*ik*	*la-n*	*wə*	***m-ot-eru***	*mə*↘
		3.NPST-PL-ask	2SG	DAT-3SG	or	**ER-PL-see**	COMP
		They ask you for it or, they see that					

2 *n-et-atu* *ie* *paŋnemte-n* *kati*↘
2SG-PROG-represent INST side-3SG one
you are standing on behalf of one group

3 (**1.36**)

4 ***m-awt-eru*** *ama*
ER-PROG.PL-see just
They are just observing (that)

5 *n-aŋhati-ien* *asoli* *men* *t-at-ua* *u*
NMLZ-converse-NMLZ big also 3SG.NPST-PROG-come PROX
all the big talk that comes here.

ISJHWS3-20100329JVC-01-hi 00:00:11.917 - 00:00:20.313

There is no evidence of a continuation intonation, with a normal declarative falling pitch contour at the end of the preceding clause (224.2). The ER clause in (224.4) seems to exists in a different, independent intonation unit. The length of any interceding pause can vary and can combine with other lexical material, further reducing the importance of adjacency for resolution.

The analysis of clause-level intonation in Whitesands, as for other southern Vanuatu languages, is in its infancy. What is necessary is an update to the corpora to include higher-fidelity audio streams that allow for a better quality analysis of the fundamental frequency. This would allow us to systematically isolate any relationships between clause-level tunes and various syntactic constructions and pragmatic contexts. This could be a fruitful area for further investigation, not only for the description of ER constructions, but for the description of these languages as a whole. For now though, I would conclude with the hypothesis that no one specific intonation pattern is used with the ER clause. Instead, the ER — like all types of clauses — is used in conjunction with a variety of different tunes, each with its own specific use or meaning.

6.2 Coreference without an echo

6.2.1 Non-functional juxtaposition of full agreement clauses

In this section, we explore further some examples from texts that do not conform to the canonical switch-reference system. In particular, it will focus on cases were one would expect to see an ER clause, but instead we find full agreement patterns. These are part of the misbehaving set that do not allow the switch-reference system to be perfectly conventionalised (this has been observed before in other southern Vanuatu languages, de Sousa 2007).

In the previous chapter, there were examples of the idiosyncratic behaviour of certain lexemes, where one lexeme might use an embedding construction and another similar lexeme may not (e.g. §5.5.2.1). While these idiosyncrasies might be hard to predict without an understanding of the lexicon of Whitesands, they are based on structural restrictions, e.g. no ER anaphors in embedded constructions. However, there also exist examples without any structural constraints on the use of an ER, and more often than not, an ER clause would be a perfectly acceptable alternative. Before we investigate these, let's review with a minimal example of a different subject construction.

Example (225) illustrates the extent of the functionality of the switch-reference system. The use of two juxtaposed third person singular agreement patterns is meaningful — it indicates that there are different subjects in each clause.

(225) *Laf t-ivi* ***t**-iaiŋ* *rakis*
Laf **3SG.NPST**-pull 3SG.NPST-escape out
Laf fished, it came out (of the mouth).
WS5-120128-conver 00:20:24.713–00:20:25.963

We could compare this to a similar construction that uses the ER prefix on the second verb instead of third person singular, as in (226).

(226) *Laf t-ivi* ***m**-ø-iaiŋ* *rakis*
Laf 3SG.NPST-pull **ER**-SG-escape out
Laf fished, and he (Laf) came out (of something).

This contrast is the core of the switch-reference system. However, as mentioned in §6.1.2, there are clauses in texts that do not abide by this paradigm. For example, in (227) there are two consecutive third person singular verbs — a canonical situation indicating disjoint reference.

(227) *t-ol* *usem* *la-n* ***t**-araki*
3SG.NPST-make use.TRNS DAT-3SG **3SG.NPST**-throw.out
petiŋam *ie* *kat*
downwards INST card
He should use them (cards) and he should throw the (yellow) cards down.
WS4-110527-pig-4 13:48.840–13:52.685

However, the subjects of the two clauses are coreferential and one would normally expect *m-* marking for this reading. There is no evidence of embedding or other syntactic conditions restricting the use of the coreferential marker. The two clauses necessarily have the same actor referent as there is

no obvious alternative from the discourse. Perhaps this lack of an alternative allows for a less strict interpretation of the different subject construction. That is, pragmatics overrides a strict syntactic rule.

It is especially in these third person (singular) cases that one would expect the system to be consistent, as there are no other clues about coreference. If the use of the adjacent third person singular verbs in (228), for example, should mean that they are disjoint, then it is odd that the preferred reading of such constructions can mean the exact opposite — that the arguments that fill the subject positions are coreferential.

(228) *ko* *in* *t-eru* *ko* ***t-elis***
then 3SG **3SG.NPST**-see and.then 3SG.NPST-hold
And then he$_x$ sees it and he$_x$ takes it.
WS5-120128-conver 00:51:26.984–00:51:27.994

This is a partial break down of the predictions of the syntactic conditions from Chapter 5 (see Table 5.3 on page 108). It is not ungrammatical — the semantics of the agreement pattern are technically correct and true — but it is a deviation from the norm.

This apparently exceptional behaviour is not restricted to third person agreement patterns, and can occur in first or second person too. Example (229) demonstrate this, where *k-ot-eru* 'we look' and *k-ot-alahu* 'we put' have the same subject argument.

(229) *metou* *k-ot-eru* *aruaru* *nengau* ***k-ot-alahu***
but 1.INCL.NPST-PL-see straight canoe **1.INCL.NPST-PL-put**
But we look directly at the ship, we put it (the ship straight).
ISJHWS3-20100329JVC-03-all 00:07:27.693–00:07:29.679

Indeed, in this case knowledge about speech act participants would force the reading of coreference, so in a sense there is no need for the ER prefix although it would be a more acceptable alternative (230).

(230) *metou* *k-ot-eru* *aruaru* *nengau* ***m-ot-alahu***
but 1.INCL.NPST-PL-see straight canoe **ER-PL-put**
But we look directly at the ship, we put it (the ship straight).

Third person and first/second person appear with similar regularity in the switch-reference system. There is no evidence that third person is a more conventionalised or consistent agreement pattern.

This investigation has not been able to find any conclusive criteria for determining when ER should be replaced by a full agreement pattern in these kinds of cases. One possibility is intonation phrasing, but I suggested previously that intonation was not a definitive criteria for determining when an ER

clause should or should not be used. It is probably true that a strong intonation break between two finite clauses can potentially be enough to 'reset' the person contrast and allow for a new finite clause, as in (231). Here, *t-aiiu* 'It runs' is coreferential with *t-ahrun* 'It is able' Again there is no indiction of this coreference through nominal means — it is solely determined from the context.

(231)

1	AK	*k-os-t-afu=iie*	*in*	*t-eri*	
		1.INCL-NEG-PL-see=NEG	3SG	3SG.NPST-up	
		We don't see it come up.			
2		*t-ahrun*	*n-elis-ien*	*in*	*u*
		3SG.NPST-know	NMLZ-hold NMLZ	3SG	PROX
		It is able to take this one.			
3		(2.49)			
4		***t-aiiu***	*apaha*	*leteni*	*aŋan*
		3SG.NPST-run	LOC	bottom	INTENS
		It runs down along the bottom.			

WS5-120128-conver 00:11:52.971–00:11:58.391

If we take out the examples with an arbitrarily-sized large break (silence greater than 3 seconds), then the incidence of these cases is still quite high (up to 25% of coreferential clauses use full agreement pattern). They warrant consideration because they are behaving oppositely to how full agreement patterns typically work, and provide counter-evidence to claims that switch reference is a fully conventionalised system. It would be problematic to claim that this is inherently part of the ER system. If a set of contrasting forms has too many anomalies, then it is no longer regular enough to be a system.

This evidence therefore leaves at least one more issue unresolved in this description of person agreement within the context of the ER prefix. The juxtaposition of semantically complete and informative clauses (what I have been calling full agreement) in Whitesands is not as functionally informative as the ER clauses. The former *potentially* indicate disjoint reference between two clauses' subjects, whereas the latter *obligatorily* indicate coreference between two clauses. This lack of obligatoriness is problematic for the description of the Whitesands clause linkage system as it creates an asymmetric paradigm.[4] Of course we desire an explanation that accounts for syntactic control and pragmatic variation, however the evidence suggests that one side of the person paradigm — in this case the ER clauses — is much stronger in its denotation than its alternative — full person agreement. This

[4] I would argue that this is the case for all southern Vanuatu languages, excepting perhaps Anejom̃.

is, of course, the Levinson-type proposal of how coreference works in anaphora, and I return to discuss this further in Part IV.

6.2.1.1 Grammaticalistion of motion verbs

There is a further exception to the generalisations made in Chapter 5 — number marking on ER clauses is not strictly obligatory. It is typically ungrammatical for number to be missing on semantically full clauses, but some verbs often occur with a singular number when the matrix clause that is the antecedent for the dependent clause may have a non-singular number. For example, in (232), there is an antecedent clause *k-am-w-ek* '3-PST-DU-touch', and this is clearly in dual. The immediately following clause is the ER marked *m-ø-ue* 'ER-SG-go', but it is in the singular. There is a mismatch of number across the clauses.

(232) *k-am-w-ek* ***m-ø-ue*** *metou* *n-aŋhati-ien*
3-PST-DU-touch **ER-SG-go** but NMLZ-talk-NMLZ
t-at-eh *mə* *ilau* *katiah* *ama*
3SG-PROG-see COMP 3DU one only
They collided, and went on but the talk said that they belong together as one.
WS4-110524-imaiim 00:05:02.840–00:05:03.530

One possible explanation is that the summary presented in §5.1.2 is wrong, claiming that number must be matched across the ER construction. I argue that the analysis requires only a slight alteration. In particular that this phonologically-reduced *m-ue (<m-uven)* 'ER-go' clause has undergone grammaticalisation. Similar processes have occurred in other southern Vanuatu languages, where is it more widespread (see Sye in Crowley 1998: 254).

We also saw earlier in that this can happen with other motion verbs, such as *-ua* 'come', as in (213.11), repeated here in (233).

(233) *m-os-os* *=iie* *nafakiien* ***m-ø-ua*** *u*
ER-NEG.PL-hold =NEG church **ER-SG-come** PROX
kastom-iken
kastom-place
we can't take the church to where the kastom is.

The verbs that allow this behaviour are a limited set including *-ue* 'go', *-ua* 'come', *uaris* 'until', and *eri* 'upwards'. When they are used without matching number in the ER clause, they are semantically bleached — they have reduced argument structures (i.e. they lack number) and they do not really provide any referential information as they are solely there to indicate information on direction, or temporal continuation or completion.

Clearly in this form there is no continuity of number across clauses because the number agreement does not match. This is not to say these lexemes cannot take number, but it is rather a claim that as part of a grammaticalisation process they often appear without it. This also accounts for their restricted meanings and why it is only a limited set. When they are in singular they are no longer a part of a canonical ER construction. Moreover, it is often the case that these few forms do not have clear antecedents.

These cases do not form a breakdown in the switch-reference system because they are coreferential without typical ER marking. Instead, there is clear evidence that this is a restricted process. We can summarise the interaction of the subject number operator with ER clauses as the following: subject number must be marked on both main and dependent clauses, and as an operator it is not shared across the clause boundary. When number is lacking in ER marked motion verbs, then these belong to a grammaticalised construction, i.e. they do not head dependent clauses proper.

6.2.2 Borrowings from Bislama

Whitesands speakers often use Bislama (and English) in all speech contexts, to innovate and expand the lexicon (Lindstrom 2007), or in language-changing word replacements (Hammond 2008). Verbs that are borrowed from Bislama must use a special construction (§3.4), where there is a dummy verb *-ol* 'make' to carry the tense, aspect and agreement markers. Borrowed verbs cannot take indigenous morphology and this applies for the ER prefix too. This means that any borrowed verb that has coreferential arguments with a preceding clause will use ER marking on the dummy verb.

Examples (234) and (235) show this, where respectively the borrowed verbs *pas* and *usem* follow the ER marked verb *-ol*.

(234) *m-a:-l-uven* *m-l-ol* *mən* ***pas*** *aha*
ER:3-PROG-TRI-go ER-TRI-make also **pass** that
And they (TRI) also passed that (place).
ISJHWS3-20100322JVC-pear-EK 00:04:03.061–00:04:15.022

(235) *ie-m-i-a* *m-w-ol* ***usem*** *e* *in* *u*
1.EXCL-PST-DU-go ER-DU-make **use.TRNS** DAT 3SG PROX
We (DU.EXCL) went and used this one.
WS5-120128-conver 00:23:24.432–00:23:26.382

There is nothing particularly remarkable about this characteristic of the interaction of borrowed verbs and ER usage. The ER is used on the two-part predicate in the same fashion as single verb predication.

6.3 Alternative antecedents

We started this chapter by asking what are the potential kinds of antecedents for ER clauses. The final section of this chapter returns to this question with an eye on grammatical relations and adjacency. Most of the ER constructions presented so far have had an antecedent that equals the subject of the preceding clause — a neat one-to-one mapping. Of course there have been restrictions on when the ER is used, but the antecedent form itself has remained reasonably constant.

It transpires that this simple antecedent assignment to preceding subject, while by far the most frequent form, is not the only possibility found in the Whitesands corpus. Once we look into contextually more diverse situations, the ER constructions become more complicated. The antecedent can be a non-canonical form and still be perfectly grammatical — we saw that this diversion from regularity occurred approximately ten percent of the time (Table 6.7 on page 126). What do these cases look like? I classify the non-canonical forms in Whitesands into two main categories: *Combination Form* (§6.3.1) and *Topic-Chain form* (§6.3.2). Occasionally there exists a form that could fall into either classification, but in general it is a reasonable distinction. Let us now examine them in turn.

6.3.1 Combination forms

The first non-canonical form presented here is the combination type. This is where the privileged argument (i.e. the anaphor) of the ER verb is computed from a combination of previously distinct antecedents. The reference of the ER is a group of antecedents. This means there is no requirement for there to be an exact mapping of anaphor to antecedent. In (236), there is an ER clause, *m-w-aplis* 'ER-DU-break', which is marked with dual. However, the preceding verb does not have a dual agreement pattern (it is in the singular).

(236) *t-am-at-oh raha-n ietemimi, **m-w**-aplis nati kati*
3SG-PST-PROG-hit POSS-3SG person **ER-DU**-break thing one
He has hit his wife and they have broken something.
WS4-110521-family1 00:11:28.190–00:11:31.150

In this case, it is impossible for the subject of the antecedent clause to fulfil all the referential information in the ER clause. The correct interpretation for (236) is that there are two actors of the ER clause, and they are the subject (the man) and the object (the woman) of the previous clause acting together. The object and the subject of a preceding clause *combine* to become the antecedent for the anaphor. This construction expresses a type of 'partial' coreference, where the anaphor and antecedent do not have to exactly match each other (Cysouw & Landaluce 2012: and references therein).

Lynch identified this antecedent type in Lenakel, calling them "inclusive" (Lynch 1983). He notes that number is key to identification, as number marking on clauses is obligatory and helps identify sets of referents. This observation is quite plausible and is not contested here. However, he does not explain sufficiently what parameters or restrictions there are to this form, and does not give any examples beyond two that are very similar to (236). Some factors worth considering: What kinds of grammatical functions can combine together? Are these partial or combination forms as good as the seemingly simpler subject-to-subject mapping?

What we find in the Whitesands corpus is that it is possible for more complicated contexts to provide more complicated antecedent forms. This kind of combination is not restricted to singular and dual constructions, and can expand to include any kind of number combination (i.e. dual, trial or plural), and with any of the person values. For example, in (237) there is a first person exclusive singular subject argument and a second person oblique argument in the antecedent clause (237.1). These are then combined together in the ER clause, to give a first person inclusive plural reading (237.3).

(237)

1	STA	*ia-k-ø-atapuah ie itəmah* 1.EXCL-NPST-SG-ask INST 2PL I'm asking you all.
2		(1.52)
3		***m-ot**-eh raha in paruə* **ER-PL**-see POSS 3SG which Which one are we (PL.INCL) going to look at?
4	JK	*ot-ani raha nenieu!* PL-say POSS yesterday Let's talk about yesterday!

ISJHWS3-20100329JVC-03 00:03:46.175–00:03:50.999

The use of the ER prefix in (237.3) shows that forms can use oblique arguments as part of the combined antecedent. Further, there is no apparent restriction on what persons contribute to these new combined anaphors.

It is also possible in Whitesands for combined antecedents to come from verbless constructions. For instance, in (238), the two antecedents are from a zero-copula construction, with the names of two women given in (238.3) without a finite operator carrying predicate (it uses a possessive construction (§2.2.8)). The next clause in (238.4) is then combining these two referents with the dual number marking and the ER anaphor.

(238)

1 MA *t-apwa* *n-iet-iŋəm* *aha* *ie* *not* *m-ø-ua*
3SG.NPST-no 3SG.PERF-leave-exit that INST north ER-SG-come
apaha *i-siwi*
LOC LOC-Siwi
He didn't like it so he left the north and came down to Lake Siwi.

2 *m-ø-ua* *ka* *i-siwi* *m-ø-eru* *petan,* *petan* *mil*
ER-SG-come DEIC LOC-Siwi ER-SG-look female female DU
keiiu
two
And he came there to Lake Siwi and he saw two women.

3 *kati* ***nariŋ-ko*** ***Sapai*** *kati* ***nariŋ-ko*** ***Mavəŋah***
one **name-PROX2** **Sabai** one **name-PROX2** **Mavəŋah**
One of them was called Sabai, and the other was called Mawangah.

4 ***m-w****-ol* *niŋ-lau* *nəwhel* ***m-w****-awin* *pe*
ER-DU-make POSS.FOOD-3DU laplap **ER-DU**-roast.by.stone to3
m-at-w*-haraŋ* *ohni*
ER-PROG-DU-sit BEN.3
They (DU) were roasting laplap for themselves, and they were sitting there waiting for it.

JHWS1-20071231-ma04v 00:00:37.656–00:00:58.437

This type of the ER construction is significant because operator sharing — the tense operator in particular — is typically a key feature of switch-reference (cosubordinate) constructions (Van Valin 2005).

One alternative analysis is that the antecedent clause for the ER in (238.4) is the object of the clause in (238.2), *petan mil keiiu* 'two women'. However, in native-speaker judgements this kind of mapping directly onto solely the object is ungrammatical (239).

(239)

1 *m-ø-ua* *ka* *i-siwi* *m-ø-eru* *petan* *mil* *keiiu*
ER:3-SG-come DEIC LOC-Siwi ER-SG-look female DU two
And he came there to Lake Siwi and he saw two women.

2 * ***m-w****-ol* *niŋ-lau* *nəwhel*
ER-DU-make POSS.FOOD-3DU laplap
They (DU) were roasting laplap.

In examples (236) – (238) the extra antecedents come from the preceding clauses. In the next two examples, however, there is even more flexibility shown by what constitutes a good antecedent. The antecedents are taken from non-adjacent clauses, and comprise of previously distinct arguments. They combine together when they are referenced by the anaphoric ER clause.

Example (240.2) is one of these cases, where the clause *m-l-un* 'ER-TRI-eat.TRNS' does not have one clear antecedent. Instead, the actors that are referenced in the trial ER clause are the subject of the preceding clause plus the two recipients of the clauses in (240.1). The argument structure of the clauses leading up to the ER chain is significantly different from the examples seen previously. In this example, a single actor (X) takes some fruit and then distributes it to two other participants (Y and Z). He also gives some to himself. Then when it comes to eat the fruit, the three participants are expressed together, only using an ER clause.

(240) (from the Pear story (Chafe 1980): A boy is given pears on behalf of his two friends, and he is about to distribute them.)

1 *t-os* *m-ø-uven* *ko* *m-ø-əfen* *niŋ-kati*
3SG$_x$.NPST-hold ER$_x$-SG-go then ER$_x$-SG-give POSS.FOOD-one
kati, *m-ø-əfen* *niŋ-kati* *kati*
one ER$_x$-SG-give POSS.FOOD-one one
He$_x$ went and he$_x$ gave one$_y$ his$_y$ food and gave the other one$_z$ his$_z$ food.

2 *m-ø-os* *niŋ-ən* *ko* ***m-l-un***
ER$_x$-SG-hold POSS.FOOD-3SG then **ER-TRI**-eat.TRNS
aŋmaŋam
walk.a.distance
And he$_x$ took his$_x$ own food, then they$_{xyz}$ (TRI) eat as they$_{xyz}$ were going

3 *m-a:-l-uven* *m-l-ol* *mən* *pas* *aha,* *iahweli*
ER-PROG-TRI-go ER-TRI-make again pass that old.man
ko *t-at-ehli* *nati* *ko-iken*
PROX2 3SG.NPST-PROG-pick thing PROX2-PLACE
and they$_{xyz}$ passed there, where the old man was picking that thing.

ISJHWS3-20100322JVC-pear-EK 00:04:03.061–00:04:15.022

The speaker sets up an ER construction chain in the singular. The actor X holds the fruit (240.1) and then gives one to each of the other two. Because he is doing multiple actions, and he is referred to in a continuous stream, then he is tracked with the ER prefix. It is once the joint action of eating begins that this ER stream expands to include the other two boys, Y and Z, in (240.2). One issue is that this expansion is done using a new ER construction (in the trial). One *m-ø-* and the following *m-l-* are not an exact match in reference. There is no full agreement clause or (pro)nominal reference to reset, or to combine them together. This new reference is computed on the basis of number marking. The trial ER anaphor in (240.2) is a combination of antecedents that previously had different grammatical roles.

The examples in this section are representative of the Whitesands corpus. They do no occur frequently, but are considered grammatical and transparent in meaning — when they do occur, speakers do not seem to object to, or misunderstand them. The Whitesands antecedent seems to allow a combination of subjects, objects and oblique arguments. Crucially, one of them must be a subject, as non-subjects cannot be combined into an antecedent (this is in contrast to Lenakel, see §6.3.3). There is one further restriction worth reiterating from the perspective of the typology of 'partial' coreference. The partial coreference forms must 'combine' antecedents together. In Whitesands it is not grammatical for an anaphor to select part of a previous set to be an antecedent. The ER prefix can create sets of antecedents by adding them together and this is marked by changes (increases) in number. However, it cannot reduce number in clause chains and leave out referents.

This restriction should not be too surprising. It would be rather ambiguous if one started with a clause chain referencing two people, and then all the information one is given is that one of these two performed the next action. Without nominal or deictic clues (which are generally incompatible with the ER construction), referent resolution would be a best guess scenario. The ER prefix is used when there is no ambiguity in who is doing the action, and seems to disprefer vague constructions. I discuss this further in §6.3.2.

The final example in this section leads us into the next section where topicality is a potential indicator for good ER antecedents. It is quite different from the examples earlier in this section because we do not see all the members of the antecedent set in the preceding discourse. It again starts with an ER chain in first person singular (241.1–241.2), and then adds to the chain to create a first person plural ER clause chain (241.4). In this respect it is quite similar to other combination examples we have seen.

(241)

1	*ko*	*ia-k-ø-eles*	*nerow*	*m-ø-aiiu*	*m-ø-uven*
	then	1.EXCL$_x$-NPST-SG-hold	spear	ER$_x$-SG-run	ER$_x$-SG-go
	iwakir				
	close				
	And then I$_x$ take the spear run close up to the pig,				
2	*ko*	*m-ø-oh*	*pukah-i*		
	then	ER$_x$-SG-hit	pig-TRNS		
	and I$_x$ kill the pig.				
3	*t-imis*	*ko*			
	3SG.NPST-die	then			
	It dies, then				

4 ***m-ot**-etei* ***m-ot**-eles* ***m-h**-awt* *a(paha)* *lahwanu*
ER-PL-cut **ER-PL**-carry **ER-PL**-quick LOC village
we_{x+3} cut it up, and carry it and hurry back to the village.
jhws2-20090301-AK01

Knowledge of the situation influences the system too. As hunting — or at least the distribution of game — is a group activity, then simply using plural marking is sufficient to express a change in the antecedent for the ER anaphor. The complete antecedent is not explicitly introduced. Referential identity is achieved by using a set of well known facts of a typical hunting procedure, and by taking into consideration discourse topicality.

The example also shows us that adjacency could lead the hearer astray. The immediately preceding clause (the pig dying in (241.3)) provides no contribution to the antecedent values used in the ER clause in (241.4). If the hearer was going only on the assumption that at least some of the antecedent must come from the preceding clause, then there would have been misinterpretation. Perhaps it is the fact that the pig dying is an incidental event, not one that is primary to the narrative, that gives the hearer a clue that normative antecedent rules do not apply. So, while the ER referent is a combination of previously separate arguments, it is also clear that this example is showing us another potential antecedent type, one where topicality comes into play.

6.3.2 Topic-like antecedents

The second kind of non-canonical construction is when the antecedent does not map onto an argument from the immediately preceding clause. We have already seen these emerging in §6.3.1, where there is some kind of combination of referents in a new dependent clause chain. However, in this section we explore some cases in which a clause chain appears to be broken up. There is discontinuity in subject coreference, suggesting that there might be another alternative antecedent type.

In the next example we see that adjacency is not a necessary precondition for antecedence. There is an established ER chain which is referencing first person singular — the narrator. This chain in interspersed with finite third person singular clauses — the fish which is typically an animate for the speakers of Whitesands.

(242) (A young man is telling about a fishing story, where he was catching a big fish, pulling it towards him and then it running away.)

1 SM *m-at-ø-iwi*
ER:3-PROG-SG-pull
I was pulling it

2 *t-at-uven*
3SG.NPST-PROG-go
and it went

3 ***m**-ø-iwi* ***m**-ø-iwi* ***m**-ø-ua,* *t-uven*
ER-SG-pull **ER**-SG-pull **ER**-SG-come 3SG.NPST-go
I pulled and pulled it towards me and it went

4 (0.55)

5 ***m**-ø-iwi* ***m**-ø-iwi* ***m**-ø-ua* *t-uven*
ER-SG-pull **ER**-SG-pull **ER**-SG-come 3SG.NPST-go
I pulled and pulled it towards me and it went.

ISJHWS3-20100526JVC-05-sm 00:00:38.343–00:00:43.179

In contrast to the combination cases we saw in §6.3.1, there is no discrepancy in number marking on the verb to indicate that there is a deviation from the canonical case. There is something else going on that indicates to the hearer that they should ignore the closest finite clause as the antecedent, and instead skip over it to another preceding, but non-adjacent, clause. The most plausible explanation is that background (or non-topical) events and actions are potentially ignored by the switch-reference system. In other words, the switch-reference system, in particular the anaphoric ER clause, is sensitive to discourse topicality. It will choose a highly topical referent as its antecedent, even if this is not from the immediately adjacent clause.

The next example (243) shows similar behaviour, where a finite clause is ignored as a potential antecedent. In this case the clause *t-asal-pen* '(the red one) sees it' is a main level clause that precedes an ER verb *m-ø-apwa mit u*.[5] Despite this adjacency, the correct (and only) interpretation is that the ER prefix in (243.6) is coreferential with second person, which is the subject of the clause separated from the ER by the *t-asal-pen* clause.

(243)

1 NS *m-ø-etam-tei* *nowe* *natipa*
ER:2-SG-half-cut half thing
And you fillet the top of it.

2 (0.4)

3 *nowe-ŋnapapie*
half-complete
A full half.

[5] There is also a relative clause here *in tararu* 'the red one (grouper)', but this is predicted not to have an impact on any ER construction as it is a case of subordination.

4 *m-ø-owlin, in t-araru t-asal-pen apaha*
ER-SG-turn 3SG 3SG.NPST-red 3SG.NPST-search-to.3 LOC
ima
inside
And you turn it inside out, then the red one (grouper) he sees inside it.

5 (1.99)

6 ***m-ø-apwa*** *mit u raha-n t-eruin iluwə*
ER-SG-no meat PROX POSS-3SG 3SG.NPST-white outside
You leave the white meat of it on the outside.

WS5-120128-conver 00:53:28.186–00:53:37.261

Again, there is no clear clue from number to tell the hearer that the adjacency rule should not apply in this case. There are subtle clues in the animacy and humanness of the referents, but this is, as we will see, not definite criteria. Instead, it is the discourse status of the various referents that allows for the non-canonical form to exist. The salient second person referent is the best antecedent in this case. In other words, the assignment of reference is based on context, not on adjacency. The subject switches away from second person to third person, and uses the appropriate agreement pattern in conjunction with the nominal reference (243.4). The switch back to second person does not use a full agreement strategy, but instead just continues one with the ER chain (243.6). A chain of ER clauses is broken up with interceding finite clauses that do not trigger switch reference.

In the examples above, there has been a change in person which could be the flag that says the conventional anaphora does not apply. This is a tenuous claim though, because the ER is vague with respect to person. You could only really know after the fact that there was a non-canonical antecedent. In the next example, there is no change in person, and the ER does not have a clear finite antecedent. The ER clause *m-l-ek* 'ER:3-TRI-touch' takes trial number while the preceding disjoint clause is plural *k-ot-uakel* '3.NPST-PL-dig'. The correct antecedent for the ER clause is the three men that the discussion is about, not the subject of the directly adjacent clause.[6]

(244)

1 R *L, towian L, mene T mene W*
L towi L and.NP T and.NP W
L, in-law L with T and W

2 NI *ahm*
ahm
<agrees>

[6] I have removed the full names of L, T and W for privacy reasons.

3 R *k-ot-uakel mən o nefteni peri pahau pah ko*
3.NPST-PL-dig again BEN earth up north seawards PROX2
Some others kicked up the turf over on top near the sea.

4 N *Lownakeriaŋapen Lownakeriangapen*
At

5 EK *ilis ilis*
on.top on.top
Up there, up there. (It was there)

6 R *ilis ilis*
on.top on.top
Up there, up there.

7 EK *ilis ilis*
on.top on.top
Up there, up there.

8 (0.5)

9 R ***m-l-ek***
ER:3-TRI-touch
And then the three of them (L, T and W) came together.
WS4-110524-imaiim 00:06:18.210–00:06:27.108

In this case it is definitely not the person that triggers the search for the antecedent in a non-adjacent clause — instead number discrepancy is now the catalyst. It indicates to the hearer that they must find other potential candidates for the antecedent for the ER clause, and the best possible candidate in this case is the discourse topic of the conversation. Thus, *m-* is used with linked (adjacent) and unlinked (non-adjacent) clauses.

All the examples so far suggest that there is generally some semantic incongruence in the ER clause, and this forces the hearer to find an alternative antecedent. The final two cases presented here use both number and person incompatibility to indicate that the antecedent for the ER clause is not the immediately preceding clause's subject. Additionally, there is evidence that the finite clauses interceding the ER chains and not triggering different subject constructions, are incidental, background information (this function has long been claimed for switch-reference systems see Reesink 1987, Roberts 1988a, Stirling 1988, van Gijn 2012).

Example (245) shows an interesting interaction from a conversation where the ER clause skips over a fully formed sentence. The antecedent for *m-ot-asuakan* 'ER-PL-troll' in (245.4) is *k-ot-asuakan* '1.INCL.NPST-PL-troll' in (245.1).

(245)

1 AK ***k-ot-asuakan*** *na*
1.INCL.NPST-PL-troll what
What did we troll with?

2 (0.26)

3 *striŋ* *ko* *t-etupen* *nepien* *na* *e*
string PROX2 3SG.NPST-thread bait what DAT
There was string, he baited it with which bait?

4 *e* *kinu,* ***m-ot-asuakan*** *m-ot-ivi* *namu* *mən* *aha*
DAT canoe **ER-PL-troll** ER-PL-pull fish PL that
ne-t-ø-eni *lah*
2-PROG-SG-say 3PL
With a canoe, we trolled and fished for those fish you are talking about.

WS5-120128-conver 00:50:48.574–00:50:54.932

There are pronominal resources here indicating that the interloping clause in (245.3) is of different person and number to the ER construction. Regardless of the presence of this extra information, it is still the case that this finite clause is in the middle of the clause linkage — it shows that there does not have to be strict adjacency between anaphor and antecedent in the construction. This holds if the intervening material is grammatically marked as different or if pragmatic saliency allows the selection of an alternative antecedent. Examples such as these show that ER can occur on syntactically linked clauses (canonical), as well as syntactically unlinked clauses, e.g. (245). This sets it off from *prototypical* switch-reference constructions, which typically involve syntactically linked clauses.

The final example shows the skipping of interceding temporal clauses, together with a combination form antecedent. The ER is used in a clause chain in the first person singular, over and over again indicating a repeated action. Then, in (246.3) and (246.5), we see some background information indicating the temporal setting of the events. These are finite clauses. However, the ER chain is picked up again, this time in dual and it is not explicitly indicating that the subject had changed (246.7). The sun rising and setting does not trigger a different subject construction.

(246)

1 SM *ia-k-ø-am* *rakis* *striŋ*
1.EXCL-NPST-SG-let.out out line
I let out the line

2 *m-ø-am* *rakis* *m-ø-am* *rakis* *m-ø-am* *rakis*
ER-SG-let.out out ER-SG-let.out out ER-SG-let.out out
la-n
DAT-3SG
I let it out, let it out, let it out

3 *matangar* *n-atul* *u*
sun 3SG.PRF-stand PROX
The sun was already up here.

4 (1.48)

5 *matangar* *n-analin*
sun 3SG.PRF-set
The sun had begun to set.

6 (2.33)

7 ***m-at-w-awt,*** *m-at-w-awt,* *m-at-w-awt,*
ER-PROG-DU-go ER-PROG-DU-go ER-PROG-DU-go
m-at-w-awt, *itəmlau* *mən* *m-at-w-awt*
ER-PROG-DU-go 1DU.EXCL also ER-PROG-DU-go
m-at-w-awt *m-at-w-awt* *metou* *kąpwa*
ER-PROG-DU-go ER-PROG-DU-go but no
We (DU.EXCL) were going and going and going, us (DU.EXCL) together, we (DU.EXCL) were going and going but no.

8 (1.25)

9 *t-at-ol* *win* *la-k*
3SG-PROG-make beat DAT-1SG
He was beating me.

ISJHWS3-20100526JVC-05-sm 00:00:44.244–00:00:58.882

My analysis is that the chain of events marked by the ER is a single coherent unit, linked together by a common referent and carrying an important sequence of events in context of the story. The intervening clauses about sunrise and sunset, whilst finite, do not provide primary information, and are therefore not particularly good antecedents for same subject constructions. The ER prefix can skip over them to antecedents that are more topical, more relevant and more likely to be relevant in the discourse. Not all references to the sun are incidental (see (216) where it is fully inflected and triggers different subject constructions), but in this extract it is — it does not interfere with a same subject construction. The ER is marking topicality as well as coreference.

The data presented in this section show that adjacency is only part of the mechanism of anaphoric resolution. There are alternatives that are not adjacent with no evidence that the interceding clauses are embedded — the interceding clauses are potential antecedents that are ignored because of some

greater motivation to choose another antecedent. Of particular interest is the observation that in these non-canonical antecedents there appears to be a discrepancy in either number or person. It does not have to be both together: either is sufficient. This is worth testing — is it possible for non-canonical forms to exist without some kind of number or person clash triggering an alternative resolution strategy?

This variation and flexibility in the system is interesting for two further reasons. Firstly, from the perspective of switch-reference typology, we must ask how flexible is the system. The data presented in this chapter suggests that it is reasonably flexible in both formal restrictions of antecedents and also function of the paradigm. There exists enough variation to allow testing in what is the canonical system and to ask what are the best predictions or systems that a speaker can follow. The second issue at hand is the processing requirements of such clause chains. Do the variations in form take different cognitive loadings for resolution? Investigating this last question will also help us determine what is the most functional construction, i.e. which form is most predictable from the perspective of the hearer. I return to address these questions in Part IV.

6.3.3 Antecedents of other southern Vanuatu languages

There exist both similarities and variations in the formal properties of the ER construction in the other southern Vanuatu languages. For instance, in all the southern Vanuatu languages, the ER prefix is in the subject position for its clause, and has a form with (at least) the phoneme *m*. However, subject number behaves differently in Sye ER chains, and in Whitesands pronominal arguments are allowed with ER clauses. There are further variations, specifically in what constitutes a good antecedent in each of the languages. The nearby languages of Lenakel and Sye have their own set of canonical and non-canonical constructions, and it is therefore useful to compare them against the Whitesands data. Crowley and Lynch do not make any claims about the frequency of the non-canonical antecedents to compare with §6.1.2, they just state that they are rare.

Starting with Lenakel, Lynch (1978: 46) claims that the ER can have a variety of different antecedents based on context:

> "The prefix m- may, however, also refer to any NP other than the subject of the previous verb under certain conditions. These conditions are (i) that the NP to which m- refers has been previously mentioned; (ii) that the NP to which *m-* refers is of a different number from the subject of the previous verb or, if of the same number, that the verb with *m-* is semantically such that it could not take as subject the subject of the previous verb."

Thus, there are exceptions to the most frequent antecedent forms (where ER referent is the same as the preceding verb's subject).

One variation from the norm, for example, is that it is permissible (but rare) for the ER clause to have an antecedent that is solely the preceding object (the undergoer of a transitive clause). These are "non-coreferential subjects" where:

> "ES-marking is also used in some cases where the subject of the verb is coreferential with some other argument of the preceding clause." (Lynch 1983: 215)

Thus, in (247) it is grammatical to interpret the antecedent for the ER clause as the preceding object *kesi* 'pawpaw'.

(247) *i-ɨm-ø-alak-hiaav-ín* ***kesi*** *m-ø-pwalhepwalhe*
1.EXCL-PST-SG-throw-down-TRANS **pawpaw** ER-SG-splatter
I threw down a pawpaw and it splattered.
LENAKEL from Lynch (1978: 47)

The equivalent construction in Whitesands would be ungrammatical: the antecedent for the ER cannot be solely the object of the preceding clause (248).

(248) * *ia-am-ø-eti* ***nəmei*** *m-ø-əhapu*
1.EXCL-PST-SG-shoot **breadfruit** ER-SG-break
I shot a breadfruit and it split.

The antecedent cannot be just the object of the preceding clause for Whitesands — as opposed to Lenakel where this is possible according to Lynch (ibid.).

There is not enough data in the Lenakel grammar (Lynch 1978) or the Lenakel chapter in *Switch reference and universal grammar* (Lynch 1983) to clarify whether the topic-chain type of antecedent it permissible. I would predict that it does occur, as it appears that Lenakel is the most flexible in allowing any grammatical role to be an antecedent, provided the semantics allows it (Lynch 1983).

For Sye, Crowley makes similar claims that there is no need for a one-to-one mapping of ER onto solely a subject:

> "There is a restricted set of circumstances in which a verb with echo subject marking does not strictly depend on the subject categories marked on the preceding verb. It is possible for an echo verb to treat both the subject and the object together as a single category if the two are seen as performing the subsequent action together. (Crowley 1998: 246)"

For example, in (249) we see a similar process to the Whitesands combination forms found in §6.3.1. The subject of *mu-ete* 'PL:ER-stay' is the combination of the subject and object from the preceding clause.

(249) *Misi* *Ravosen* *yi-vai* *m-hac*
missionary Robertson 3SG:DIST.PAST-take SG:ER- go.up
Unpogkor *mu-ete* *yuwi* *nandu*
Unpogkor PL:ER-stay there together
The missionary Robertson took him up to Unpogkor and they stayed there together.

SYE from Crowley (1998: 247)

In Sye, there is the same object-mapping restriction as in Whitesands. The combination form is the only way to have an object as part of an antecedent, i.e. in a partial coreferential construction. The combination forms in Sye seem to be more restricted than in Whitesands. In the former it is restricted to the subject plus the object for the preceding clause, whereas in the latter other grammatical relations from any number of clauses can be combined with one or more clauses' subjects. In Sye, there is no evidence to suggest that clause skipping is permitted, although this is an area that needs further investigation in this language.

6.4 Discussion and summary

This chapter presents the first discourse-based analysis of an ER system. It has been shown that the immediately preceding subject of a main clause is the best antecedent for an ER construction, and this accounts for the vast majority of data.

It is possible to test the quality of the analysis with an interesting thought experiment. Imagine you are a new speaker of Whitesands. You know that there are two (functionally) opposed forms, the *m-* form and the full agreement form (FA). Thus, you know that to form a clause you must use either a verb with *m-* or FA. Assuming you know nothing else, you would just split your responses 50/50 between the two alternatives. This gives us the base line of fifty percent correct.

What can we add to the model to make it better? The next piece of information that is easy to obtain would be frequency of each form. That is, if we know which is used more often or less often, then we would just pick the most likely option each time. We know that FA is typically used much more often than ER (see Table 6.1 on page 121). Adding this information to our new-speaker knowledge improves our performance to 81%. By just considering the frequency of forms, a new speaker can make a substantial improvement.

Can we refine this even further? Yes, and that is precisely what a grammatical analysis should do. Taking into account the features of the grammatical analysis — such as tense, illocutionary force, presence of conjunctions, etc. — a speaker can now use the system correctly in 95% of clauses (as tested

in a random sample of the corpus). Ideally we would want this number to reach 100%, but it is not clear that this is achievable. Regardless, this 95% correctness is progress by you, the recent Whitesands speaker. Therefore, the model presented throughout Chapter 5 and summarised on Table 5.3 on page 108 is a significant improvement on a random choice model *or* a frequency-based model. I will address this further in Part III with the data collected in the experiments.

The second issue worth consideration are the types of nexus present in ER clauses. The ER construction in Whitesands offers possibilities analogous to the following English options:

(250) English analogies of ER clauses

a. John came. He saw Elsi.

b. John came, and he saw Elsi.

c. John came and saw Elsi.

The pseudo-translations in (251) are additional constructions that have no clear analogy in English. These are two important features of ER: it can be used to create multi-clause predicates much like serialisation (251a); and it can be used in both syntactically linked and syntactically unlinked clauses (251b).

(251) ER-specific constructions

a. John took (carried + go) the food to Elsi.

b. John came … saw Elsi.

That is, the ER construction is used in a variety of contexts, and in different types of non-subordinate nexus junctures (see §5.5).

The third point is that the data have also confirmed the hypothesis that there is a symmetry in the Whitesands switch-reference system, which is organised as a kind of Horn scale. There is a same versus different subject paradigm, expressed by the *m-* and full agreement prefixes, respectively. The former has the stronger meaning — it exclusively expresses a coreferential anaphor which requires an appropriate antecedent. Conversely, the latter only indicates disjoint reference through implicature — it is *not* a dedicated coreferential form and is therefore usually interpreted as disjoint. This implicature is often cancelled via alternative referential strategies, or common knowledge (as predicted by Levinson 1991).

An alternative, but similar, perspective of how the system works is that of *markedness*. The unmarked progression of a text is when the speaker continues talking about the same topic. In contrast, a marked form would be a switch in topic. This would mean that the ER construction is the unmarked construction, and its marked alternative is full person agreement. In other

words, the different prefixing strategies indicate properties of the discourse through the markedness of one form compared to the other. I return to discuss this idea more in Chapter 10.

Fourthly, we saw that adjacency and subject-hood do not completely account for all the data (e.g. 251b). In particular, discourse type, be it variation in genre or register, can have effect on the use of the switch-reference system. I do not claim that particular constructions are restricted to particular genres, but it is clear that the discourse topic of some texts is more regular than others. In turn, by having regular and continual reference to a single known thing or things there is a greater likelihood of using a same subject construction. This ultimately shows that using broad-scale discourse studies for generalisations of the phenomena must be done with caution.

On the other hand, the use of a broad range of discourse types in description is extremely useful as it presents us with examples that deviate from basic forms. That is, more complicated contexts allow for more complicated constructions. There exists a possibility of independent pronouns being used as arguments in a clause marked with the ER prefix, something never said in elicitations for Whitesands. We also saw examples where we would expect ER forms but do not get them, in particular in the grammaticalisation of some motion verbs. We also saw that the antecedent for the ER constructions can fall outside of the canonical preceding subject description. The preliminary classification of these additional antecedent types gives us two categories, the *combination* form and the *topic-chain* form.

It is this final point, that there are two alternative antecedent forms, that drives the next part of this thesis. While considering the theoretical implications of the ER system as a whole, I also investigate further the fact that there are (at least) three kinds of antecedents. It allows us to explore questions of preferred structures in Whitesands, and also gives a platform for the investigation anaphora in non Indo-European language. We have now laden our ER canoe with the discourse realities of function and form. We have a few leaks, as predicted by Sapir in this chapter's epigraph, but on the whole we are ready to sail forth into the charted territories of theoretical abstraction and then onto the unknown waters of experimental testing in switch-reference systems — let us sail forth!

Part III

Experimental Evidence

Introduction

> I supppose it is tempting, if the only tool you have
> is a hammar, to treat everything as if it was a nail
>
> Abraham Maslow 1966

The ER prefix is a marker of co-reference across clauses. But how and what exactly is it referencing? There are two perspectives on this question. Firstly, from a switch-reference typological perspective, we can consider the properties of the anaphor–antecedent relationship. Does the Whitesands system of coreference and disjoint reference contradict, or support, previous structural and functional generalisations about switch reference? The second perspective is on the operation and typology of anaphora. Clearly, the *m-* is an anaphoric element, so its properties can provide useful information about how anaphora works structurally.

To further the description of the switch-reference system from these two viewpoints, Part III presents two tasks designed specifically around the ER prefix. The goal is to provide experimental data to strengthen Part II's analysis of the ER's structural properties. So, we step away from the broader, more comprehensive description, and start considering some of the specific facts of the ER system. This is necessary because it is clearly not practical, or even possible, to *experiment* on every detail of a system. In this introduction, I summarise the grammatical aspects of the investigation together with the motivation for experimentation. In the following chapters, I move onto the methodology, results and discussion of the two tasks.

Typology of switch reference

In Chapter 5, the ER prefix is shown to display neutralisation of person agreement on the verb. This neutralisation stands in functional opposition to fully inflected forms — Whitesands is a switch-reference language where different forms of verbal inflection marks continuity or discontinuity of referents across clauses. In Whitesands, the *m-* is the pivot, and the controller is typically the subject of the preceding clause (where pivot and controller conform to the terminology proposed in Foley & Van Valin (1984), Van Valin &

LaPolla (1997), Van Valin (2005)). In other contemporary grammatical analyses of switch-reference systems, it has been claimed that controllers can be extra-sentential — a grammatical category like subject can not account for all the properties of controllers (e.g. Roberts 1988b, Stirling 1988, see Chapter 9 for further discussion). This is also an issue for Whitesands, despite this system being formally quite different from other switch-reference systems (i.e. verb-initial/anaphoric versus verb-final/cataphoric). There is evidence from the corpus-based study that, on occasion, the antecedent of the ER marker is not simply the subject of the preceding clause (Chapter 6). The antecedent (controller) can be a combination of preceding arguments, of which one is a subject. Or, the antecedent can be a highly salient subject of a non-adjacent preceding clause.

There are three questions worth keeping in mind at this point: Does the antecedent belong to a unified grammatical or discourse category?; What properties of the discourse, if any, determine the occurrence of the ER form?; And do the antecedent properties in Whitesands compare to those found in other switch-reference languages? The aim of the two tasks is to provide evidence to support the simplest hypothesis — that the controller for an ER clause is solely the grammatical category of subject. If this hypothesis proves untenable, then differences in the behaviour of antecedent types would allow us to rank them in terms of canonicity for the Whitesands system. It could tell us what the ER is primarily referencing.

Anaphora

Research into anaphora has posited a variety of models to account for binding within intra-clausal domains. The principal pragmatic-based account seeks to explain anaphora by proposing that it is computed via inference, though generalised conversational implicatures (Levinson 1991, O'Connor 1993, see §9.2 for more discussion on this). There are two interesting issues that the ER system can contribute towards this theoretical debate.

Firstly, the *m-* is clearly an anaphor, but it appears that the antecedent for the anaphor is not restricted to one single syntactic position — we know that there are adjacent and non-adjacent antecedents. Further, we know that, apart from canonical cases with one antecedent, there are also cases in which more antecedents combine to determine the reference of the ER morpheme. These two variations are a potential testing ground for anaphoric control in different domains. Is adjacency important in determining how well the anaphor is determined? And does anaphora to noncontiguous antecedents have the same clarity as anaphora to single antecedents? By addressing these questions we can propose what role syntax might play in a system.

The second issue worth addressing is if we can support claims that anaphora is a system that is inherently asymmetrical — i.e. having a strong form and a weak form that are ordered on a scale. This is a prerequisite for the

pragmatically based account of anaphora, as it requires a default state that could be then cancelled by context. In the case of the ER system, the hypothesis is that in clause chains the ER is the strong (default) form, and the full agreement pattern is the weak form. If the two opposing forms behave differently this might be a preliminary indication that processing of anaphors based on implicatures. If it turns out that one of the forms is more default, easy to process, then it might support claims that the system is asymmetrical. If the two forms behaved identically in processing or computation requirements, then this would potentially provide counter evidence to such a claim, as it would suggest that there instead exists a balanced dichotomy of forms.

Experiments

Given these investigative goals, why would we use experimental methods to further our knowledge? Traditional elicitation or introspection has known limitations (Fillmore 1992, Gibson & Fedorenko 2010). While it is narrowly focused and controlled, it is also over-reliant on a few individuals' once-off perspectives. Further, the ER phenomenon under investigation here is inter-clausal — it has complex conditions for realisation, including in-depth context. Thus, any elicitation requires mind games, where a speaker has to imagine and retain complex scenarios while producing connected, dependent grammatical constructions. Possible problems include overgeneralisation, the missing of form-function pairs and reliance on the subject's capability to create appropriate contexts. For example, Whitesands speakers will practically never produce non-adjacent ER antecedents (§6.3) in an elicitation context. Thus, while elicitation data is useful when used as heuristics, it should not be considered conclusive proof of systematicity.

Natural texts (corpora) — such as narratives, conversations etc. — can provide additional material for analysis (Partington 1998, Chelliah 2001), and these were the data sources for Parts I and II. They provide detailed examples, in particular different contexts, which in turn provide different surface forms. In this sense they are most instructive. However, they too can have limitations — texts often lack minimal pairs, and do not contain negative evidence. Another salient problem is that they are not controlled — speakers' forms are constrained by grammar, but they are guided by what they want talk about. We saw a reflection of this in §6.1.2, where genre of text has a significant influence in the rate of ER clauses. Text distribution is generally not a good indicator of markedness: "both indefinite and definite full NPs are relatively rare in text, as compared to anaphoric pronouns and zero anaphors. Text frequency data do not support the assignment of marked status to either definite or indefinite NPs (Givón 1992: 29)".

The power of corpus linguistics is the ability to make generalisations based on either frequency of forms, or through detailed case-by-case analyses. However, the anomalous, non-canonical cases of the ER construction

only account for 5% of cases (§6.1.2). While we can create hypotheses based on their form, function and context, there are simply not enough of them to create a large testable sample. In a small sample, with non-unified contexts, the possibility of statistical analysis is not possible (Partington 1998: Chapter 9). If we think about them on a case-by-case basis, it is not clear that conversational constraints mould how the ER is used differently from grammatical features — it seems to be a pan-genre and pan-situational construction. Despite the ER's significant place in the referential system, it is local features of the text, rather than the interaction, that are constraining, or promoting, its use.

Kehler (2001) expresses concerns that linguistic research is susceptible to Maslow's conundrum (Maslow 1966), where as researchers we only use our existing tools to tackle a particular problem. Therefore, a third methodology is required to make the analysis more robust, one that tries to fill in the gaps of the elicitation, yet keeping the complexities of natural texts somewhat intact. I chose experimental stimuli to avoid the Maslow problem, using it as a new tool to investigate the ER phenomena. The methodology provides consistent and minimally paired contexts, which provide a testing ground for the construction's behaviour. The goal is to provide *descriptive statistics* to support the grammatical description in Part II. To my knowledge, this is the first time this methodology has been attempted to diagnose or analyse a switch-reference system of any kind. Furthermore, in other languages, investigations into semantic processing of discourse-level constituents appear to be complex, and so the Whitesands grammar could provide a unique situation for experimental evidence on this front.

The first task is a production task (Chapter 7), where participants were given controlled texts and were required to create mini stories based on these texts. The second task is a comprehension task (Chapter 8), where hearers were tested on their ability to link anaphor to a variety of antecedent types. The three main findings from these experiments were: an empirical ranking of antecedent types; the positive influence of activation/topicality on ER clauses; and an indication of markedness in different and same subject constructions. Let us now turn to the experiments individually, and look at the results in more detail.

7 | Switch-Reference Production

> In the discovery of secret things and in the investigation of hidden causes, stronger reasons are obtained from sure experiments and demonstrated arguments than from probable conjectures and the opinions of philosophical speculators of the common sort
>
> William Gilbert 1603

The interpretation of an ER clause is dependent on preceding clauses, and therefore there must be a relationship between the anaphor and its antecedent. But what is the nature of this relationship, and which factors of the context, if any, contribute towards the presence of an ER clause? This experiment examines the varying contributions of grammatical properties and discourse conditions in the production of ER clauses.

The first element of the relationship is the identification of the correct antecedent for any given ER clause. The initial hypothesis is that the antecedent for the ER clause is a one-to-one match with the preceding clause's subject. In Chapter 5 and Chapter 6, it was concluded that an antecedent of this kind is by far the most prevalent. However, there were also cases where the antecedent of an ER prefix was not strictly the preceding clause's subject.

Two additional antecedent classifications were identified — a topic-like entity and the combined antecedent form. In the former case, there was still a one-to-one mapping of anaphor to antecedent, but this antecedent was not adjacent to the dependent clause. In the latter case, the antecedent comprises of multiple arguments that were singularly referenced by one anaphor. Is there a common factor that can unify these three different antecedent types?

The diversity of grammatical functions and the diversity of location (relative to the anaphor) suggest that this antecedent's properties could transcend the syntax of immediate clauses. Thus, a second hypothesis arises, in that discourse structure plays a role, where topical entities are preferred antecedents, and this feature has the capacity to be independent of their gram-

matical category. That is, the ER system is not just pivoting on a grammatical category, but it is also monitoring the activation status of referents, where highly topical referents are activated in a speaker's mind (Givón 1992), and so provide better antecedents for various kinds of anaphors (Malt 1985). In Whitesands, the topical entity is typically encoded as the subject of a clause. The fact that topics and subjects usually coincide might obscure the true nature of the antecedent for ER clauses. By aligning the discourse topic with different grammatical categories (subject, object, oblique, etc.) it is possible to tease out potential factors in determining what are the 'best' antecedents for the ER prefix.

The second part of the system tested in this experiment considers the role of embedding and dependency — do the grammatical generalisations from the corpus hold up in experimental situations? The grammatical properties of the ER system are summarised in Table 5.3 on page 108 (§5.6). This task was designed to keep person, tense and illocutionary force constant.

Other features could still play a role. Grammatical number of the subject has been proposed as a key feature of how the echo system works in southern Vanuatu languages (Lynch 1978; 1983), but this idea has never been comprehensively tested. Looking further afield at the structure of the juncture, the interaction of the various conjunctions with ER clauses is instructive. For instance, *metou* 'but/because' is a conjunction that typically prohibits the use of the ER construction, regardless of the coreferential status of any two subjects. These grammatical features of the ER system should hold true in the experimental setting, and provide new evidence to reinforce existing claims.

Finally, a bonus investigative goal in the description of the ER system emerges from the use of controlled discourse-based data. The pivot of a switch-reference system has often been postulated to include (or be restricted to) extra-sentential referents (Reesink 1983b, Roberts 1988b, van Gijn 2012). Berge explicitly promotes the notion that switch-reference systems can be mediated by context, and that in the local discourse environment, the category of "topic" in particular can explain anomalies in the Greenlandic switch-reference system (Berge 2011: 274-275).

If we can show in Whitesands that discourse topical referents are more common antecedents, this would provide further cross-linguistic evidence supporting these claims. Further, it allows pragmatics to be part of the processing mechanism behind these kinds of complex clauses. In the case of the ER system, adding the notions of activation (or topicality) to the underlying features of the switch-reference system provide the theoretical mechanism of implicature something tangible to gravitate towards.

7.1 Method

The task used in Experiment 1 is a continuation task collecting off-line data. Since Whitesands speakers are not literate (especially in their native language), a self-paced 'listen and repeat' paradigm was used. Each participant listened to and watched a video clip of a person talking (see Figure 7.1 on the following page). The utterance from this talking head contained approximately four to six clauses. The participants then had to repeat verbatim, or close to it, all of the presented clauses, and then 'continue' on with the story. This continuation was a novel production by the speaker. The whole utterance , i.e. the repeated presented narrative plus the novel continuation, was recorded, so that for each example and speaker there was a target sentence with a controlled preceding mini-discourse.

7.1.1 Participants

This experiment was conducted in various locations within the *Ienamakel* village which is located in the east of Tanna, Vanuatu (19°30'27"S 169°27'02"E). The participants were chosen if they were native Whitesands speakers (i.e. grew up and lived in the Whitesands region throughout their childhood) and were aged between 20 and 40 years. They were randomly chosen from the greater *Ienamakel* population, and they were asked by the researcher if they would like to help him in his work. There were 14 participants (seven male and seven female) that completed the task, and two that started but did not complete it. Schooling language, schooling level, age, family affiliation and language history data were collected for each speaker. They were paid for their time with a 200 Vatu (US$2) mobile phone voucher, but there was no incentive for them to complete the task as they received payment regardless of how they performed or completed the experiment. All the participants knew the speaker in the stimuli.

7.1.2 Apparatus

The stimuli were recorded on a JVC GY-HM100U HD video camera with a Sennheiser ME64 external microphone. Each clip was then transcoded using a FFmpeg CLI into a full HD mpeg2 file with no visual size or quality change from the raw recording. The audio quality was kept in sync but down-sampled to an mp2 codec audio stream at 224 kHertz.

This experiment was presented visually and auditorially on a 14" Panasonic Toughbook CF-F9 with an external battery pack using the software package Presentation. The video clip took up the whole width of the screen so that it was easy to see the 'speaking head'. The audio responses of the participants were collected and parsed online, and they were recorded directly onto the

laptop's hard disk drive with the same Sennheiser microphone that the stimuli were recorded with. This audio stream was recorded to the left channel which was duplicated in post-processing using SoX. A secondary recording was made simultaneously with an Olympus LS 10 flash recorder.

The Toughbook was accessed during the experiment with a modified external Dell SK8115 USB keyboard attached. This keyboard had all but two keys removed ('z' and '?' on a US English keyboard), and the two remaining keys were coloured yellow and red with stickers.

7.1.3 Stimuli

The stimuli consisted of 48 video narratives which were spread equally across four conditions. The stimuli were compiled with the aid of two native speakers, and then spoken by one native speaker while they were recorded by the researcher. They were re-recorded if there was any error in the production. The shot was taken from the shoulders up of the native speaker with a white background — a 'close up' so that facial expressions and lip movement were easily discernible to the viewer (see Figure 7.1).

Figure 7.1: *Still image of a stimulus*

The stimuli were created to be near-natural narratives. Many of them were paraphrases of data from the corpus. They were all in third person across all number possibilities, and involved semantically plausible scenarios based on peoples' day-to-day lives and world knowledge.

The four conditions were based on the pairing of the 'discourse topic' with various grammatical roles in the final clause. It was this final clause that was the target of the experiment. Examples (252), (253), (254) and (255) are all representative of a single stimuli, e.g. all of the Whitesands words in these examples were presented to the participant (see (256) for an example of the complete response by a participant).

In the first condition a discourse topic — a centre of attention — was established, i.e. something that the narrative was clearly about. In (252), this is *ilahal* 'they' which is used in the first clause as the initial discourse referent. It is continually referred to throughout the stimulus in the privileged syntactic position. Crucially this discourse topic was the referential object taking the ER slot (i.e. the privileged position) in the final clause (e.g. as *m-a-l-alah* 'ER-PROG-TRI-laugh'), which immediately precedes the clause the participants were to produce (this production is not written in 252).

(252) *ilahal k-am-l-harang m-a-l-ol nahwel raha*
3TRI 3-PST-TRI-sit ER-PROG-TRI-make laplap for
maret m-a-l-anghati m-a-l-ani napuen
wedding ER-PROG-TRI-talk ER-PROG-TRI-sing song
m-a-l-alah
ER-PROG-TRI-laugh
They (TRI) sat making laplap for the wedding. They were chatting and singing and laughing.

EXAMPLE OF CONDITION 1

The second condition consisted of stimuli that also had a discourse topic, similar to condition 1. However, in contrast to condition 1, for condition 2 this topic had to be a non-subject (i.e. non-privileged) argument in the final clause — i.e. either an object or oblique. For example, in (253) it is *John and Fred* who are referenced by the pronoun *lau* '3DU'.

(253) *John menə Fred k-am-w-ol nima vi kati*
John and Fred 3-PST-DU-make house new one
m-at-w-elis masieh m-w-eru Tom, k-w-awn pən
ER-PROG-DU-tie thatch ER-DU-see Tom, 3.NPST-DU-call to
lan Tom t-aiiu m-ø-eru e ***lau***
him, Tom 3SG.NPST-run ER-SG-see DAT **3DU**
John and Fred were making a new house, they (DU) were putting up the thatch and saw Tom. They (DU) called out to him and he ran to see them (DU).

EXAMPLE OF CONDITION 2

In the third condition, there was also a discourse topic, like conditions 1 and 2. However, in contrast, this topic was not present at all in the final, finite clause. For example, in (254), the topical entity *John*, is neither subject nor any other argument in the final clause of the stimuli.

(254) *John t-at-ani napuen m-at-ø-afeli noa-ningi*
John 3SG-PROG-sing song ER-PROG-SG-pick.fruit fruit-tree
m-et-ø-əfen aha katəm in t-am-ol, Peter
ER-PROG-SG-put that basket 3SG 3SG-PST-make, Peter
t-aharang iwakir ohni
3SG.NPST-sit close BEN.3SG
John was singing and picking fruit and putting them in a basket he had made. Peter sat next to it.

EXAMPLE OF CONDITION 3

The fourth condition consisted of examples that were contextually neutral. It did not have any clear discourse topic, and moreover the final finite clause contained a new referent in the subject position, such as *old man* in (255).

(255) *iəpau kati t-atiməs, tokta t-os m-ø-uven*
child one 3SG.NPST-sick doctor 3SG.NPST-take ER-SG-go
ospital mama rahan menə rahan tata k-i-a
hospital mother her and her father 3.NPST-DU-go
m-w-eru iahwali kati t-ən-əməs
ER-DUAL-see old.man one 3SG-PRF-die
A child was sick and the doctor took her to the hospital. Her mother and father went and saw that an old man had died.

EXAMPLE OF CONDITION 4

The four conditions were not designed to test each variable separately. To include all of the permutations of each variable (i.e. discourse topic, subject/object/oblique, etc.) would create a set that was too diverse for a meaningful comparison. Instead, combinations of variables were chosen that were likely to have some kind of relationship or interaction, based on the data from the corpus. The experimental stimuli were constant for third person, but they did use all number possibilities (SG, DU, TRI, or PL). The four conditions are summarised in Table 7.1 on the following page. The key features to be tested was the relationship between the final clause's arguments and the controlled variable of discourse topic. The experiment was designed to test whether discourse topicality is a key criterion in choosing the antecedent of the ER construction, and to what extent this choice is determined by the grammatical role of the antecedent.

	Condition 1	Condition 2	Condition 3	Condition 4
Discourse topic established	yes	yes	yes	no
Position of *topic* in final clause	subject	object or oblique	absent	NA

Table 7.1: *Variables of the stimuli*

7.1.4 Procedure

Every experimental session was run by Daniel Andre, a native Whitesands speaker who had been trained to do this task by the author. The author was present — but did not interact with the participants — during the training stage of the experiment, and after the training stage he left. While it was possible for the experiment to be self led, all but two of the participants had Daniel control the laptop and keyboard throughout the experiment. While he was instructed not to assist the participants with the linguistic task, in some instances he did give encouragement and prompts, and in these cases the trials were removed from the final analysis.

Each trial consisted of one example narrative. The participant could watch this as many times as they liked by pressing the repeat button. When they were ready, they pressed the continue button and a microphone icon appeared that indicated they had fifteen seconds to record their response. They had only one chance at this recording. After they had done the recording they where then presented with the next example.

The participants were presented with five practice trials, including 'example' answers for the first two. When ready they then completed the 48 trials presented in a randomised order (i.e. each participant did them in a different order).

Some of the experimental runs, those which took a bit longer than average, introduced an error into the program due to a technical problem with the laptop's power supply. For these instances the experiment was temporarily paused, and the participant took a short (<3 minute) break. The author meanwhile calculated which trial sets had not yet been run and restarted the program with only the remaining trials presented.

7.2 Results

7.2.1 Method of analysis

The responses were 15-second segments of text, consisting of the initial prompt and the novel production of the participant. Example (256) is an example of

one participant's response to one trial from Condition 1 (it is the match of example (252)).

(256) *ilahal k-am-l-harang m-a-l-ol nahwel raha*
3TRI 3-PST-TRI-sit ER-PROG-TRI-make laplap for
maret m-a-l-anghati m-a-l-ani napuen
wedding ER-PROG-TRI-talk ER-PROG-TRI-sing song
m-a-l-alah ***m-l-eni mə olawong maret***
ER-PROG-TRI-laugh **ER-TRI-speak COMP tomorrow wedding**
They (TRI) sat making laplap for the wedding. They were chatting and singing and laughing **and they discussed tomorrow's wedding**.

EXAMPLE OF RESPONSE TO CONDITION 1

The speaker produced the whole text (the production). Of interest is the novel part of the production (in bold). This is the part of the production that is tested and compared against the variables of the four conditions.

These were coded by the author on two different occasions in ELAN (Wittenburg et al. 2006), and then the results were analysed using the statistical library *lme4* in R (Bates & Maechler 2010, R Development Core Team 2009).[1]

Deriving the testable data set required three steps. First, the author eliminated one speaker because she had trouble with the task, and had the most disfluencies (she also took the most time to complete the task). Trials where the production was cut off by the program (i.e. utterances longer than 15 seconds), or if there was evidence that the assistant helped the participant with their 'production' (i.e. if he provided prompts as they were recording) were discarded. This left a total of 530 responses. Finally, because the switch-reference system works on verbal constituents, from this set of 530 all examples that had a finite verb in the production were collected, leaving a total of 437 responses for analysis.

It should be noted that the task was considered difficult by most of the participants. It took longer than expected, both in overall time, and time per trial. This difficultly may have caused some errors. However, any problems that participants had with the task would be equally spread across all conditions, and there is no evidence to suggest that the validity of the results are affected by the apparent difficulty (after removing the trials where there was obvious influence from the experimenter — see above). In fact, one could argue that because speakers found the memorisation cognitively taxing, that this would remove any self-awareness into their linguistic productions, and allow the responses to approach more natural data.

[1] The data was coded twice to ensure consistency, and to try eliminate user errors.

7.2.2 Results

The first relationship to consider is the occurrence of conjunctions with ER clauses. There are 56 clauses *metou* constructions in the productions of the participants. In these, there is a complete lack of ER clauses in the presence of *metou* 'but/because' — 0 of the 56 novel finite clauses, which are preceded by *metou* took ER marking.

Table 7.2 shows the relationship of grammatical number marking across two clauses to ER or full agreement constructions. This is specifically measuring the first produced clause by the participant compared to the last of the stimuli clauses. There is no significant relationship of matching number marking and ER referent constructions. Changes in number are more closely associated with full finite agreement, regardless of the coreferentiality.

	Change in number across clauses	Number matches across clauses
Full agreement (N = 207)	35% (N = 73)	65% (N = 134)
ER (N = 184)	5% (N = 9)	95% (N = 175)

Table 7.2: *Relationship of number continuity and grammatical marking in participants productions*

There were not enough instances of the combination type antecedent (where number does not match between the anaphor and antecedent clause's subject) to give statistically robust results.

We now move onto the contexts in which the ER prefix is used. In this experiment, of the 437 productions, 186 clauses (43%) used the ER prefix. This is the overall rate of occurrence of ER clauses produced in this experiment. Table 7.3 on the following page shows the frequency of ER in the produced clause distributed by the conditions of the experiment. Condition 1, where there was a single topical entity with continuous reference by subject agreement, stands out as significantly different from the other conditions, with 63% of clauses produced in this condition using the ER prefix. Using a linear regression model, the three other conditions all contained statistically significant fewer instances of the ER construction than Condition 1. These were Condition 2 (35%: $\beta = 0.6175$, $t = -2.434$, $p < 0.01$), Condition 3 (41%: $\beta = 0.6050$, $t = -2.027$, $p < 0.05$), Condition 4 (28%: $\beta = 0.6391$, $t = -3.159$, $p < 0.001$) respectively. Conditions 2, 3 and 4 are not significantly different from one another.

We can look at the relationship of grammatical construction with various discourse-based properties in more detail. For example, Table 7.4 on the next page shows the distribution of grammatical construction type by the antecedent's topicality. Testing with a linear regression model controlling for speaker shows that a topical antecedent is likely to have ER agreement

	Condition 1 (N = 114)	Condition 2 (N = 107)	Condition 3 (N = 124)	Condition 4 (N = 92)
ECHO REFERENT	**63%** (N = 72)	35% (N = 37)	41% (N = 51)	28% (N = 26)

Table 7.3: *Frequency of ER clauses in each condition*

pattern: this happens in 73% of cases (regardless of the preceding clause). A non-topical antecedent, on the other hand, is more likely to have a different subject construction (i.e. full third person agreement), found in 68% of cases. The model therefore predicts that discourse topicality of referent is a good indicator that a speaker will use an ER construction.

	Non-topic referenced	Discourse topic referenced
Full agreement (N = 251)	68% (N = 171)	32% (N = 80)
ER (N = 186)	27% (N = 50)	73% (N = 136)

Table 7.4: *Relationship of discourse topic and grammatical marking*

Table 7.5 shows the relationship between the choice of the grammatical construction type (ER versus full agreement) and the coreferential status between the subject and the subject of the previous clause. If the reference of a clause matches that of the subject of the preceding clause, then it is significantly more likely to use an ER construction, in 88% of cases. Moreover, if the referent is different from the subject of the preceding clause, then it is more likely to use a full agreement pattern, in 76%. This result is more robust than the results on topicality presented in Table 7.4. That is there is a stronger relationship between adjacency and ER clauses than between topicality and ER clauses.

	Discontinuous subject	Continuous subject
Full Agreement (N = 251)	76% (N = 191)	24% (N = 60)
ER (N = 186)	12% (N = 30)	88% (N = 156)

Table 7.5: *Relationship of subject continuity and grammatical marking*

Once we consider both features together — because ultimately speakers

have multiple cues — then a more compelling relationship emerges. Figure 7.2 on the following page shows the interaction of topicality and subject continuity. The percentages show the rate of ER clauses considering two variables — topicality and continuity. The data suggests that both factors contribute independently to the presence of an ER clause in any particular example. For example, the *+topic, -subject continuity* configuration is less likely to have ER than the *-topic, +subject continuity* configuration (as was observed above). Moreover, there is a statistical interaction between them, so that recognising a high topicality status and subject continuity (*+topic, +subject continuity*) will give the highest resulting rate of ER. Thus, topicality of referent and adjacency together are the best predictors for the presence of an ER clause. That is, the odds of having an ER clause increase if the discourse topic is matched onto the privileged argument of the last clause.

If the subject of a clause matches the subject of the preceding clause, and this referent is also highly topical in the discourse, then it is more likely to take ER marking in the next clause than any other condition. This is shown to be a statistically significant result using a linear regression model: $\beta = 0.7322$, $z = -2.603$, $p < 0.01$. This gain is not just the sum of the two parts, but allowing for the interaction of the two factors does result in a significantly better model.

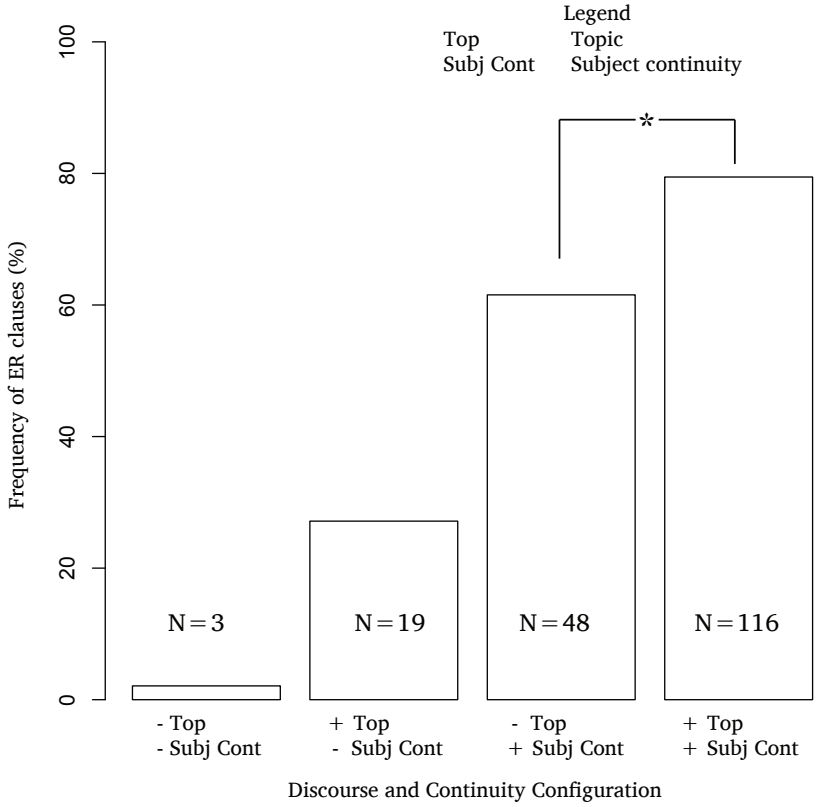

Figure 7.2: *Comparative rate of ER usage by discourse conditioning — the higher the bar, the more likely the presence of an ER clause*

7.3 Discussion

The relationship of ER with the coordinator *metou* 'but' is quite clear. Table 5.3 on page 108 states that *metou* does not come between an ER clause and its antecedent clause. In the task all 56 responses with *metou* take full agreement for the novel clause, even for the 29 clause subset of these *metou* constructions where it is coreferential with the preceding clause's subject or another activated entity. This is a full confirmation of the grammatical description of §5.4.4, and also raises the idea that there is something unique about this conjunction. Why is it that *metou* is not compatible with the ER clause? The answer to this question lies in two parts — the historical development of the

ER prefix and the fact that *but* clauses are by nature counter-expectational. I address this issue in §10.1.1.

The second observation from the results is the unbalanced relationship between number and the switch-reference system as a whole. Number is obligatory on every clause in Whitesands, dependent or otherwise. One could imagine a situation where number is a critical part of determining reference because it would allow for the identification of referents based solely on how many of them there are. This would then allow a change in number to indicate a change in referent. This is precisely what the data shows. Unsurprisingly, a change in number between two clauses is a very good predictor of full agreement patterns (see Table 7.2 on page 172). On the other hand, continuity in number does not predict either grammatical form. This second fact suggests that number is not necessarily key to the ER construction, as it appears incidental in the cases with the *m-* prefix. The dependent ER clauses may mark number individually, but the same subject constructions, unsurprisingly, typically have the same number across clauses.

The last, and most important of the three discussion points, concentrates on the nature of the antecedent. What is the antecedent's properties in grammatical functions, adjacency and/or topicality (activation)? The most cursory observation is that Condition 1, where there is a topical entity and it is the final subject, is the most typical situation in which an ER clause will be next used. This would suggest an analysis which holds that topical entities are more likely to be referenced with ER if they are subjects.

The individual components of such conditions also tell a compelling story. Knowing that there is a topical entity and that this is what is being referenced was a good predictor of the presence of the ER prefix — in this task this rate of incidence was around 63% (Table 7.4 on page 173). This is significantly higher, i.e. a better predictor than just knowing the frequency of ER clauses (43%). An even better predictor than topicality was continuity with the preceding subject (the hypothesis first considered in §5.1.1). When there is exact coreference between two subjects in a row, then a speaker is even more likely to produce an ER verb in the second clause, at around 73% of cases (Table 7.5 on page 173). This poses an interesting problem for the overall analysis of this switch-reference system. Perhaps subject-hood and adjacency are the best grammatical features for determining an antecedent, demonstrating that the relationship between anaphor and antecedent is purely a syntactic one. It is apparently not obligatory as approximately 27% of the cases cannot be resolved by this proposal (see second column of Figure 7.2 on the previous page). Further, this result would contradict the corpus analysis of Chapter 6, and other descriptions of switch reference cross-linguistically.

There is one last piece of evidence, though, that suggests that this claim is not the whole story. As predicted by the diversity of antecedent forms, topicality does play an active role in determining the best contexts for ER forms. On its own, it is a less powerful predictor than adjacency and subject-

hood. However, there is a significant interaction between topicality and adjacency. Out of all the grammatical features and discourse strategies measured in this study, the combination of referent topicality together with adjacency provides the best predictor of ER clauses. When a referent was continued on from the preceding clause (where it was subject), and it was also the topical referent of the discourse, then 79% of the time an ER verb was deemed the appropriate strategy by the speaker. Contrastingly, and crucially as part of a switch reference system, a non-topical, non-continuous referent would rarely receive ER marking, instead taking full finite agreement. This would support a theory that states that subject-hood (the main pivot of a clause) is a function of syntax and information structure together (e.g. Van Valin 2005: 103-104)

The comparison of the different antecedent types is presented in Figure 7.2 on page 175, where the height of the bar indicates how good a particular feature is at being an ER antecedent. These results were significant, providing robust experimental evidence to back up claims that switch-reference systems are sensitive to information structure properties of discourse. Activation of a referent in discourse allows a speaker to use this as a pivot for the ER construction. Most of the time this maps onto the subject of the preceding clause (the unmarked topical slot in Whitesands), but the contribution of a non-structural feature provides latitude for alternative non-adjacent antecedents to occur in natural texts. Moreover, it is consistent with any theoretical claims that anaphors in general are mediated by pragmatic principles (Levinson 1991). Finally, the results for this experiment are controlled for by example where each trial is compared against every other trial to make sure that it is not an outlier. This means that the generalisations made here equally apply to a variety of meanings. The data here has shown meaningful correlations in how ER constructions map with different referential properties. If semantic integration was the key factor driving the production of ER then some examples would stand out as over-productive in ER constructions. The fact that they do not supports claims that reference and subject-hood are the more important factors in the function of ER clauses.

8 Switch-Reference Comprehension

> Observation is a passive science, experimentation is an active science
>
> Clause Bernard 1865

The meaning of an ER clause is determined by the preceding utterance. Without context, a clause such as (257) is ungrammatical, and its meaning is deficient.

(257) * *m-ø-əmnəm nəkavə*
ER-SG-drink kava
And drink kava.

To correctly interpret the clause in (257), a listener must integrate what she has previously heard with the new information presented in the dependent ER clause. Therefore, the ER prefix itself is a type of anaphor. This is an interclausal dependency between anaphor and antecedent, and as a coreferential relationship it is quite different structurally from typically-investigated Indo-European cases of anaphora. The resolution of anaphora and pronouns in more well-known languages has shown that there is ample variation in the potential relationships between reference and form (e.g. Branco et al. 2002, Joshi et al. 2005, *inter alia*). As Vieira et al. (2002) note "referring expressions (pronouns, definite descriptions, demonstratives) are based on different features or require different knowledge for reference resolution" (Vieira et al. 2002: 385). Thus, the identification of a system's features is a delicate task in lesser known languages such as Whitesands. The descriptive challenge is to empirically identify the pivots (and their grammatical properties) that the ER dependency uses during resolution.

There are grammatical alternatives to what constitutes a valid antecedent for any particular ER clause. It should be possible to measure what are the best antecedents, and complement the findings of Chapter 7 which identifies the most conventional constructions for any particular discourse strategy.

Further, such a paradigm allows us to provide a descriptive ranking of antecedents, and also allows for the identification of the unmarked form in a two-part contrast. Any differences that arise within controlled settings might provide evidence to support or discredit claims about sentential-level or discourse-level processing.

Experiment 2 explores whether ER clauses are resolved better than full agreement patterns given a particular antecedent type. That there are different antecedent types was established in Chapter 6. The different antecedent types tested in this experiment are the canonical, combination and topic chain types: the canonical is the one-to-one mapping of ER onto the preceding privileged argument; the combination is the one-to-many mapping of ER onto previously distinct arguments; and the topic chain type is this case refers to when the ER constructions skips over a preceding finite clause to find its antecedent argument in a non-adjacent clause.

Testing speakers' answers for timing and consistency in each discourse-construction pair allows observation of processing loads, and we can identify the most 'grammatical' or conventionalised constructions. There is of course the consideration of the linguistic equivalent of the Heisenberg uncertainty principle — the speed–accuracy trade-off principle (Bornkessel & Schlesewsky 2008: 27, and references therein). The assumption is that faster responses will be more prone to errors, and conversely, slower responses are made in an effort to reduce errors. In order to be able to target the forms that require the least amount of effort to process, the experiment has to take into consideration the interplay of these two factors, speed and accuracy. Taking too much time, or making too many errors can both indicate additional effort that is needed in comprehension. Consideration of both features will highlight the unmarked forms of a system, and we can extrapolate this out to more natural contexts.

It is predicted that ER clauses with canonical antecedence should be processed quicker and more consistently, and that full agreement patterns (different subject) introduce more processing time. This extra time is required because with the full agreement forms hearers have to search for a referent out of a theoretically infinite number of referents, while ER allows them to concentrate only on a limited number of possible antecedents, all of which are salient. Further, if all speakers are in agreement on the answer for a particular antecedent to discourse-construction pair, then this would be a highly conventionalised (grammatical) example. A fifty percent agreement would suggest, alternatively, that an example lacked enough information, or structure, for correct resolution. Conventionalisation is important as we consider the ER prefix as part of a system because conventions give speakers a point of differentiation — they follow convention when there is nothing remarkable occurring, or they can break from convention to mark the extraordinary (see the First Principle (Q) of Generalized Conversational Implicature from Levinson 2000, also known as the Gricean Maxim of Quantity).

8.1 Method

Experiment 2 was presented as a forced-choice auditory comprehension task. Participants listened to a mini-narrative (no image) in Whitesands and were then asked a question to which they responded by selecting an on-screen image. This design resulted in the collection of both 'timed' and 'quality' data. The former was the response times for each question/answer pair. The latter was in consistency — which grammatical constructions matched best with which discourse configurations.

8.1.1 Participants

This experiment was conducted at one location in the *Ienamakel* village. The participants had to fulfil the criteria as in Experiment 1, and were remunerated in the same way. Nine people who participated in Experiment 1 also completed Experiment 2, however at least seven months had passed in between the two experiments. In Experiment 2 there were 31 participants — 16 male and 15 female. Every person who undertook this task completed it.

8.1.2 Apparatus

The audio stimuli were recorded on an Olympus LS 10 flash recorder. The pictures used for the responses were taken on the island of Tanna with a Canon 60D DSLR, and then edited and down-sampled to the presentation screen's resolution using Adobe Photoshop. The stimuli were presented auditorially and visually on a Panasonic Toughbook CF-F9, using the software package Presentation, with Sony MDR-G52 headphones.

Responses were originally to be recorded on a USB button box, but after electronic failure due to volcanic dust, this was replaced with the same modified keyboard used in Experiment 1 (approximate timing error of ± 10ms). Participants were seated in front of the laptop within easy reach of the external keyboard (see Figure 8.1 on the next page).

Figure 8.1: *A participant undertaking Experiment 2*

8.1.3 Stimuli

The stimuli were based on mini-narratives, telling plausible events based on examples from the corpus. They were compiled with the aid of two native speakers (one of them also helped in Experiment 1).

There were 48 trial sets, and each set consisted of three parts. The two variables, one with three values and one with two values, give six different conditions. In each condition the narrative–question matched to a pair of pictures. The distribution of variables across conditions is presented in Table 8.1 on page 184. Each participant received all 48 target trials (eight of each condition).

The first part was a mini-narrative (discourse) presented auditorially. This narrative consisted of approximately three clauses, and had a target construction in the last finite clause. The second part was also presented auditorially, and was a question that targeted the last clause. Example (258) is a complete narrative–question pair.

(258) Discourse–Question pair

a. *Steve t-eru Mary m-ø-asiru la-n*
Steve 3SG.NPST-see Mary ER-SG-help DAT-3SG
m-at-ø-asum
ER-PROG-SG-garden
Steve saw Mary and ER-helped her. ER-gardened.

b. *pəh t-at-asum*
who 3SG-PROG-garden
Who gardened?

The third and final part consisted of two potential (and competing) picture answers, one of which would be the answer to the question of the Discourse–Question pair, e.g. Figure 8.2 are two competing answers, and the participant would select either the woman or the man.

Figure 8.2: *A potential pair of picture answers for a Discourse–Question–Answer sequence*

The voice of the question in the second part was different to that of the mini-narrative in the first part. The photographs consisted of people from elsewhere on the island of Tanna so that they were easily recognisable as women, men and children etc., but not recognisable by name.

The mini-narrative stimuli contained two variables — grammatical construction (2 values) and antecedent type (3 values) — giving a 2X3 design (i.e. six conditions with eight stimuli in each condition). The first of the variables was the form of the grammatical construction. The values of this variable were the ER prefix and full agreement: the final clause of the mini-discourse contained either a clause with the ER prefix (259), or a clause that was fully inflected (FI) for person and number (260).

(259) *Steve t-eru Mary m-ø-asiru la-n.*
Steve 3SG.NPST-see Mary ER-SG- help DAT-3SG
m-at-ø-asum
ER-PROG-SG-garden
Steve saw Mary and helped her. **ER-gardened**. (Who gardened?)
CONDITION 1: ER AND SUBJ-ANTE

(260) *Peter t-eru Hemi m-ø-asiru la-n.*
Peter 3SG.NPST-see Hemi ER-SG- help DAT-3SG
t-at-asum
3SG-PROG-garden
Peter saw Hemi and helped her. **FI-gardened**. (Who gardened?)
CONDITION 2: FI AND SUBJ-ANTE

In these two cases the discourse is the same but the final grammatical construction changes.

The second variable kept the grammatical construction constant, but manipulated the preceding discourse. This gave three potentially different values for the antecedent types: PRECEDING SUBJECT (259) vs. COMBINATION (261) vs. TOPIC CHAIN (262) preceding a subject change.

(261) *John t-at-aliwok m-ø-eru Bill m-ø-awn pen kam*
John 3SG-PROG-walk ER-SG-see Bill ER-SG-call.out to.3 to
*in, **m-i-an** apaha itehi*
3SG **ER-DU-go** to saltwater
John was walking and saw Bill and called out to him,
ER-DU-went to the sea. (Who went to the sea?)
CONDITION 3: ER AND COMBINATION-ANTE

(262) *petan mil keiiu k-at-i-uerin noanu-lau*
woman DU two 3-PROG-DU-braid hair-3DU
*m-at-w-anghati ierman mil k-i-awa, **m-w-eni***
ER-PROG-DU-talk man DU 3-DU-come **ER-DU-say**
There were two women, they were braiding their hair and they were talking. Two men came. **ER-DU-said**. (Who spoke?)
CONDITION 5: ER AND TOPIC CHAIN-ANTE

Antecedent type vs. Final clause syntax	Preceding Subject Antecedent	Combination Antecedent	Discourse Antecedent
Echo Referent (*m-*)	Condition 1	Condition 3	Condition 5
Different Referent (3 person)	Condition 2	Condition 4	Condition 6

Table 8.1: *Conditions of Experiment 2*

8.1.4 Procedure

Each trial consisted of an auditory narrative which was then matched to an auditory question and a visual answer visual pair. The ordering and timing for each trial of the task is presented in Figure 8.3. They were first presented with a green prompt screen (pause one second). Following this, the screen colour changed and simultaneously the audio prompt started with the narrative (stimuli narrative). Following this, the matching question was played (stimuli question). Immediately following the end of the question audio, the screen displayed two pictures, and the program awaited a button press response from the participant (response time).

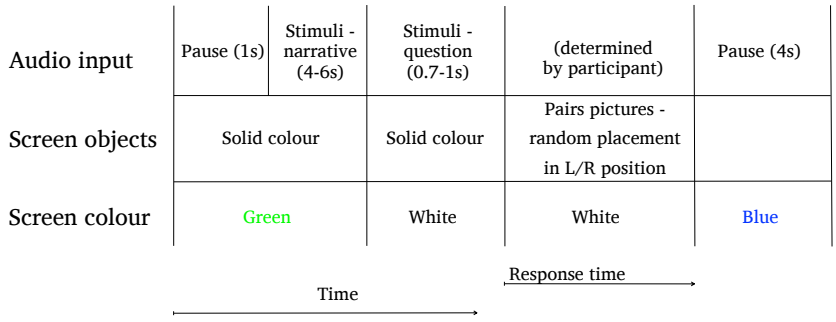

Figure 8.3: *Timing progression of Experiment 2 (not to scale)*

Both pictures were presented at the same time, in left and right placeholders (chosen randomly for each trial). The left/right buttons on the keyboard were equidistant from centre, and matched to the screen placeholders. Following a button press, the program gave a four second resting period represented by a blue screen.

Every experiment was led by the participants. They were given instructions by the author and a native speaker assistant in the Whitesands lan-

guage. They were instructed to "press the button for your answer as quickly as possible". The training session consisting of five items. After the training session the participants were then left alone to complete the task. The experiment consisted of 48 items and 24 filler items. The trials were presented in a random order, such that there were never more than two trial items in a row (i.e. a filler item intervened). The 24 filler sets consisted of the same kind of narrative, question and answer format. In these cases the question targeted a non-final clause, to encourage participants to listen to the whole discourse for comprehension. At the halfway point during the experiment, an unlimited rest period was offered. Most participants restarted the second half almost immediately. On average the whole experiment took around 30 minutes.

8.2 Results

8.2.1 Method of analysis

The parameters that were measured in the responses were the answer itself and the response time. The 'consensus' answer for each narrative–question–picture set was calculated by determining which picture of the pair was chosen by most participants (i.e. the correct answer was not predetermined by the author or his assistant). As all participants successfully completed the task, this left 1488 testable trials.

The response time results are calculated from a select set of the 1488 data points in order to restrict the timing analysis to more *conventionalised* constructions. To create this new select set I discarded speakers who were less than 60% consistent — i.e. the speakers who were not in agreement with consensus. I also discarded all items that were not consistently answered by all speakers ($<70\%$) — i.e. items where speakers were not in agreement as to the correct answer, suggesting that these were ambiguous, or ungrammatical combinations. These two constraints left a smaller set of 957 trials which represented grammatical ER constructions. The outliers that were discarded in this process are discussed in more qualitative terms in the results section.

The results were analysed using the statistical library *lme4* in R (Bates & Maechler 2010, R Development Core Team 2009), and in order to avoid the fixed-effect fallacy (Clark 1973), the models were controlled for speaker, presentation order, and example number (item) as random effects.

8.2.2 Results

The first set of results presented here are the response times. The logarithmic distribution of response times by antecedent type for all grammatical types (i.e. both ER and full agreement) is presented in Figure 8.4 on page 187.

Faster responses are lower numbers on the log scale.[1] This box-plot shows that non-adjacent, topical antecedents (the right hand plot) require significantly more time for identification than others. The mean response time for non-adjacent, topical antecedents was 1615 milliseconds. The mean response times for the canonical and combination antecedent forms were 1361 milliseconds and 1324 milliseconds respectively. Using a linear regression model, the non-adjacent topic antecedent types are judged to be significantly slower than the canonical condition ($\beta = -0.203$, $t = -4.36$, $p < 0.05$) and the combination condition ($\beta = -0.175$, $t = -3.52$, $p < 0.05$). There was no discernible difference between the canonical and combination antecedent forms.

A similar meaningful distribution for the ER clauses is presented in Figure 8.5 on page 188. The results again show a logarithmic distribution of response times split into groups of antecedent type, but restricted to clauses with the ER construction (again the outliers are not included in this analysis). The finding is that non-adjacent, topical antecedents for ER clauses also take more time (mean = 1623 milliseconds) for accurate resolution than both canonical (mean = 1373 milliseconds) or combination (mean = 1316 milliseconds). This was a significant result in a linear regression model, for canonical ($\beta = -0.247$, $t = -3.56$, $p < 0.05$) and combination ($\beta = -0.208$, $t = -2.90$, $p < 0.05$) forms. Again, there is no statistically significant difference between the canonical and combination forms.

Further, within each condition there was no statistically significant difference in the mean response times between full agreement (mean = 1796 milliseconds) and ER forms (mean = 1755 milliseconds). This is seen in Figure 8.6 on page 189, where the mean response time for canonical antecedents is not significantly different when divided by grammatical type. There was a slight bias for the ER response times to be quicker than the matching full agreement form, but this was not a significant result despite there being enough points of data to analyse. This was tested using a variety of paired tests and models. In all the response time results, no one individual item stood out as being different from the others of its condition.

The second set of results considers the consistency with which speakers answered a question/answer pair. The mean of how many speakers agreed upon each particular grammatical construction is presented in Table 8.2 on page 190. For these results 100% would indicate that every speaker agreed on the best answer for a particular question/answer pair, whereas 50% would be the the lowest possible value, as this would indicate that half the speakers chose one answer and the other half chose the competing answer. There were 24 stimuli with full agreement constructions and 24 stimuli with ER constructions.

There is a significant relationship of grammatical type to consistency dis-

[1] I have presented the distribution of the response times as a logarithmic scale in order to make any differences more visually apparent. Response times are typically skewed towards one end of a measurement, and the logarithmic scale mitigates this visual distortion.

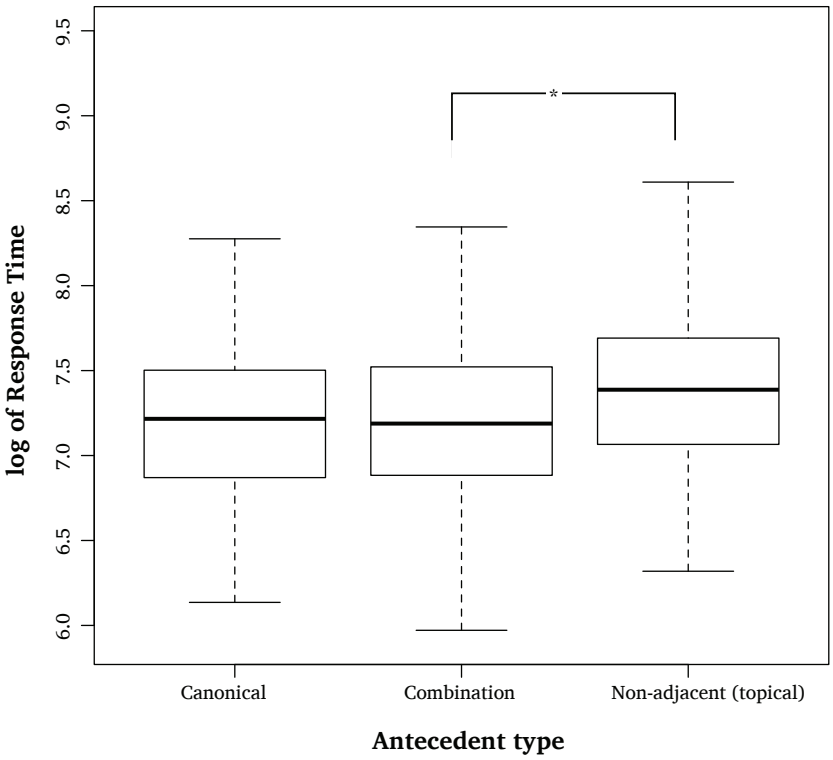

Figure 8.4: *Distribution of response times by antecedent type. The black line is the median response time*

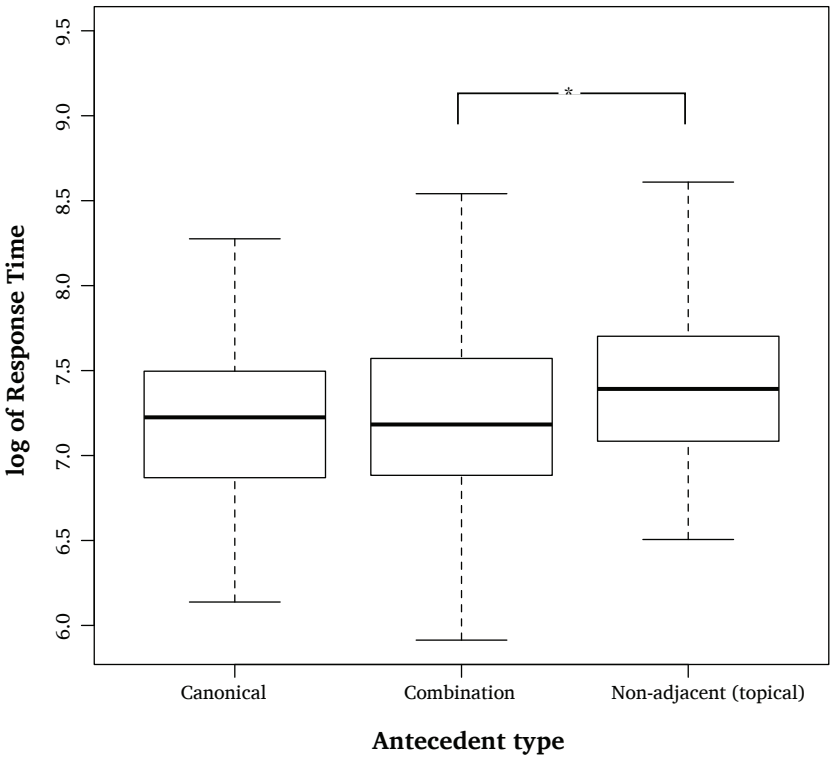

Figure 8.5: *Distribution of ER response times by antecedent type*

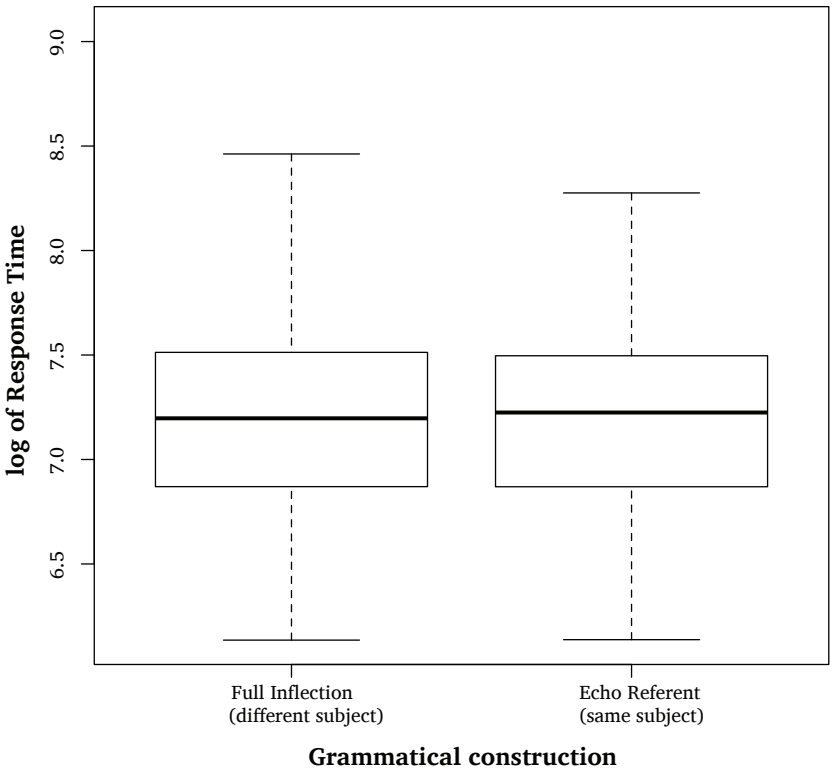

Figure 8.6: *Distribution of response times for canonical antecedents by construction*

tribution — ER clauses are more consistently interpreted (81% mean) than their full agreement equivalent (76% mean). That is, ER clauses give the hearer fewer possibilities in antecedent choice than full agreement as the ER's antecedents are restricted to activated referents. This 5% difference in the means was determined as significant using both a Paired t-test ($t(23) = 2.42$, $p < 0.05$), and a Wilcoxon signed rank test ($V = 168$, $p < 0.02$).

For the ER clauses alone there is a small difference in consistency determined by antecedent type. The items with canonical antecedents for an ER clause averaged 83% consistency, whereas the ER clauses with a topic, non-adjacent antecedent were only 79% consistent. This result was tested using a Paired t-test, but perhaps due to the small number of comparisons the result is non-significant ($t(7) = 0.316$, $p > 0.75$). Thus, the current evidence is that there is no significant difference in resolution accuracy determined by the antecedent type of the ER's clause.

	Full agreement	ER
Speaker consistency	76%	81%

Table 8.2: *Means of speaker consistency by grammatical marking. These means were tested with 24 paired responses.*

8.3 Discussion

In interpreting this experiment we consider the timing and consistency results as indications of the ER's inherent structural properties. We assume that, on the whole, speakers chose the answer that they considered best, and consensus checking is built-in to the above results. With this a-priori, we observe that speakers appear to be equally capable in assigning referential meaning to ER clauses regardless of their antecedent (or at least any difference is marginal and less significant than other differences discovered in this experiment). That is, for accuracy, a different form of the antecedent has no effect on the end-result of identification. Speakers are reasonably consistent in who they think is doing what. However, and this is important, the topic-chain antecedents that are not adjacent do take more time for participants to arrive at the identification of the correct antecedent (Figure 8.5 on page 188). They get there, but slightly more processing is required to do so as this procedure involves discarding the proximate clause.

This evidence allows us to come up with a holistic, data-based definition of the ER. There is a general principle that states:

Equate the ER *prefix* with the subject (and other arguments if re-

> quired) of the preceding clause, but if this doesn't work then look for the most activated, subject-like referent to equal the antecedent.

If the immediate, contiguous syntactic environment does not provide a semantically or pragmatically suitable referent, then other possibilities are found in the discourse level structure. The additional pool of referents that can be chosen from are the ones that are activated in the text, and the results show that if a hearer needs to ascribe reference using one of these topical, activated referents, then it is possible to do so. This confirms the hypotheses built from data found in the natural language corpus.

This remote antecedent does require extra time. This extra processing time could be explained by either: taking extra time to choose between two potential forms; or by distance in auditory memory, where there is a direct relationship between computation and the distance of antecedent from the anaphor. This experiment does not indicate conclusively which is the case. On the one hand the full agreement pronominal forms also take extra computational time for non-adjacent antecedents. This would suggest an overall constraint of distance on processing, regardless of meaning (Gibson 1998). Conversely, referential competition is possible, as the contexts prime hearers for a particular referent, but instead force them to choose between alternatives at the crucial point.

Increasing the semantic and pragmatic plausibility of both options of this choice could inflate, i.e. make longer, the delay found in computation. A plausible hypothesis would be that referential competition and distance to antecedent *both* play a role in this finding. Regardless, it is promising to observe that non-adjacent constituents, provided they are activated, are in fact plausible antecedents for the ER, and this comes with a small but significant cost on the side of interpretation.

Unfortunately, the time resolution of this experiment did not differentiate between canonical (one-to-one) mappings and combinational coreference. There could be a difference between the two constructions, but it does not show here as the off-line response times are too crude. Intuitively, a one-to-one mapping of ER to the subject of the preceding clause (such as the canonical forms) seems the most likely candidate for the default state. This is the most common form in the corpus and conforms to Ockham's razor that the succinct explanation is the best. However, confirmation of the ranking of partial versus complete coreference will have to be left open to further on-line studies.

The results of this task additionally allow us to pursue the systematicity of the switch-reference system, the contrast between ER forms and full agreement patterns. Again, comparison of the competing forms is achieved using both timing and consistency together (as per Bornkessel & Schlesewsky 2008). The results suggest that ER clauses do not slow down speakers compared to full agreement patterns, and in fact it might transpire in future

work that the ER prefix speeds up the referent ascription process (Figure 8.6 on page 189 shows the timing similarity for canonical ER constructions, but these results hold over all antecedent types). This is despite them being syntactically dependent clauses. There are two factors in tension here. On the one hand, there are no clues that an ER chain is about to start, thus identifying the topic, or retaining potential candidates, for the chain is probably cognitively taxing. This would be even further compounded for the ER chains as they also require keeping tense, illocutionary force and other operators linked across discourse. Conversely, introducing new variables (such as new referents) or reactivation of old ones are also taxing tasks, as they require activation, assignment into the discourse, and assignment into appropriate grammatical constructions. These balance out here to give almost equal timing requirements for this task, or at least at the resolution found here. The preliminary conclusion would be that different subject and same subject patterns are of similar response timing, even if the mechanism behind them is different. If there is a bias at all, it would suggest that ER is quicker by accessing highly activated referents for anaphor resolution. This would be augmented by the syntactic constraints of the construction, something the full agreement pattern is missing.

A more conclusive result is the comparison of accuracy in the pairwise analysis presented in Table 8.2 on page 190. Full agreement constructions via pronominal agreement are *not* as accurate as ER constructions for their referential properties. Despite having less information, i.e. lacking grammatical person of the subject, the ER forms are more conventionalised in their meaning (see Nichols 1983 for a similar pattern in the Caucasian languages). Speakers are significantly more likely to reach consensus in understanding the referential meaning of ER clauses compared to full agreement clauses. Functionally, this means that the alignment of ER prefix to referent is more predictable for any given clause. This higher rate of predictability suggests that this ER form is the unmarked form in terms of semantics and reference. This entails that its opposite, the full agreement pattern, is a marked form. It is marked in the sense that it is counter to expectation (compared to the ER). By being counter to expectation, it is forcing the hearer to ascribe a referent that is not the most activated, local form. By forcing a choice outside of immediate context, this introduces discrepancies in agreement, as seen in the results. Speakers agree less on the full agreement because it is not necessarily referencing an accessible item. So while differences in speed are not yet apparent in the description of the systematicity of switch reference, it is clear that pronominal accuracy falls in favour of the dependent ER clauses.

Experiments: Discussion and Conclusions

> I understood them to be saying "He has got hold of our [the Tanna] language now"
>
> Rev. John G. Paton 1891

This brief section will summarise and evaluate the contribution of both experiments, in order to lay a platform for the wrap-up and synthesis in Part IV. There are two key motivators of this experimental investigation: the descriptive challenge to identify the best structural model for the ER clauses; and the theoretical challenge to provide evidence towards an analysis of the ER-based switch-reference system as a whole. There are three main results that the two experiments provide: an empirical ranking of antecedent types; the positive influence of activation/topicality on ER clauses; and an indication of markedness for different and same subject constructions.

The relationship between anaphor (ER prefix) and antecedent is the first result under consideration. This was especially important in order to address the descriptive challenge, as elicitation and corpus investigations suggested a variety of different forms were available to act as the controller for an ER clause. Of particular interest is the possibility for a pairing of anaphors with non-adjacent antecedents. There was no suggestion that it was an ad-hoc coreferential relationship, but instead that there was something systematic about how the antecedent is chosen. These antecedents are the non-adjacent topic antecedents: the types of referents that were recently activated in the interlocutors representation of the discourse. What the experiments demonstrate is that anaphor resolution to these so-called topic antecedents was possible. There is no decisive evidence suggesting that this resolution was in some way impaired for accuracy as compared with adjacent subject antecedents. The discourse fragments presented in both experiments were short, and may have restricted speaker choice. The similarity in accuracy between

adjacent subject antecedents and non-adjacent antecedents might be an artefact of the experimental situation and should be tested further.

On the issue of resolution speed, there was conclusive timing evidence in Experiment 2 illustrating that speakers required more time to identify non-adjacent topic antecedents and ascribe anaphoric reference to them. This extra time could reflect either referential competition (i.e. a larger potential antecedent pool to chose from), or the distance between anaphor and antecedent. Speakers try the preceding subject and unless there is some kind of incompatibility they are happy with the adjacent antecedent. If there is incompatibility, then they must search their recently activated referents for a better choice.

Having distinguished the topic antecedents from canonical ones, we can now consider the anaphors whose antecedents were computed from a combination of previously distinct grammatical functions. Experiment 2 shows that there is no measurable difference in processing time among adjacent combination (in the sense that the argument that are combined are in the adjacent clause) and adjacent sole antecedent forms. Nor is there an apparent distinction made for referent identification. On the other hand, Experiment 1 suggests that grammatical number agreement is a reliable factor in predicting the presence of the ER prefix, in that change in number is associated more with full agreement patterns. The ER patterns are much more likely to occur when there is *no* change in grammatical number marking on the verb. Combining arguments of previously different functions is something that the ER can do, but full agreement is probably the preferred structure in these cases where number is different in two adjacent clauses. In sum, the use of the ER in these combination cases is optional as opposed to cases of canonical mapping where the use of the ER construction is more obligatory.

This is preliminary evidence that preceding subject antecedents are more canonical, which is in step with initial intuitions. Combined with the statistically significant differences in processing time, and subtle differences in resolution consistency, this allows us to rank the antecedent types overall from most preferred to least preferred: Preceding-Subject $\geq$ Combined Arguments $>$ Topical Non-Adjacent Argument. This is in part a neat response to the descriptive challenge posed above. It is now possible to show empirically — and without a potential contextual bias — that there is a preference rank of prospective antecedents for the ER prefix.

The second result from the experiments is the interaction of subject-hood and topicality, and how they both trigger the presence of an ER clause. Experiment 1 shows the preference of speakers is to continually refer to an activated and topical referent with an ER construction. In particular, Condition 1 ($+$topic $=$ final subject) stands out as significantly different, giving a rough indication that persistent reference to an entity establishes it as a topic. These highly activated and adjacent referents in turn become the most probable antecedent. This suggests that topical subjects are the expected ante-

cedent form. They trigger an expectation on the part of the hearer that the topic/subject of the following clause is likely to be identical as before, and are therefore canonically followed by an ER clause — a continuation of what has come before (I discuss these ideas further in §9.1.3). It should be noted that it is highly likely that these factors of topicality and subject-hood also cluster with referent agency and the meanings of specific verbs, an idea that was not explored in these particular experiments. Regardless, Figure 7.2 on page 175 shows conclusively that having a highly activated preceding subject is a greater predictor of an ER clause than adjacency alone. The ER establishes topic that is a subject and maintains it as a kind of a self-propelling construction — the ER drives itself.

Experiment 2 provides some potential counter-evidence to the claim that topicality is key to the resolution of ER clauses. As we saw above, subjects of the preceding clause provide the best antecedents — definitely for timing, and likely for accuracy (see Figure 8.5 on page 188). This hints that adjacency is the prime feature used in the computation of an ER clause. However, I would rather claim that this is a reflection of the variety of features that contribute towards creating the best kinds of antecedents. The subject of the preceding clause is often the best antecedent, and is probably the most important criterion for antecedent identification. Nevertheless, there is still a role for the nature of the discourse to influence the likelihood of an ER clause being linked to the preceding clause. It promotes particular kinds of arguments as grammatically preferred antecedents, subjects which are highly activated in the interlocutors' minds.

The third key outcome addresses the contrast of the ER with the full agreement pattern. This is important because this binary distinction creates the switch-reference system, and the relationship of the two parts can illuminate the systematicity of the dichotomy. On the matter of anaphor versus pronoun resolution accuracy, Experiment 2 shows that it is easier to ascribe referential identity to an ER clause in contrast to a full agreement pattern. Table 8.2 on page 190 should be interpreted as showing that hearers can identify referents better for the ER prefix than for plain third person agreement. This would lead us to identify the ER constructions as the stronger of the pair — it provides more information despite encoding less grammatical information. The ER is stronger in terms of the range of antecedents it can refer to because it is much more restricted in choosing possible antecedents. Therefore, we see that the meaning of the ER clause is referentially conventionalised. The ER is obligatorily dependent but the full agreement is only optionally dependent. The fact that the ER is the stronger part of the binary choice underpins any theoretical claims that on-line inference is key to the use of the system. The full agreement form is unexpected because it is not using the prior discourse with the same regularity as the ER. Preceding discourse is combined with grammatical construction types to predict the next verbal agreement pattern. This allows speakers to use these factors as

a strategy to monitor referents throughout an interaction. Moreover, it also allows for speakers and hearers to assign some kind of expectancy value to both forms. This expectancy is the fulcrum to the switch-reference system.

In summary, Part III has provided experimental on this topic, as far as I know, for the first time. We now move onto the finale: a summary of the ER prefix from a typological perspective, and the theoretical discussion on how an anaphoric prefix drives the switch-reference system.

Part IV

Theoretical Integration

9 Theoretical Background and Issues

> Syntax, my lad. It has been restored to the highest place in the republic
>
> John Steinbeck 1969

The goal of Part IV is twofold: to situate the ER system within the broader switch-reference typology; and to explore the theoretical implications of this anaphoric system. The detailed grammatical description in Part II outlines a system that predicts quite well the forms speakers would use in various contexts. Further, it proposes some ideas on what the system pivots on and its structural constraints (see §6.1). These hypotheses are based on the textual analysis, but they do not provide full answers to the question of the nature of ER constructions. They were therefore tested in the more controlled environments of the experimental stimuli in Chapter 7 and Chapter 8, in order to provide more robust data for the upcoming discussion.

In framing the discussion, there are a few questions or ideas to keep in mind as we evaluate the background, evidence and conclusions. The first is the descriptive focus of the thesis: what is the best possible grammatical account for the ER construction in Whitesands? The second is the computation of the anaphor to antecedent relationship: what is the nature of this relationship? The third is the system that emerges from the existence of the *m-* prefix: how is it possible to derive a switch-reference system from an anaphoric marker? The fourth, and final, is on the state of switch reference: how regular and conventionalised is the system, and how do people deal with, or use, deviation from canonical situations?

The discussion of these questions begins with a brief literature review (§9.1) of the pertinent issues. Then, using the data presented in Parts II and III, the final chapter (Chapter 10) explicates the principles of the system from two perspectives — the grammatical properties of switch reference (§10.1) and anaphora (§10.2). This synthesis concludes by highlighting potential avenues for further research (§10.3.1).

9.1 Switch Reference

9.1.1 Theoretical background

Section 4.1 provided a background of the descriptive history of switch reference, and touched on some of the pertinent theoretical issues. This section presents these issues with a focus on the analysis of switch reference. Switch reference was first characterised as an 'exotic' feature of some languages (Jacobsen 1961), that was then shown to be quite widespread cross-linguistically (Haiman & Munro 1983). The initial motivation for treating switch reference as exotic was that switch reference appears to represent a nominal continuity feature on the verb. The formal instantiation of a semantic distinction does not appear on the grammatical category to which it is associated. Stirling provides good arguments — the head-marking nature of switch-reference languages, and the functional complexities of switch reference — as to why this was the wrong approach, concluding that "the claim that switch reference violates categorical iconicity, and is therefore weird, is a fundamentally misguided one" (Stirling 1988: 10-12). Regardless, I argue that switch reference remains an interesting topic for at least two reasons. It provides a challenge for grammatical theory, especially in the discussions on syntactic pivots and clause structure. Furthermore, it is a system that exemplifies how textual structure, i.e. the discourse, affects sentence (or clausal) structure. To fully understand switch reference, analyses must consider as many aspects as possible of the local and non-local context. I return to the syntactic issues of clause nexus in §9.1.2, but first I investigate some other points.

Haiman & Munro (1983), and the chapters within, provide the broadest descriptive background to switch-reference typology. As such, they also elucidate some of the key structural properties required for a complete understanding. In particular, Haiman and Munro identify a series of generalisations about switch reference: *a*) there is a strong link between verbal agreement systems and switch reference, where often the verbal agreement pattern fills in a part of a switch-reference paradigm; *b*) switch reference functions as a reference-tracking device, in order to prevent ambiguous reference; *c*) the pivot of the switch-reference system is characterised through the syntactic notion of subject, not through pragmatic or semantic categorisation; *d*) the reference clause (antecedent) is never subordinate to the marking clause which carries the switch reference marker; *e*) in languages in which there is a coordinate-like relationship between switch-reference clauses, there exists a relationship between affix type and clause order — suffixing languages have the marking clause preceding the reference clause, whereas prefixing languages have the marking clause following the reference clause; *f*) in languages in which there is a subordinate relationship between reference and marking clause, there is no such restriction on clause ordering; *g*) it is generally the case that reference and marking clauses are adjacent, but this does

not always hold true, as some languages allow intervening clauses; *h*) there is a wide variety of historical development paths to switch reference (see Haiman & Munro 1983: x-xiv).

These generalisations are conceptually useful despite claimed problems with their real-world instantiation because they create an important canonical focal point for assessing switch-reference systems. Their realisation in the real world is an empirical matter.[1] Foley & Van Valin (1984: Chapter 7) formalise these useful distinctions in their typology of reference-tracking systems, in which switch reference is considered as distinct from "switch function", "inference" and "gender/noun class" as a system of tracking participants throughout a text. Switch reference is a formal construction that marks changes in referents, and this marking is used by speakers to assign reference. Another point worth making is that the analysis presented here relies on implicature (as a kind of inference). This differs from the analysis of inference itself as a tracking system. In inference systems, such as Thai or Japanese, there is extensive zero pronouns or anaphora, and reference is usually assigned through non-linguistic means. The notion of *referential dependency* is crucial as it situates switch reference within the domain of anaphora (Huang 2000).

The usefulness of Haiman & Munro's classification is that it provides a starting point for how to classify those languages which uniquely mark the switch in reference via a systematic marking on verbs. The clause relationship type is open to debate, but the morpho-syntactic possibilities should be kept to a restricted set, in order to create meaningful typological and functional comparisons. Stirling (1988) compiles the most comprehensive list of conditions required in the analysis of switch reference. According to her, there are five conditions required to identify switch reference, paraphrased as: *a*) Locality Condition — switch reference holds between two clauses; *b*) Dependency Condition — there exists a dependent, marked clause and an unmarked main clause that the dependent clause relies on for syntactic and semantic specification; *c*) Realisation Condition — the contrastive switch-reference markers are on the dependent clause; *d*) Subject Condition — the pivot of the switch-reference is the syntactic subject of both clauses; *e*) Function Condition — switch reference functions to obligatorily signal co- and disjoint- reference (see Stirling 1993: 6-7).

These two sets of generalisations have been used as a launchpad for further language-specific investigations. The proposal that has come under most scrutiny is that referent tracking is a key purpose of these grammatical strategies (see Foley & Van Valin 1984 and the individual papers discussed within Haiman & Munro 1983). Finer (1985) proposes an alternative view

[1] The alternative would be a less palatable situation where changes in referent within discourse could be interpreted as "switch reference". This is a trivial fact of language, that people change what they are talking about as a text, or conversation, unfolds. To subsume all functional variations of this process into the one category would be a typologically pointless exercise.

that suggest that switch reference (in Government and Binding theory) is a type of long distance anaphor in subordinate clauses. However, the data used in his study has often come under criticism as not cross-linguistically valid (Roberts 1997; 1988a, Stirling 1988), and the criticism is perhaps even more valid because the rigidity of his analysis does not easily allow for the pragmatically-based variation seen in switch-reference systems. More recent descriptive and analytical works have shown that switch-reference systems also play an important role in event semantics — suggesting that referent tracking is not their only function (Kibrik 2011).

Meaning appears to make two distinct contributions to switch-reference systems. The first is the identification of the pivot of the switch-reference clause. The Papuan language Barai (Olson 1978; 1981) has a switch reference system that monitors the macro role of the referent: Undergoers do not typically use same subject constructions even in cases of coreference between arguments. Same subject and different subject paradigms only work with Actor pivots as the antecedent/anaphor. This kind of semantic input is not particularly useful in the analysis of Whitesands because in the ER construction all verbs (intransitive, transitive, stative, etc.) are able to use both the ER and full agreement patterns. Therefore, the switch-reference system is somewhat agnostic towards the semantic role of the referent (but it is not agnostic, as we have seen, towards the grammatical function §6.3.3).

The second, and more pertinent, contribution that meaning makes is that of event demarcation. Switch reference may indicate the boundaries of events, or packages, within texts, and it is within these event domains that the switch-reference function is bound (see a similar argument for serial verb constructions by Aikhenvald & Dixon 2005). I continue to address this issue as a feature of switch reference over the coming sections as the discussion develops, but first I outline some previous proposals regarding the relationship between switch reference and discourse structure.

For Roberts (1988b), discourse organisation is key to the existence of same subject clauses in the Amele (Papuan) switch-reference system. In addition to tracking participants, the system can be used to mark, for example, thematic breaks, return to topic and to link sentences together to form texts (Wilkins 1988 also claims that there are similar kinds of broader semantic functions in Mparntwe Arrernte (Pama–Nyungan)). Van Gijn (2012; 2014) suggests that event integration (and contrast) is the *primary* function of switch reference in the South-American linguistic area (and perhaps even for other language regions). His arguments are founded on the historical development of such systems in non-literate societies. Switch reference functions as a communicative tool and its use drives the selection of pivot features, particularly attention. This viewpoint, while reducing the syntactic systematicity, ultimately gives the systems a useful function: " [switch-reference systems] allow for the reduction of retrievable material" (van Gijn 2012: 124). This is congruent with the ideas proposed in this thesis. While the

linguistic function for the South American languages might be different (i.e. less of a role for syntactic integration), the forms ultimately derive from the same interactional constraints.

McKenzie (2012) provides a semantically-driven account for switch reference in Kiowa (Tanoan). He accepts that there are constraints to a syntax-only analysis (like that of Finer), and proposes that both syntax and semantics together are key to understanding Kiowa's paradigm. A key contribution that his semantics makes towards a predictive system is that "we can derive restrictions on anti-pivots quite simply, through the nature of the clause juncture. Sentential coordination conjoins two propositions, so it must take two arguments of the same semantic type." (McKenzie 2012: 222). However, this combined syntax–semantics proposal requires a complete uptake of the Minimalist program for computation (and even understanding what "semantic type" is). In the context of this thesis, I do not adhere to this theory and, as such, do not need to solve a problem which was created by the analyses restricting switch reference to subordinate syntax.[2] Further, I show that the workings of the switch-reference system can be placed in the pragmatic domain. Outside of theoretical debates, there are two important contributions that McKenzie (2012) provides. First is the conclusion that, from a formal syntactic perspective, switch reference has a lot in common with anaphoric pronouns (also see Huang 2000). This proposal again makes the link between switch reference and anaphora as was demonstrated by O'Connor (1993) (see §9.2). Second is that non-canonical switch reference can be explained by coordinating conjunctions tracking "topic situations rather than subjects" (McKenzie 2012: 177). Thus, while the theoretical framework is very different, there are some commonalities between the observations made.

We saw above that referent tracking is potentially one of the functions for a switch-reference construction. A switch-reference system is sensitive only to certain grammatical relations (i.e. privileged arguments). Thus, switch-reference chains can manipulate the relationship between these privileged arguments to set up a discourse-level representation of participants. What is interesting for each individual system is how antecedents, the crucial piece of information needed for disambiguation, are determined for a particular clause. The most privileged argument is typically the subject and it acts as the canonical controller. This leads to a modification of Haiman and Munro's generalisation *c)* (that it is strictly a syntactic subject that is being tracked throughout the clause chain). The modification is necessary because in many languages there are exceptions to what is a canonical antecedent (Kibrik 2011). One alternative to the grammatical relation of subject is that of the discourse role of topic, as has been postulated before. Reesink, *inter alia*, concludes that in Usan (PNG) and other switch-reference languages "it

[2] Moreover, it is quite clear that Whitesands switch reference cannot work across subordinate constructions.

is these topicality factors then, that play an important role in overriding the Switch Reference mechanism monitoring the referential identity of subjects" (Reesink 1983b: 241). Topic plays a role in the syntactic realisation of switch-reference constructions.

Reference is identified as a key issue at stake. There have been some instructive analyses of what features of reference are salient. For example, it has been noted that the strength of the contributing forms is not symmetrical (as is shown to be the case in Whitesands). Nichols (1983) makes an original observation about the strength in meaning of switch-reference forms in the languages of the Caucuses. This is summarised as the Implementation of Opposition, in which "One form has restricted reference, the other open reference" (Nichols 1983: 261-264). Because two items are in opposition, it does not entail that they are both equally matched. It is possible to have a binary distinction with asymmetrical parts (e.g. privative oppositions). This idea — that it is possible to have a binary, but asymmetrical, contrast — is important because as a type of anaphora (§9.2), the ER forms a (Horn) scale with a non-equal partner. This asymmetry is necessary in order to explain the Whitesands referential system using general theoretical principals of anaphora.

In line with the account of Reesink, Berge identifies discourse structure as a factor influencing the way the West-Greenlandic agreement system works. West-Greenlandic has a well known logophoric system known as fourth person, but additionally, there is a coreferent/non-coreferent distinction made in the agreement patterns in some subordinate clauses, such as the contemporative (Berge 2011: 173-175). Again, the function of the switch-reference system crucially includes an interaction with discourse level phenomena: "pronominal inflections that mark for switch-reference can just as well mark switch-topic" (Berge 2011: 190). She does note that the relationship between switch-reference marking and topicality is not as robust as the relationship between ergative marking and topicality. Nevertheless, the topic–switch-reference relationship does exist, and it is a good explanatory tool for the data. The West-Greenlandic data are quite different from the clause-chaining Papuan languages, or South American data. All of these systems have their own idiosyncrasies and structural features that are unique to each language, and clearly stem from the typological facts of the language in question. Despite these differences, the notion of topic — and its importance as a pivot in switch reference — continues to surface in the various descriptions. This suggests that topic could be a fundamental feature determining how these systems develop and stabilise into a function paradigm.

There is one standout deficiency to all of these studies — and the ones referenced in §4.1 — and their corresponding analyses. They make astute observations, and there is integration into specific theoretical frameworks such as Discourse Representation Theory (e.g. Stirling 1988). However, there is no attempt to provide controlled studies to test the conflicting hypotheses

(as noted by Roberts 1988b). This is exacerbated further as the data are often removed from contextual constraints. Many of the studies have attempted to mitigate this problem by using much longer and complex contextual backgrounds for any particular construction. Indeed, for many of the languages mentioned above, the interesting examples come from such contexts. However, despite the clear and oft-acknowledged influence of discourse and discourse type on switch-reference constructions, there are few attempts to quantify switch reference in a corpus study of natural speech (there are two extremely brief switch-reference 'counts' or quantifications in Berge (2011: 268) and Crowley (1998: 247).

Furthermore, when a corpus is used to present a qualitative analysis as in most of the references above, there is an enormous bias towards narrative texts that are based on stories and other monologic genres — not one, as far as I know, used long stretches of conversational data to augment their elicitation- or narrative-based analyses. As was shown in Figure 6.1 on page 121 — where genre was shown to have an effect on ER occurrence — this limitation could potentially cause serious analytical problems. A sampling of texts could bias the representation of the construction and as such should not be treated as definitive. For example, one could imagine that narratives are well known, public knowledge, and as such they have peculiarities where referent identification and action is often presupposed (and especially so for a favourite genre of linguistics — traditional stories). This could have an effect on how the referential encoding is realised by speakers. So, the theoretical conclusions of the authors above are only a starting point for the next stages in switch-reference typology. In Chapter 10 I start this discussion, presenting the ER as a system using a multifaceted data source.

9.1.1.1 The Echo Referent

The echo system — the switch-reference paradigm of southern Vanuatu — has been subject to some structural analysis. As we saw in the introduction, the most cited work is Lynch (1983), where the Lenakel ER is described as a switch-reference system. The analysis does not enter into the domains of nexus type, textual function or corpus but does leave open these ideas for further research. The most comprehensive theoretical account is Crowley (2002), who considers the echoing verbs (i.e. the ER construction) of Sye (southern Vanuatu) as analogous, or similar, to the serial verb constructions (SVC) found elsewhere in the Vanuatu archipelago. However, there are many formal distinctions between ER constructions and SVCs. For example, SVCs are typically mono clausal, they have the phonological properties of single predicates, and the parts of an SVC are not able to function independent of the SVC (Aikhenvald 2005). Nevertheless, Crowley's perspective is that ER constructions are used to mark single conceptual events just like SVCs. From Crowley's perspective, the event-hood status of the clause (chain) is

the factor determining whether a full inflection is used or not: "when a verb encodes a new event, its inflectional prefixes mark a full range of subject and tense distinctions" (Crowley 1998: 246). While this seems in line with the proposals of van Gijn (2012), it is a problematic analysis because, like SVCs if they have them, the notion of event singularity is hard to identify without specialised testing (Bohnemeyer et al. 2010). Furthermore, chains of unique actions encoded using echoing constructions in Whitesands do exist (§6.1). These provide counter evidence to Crowley's claims. Event-hood is probably a contributing factor to the constructions' representation, but for now this contribution remains an unknown quantity.

Crowley (2002; 1998) does not present a complete analysis of the structural properties of the Sye system, but at least two other authors have considered the southern Vanuatu languages from a structuralist position. McKenzie (2012) takes a very strict syntactic approach to ER, and proposes that VP co-ordination is the sole construction present in the Lenakel data — and probably by extension the other Vanuatu languages and their switch reference constructions. Historically, this is a plausible account for how the system came about, as de Sousa (2007) sketches out. de Sousa (and Lynch 2001, Moyse-Faurie & Lynch 2004) shows a historical development from a proposed Proto Oceanic VP coordinating conjunction **ma* to the contemporary ER construction which is considered a type of clause coordination — the current languages of southern Vanuatu usefully show different stages of this development.

One further finding in de Sousa (2007) is the difference in systematisation in the different languages of southern Vanuatu. For example, Sye is more restricted — it cannot have non-subject antecedents. On the other hand, Lenakel allows non-subject antecedents to fulfil the entire antecedent referent slot, and Whitesands allows for non-subject antecedents when they are combined with a subject argument. Anejom̃, on the other hand, has a clause linkage that is formally distinct in many ways. The Anejom̃ ER is restricted, solely used with exact referential correspondence, i.e. when the two subjects match with no variation. The ER is a pro-clitic to the verb[3] and cannot be used in tandem with most tense, aspect and mood markers (Lynch 2000). There is no complete understanding of the functions of the system in Anejom̃. It is related to the Whitesands ER described in this thesis, but at the same time it is fundamentally different, and both are deserving of detailed analyses.

McKenzie's (2012) analysis of the ER in Lenakel as VP coordination ignores the fact that it is possible to have full agreement in coreferential situations and that it is possible to have non-adjacent antecedents. McKenzie doesn't sufficiently explain the syntactic restrictions, and the analysis is based on a limited data set. Stirling (1988) concentrates on these issues

[3] Anejom̃ is VOS, an unusual word order in Vanuatu, and the only ER language with this word order.

as part of her more general account of switch reference. She highlights the fact that Lenakel switch reference appears to violate her Functional Condition that states that switch reference systems must have markers for disjoint and coreferential constructions. This may be problematic for a neat typology of switch reference, but in the context of the description of the Whitesands ER construction, this violation is precisely the feature this thesis requires to explain how the system works. Slightly problematic is Stirling's claim that "different subject effectively marks a change of mood through marking the temporal shift" (Stirling 1988: 95). Limiting the system to this feature does not take into account the referential possibilities shown in the Whitesands data. However, she does note that this claim needs further investigation. I take an alternative perspective, putting the focus on the ER marker and treating the full agreement pattern as a subsidiary device to mark different subject relations.

In sum, the accounts of the ER system in its various instantiations have been based on limited data sets, and crucially not methodically analysed from a perspective of functionality — how the system is used in discourse. The debate has been restricted to various features of the syntax, but even these are based on data that are restricted in context and variety. Chapter 10 addresses this by considering the ER construction in Whitesands from a functionalist and empirically grounded perspective.

9.1.2 Co-subordination: operator sharing and independence

A contemporary linguistic debate addresses what are the plausible clause linkage types required for linguistic theory. As was noted above, Haiman & Munro (1983) recognised that switch reference can occur with both coordinate and subordinate constructions. The latter type seem to be frequently found in South America, but we have seen there is good evidence to suggest that the ER is not compatible with subordinate constructions. This leaves coordination as the type of clause nexus that best describes the clause-chaining languages like Whitesands, Lenakel and the non-Austronesian languages of Papua (i.e. non-subordinating switch-reference languages). However, there are problems with using coordination proper as an analysis of switch-reference clause chains, as it is clear that these clause chains do not fit into typical notions of coordination. In fact, these clause chains share features of both subordination and coordination. There are dependencies regarding finiteness and an encoding of the relationship between clauses' arguments which seem to be subordinating features. At the same time, each clause is a unique meaningful unit with its own semantics and argument structure, and does not necessarily modify another clause. These observations lead to the development of a third nexus type, cosubordination (Olson 1981, Foley & Van Valin 1984, Van Valin & LaPolla 1997, Van Valin 2005).

Cosubordination is defined as a nexus type that joins whole units (e.g. core, clause, etc.), but unlike coordination proper these units must share operators (Van Valin 2005: 187). The differences among the three types are presented in Figure 9.1. This tripartite distinction would seem ideal for clause chains, as they are typically dependent on one single clause for finiteness, while having unique arguments in each clause (this criterion would also distinguish them from serial verb constructions which share operators and arguments).

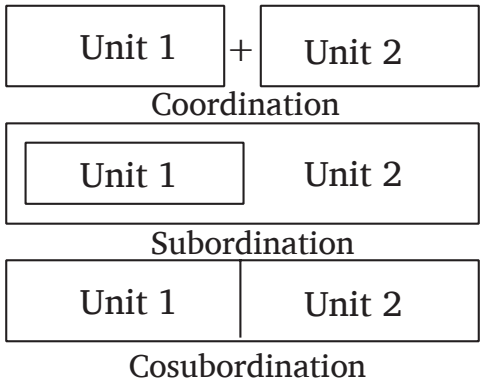

Figure 9.1: *Nexus types (reproduced from Van Valin 2005: 188)*

There have been arguments against the existence of cosubordination, or at the least, a debate as to what is the nature of the clause-chain nexus. Firstly, the generative tradition has largely marginalised the operator-sharing dependency as being distinct from argument sharing. Generative accounts typically have one slot for finiteness, illocutionary force, etc. so they sometime fail to capture the range of types. If the issue of linkage type is addressed, then clause chains are typically analysed as either subordination or as coordination where, if it is the latter, it is 'asymmetrical' coordination (see references in McKenzie 2012: 88). However, it appears that this is solely redefining or moving the problem — there are still syntactic and semantic discrepancies among the three nexus types that require categorisation. This categorisation of nexus types has been challenged from the perspective of their cross-linguistic validity. Bickel, for example, maintains that the theoretically proposed distinction between coordination, cosubordination and subordination is not clearly bound by syntactic formulae or by clustering of features. He instead claims that clause chains (of which switch reference is a subset) are in fact "a continuum of structures with more versus less tightly constrained scope properties" (Bickel 2010: 93). Illocutionary scope is potentially the factor which determines where a particular construction fits onto the continuum, not any underlying syntactic differences in how the

clauses are joined together.

Foley, recanting his previous claims, states that cosubordinate nexus is simply coordinate nexus with special restrictions on what is being coordinated (Foley 2010: 40). Like Bickel, this viewpoint dismisses cosubordination as a category of nexus, but it does still claim to have a clear distinction between subordination and coordination. Foley in turn analyses the linkage of clause chains in Papuan languages as coordinate nexus where "coordination of S constituents rather than IP begins to provide an explanation for the differential behaviour of I features across Papuan languages" (Foley 2010: 41). Despite changing the viewpoint of the syntactic discussion, Foley still foreshadows that understanding the pragmatic underpinnings of an utterance is imperative to understanding the nature of a clause chain, and attention must be given to the pragmatic status of both the referents and the clause. This type of syntactic-pragmatic relationship is also argued for by Matić et al. (2014), who state that there is an inherent link between clause status and syntactic construction type. Importantly, it is the language-specific properties of a given language that must be considered: "one cannot assume that clause chaining always corresponds to the same types of structures across languages" (Foley 2010: 48). Roberts (1988b), too, warns that investigation into the linkage type of these clause chains must be language unique: "this [nexus type] must be established within the syntax of the language concerned" (Roberts 1988b: 51). Against this background, which takes into account cross-linguistic differences, it is possible to consider what contributions the ER construction can make towards the typology of nexus categorisation.

There is a dependency relationship between clauses in Whitesands, and this consists of at least referential dependency but also potential structural dependencies as well. ER clauses rely on a higher level main (matrix) clause, and at the same time have different properties and functions to true subordinate clauses, where clauses are acting as arguments or adjuncts. It would be disingenuous to consider it the same as coordinate constructions in e.g. English. Furthermore, language-internal evidence suggests that ER coreference is not compatible with any other type of subordination in Whitesands. This would suggest that the operator sharing, dependent ER construction is a clear example of cosubordination, and it provides evidence supporting the tripartite nexus distinction.

9.1.3 Topic and activation

The phenomenological fields addressed in this section are the related notions of topicality, givenness and activation of referents. They are notions that are often used in switch-reference studies. Thus far in this thesis, the terms have also been alluded to, but only with a vague definition. This was entirely sufficient for the analyses of the data, but here it is useful to discuss with a

little more detail their meanings and potential contributions. The definition that I assume is: the topic is what an utterance is about — i.e. the speaker is trying to convey information about the topic. This is similar to Gundel's definition:

> **TOPIC**
>
> An entity, E, is the topic of a sentence, S, *iff* in using S the speaker intends to increase the addressee's knowledge about, request information about, or otherwise get the addressee to act with respect to E. (Gundel 1988: 210)

The above definition is the viewpoint that I take. This is not a syntactic category of topic (as is found in Japanese etc.), but instead it is an attribute of the discourse that manifests itself in an utterance. Thus, it is possible to define *topicality* as a feature of the referent(s) most likely to fulfil the requirements of the category topic. Referents with high topicality, i.e. with a high likelihood to play the role of a sentence topic at a given point in discourse, constitute a category of discourse topics. This category of discourse topic is likely to interact with various parts of the syntactic framework of any given language, in particular a privileged syntactic argument. The hypothesised relationship would reinforce the principle that the "statistical association between the grammatical subject and the topical participant is very high" (Givón 1992: 20). The question for the analysing linguist is how a discourse topic can be best identified? Prosodic structures obviously play some role — topics are typically unstressed — but are there are other potential clues in the identification of discourse topics.

One important facet to the identification of the topical referent is that of activation (Chafe 1994, Kibrik 2011: 375-388, *inter alia*). A topic should be highly activated in the interlocutors' representation of the discourse precisely because it is the centre of their attention. This is not a binary distinction where things are either activated or not, but instead there exists a cline of potential activation states (Chafe 1994). Gundel et al. (1993), Gundel (2003) propose that there are (at least) six cognitive statuses relevant to the form of referring expressions in natural language discourse. These form the Givenness Hierarchy, a version of which is reproduced in Figure 9.2 on the next page with the equivalent English expressions. This provides a framework for ranking a language's referring expressions. Of particular importance is the position of the *In focus* and *Activated* categories on the left hand side of the scale. The *In focus* category does not correspond to focus in a more traditional sense, but refers to the most topical of referents. Topic (and by association topical referents) co-occur with the left hand side of the scale, and any grammatical means used to encode them are restricted to the higher categories.

A consequence of having an activated topic is that it is used as a point of reference. This point of reference provides the text with a feature that is

In focus	>	Activated	>	Familiar	>	Uniquely identifiable	>	Referential	>	Type identifiable
it		*that* *this* *this* N		*that* N		*the* N		indefinite *this*		*a* N

Figure 9.2: *The Givenness Hierarchy with English referential phrases (from Gundel et al. 1993: 275)*

monitored, and it can be used to identify important changes in the text. A change in the reference is a marked situation, or in other words, "one may assume that continued activation of the current open file [the topic] is the default ("unmarked") case" (Givón 1992: 23). Keeping the referents in an attentional state ensures referents are continued through the use of further unmarked constructions (Grosz et al. 1995, Walker et al. 1998: 210). A clause chain in Whitesands does precisely this: it clearly indicates the continued activation of referents by using the ER construction. Continued reference is unmarked (Givón 1992: 23) and those referents that are most likely to promote continuation of reference are those which are already topical. As a text develops, each clause provides a new fulcrum for attention to the interlocutors (Kibrik 2011: 54). A transition from one referent to another referent across utterances is marked. Changes in the syntactic construction provide a clue that there are changes occurring in the activation status of referents. These changes, or lack there of, in the transitions help interlocutors identify the discourse topic that the utterance is about (Grosz et al. 1995). Finally, the higher regularity of switch reference in third person, as opposed to first and second person where there are more non-canonical forms (Figure 6.8 on page 126), is good evidence supporting the claim the most activated referents can influence the switch-reference paradigm. Interlocutors are almost always going to be highly activated as they are present during the utterance.

There seems to be a preference for topic-sensitive languages to have particular features: a lack of dummy subject, marginalised passive constructions, and zero noun phrase anaphora (Gundel 1988: 221). This matches with the typological features of Whitesands. There are no passives (using the impersonal construction instead, see §2.3.3.1), and there is a strong preference for noun phrases to be recovered from context. Furthermore, many languages typically have an unmarked topic-first sentence structure, where there is a topic–comment ordering of constituents. This would make the hypothesis linking ER constructions to topicality completely uncontroversial, as the ER prefix is almost always the first element of the clause it belongs to (with the exception of the rare situation where there is a free pronoun preceding it, see §6.1.3.2). An ER clause is providing given referential information, to which a new predication is added — it is the most minimal of

topic–comment constructions.

In summary, we can identify a topic as a factor moulding clauses within discourse. It is associated with the referent that is most given, and most activated in the interlocutor's mind — it is what the utterance is about. This referent is at the centre of (backwards-facing) attention, but it also moulds the forthcoming discourse as it provides the most salient pivot for interlocutors to grasp as the discourse progresses. In the case of the ER construction, this is highly correlated with the the subject of the clause, but it is a factor that plays a role in antecedent computation (see conclusions in Part III on page 159).

9.2 Anaphora

The analysis of anaphora is often postulated to exist almost entirely in the syntactic domain (Chomsky 1982, Finer 1985, Chomsky 1993, Dalrymple 1993, inter alia). However, these models have often come under criticism in that they are not empirically valid (for a summary of arguments see Chapter 2 in Huang 2000). An alternative analysis has been proposed as early as 1987 by Levinson (1987; 1991; 2000): he contends that anaphoric dependencies demand only a minimum of grammatical specification, and that different types of meanings are arrived at by the combination of this grammatical specification and an inferential mechanism based on a couple of Gricean pragmatic principles. This study follows on in this tradition, taking a theoretical standpoint that it is the analysis of the pragmatics–syntax interface that is key to how switch-reference works. This approach has been taken before in the analysis of some switch-reference languages, for example, Pomo (O'Connor 1993) and Amele (Huang 2003). First, however, let's review the pragmatic proposal.

This pragmatic account keeps the syntactic and semantic machinery at a minimum. As a result, the derivation of anaphora is computed from some very general principles of human communication. There are two basic anaphora specific principles: the Binding Principle A, which requires a certain type of expression (anaphor) to derive its reference from another referent (antecedent) in an appropriate domain; and the pragmatic principle of Disjoint Reference Presumption, according to which the arguments of a predicate are assumed to have disjoint reference, unless there is evidence to the contrary. The second of these is a principle restricted to intra-clausal reference. These two principles are supplemented with the Levinsonian heuristics — derived from the three neo-Gricean communication maxims — Quantity (The First Q-Heuristic), Informativeness (The Second I-Heuristic) and Manner (The Third M-Heuristic). The coreferential versus non-coreferential (disjoint) readings are generalised conversational implicatures that are derived through the combination of the anaphora-specific principles and the three heuristics.

To illustrate how the system works for reflexives, consider the English example (263) from (Levinson 1991: 112):

(263) ENGLISH PRONOUN VERSUS REFLEXIVE

a. John$_i$ likes him$_j$.

b. John$_i$ likes himself$_i$

According to the Binding Principle A, the reflexive pronoun in (263b) has to derive its reference from an antecedent within a specific syntactic domain, but no such restriction applies to the simple pronoun in (263a). Reflexive and simple pronouns form a Horn scale $<$*anaphor*, *pronoun*$>$ such that the left-hand term on the scale is stronger (more informative because it is more restricted in interpretation) than the right-hand term. The use of the reflexive encodes coreference with the appropriate antecedent (i.e. the subject in (263b)). On the other hand, the non-coreferent (disjoint) reading in (263a) is a result of a generalised Q-Heuristic: if the stronger interpretation applied, the stronger term would have been used. Since it is not used, then the stronger interpretation probably does not apply (non-use of the stronger term implies its negation). Since reflexives encode coreference, their non-use implies lack of coreference. Thus, the non-coreferent reading of (263a) is a result of implicature (a generalised inference, a default interpretation of a construction).

This implicature is reinforced by the second anaphora-specific principle, Disjoint Reference Presumption. The schema for how this Horn scale would work as a process in presented in (264).

(264) HORN SCALE $<$*anaphor, pronoun*$>$

a. *anaphor*:
   $\Rightarrow$ COREFERENCE through Binding Principle A

b. *pronoun*:
   $\neq$ *anaphor* $\therefore$ Q-Heuristic $\rightarrow$ no COREFERENCE
   $+$ Disjoint Reference Presumption
   $\Rightarrow$ DISJOINT REFERENCE

The invocation of Disjoint Reference Presumption may at first sight seem superfluous, as it is just reinforcing a known quantity. Non-coreferent readings can be arrived at solely with the principles of Binding Principle A and the Q-Heuristic. However, it is necessary to account for typological variation (and in the analysis of Whitesands, being able to have multiple levels of encoding to encapsulate all details of the system). Many languages do not have a separate class of anaphors, but rely on simple pronouns to encode both coreferent and non-coreferent readings. Levinson (1991) shows this is probably the case for another Oceanic language Fijian, in which, according

to Dixon (1988: 255-256), a sentence like (265) can be interpreted in at least two ways, as indicated in the translations.

(265) FIJIAN

sa	*va'a-dodonu-ta'ini*	*'ea*	*o*	*Mika*
ASP	correct	3SG-OBJ	ART	Mike

Mike corrected himself. *or*
Mike_i corrected him_j.

The default interpretation in these cases is that of disjoint reference, derived from the Disjoint Reference Presumption. Therefore there is no Horn scale, but instead coreferent readings are arrived at either via world knowledge, immediate context, etc., or through additional marking which indirectly signals that the situation described is not the default case, giving rise to the implicature of coreference. The schema of single pronoun system is presented in (266).

(266) <*pronoun*>

a. *pronoun*:
+ Disjoint Reference Presumption ⇒ DISJOINT REFERENCE

b. *pronoun*:
+ Disjoint Reference Presumption
+ Cancelled by context, world knowledge, …
(+ additional marking)
⇒ COREFERENCE

To sum up this approach, languages seem to fall into at least two major groups:

A-first languages

Languages with a system of anaphors — expressions obligatorily coreferential with an antecedent from the same domain — in which anaphoric dependencies are derived from the A-principle plus pragmatic maxims

B-first languages

Languages without anaphors, in which the Disjoint Reference Presumption represents the default case, and coreferent readings can be achieved only by cancelling this default implicature

The B-first type can be further subdivided into those with only pronouns, and those in which pronouns can be augmented by an emphatic marker to signal the cancellation of the Disjoint Reference Presumption.

So how is this discussion on anaphora computation useful for an analysis of switch reference? In the case of Whitesands, it is quite clearly the case that the ER prefix is fundamentally an anaphor, albeit one that belongs in an interclausal domain. Therefore, it is appropriate to use the tools of generic anaphora description for this type of dependent clause and the system that it drives. From the broader perspective of switch-reference languages in general, it appears that the Levinsonian approach is both applicable and useful, and has been applied by other researchers (Huang 2003).

O'Connor (1993) independently arrived at the conclusion that implicature is a functional tool that can be used to explain switch-reference systems. While she does not have the same level of formalism in her paper as Levinson (1991) and Huang (2000), it still stands as an important link between the work of Levinson and the ideas presented in this thesis. Firstly, she extends the generative framework and identifies pragmatic inputs as key to the computation of anaphora. More significantly, she makes the functional connection between more typical anaphoric constructions — such as reflexives and logophoric pronouns — and multiple-clause utterances (clause chains). She provides a framework in which Levinson (1991) could be adapted to inter-clausal, as opposed to intra-clausal, implicature-based anaphoric systems. This framework states that there is a basic distinction between a referentially dependent item or an independent pronoun. The speaker's choice to use this independent item in an environment where the coreferential item is possible activates an implicature:

> O'CONNOR'S IMPLICATURE
> "The referentially dependent element was not used because some condition on its use was not satisfied." (O'Connor 1993: 226)

This implicature is key to the extension to the "inference-based account" of switch reference, primarily because it allows for an imbalance in the meaning of the morphology of the switch-reference items. It states that a speaker considers potential structural restrictions on using a coreferential item. If there are none, then the final implicature is invoked: the independent, disjoint reference meaning must be the alternative to the default.

O'Connor claims that previous works on switch reference (including those referenced earlier in this chapter) make only a balanced binary distinction of the switch-reference morphology. As mentioned above, Nichols (1983) does actually make a similar observation to O'Connor, albeit one that is not fully spelled out theoretically, with respect to Caucasian languages: they appear to have an unbalanced system with an open reference form and strict disjoint reference form. Nevertheless, in the cases of adverbial subordinators in Pomo, O'Connor does show that the issue can be neatly characterised as having unequal members in a two-part syntactic scale — "disjoint reference effects encompass more than just the syntactic level of linguistic description" (O'Connor 1993: 238).

This background is important because O'Connor's approach is rather similar to the one used in this thesis. She touches on many similar observations that I do, but a key difference is that in Whitesands' ER construction is structurally very different from the Pomo data. ER is an anaphor that is in turn used as a switch-reference system — the missing link in her argument. Section 10.2 is an attempted response to her challenge that "further examination of texts … must be pursued before the inference-based explanation of their interpretation will be as defensible as more [syntactic-based] systems" (O'Connor 1993: 237). In that section, I provide evidence from Whitesands that supports an analysis which considers both structural and inferential features as key to how a switch-reference system can work.

9.3 Summary

The chapter has provided a background to the issues at stake as we consider the ER data presented in the previous parts of this thesis. I have summarised the historical background and theoretical contributions made in the investigation of switch-reference cross-linguistically. The identification of the nature of the construction, specifically the nexus type, has continued to provide a ground for debate. It seems that the ER construction is a clear case of cosubordination, and I come back to this in §10.1.2. Outside of this structural investigation, the function of switch reference and in turn the ER system of southern Vanuatu is still unresolved. There have been competing views on both the primary functions (e.g. reference, event semantics, etc.) and the pertinent factors (subject, topic, etc.). So while it is not the only relevant element of the debate, reference still stands out as a key feature that was in need of description. The final chapter will evaluate how the ER construction, and its use in discourse, can contribute to these discussions.

The linguistic toolkit has been filled with some ideas on how to best approach the ER problem. Of utmost importance is the recognition that the ER construction is a type of anaphora, and as such its analysis should be accounted for with general principles of anaphora such as implicature (as a specific type of inference). I have identified a category — topic — that proves useful in this analysis, especially as it provides an extra dimension with which to consider the data. It does not necessarily compete with the subject-based syntactic analysis, because topics and subjects are often coinciding. Instead, adding discourse structure strengthens the analysis, by providing an explanation for variation and anomalies. The final chapter uses these building blocks to account for the data on Whitesands.

10 Conclusions: Revisiting the System

> The notion of the independence of form from function is based on a misconception. The function of grammar is to express propositions in pragmatically structured form
>
> Knud Lambrecht 1994

This chapter is a synthesis, proposing an analysis for the computation of ER clauses and dissecting their role in the creation of a switch-reference system. The prefixes structure discourse — connecting clauses within utterances to create a larger discourse structure. For an utterance to be comprehensible, it must exhibit coherence, abiding by the rules of grammar. At the same time, it must also be flexible, allowing for the expression of a variety of (additional) meanings. The ER construction allows for both of these things — it is subject to a variety of grammatical restrictions and it encodes a meaning which can be interpreted in different ways, depending on the context. Simultaneously, it is a part of an inflection paradigm, contrasting specifically with full agreement patterns.

The chapter is presented as follows. I first summarise the grammatical features of the system (§10.1) and address the issue of clause-nexus type (see §10.1.2). In §10.2, I move onto a proposal of how the system works, which is followed by comments on how this corresponds to a more generalised typology of switch reference (§10.2.1). The chapter concludes with some remarks on the contribution of this study to the field (§10.3) and areas for future research (§10.3.1).

10.1 Grammatical features

This section highlights and discusses the importance of various grammatical features of the ER construction (also see Table 5.3 on page 108). I return

to address the issue of flexibility in the system in §10.2 — as it is not a grammatical feature, but rather a functional one.

A key grammatical feature of the ER construction is that it is a dependent clause. This dependency comes in two parts. Firstly, certain clausal operators are observed to have a dependent nature. In particular, tense (see §5.2) and illocutionary force (see §5.3) are two operators that are shared between an ER clause and the clause that contains the antecedent for the anaphor. This relationship is significant because it clearly demonstrates a structural connection between two clauses. There is little (if any) flexibility, and from a discourse perspective it allows for sequences of events to be linked together into larger units (provided, of course, that the appropriate arguments are coreferential).

It should be noted here that in Whitesands this tense dependency is not restricted to ER clauses alone. In this context tense dependency means either the dependant clause has the same tense as the antecedent clause or the dependent clause is situated temporally after the antecedent clause. Both options are possible in Whitesands. Relative tense in narratives and longer conversational utterances is the norm regardless of reference. Once tense is established in the initial finite clauses, a continuation of the same tense is achieved by a non-past full agreement pattern (for disjoint reference). The fact that tense dependency is not restricted to the ER clause is important because it means that the most salient contrast between many full agreement clauses and ER clauses is person reference (as we are about to see). There is a formal difference between the full agreement and ER clauses, in that the former is overtly marked for tense and the latter is not. ER clauses must share tense and illocutionary force, while full agreement can but need not share tense and illocutionary force. Functionally, however, they are both potentially reliant on preceding clauses for correct tense interpretation.

The second part of the dependency is the reference of the subject of a verb. The ER prefix exhibits a neutralisation of the subject person marking — it does not have a strictly defined referential meaning. Therefore, when the subject is marked with an ER prefix, the person reference is computed by finding an appropriate antecedent from a preceding clause (see §5.1). The relationship between anaphor and antecedent has a different nature to the dependency of tense or illocutionary force. The person (and ultimately the reference) of the subject of an ER clause is computed via implicature (see the combination forms in §6.3.1, e.g. (236)). Even though this implicature is highly conventionalised, subject person is not a grammaticalised clausal operator shared through a structural relationship. This more-flexible behaviour allows for the development of the switch-reference system, and further neatly explains any deviation from canonical situations.

The other important restriction in person computation is the lack of interaction between ER clauses and impersonal clauses (§2.3.3.1). The ER cannot take an impersonal clause as an antecedent. Moreover, chains of impersonal

clauses exist without any ER marking. A tentative hypothesis is that these two agreement patterns are opposite in meaning: the impersonal indicates the speaker knows nothing about the subject referent (or does not want the hearer to know); the ER indicates that the speaker and hearer both should really know the identity of the subject referent from the context. This behaviour of the impersonal agreement is distinct from full agreement patterns which clearly do not have the same restrictions. These differences are a good indication that full agreement patterns actually hold a different place in the ascription of reference. Full agreement forms create a paradigm with the ER, but at the same time they are not exactly opposite and equipotent in meaning.

Aspect and subject number are marked on every single clause in contrast to the dependent nature of tense, illocutionary force, and subject person. This behaviour indicates that they have an independent status — they are not shared between clauses. This allows the ER construction to be multifaceted from a functional perspective. It does act as part of a switch reference paradigm (the focus of this thesis) when the ER clause is providing a new state of affairs or event. Additionally, an *m-* clause can modify the preceding clause, as in (267) where the second verbs in the chain adds no extra event but instead, it provides a certain type of aspectual meaning — continuation.

(267) *k-am-w-ek* ***m-ø-uven*** …
3-PST-DU-touch **ER-SG-go**
They continued to collide …
WS4-110524-imaiim 00:05:00.540–00:05:02.860

Crowley (1998) claims for Sye that this semantic modification of the preceding clause is the primary function of echoing verbs. It is hard to determine what criteria would systematically distinguish the two functions. For example, the word *-uven* ‘go’ could easily be used in both functions, either indicating that a person left, or that a person continued carrying out the previous action. For example, the only possible interpretation in (268) is that the string is presenting a sequence of new events, where each verb represents a new event.

(268) *t-ua* *ko* *m-at-ø-auhlin* *u*
3SG.NPST-come PROX2 ER-PROG-SG-turn.over PROX
m-at-ø-uven *pen* *la-n* *u*
ER-PROG-SG-go to.3 DAT-3SG PROX
It comes there, and goes under here, and goes there like that.
WS5-120128-conver 00:18:55.551–00:18:57.441

A raw count of each function would be a crude score, as this would be more a reflection of what people talk about in the given discourse than an indication

of the primacy of one or another function. This was clearly demonstrated in §6.1.2, where it was shown that frequency of forms can be easily swayed by genre or register. I would instead propose that there are two functions — reference tracking and event modification — and that the context can disambiguate between the two if necessary. In the case of the latter (event modification), the rules regulating the former must still be adhered to, suggesting some kind of primacy for the reference tracking function. Further, adding new information is precisely what every clause does, and is not a unique function of the event modification ER clauses.

Turning to subject number, it was proposed by Lynch (1978: 46) that in Lenakel, changes in number were an indicator that was crucial to the disambiguation of antecedents for ER clauses. For Whitesands, the production experiment suggested that changes in subject number are more likely to be associated with full agreement patterns indicating changes in subject (see §7.3). Changes in subject number do occur with ER, too, and that in these cases number marking enables differentiation between full coreference (e.g. ER-SG + ER-SG, or ER-DU + ER-DU, or ER-PL + ER-PL, etc.), disjoint reference (e.g. full agreement), and partial coreference (e.g. ER-SG + ER-TRI, or ER-DU + ER-PL, etc.). Thus, the obligatory nature of number marking could be due to their functional load, even if partial coreference marking could have been achieved in another way.

The final issue discussed here is the relationship between ER constructions and subordination. It was observed in §5.5 that the ER cannot be used in a clause that is embedded in a main clause, even if their two subject arguments are coreferential. The restriction works in both directions, so that equally, a clause can not use an embedded clause as an antecedent for its ER anaphor. The ER can be used within a subordinate clause, so long as the antecedent is local and within the subordinate clause itself. The conclusion from this must be that ER clauses are incompatible with the two subordinate constructions — relative clauses and complement clauses — found in Whitesands. Why should this be the case?

The first answer is that the cosubordination nexus type indicated by ER constructions is not compatible with subordination (§10.1.2). This is a simple structural constraint or incompatibility. It is a persuasive stance because it would neatly explain why the ER is forbidden *across* subordinate junctures, yet allowed *within* subordinate junctures. One must be wary of the circularity of this argument, but there is other evidence which supports the claim the ER does not represent a subordinate nexus.

The second argument as to why these particular subordinate clauses are incompatible with the ER construction probably lies in the function of the switch-reference system. The principal function of the ER construction is referent tracking. It creates bridges between successive clauses that are indicative of the relationships between the participants. But what is it doing precisely? I propose a view where the ER system is additionally sensitive to

topicality within the text. In the Whitesands data presented here, this topic entity is often conflated with the activated, most recent referent that plays a role of subject role in a main clause (see Bruce 1983). Pronominally indexed subjects are highly activated (Givón 1983) and the ER is the most activated of them all, providing co-reference between subjects in adjacent clauses with minimal marking. Moreover, it starts to explain the examples in the texts that ignore potential triggers. While relative clauses are finite and can contain coreferential expressions, their function is rather to aid identification than to refer. This is in direct contrast to an ER prefix which should reference items highly identifiable from the preceding text. So, despite the surface appearance of adjacent coreferential subjects, the conflict in information structure means that relative clauses cannot participate in the discourse-level ER chain.

A similar argument explains why complement clauses do not share co-reference with main level clauses. The potential solution lies in how the ER integrates into a clause's argument structure. The nature of dependency for an ER clause is linear and there is a clear target that provides all the requisite information. Complement clauses are usually providing secondary or background information (Foley & Van Valin 1984: §7.6). It would be hard to reconcile this with the ER prefix which indicates an argument that is known and highly activated information. If we keep the hypothesis that topics continue reference to an existing active referent, then the ER is its grammatical reflex. The ER clause-linkage patterns are providing the narrative backbone of any given text (regardless of genre). This is neatly compatible with Foley and Van Valin's (1984) claim that regardless of a language's formal constructions (switch-reference versus switch-function), discourse topic maintenance and associated predication are the prime functions required by main clauses, whereas complement clauses provide secondary functions. Regardless of the cause, the restrictions are not a problem for the analysis presented in this thesis, as an implicature-based system could conceivably have any number of such additional restrictions. Provided there is consistency (which there is for the subordinate restrictions), then interlocutors can factor them into their production and interpretation with regularity.

10.1.1 *Metou* 'but/because'

The different interaction of the ER with the four conjunctions in Whitesands is worth a special discussion. The ER is marking a juncture that could alternatively be marked using conjunctions (as in other languages). However, why should it be the case that an ER construction cannot be made across the adversative conjunction *metou* 'but/because'? This behaviour is exemplified in (269) where the second clause takes full agreement. The alternative with an ER marking coreference is ungrammatical (270).

(269)

1 HI *kaha mən k-on-o-mis rakis*
ancestor PL 3-PRF-PL-die already
The grandfathers have passed away already.

2 ***metou k-om-ot-elahu*** *histri kam-tamah*
but 3-PST-PL-put history BEN-1PL.EXCL
But they handed the history to us.
ISJHWS3-20100329JVC-01-hi 00:16:58.925–00:17:02.649

(270) * *metou m-ot-elahu histri kam-tamah*
but ER-PL-put history BEN-1PL.EXCL
But they handed the history to us.

(271) *kani m-ot-elahu histri kam-tamah*
and ER-PL-put history BEN-1PL.EXCL
And they handed the history to us.

The ER construction is grammatical across the other three conjunctions (e.g. 271 illustrates this for *kani*, but also see § 5.4 on page 90 for more examples), including the disjunctive coordinator *wə* 'or'. Elicitation and corpus analysis both show that *metou* is not allowed in such situations (§5.4.4). This finding is augmented by the production experiment (§7.3), where there is an (almost) universal tendency for *metou* to be followed by full agreement patterns regardless of coreference between suitable arguments.

Clauses within the scope of *metou* clearly behave in a similar fashion to subordinate constructions — disallowing ER in coreferential situations (§5.4.4). This could suggest that *metou* is an embedded construction, and does not contain any kind of coordinate or cosubordinate nexus. There is a serious problem with this line of argumentation. It is at risk of being circular, as one would not want to claim that the *but* clauses are different because they are subordinate, and then claim that they are subordinate because they are different. It is not possible to move *metou* clauses in respect to the main clause, so a movement test (which subordinate clauses potentially pass, and coordinate/cosubordinate clauses fail) is not telling in this case. There are two more plausible, potentially linked, explanations for this behaviour.

Firstly, the restriction could be a historical accident. There is a diachronic path from Proto Oceanic **ma* 'and' to the Proto Southern Vanuatu **m=* 'same subject' to the modern day Whitesands *m-* 'ER' (Lynch 2001: 177, Moyse-Faurie & Lynch 2004). If this is true — there is no evidence to suggest the reconstructions are dubious — then the argument would be that the ER retains some of its features from its ancestral state. These features are compatible with contemporary *and*-like conjunctions, such as *kani* 'and' and *ko* 'and.then' (§5.4). In contrast, the conjunction *metou* 'but' is not derived historically from this coordinating construction and the ancestral features of **ma* 'and' are not compatible with *metou* 'but'.

More puzzling in the context of this thesis, for Whitesands (and the other Tanna languages), the conjunction *m-etou* can be decomposed as the ER prefix joined to the lexeme *etou* 'hear' (this observation was also made by Lynch 2001: 176). This development of a cognition verb to a lexicalised use, such as *because*, is a process reasonably well-documented cross-linguistically (see §3 in Matić & Pakendorf 2013 and references therein). The puzzle is this: why would a lexeme that previously consisted of an ER construction, nowadays prohibit it across its construction? There are no such restrictions on other ER chains, which can consist of many ER verbs with a single antecedent (full agreement) clause. Thus, the diachronic account does not completely explain the behaviour.

This leads to the second, perhaps more robust, explanation: there exists some pragmatic incompatibility between *metou* clauses and the ER. This could be independent of its historical development (but could also be derived from it). One approximate function of an adversative conjunction — like *but* or *because* — is to indicate that the situation runs against expectation (counter to expectation) or even a denial of expectation (Payne 1987: 7). By indicating counter to expectation, there is a marked change in the advancement of the discourse. On the other hand, this investigation shows that the ER encodes a referent that is highly activated, and as such indicates an unmarked progression of discourse. This perspective provides a neat synchronic explanation as to why the conjunction *metou* is not used with the ER construction (or *vice versa*). If *metou* is marking counter expectation then clearly it is in conflict with the unmarked ER form. It should not matter that the counter expectation is at a clause level (as opposed to referent ascription), because the ER clause is marking a clause level relationship. It would be pragmatically odd to claim "you would not believe it" and "you already know it" in the one construction, e.g. combining a new ER clause as the complement to *metou*. Therefore, the synchronic incompatibility can be explained by a general functional discrepancy.

In sum, the restriction of ER constructions across a clause boundary with *metou* is regular and absolute. It is entirely likely that both answers highlighted above contribute toward this restriction, and because they are somewhat harmonious there is little motivation to pursue this issue further.

10.1.2 Cosubordination

This subsection addresses the nature of the junctures marked with the ER construction. Remember that we presuppose that coordination is a nexus representing the juncture between two equal and independent parts, and subordination is the nexus representing a structural embedding of clauses into the argument structure of the main clause (Van Valin & LaPolla 1997). Switch reference has been shown to be cross-linguistically problematic to this bipolar classification, and this problematic status definitely holds for

the ER construction in Whitesands. The ER construction marks dependency of certain operators (namely tense and illocutionary force). True coordinate constructions exist in Whitesands as complete, independent, and finite clauses joined by one of three conjunctions (*kani*, *ko*, or *wə*, see §5.4). At the same time, there is strong evidence separating ER nexus from subordination proper where those embedding constructions — cases that are typically considered subordination — have strict restrictions on their interaction with ER constructions. In short the ER cannot occur across a subordinate nexus (§10.1). Thus, from a descriptive perspective another tool is required to accurately describe the ER process.

The alternative nexus relation postulated by Role and Reference Grammar (RRG) is that of cosubordination (Olson 1981, Foley & Van Valin 1984, Van Valin & LaPolla 1997, Van Valin 2005; 2007). This nexus category represents a dependent relationship between two clauses where there is no evidence of subordinate-like embedding, and the dependent clause does not add to the argument structure of the main clause. This is precisely the relationship indicated by the ER construction — the antecedent clause is a grammatical utterance that can stand alone in all circumstances, and the ER clause is dependent on the antecedent clause for referent resolution and for operator specification. The independent and complete status of the antecedent clause is crucial because it demonstrates that the ER clause is not concerned with the argument structure of the initial clause. The ungrammaticality of a lone ER clause establishes that it is not an equal partner in the juncture, as it is reliant on the other clause.

There are two interesting complications to this seemingly straightforward classification. Firstly, the ER can use the conjunctions in the same way as coordinate constructions (see §5.4). They are not obligatory in the ER construction like they are for full finite coordination patterns. How does this presence of conjunctions affect operator sharing? The most plausible hypothesis is that there is no change to the cosubordinate status of the ER nexus relation. The tense and illocutionary force operators are still obligatorily shared across the conjunction. One hypothesis on the function of overt conjunctions (as opposed to clause chains without conjunctions) is that they could indicate event singularity — conjunctions indicate a separation of events. Clause chains with conjunctions could necessarily indicate multiple but separate events, whereas clause chains without conjunctions indicate either complex single-event predication or multi-event predication. This remains untested, but if true, the existence of conjunctions within a clause chain could provide a clearer contrast to the ER constructions that seemingly add an additional specification of directionality or temporality to a main level clause.

The second complication is that it appears that non-past full agreement clauses also exhibit properties of cosubordination. In particular, the preference for relative tense organisation of clauses in texts (see (137) in §5.1.1) suggest that tense is an operator that can be shared across full agreement

patterns (keeping in mind that tense sharing is obligatory in ER clauses). For example, consider the following three examples:

(272) *narawieh t-aŋhi napen t-asik*
sunshine 3SG.NPST-sunshine clothes 3SG.NPST-dry
The sun dries the clothes (lit. the sunshine sunshines on the clothes, it is dry).

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(273) *narawieh t-am-aŋhi napen t-asik*
sunshine 3SG-PST-sunshine clothes 3SG.NPST-dry
The sun dried the clothes (lit. the sunshine sunshined on the clothes, it was dry).

(274) *narawieh t-am-aŋhi na t-asik*
sunshine 3SG-PST-sunshine what 3SG.NPST-dry
What did the sun dry (lit. the sunshine sunshines on what, it was dry)?

Example (272) exhibits a typical disjoint switch-reference pattern in third person. In (273), there is the additional complexity where the non-past full agreement pattern of *tasik* 'it is dry' takes its past tense reading from the preceding finite clause.[1] This shows that tense can be shared across these full agreement patterns. Furthermore, (274) is an example of shared tense and illocutionary force over fully inflected, non-ER clauses. This is a formally different instantiation of clausal cosubordination in Whitesands from the ER constructions. This supports the claim that the ER is not uniquely creating a clause linkage type. When the ER is used, it is a marker of a referential identity, not linkage.

As in the case of ER clauses, the presence of overt conjunctions is not necessarily a good indicator of the nexus relation type because the conjunctions *kani* and *ko* can intersect between these tense- and/or illocutionary force-linked full agreement clauses. All this indicates that, in Whitesands, it is not only ER clauses that are in the nexus relationship of cosubordination — apart from being conjoined, fully inflected (non-ER) clauses can also stand in a cosubordinate relationship to each other. This is crucial for the systematicity of the switch reference paradigm, because it shows that clauses with the full agreement pattern are structurally similar to the ER when required.

[1] Another example example of tense sharing is:
(275) *ierman t-am-ietiŋəm petan t-aiŋ*
man 3SG-PST-leave woman 3SG.NPST-bathe
The man left and the woman bathed.

There are still, of course, the subordination restrictions, but the possibility that full agreement can represent a tense operator-sharing cosubordinate relation means that the ER has a structurally neutral opposition. Cosubordination holds a place in the description of Whitesands, and it is the nexus relation that is key to switch reference.

Role and Reference Grammar provides the category of cosubordination in contrast to other theoretical frameworks. A further prediction of the theory is that operators adhere to a layered structure, and the operator's behaviour in and across clauses should reflect this structure (see Figure 1.4 in Van Valin 2005: 12). Two higher-level operators are obligatorily shared across an ER construction (tense and illocutionary force). The operators of aspect, negation, and direction are all independently marked on each and every clause. Therefore, the behaviour of operator sharing in Whitesands — for both the ER construction and the full agreement patterns — conforms to RRG's theoretical claims, and lends support to a ranking of operators in the structure of the clause.

Furthermore, this prediction of sharing illuminates a potential answer to another descriptive problem for Whitesands. The status of the future prefix *o-* 'FUT' has been an issue since the initial descriptions of Lenakel, a closely related Tanna language. It is morphosyntactically and semantically distinct from other tense forms: it is in a different slot on the verb; and it is not obligatorily used for marking events in the future (i.e. non-past is sufficient, §2.3.1). However, its behaviour in respect to operator sharing is identical to that of the more canonical tenses — it is shared across cosubordinate linkages (§5.2). Unlike the lower order clause operators, it is not marked on ER clauses, and is not necessary on other non-ER clauses. This shared behaviour suggests that it is a higher order operator roughly equivalent to the other tenses.

The final discussion point when considering the issue of nexus is that of non-adjacent antecedents. The non-adjacent and combination antecedents are possible alternative antecedents from the canonical 'subject of the preceding clause' form, but they are not the preferred alternative (§8.3). These constructions can include interceding clauses that are not relative or other types of subordinate clauses. However, do they represent a different nexus type than the canonical adjacent antecedent? There is no satisfactory answer to this problem. The operators — the tense and illocutionary force — are typically shared across these types of non-canonical constructions. The key difference is that the subject person ascription — the referent computation — is flexible enough to allow these unorthodox antecedents. Since the subject, whose reference is determined via an antecedent, is not a clause operator, but rather an argument of the clause, it is reasonable to assume that variations in the antecedent computation do not necessarily affect the juncture. This would indicate that the cosubordination status holds. On the other hand, the non-adjacent nature of such clauses could suggest that

switch-reference junctures can exist in the discourse-level, not clause-level, domain.

In using the term discourse-level, I mean a unit (or layer) of text greater than the sentence (this higher-than-sentence level unit is also called a paragraph or "text" unit, e.g. Van Valin 2005: 192). For example, (245) repeated here as (276), shows that it is possible to have full sentences intervening between an ER clause and its antecedent clause. The left-detached position of the phrase *e kinu* 'with a canoe', demonstrates the sentence-level status of line (276.4).

(276)

1 AK *k-ot-asuakan na*
1.INCL.NPST-PL-troll what
What did we troll with?

2 (0.26)

3 *striŋ ko t-etupen nepien na e*
string PROX2 3SG.NPST-thread bait what DAT
There was string, he baited it with which bait?

4 *e kinu, m-ot-asuakan m-ot-ivi namu mən aha*
DAT canoe ER-PL-troll ER-PL-pull fish PL that
ne-t-ø-eni lah
2-PROG-SG-say 3PL
With a canoe, we trolled and fished for those fish you are talking about.

WS5-120128-conver 00:50:48.574–00:50:54.932

Example (276) poses an interesting problem for RRG: the theory states that sentence-level cosubordination is impossible as operator sharing is restricted to the clause-level domain (Van Valin 2005: 192). The above example would suggest that operator sharing could in fact be a discourse phenomenon. This is a topic that requires further investigation, especially from a cross-linguistic perspective.

A possible solution to this question for Whitesands is to assume a dual nature of the ER construction. In the canonical form, the switch-reference patterns represent clausal cosubordination. However, due to the referential nature of the string that it produces, it can also be recruited for discourse-level structures. This ultimately allows for the variation seen in the Whitesands data, in particular accounting for non-adjacent antecedents and allowing for topicality to exert an influence on the usage of the system. In the next section we see how the various inputs to this juncture type are used to create switch reference.

10.2 How the switch-reference system works

The ER construction performs two primary functions. One of these is to mark the referent in a complex discourse unit, as claimed by Crowley (1998). This usage is possible in Whitesands where the ER clause is adding information to an utterance — e.g. a new event/state of affairs (e.g. (276) in §10.1.2), or modifying duration or direction of an existing event/state of affairs (e.g. (267) in §10.1). This is not unique to ER clauses in Whitesands, nor is it controversial as it is the primary domain of predicates cross-linguistically. It is just a fact of the Whitesands grammar that coreferential patterns are marked with the ER and often discourse units have coreference between the two privileged arguments. It is also possible that the ER clause combines two predicates into a single event. I have suggested that this may be the case in some of the Whitesands examples, and it is an empirical question that requires further investigation. However, event linkages cannot account for all the data presented in this thesis.

The other function is that of reference marking across linked clauses, and this ultimately ends up being a switch-reference pattern. The matching of this function to the particular formal characteristics of the ER (prefixing, anaphoric and non-subordinate) makes it a unique system, limited to the very small southern Vanuatu sub-group of Oceanic languages. The switch-reference function is arguably more important, because regardless of what the new verb is doing (adding a new event, modifying an existing state of affairs, etc.), it typically adheres to principles of switch reference as outlined in Part II. Moreover, impersonal constructions, with their lack of referential identity, do not use the ER even if they are presenting a series of continued events. This is particularly good evidence that the ER construction primarily has a referentially-based function, and secondarily a predicative function. The ER prefix provides a special anaphoric form that is used in contrast with full agreement patterns to indicate identity of subject arguments across clauses.

As an anaphor, the ER prefix links two clauses together, i.e. creates a special unit in the discourse. However, regular pronouns do this too, so the anaphoric nature of the ER is not unique in Whitesands discourse. The uniqueness of the ER — in contrast to referential pronouns acting as an argument — is that the *m-* prefix has no real-world or deictic properties (such as person), and it requires the sharing of clause-level operators. It creates the switch-reference paradigm, something which regular pronouns do not do.

The ER prefix is a different kind of dependency to what has been previously investigated in Indo-European languages, but it encodes a dependency nonetheless. In the light of these data, what is the best model for the processing of switch reference in Whitesands? Further, does this model account for the systematicity and variability of the paradigm? The answer is a model of implicature. I propose that there is a Horn scale which consists

of two members: the ER prefix and the full agreement pattern. Basically, *m-* marks coreference, and this allows for an implicature that non-*m-* clauses are disjoint reference. This implicature can be cancelled with real-world knowledge, recognition of subordinate constructions, or by lexical specification. Let us look at an example that demonstrates the functioning of the ER construction in the light of this proposal, and then consider various consequences of such an analysis.

The first two clauses in (277) exemplify the coreferential and dependent pattern of the *m-* form. The first clause sets up the referent using the imperative construction. The second clause *m-ø-ateh* 'ER-SG-look' is referentially linked to it with the ER prefix, and shares illocutionary force with the initial clause.

(277) *ø-alu-peri* *m-ø-ateh* *t-amei*
SG-put-upwards ER-SG-look 3SG.NPST-fall
Put it up! Look out!, it might fall.
WS4-110525-imaiim 00:32:13.517–00:32:14.347

The third clause *t-amei* '3SG.NPST-fall' is the alternative construction — an instance where the *t-* form is the marked form. It is indicating a change in the referential *status quo*. No longer is the speaker referring to the initial referent (the addressee of the imperative), but instead it is a different referent, in this case the object being lifted up. Moreover, there is a change in illocutionary force that reinforces this usage.

Turning to the first point of consideration: the form of the Horn scale. It consists of two contrasting elements, and is presented in (278). The element on the lefthand side (ER) is stronger, in that it is more constrained in reference and therefore more informative. The coreferential status of the ER is relatively uncontroversial. It is an unmarked continuation of the preceding referent as the subject of the new clause. According to Levinson's Q-heuristics (2000), the hearer expects the speaker to use the stronger expression if the stronger interpretation applies — therefore, the Q-Hueristics-driven implicature of the full agreement clause is that it is *not* coreferential. It would situate the Whitesands switch reference in Levinson's (1991) A-first category of languages. Expressions of obligatory coreference are encoded grammatically, and pragmatics resolves deviation from this encoding as a lack of coreference.

(278) HORN SCALE <*ER, Full Agreement*>

a. *ECHO REFERENT*:
⇒ COREFERENCE through (ER-modified) Binding Principle A

b. *Full Agreement*:
≠ *ECHO REFERENT* ∴ Q-Heuristic → no COREFERENCE
⇒ DISJOINT REFERENCE

To complete the proposal, the Binding Principle A can be customised for Whitesands and this is presented in (279). This accounts for the variety of antecedent types found in the data and recognises the structural constraints of the system.

(279) ER-modified LONG-DISTANCE BINDING PRINCIPLE A

a. The ER must be bound by the preceding clause's subject in a cosubordinate structure (canonical) or;

b. the combination of the preceding clause's subject and an additional argument in a cosubordinate structure (combination) or;

c. a preceding subject where an intervening clause can be read as an aside (non-canonical)

The claim proposed here is modelled on the one proposed by O'Connor (1993). The in-context meaning for this alternative type of clause (full agreement) is the opposite of the coreferential clause. A speaker does not use the minimal *m-* form for a reason. This typically indicates disjoint reference, but since it is an implicature and not a semantic specification, it can be cancelled by context. This cancellability of referential effects provides the opposition between ER and full agreement with a flexibility that was required to account for the corpus, where we saw that there were deviations from typical referential meanings that could not be explained by any obvious structural or interactional restrictions (§6.1.2). Thus, it is key that full agreement patterns mean "*not* ER", not "disjoint reference". This contrast agrees with a prediction made by O'Connor (1993): the presence of the anaphoric, bound ER construction means there is going to be (at least) one opposite (unbound, disjoint reference) construction.

Having established that there is a switch-reference Horn scale, the second point of discussion is the balance of the scale: the scale, while binary, is asymmetrical. The strength of the two elements in the pair is not the same, where the ER form has the stronger meaning of the two. The evidence for this is the following. The ER element is dependent on another clause for its referential properties. This means that there are a limited set of potential antecedents for any given ER clause. In contrast, the full agreement pattern has a potentially unlimited set of referents that can fill in the meaning of the clause. This was observed in the comprehension experiment, where full agreement constructions via pronominal agreement are *not* as specific as ER constructions for their referential properties (which is evidenced by a lack of accuracy in resolution, see §8.3).

From a conceptual perspective, this imbalance is somewhat unexpected because the ER term is semantically underspecified — alone it is ambiguous for person — whereas the full agreement pattern is more specified for person. The semantically unspecified term is the stronger term, and the experimental

evidence supports this claim. The ER prefix is *referentially* specified. To correctly interpret the ER clause, a listener must integrate what she has previously heard with the new information presented in the dependent clause. Despite the dependency, and the requirement to locate an appropriate antecedent, there is no significant difference between the computation of the referent for ER clauses and full agreement patterns (at least at the resolution of these experiments). In Whitesands, the referential meaning of the ER anaphor is contextually more specified than that of the person agreement prefixes, and is therefore the stronger part of the scale. The full agreement pattern is contextually less specific and therefore less informative (in the Horn scale), despite being fully specified for all relevant person categories. The form of the Horn scale determines the meaning of full agreement, i.e. it typically signals a switch in reference (cf. Levinson 1991; 2000 for pronominal anaphora).

The third and final point of discussion is the nature of the ER clause. There are clearly structural constraints on the presence of an ER construction, primarily a restriction on ER across subordinate nexus. Aside from that, there are the competing functions of the ER clause — event/state of affairs modification/addition and referent tracking. As I argued above, referent tracking is the prime function, and its integration with discourse supports this claim of referential primacy. The natural language corpus shows that the Whitesands system is most coherent in the third person, where there are less anomalies in the texts (§6.1.2). The open-ended quality of third person — in contrast to the more specified first person, second person or imperatives — means that the system should be as predictable as possible in the third person. The lack of additional real-world referential information means that the ER and its counterpart, the full agreement pattern, should be maximally functional for the interlocutors. As a referent-tracking device, the ER system is measuring relationships between a privileged argument in one clause and a referent in a preceding clause. Thus, the analysis of the nature of the construction must consider this relationship, and identify the features of inputs and outputs.

It is primarily in the former, the context holding the antecedents to the ER constructions, that variation occurs (§6.1.2). This is also where any confounding variables must be considered with care, as it is important to correctly isolate and identify the inputs such that they are correctly categorised. Where do the potential inputs lie? O'Connor (1993) makes the observation for Pomo that disjoint reference effects encompass more than just morphosyntax and that any such effects are "sensitive to whatever factors determine the distribution of bound anaphors" (O'Connor 1993: 238). Discourse factors (pragmatics) can have an effect on the computation of anaphors, despite their bound nature. This is in line with many other analyses of switch reference (e.g. Berge, Reesink, Stirling, *inter alia*) and is a motif that is empirically tested and considered in this thesis. Both experiments exemplified that topicality has a role to play in the presence and computation of ER clauses.

Continued reference to a topical referent is made in the subject position via the ER prefix (§7.3). The ER is applied so long as there is no marked change in reference. Furthermore, a topical subject is considered the most likely antecedent for any given ER clause (§8.3). High activation of a referent in the interlocutor's mind ensures that a referent is more likely to be re-referred to using the ER prefix if it is the privileged argument.

The combination antecedents are typically formed by combining the subject with other arguments (§6.3.1). While number agreement may indicate this combination, there is nothing to suggest that a change in number is unique to this construction (§8.3). The differences between canonical and combination antecedents are small (and not found in the reaction times of the experiments in this thesis). The obligatory presence of a topical subject entity as one input of the combined form further suggests that this partial coreference works in a similar fashion to other forms. Number is key, but this just indicates that something is amiss - the anaphor's default referential ascription is cancelled and replaced with an alternative. It is combined with the most salient and activated of the potential referents — other arguments of the preceding clause.

Thus, the nature of the antecedent input comes with two variables: grammatical form, where subject is preferred; and discourse-level activation, where topic is preferred. Of course, the merger of both variables is the strongest antecedent, but it is clear that this investigation can rank the input strength of two variables that are often intertwined (§8.3). It is possible that there are more variables in this computation, but for now they remain untested and an area for future research.

The similarity between the *m-* prefix and pronouns raises to the fore other, more general, issues of pronominalisation and givenness. A starting point is the proposed relationship between referential hierarchies and grammatical forms (e.g. Gundel et al. 1993, *inter alia*). This allows for the formulation of the Whitesands referential scale, one that considers the role of the various prefixes in the switch-reference Horn scale together with the nature of the ER's antecedent. The positions of the elements of the switch-reference system are ranked in the preliminary referential hierarchy for Whitesands, presented in Figure 10.1 on the following page. The ER takes up the left hand slot in most cases. Considerations of relevance override activation. So, if there is some grammatical guideline that suggests non-canonical antecedence, e.g. a mismatch in number or semantic incompatibility, then the antecedent computation adheres to the scale and chooses the next available referent category (Activated). The full agreement pattern is still a pronominal form, and as such is marking an activated or identifiable referent. The difference lies in the fact that this referent has different properties in adjacency and activation levels.

Referential givenness additionally explains any borderline cases where full agreement marks a coreferential relationship (those that exist outside of

In focus > Activated > Identifiable		Type > unidentifiable
m-	*t-*, *k-*, *na-*, *ia-*, *ø-* (Full Agreement)	*k-* (Impersonal)

Figure 10.1: *The Givenness Hierarchy of person agreement in Whitesands*

structural prohibitions). The borderline cases are where the activation of a particular referent has moved down on the scale. However, this does not directly impact on the switch-reference Horn scale, as the binary distinction still exists. Often there is the catalyst of a long time interval, or a switch in conversational turns, forcing the implementation of the next category (full agreement). Conversely, using an ER for non-adjacent referents indicates that the interlocutor is referring to a referent that is well known and the object of discussion. Using this paradigm in a conventionalised way allows for the two forms to work as a Horn scale, where implicature, not encoded meaning, is key to understanding the switch-referent paradigm.

In summary, the model proposed here is one of implicature. This analysis is not dissimilar to that of the preliminary sketch by O'Connor (1993). I have augmented it in two ways. Firstly, the anaphoric nature of switch reference in Whitesands allows for a more transparent implementation of a Levinsonian pragmatic approach than in the cataphoric switch-reference systems found elsewhere. The nexus and structural properties of ER constructions are quite different in features and scale from anaphora in reflexives and logophoric pronouns, as is the binding domain of the Whitesands grammar. Regardless, functionally there are enough similarities to support a unified analysis among the different types of anaphors. Secondly, O'Connor used only basic elicitation data whereas I have provided experimental and more in-depth corpus analyses to support my claims. The ER prefix encodes obligatory coreference between the privileged argument of the dependent clause and its antecedent. This antecedent is structurally restricted to being from a clause of the same level (i.e. not superordinate or subordinate to the ER clause). The variation in antecedent form derives from discourse properties, and the variation in switch reference functions derives from the inferential nature of the system. These features are summarised in Table 10.1 on page 235, which complements the grammatical features summarised in Table 5.3 on page 108. Having proposed a framework to explain the Whitesands data, I will now briefly consider how this fits in with more general claims on switch reference.

Coreference The ER prefix is a referential marker — obligatorily encoding coreference between privileged arguments

Implicature The full agreement pattern is *inferred* by implicature to be disjoint reference because it is not the coreferential marker

Nexus ER construction represents a cosubordinate nexus, and is prohibited from marking coreference across subordinate relations

Antecedent 1 The preferred antecedent is the topical subject of the immediately preceding clause

Antecedent 2 An alternative antecedent will be found (with a processing cost) if the preferred antecedent is not plausible

Context 1 Context can cancel any implicature derived from the system — accounting for anomalous different subject forms

Context 2 Context can mould the discourse structure, e.g. priming non-adjacent arguments — accounting for anomalous ER antecedents

Table 10.1: *Key features of the switch-reference system in Whitesands*

10.2.1 Typology of switch reference

Throughout these last two chapters, I have considered the way in which the Whitesands ER system works. In this section, I consider some key correlations and differences between this analysis and the longer-standing typological features in the field of switch reference. The contribution of Lynch (1983) has been the primary source of information for the 'echoing' system of southern Vanuatu, and any general characterisations of switch reference have typically taken this Lenakel data into account (e.g. Haiman & Munro 1983). From this perspective, the data presented here are of a similar nature, although with more detail and natural language examples. There is one addition to complement those previous observations: there is the preference in Whitesands to encode third person more systematically in switch reference (§ 6.8 on page 126). This empirically-founded finding matches the claims made elsewhere that reference to speech act participants does not have to be as systematic as for third person, e.g. Huichol (Uto-Aztecan) (Comrie 1983: 36).

The analysis proposed here is a development based on previous work linking switch reference and pragmatics (O'Connor 1993, Huang 2003). As a result, there are some similarities with the previously described systems in how reference is computed. The commonality is the function of the marked item in contrast with the unmarked coreferential item. For example, O'Connor analyses the workings of switch reference in adverbial (subordinate) constructions in Pomo. In contrast, for Whitesands the analysis is reworked to account for anaphoric, non-subordinate constructions. Moreover, the information being conveyed by switch reference is rather different: the switch-reference markers in Pomo are more informationally important for aspect etc., whereas in Whitesands aspect is not part of the switch-reference form at all (aspect operators are independently marked as in any other clause). While direction and temporal modification is one contribution an ER clause can make to an utterance, ER clauses are also often used just like full agreement clauses (where the ER prefix acts as the argument for a predicate subject that is carried over from the preceding clause). The implicature-based analysis holds across these languages despite them having radically different semantic and morpho-syntactic characteristics. There are clear structural differences between the two languages, but these do not necessarily mean a difference exists in how theory should account for their interactional usage.

The most unified and comprehensive analysis of switch reference in general is that of Stirling (1988). There is recognition that formally different switch reference systems have similar descriptive problems (e.g. clause skipping). A comparison of the Whitesands system with Stirling's generalisations raises some interesting typological considerations, in particular that the southern Vanuatu system violates the Function Condition (that switch reference must have a set of markers for both same and different subject conditions). As was argued in the preceding sections, this is actually not a

necessary condition required for switch reference, as the presence of a coreferential marker (such as ER) can be used in a Horn scale, in opposition to full agreement, to create a systematic switch-reference distinction. Thus, the apparent violation does not diminish the typological claim that the echoing systems are a type of switch reference.

One key difference in the analyses is Stirling's overall conclusion that switch reference is subservient to "eventuality". In this sense, Stirling means that series of events are bundled up by switch-reference chains, and that understanding these events' relationships is the best method for identifying antecedent and anaphors. That is, coherence of scenes within a text is the object being tracked by switch reference. I argue that for Whitesands, the system is subservient to referential identification. The unmarked form of a coreferential chain happens to package events together. The marked form of full agreement is used to indicate changes in reference, but it indicates nothing about the status of event-hood. The packaging of event and state of affairs through coreference, and the potential division and demarcation of events using full agreement, are secondary features of the system. For example, the independent nature of the impersonal constructions (§2.3.3.1) exemplifies that ER is not present in all clause chains, only those with coreferential subject arguments. The primacy of reference in these systems is key to the identification of antecedents. I show that the topicality status of referents to be used in following clauses plays a role in the choice of referential constructions. This interaction is further evidence that the Whitesands ER is not necessarily subservient to event-hood as claimed by Stirling. If event integration was the main factor in referential computation, then ultimately this should surface in testing and discourse referential organisation should be marginalised.

The anaphoric nature of ER possibly diminishes this eventuality encoding and makes the ER system uniquely different from other switch reference systems. However, it seems that most (if not all) switch-reference systems share the following properties: they segment discourse; they share some operators; and they contain a privileged argument. The cross-linguistic variation occurs within the confines defined by these properties, and a unified account based on one aspect of them (e.g. event segmentation) makes for a problematic typology. Even Stirling notes that languages will differ widely in what eventuality means, and that this makes it hard to complete a comprehensive cross-linguistic typology. One alternative is to use a referentiality-based analysis. This has the advantage that it is both language-specific and typologically broad enough to identify different formal characteristics within the switch-reference paradigms of different languages. This could be used, where appropriate, to complement the implicature-based analysis which provides the language-specific meanings.

Crowley (2002), Kibrik (2011), and McKenzie (2012) take modified viewpoints of this event-integration account of switch reference. Van Gijn (2012)

further argues that referential computation is not the prime feature of such systems, and that attention (to discourse events) is the key in understanding the constructions. The views of these authors are not incompatible with my analysis. However, the thesis presented here argues the focus of the analytical paradigm should be on the referential encoding. The prime feature of the ER construction is that the ER in Whitesands encodes coreference as its minimal meaning. All functions — such as event packaging, switch in reference, or keeping attention — are secondarily derived from this using the proposed pragmatic perspective. Switch reference is used to define links between larger chunks of discourse, but its underlying structure is one of coreference between two arguments. The facts that any verb can take ER and that there are no ordering restrictions on verbs in a chain support this claim. If it were primarily about creating event packages (Crowley 2002), then the observed flexibility in where the ER occurs and does not occur becomes problematic once more. Strict semantic and syntactic analyses have failed in the past to capture the essence of switch reference (Stirling 1988). Placing pragmatics as the underlying process behind the computation of switch reference systems allows for more coherent analyses of the language-internal discrepancies and cross-linguistic diversity found in switch-reference patterns.

10.3 Main contributions of this thesis

The investigation provides five major contributions. Firstly, it furthers the description of the Whitesands language. It contains the most comprehensive sketch grammar of Whitesands (Part I) to date, and this in turn provides a launch pad for future investigation into the morphosyntax of the language. Further, the sketch complements the recorded and archived materials on Whitesands — especially the transcriptions of natural discourse and conversation. The second contribution builds on this sketch: it is the analysis of coreferential clauses. It exemplifies their dependent nature and presents corpus-based data showing all (known) pertinent grammatical and referential features (Chapter 5).

The third contribution is to show the function of complex clauses in natural discourse, including public speeches and conversation. It presents a nuanced consideration of where the different forms were used and addresses specific syntactic issues, such as full pronominal expressions being used in conjunction with switch reference (§6.1.3.2). There was also a preliminary discussion on the phonology-syntax interface (§6.1.4). The frequency and regularity of the system (§6.1.2) provided an important precursor to the experimental exploration.

This leads to the fourth contribution of the thesis, and perhaps the most novel one. This is the experimental investigation into a switch-reference system. I provide empirical evidence to support claims that topicality and

subject-hood can conflate and together influence the paradigm (§7.3). This augments the discourse-based analysis, and shows that referential competition is a possible feature in antecedent resolution. Timing and accuracy of comprehension was key as they allowed for distinctions to be made between different grammatical relationships, and it allowed for a ranking of ER antecedents (§8.3).

The fifth contribution is to use this data to implement an implicature-based account of the switch-reference paradigm found in southern Vanuatu. In Whitesands this means defining a switch-reference Horn scale that consists of two opposing members (§10.2). My analysis importantly identifies the ER as the pragmatically stronger of the two, despite its weaker semantic specification. Implicature is a useful tool to account for the ER systematicity, and potentially switch reference as a whole.

10.3.1 Final thoughts

This study has resulted in several new thoughts on how to best analyse switch reference. That said, it is clear that there are further avenues of research. First and foremost is further empirical investigation into verb-final and adverbial switch reference in other languages. While the experiments shown here were tailored for the anaphoric ER in Whitesands, it is hoped that similar investigations can be carried out on the cataphoric or bi-directional systems. There is huge scope for the elicitation-, intuition- and corpus-based approaches to be complemented with tailor-made experiments to test working hypotheses. The other area of investigation that is of importance to the switch-reference typology is a question of regularity — how regular is the process within languages, and how do people deal with deviation in everyday contexts? In the context of a larger switch-reference typology, comparison among the different typological forms (V-final, V-medial, subordination, cosubordination, etc.) at a processing level would also be an interesting avenue for research. For example, do the skipped antecedent clauses of the ER have the same effect as the skipped medial clauses of V-final switch-reference systems? Do the subordinating, adverbial languages of South America process in the same fashion as the clause chaining (V-final) cosubordination languages of non-Austronesian languages of Papua New Guinea? These questions remain largely unanswered.

In the context of Whitesands, and southern Vanuatu more generally, there is scope for further investigation in a few areas. These experiments were a first attempt, and while they did show promising results in some contexts, they did leave open a number of questions. In particular, the temporal resolution did not always distinguish between contributing conditions. Online experiments — e.g. eye tracking — targeting referent ascription and event integration are just now possible in remote field locations. Perhaps the more accurate time resolutions seen in these methods will better distinguish

contributing factors of the systems, and could confirm some of the findings presented here.

In terms of the analysis, the relationship between changes in number and antecedent computation is a potential avenue for further investigation. While it was considered a null factor for the production experiment in this thesis, there is a markedness about such forms that impacts on switch reference and that needs further explanation. The investigation of specific semantics of verbs could also help combine findings from this project and the work of Crowley, although this investigation must be conducted on a language to language basis to counter language-specific effects. Reference tracking is a fundamental process which drives how syntax, semantics and pragmatics interact with each other. Understanding all the unique cross-linguistic instantiations of reference-tracking devices will ultimately provide us with a more comprehensive understanding of both grammar and discourse.

A | Abbreviations

(X.X) silence between turns in seconds

\- morpheme boundary

= clitic boundary

. within a gloss distinguishes multiple English or grammatical glosses when they correspond to one Whitesands morpheme

↘ downward intonation

↗ upward intonation

1 'First person'

2 'Second person'

3 'Third person'

ACC 'Accusative'

BEN 'benefactive'

COMP 'Complementiser'

DAT 'Dative'

DU 'Dual'

ER 'Echo Referent'

ES 'Echo Subject'

EXCL 'Exclusive'

FUT 'Future'

FI 'Full inflection'

IMP 'Imperative'

INCL 'Inclusive'

INTENS 'Intensifier'

INTR 'Intrasitive'

k.o. 'kind of'

lit. 'literally'

LOC 'locative'

M 'Masculine'

N 'Non/Negative'

NEG 'Negative circumfix'

NMLZ 'Nominaliser circumfix'

NOM 'Agentive nominaliser'

NP 'noun phrase'

NPST 'Non-past'

OBL 'Oblique'

PL 'Plural'

POSS 'Possession classifier'

PERF 'Perfect(ive)'

PROG 'Progressive'

PROX 'Proximal'

PROS ‘PROSPECTIVE’
PST ‘PAST’
REFL ‘REFLEXIVE’
RDP ‘REDUPLICATION’
SS ‘SAME SUBJECT’
SEQ ‘SEQUENTIAL’
SG ‘SINGULAR’
SUBJ ‘SUBJECT’
SVC ‘serial verb construction’
TAM ‘tense, aspect, mood’
toX ‘in a direction towards X’
TRI ‘TRIAL’
TRNS ‘TRANSITIVE’
VP ‘verb phrase’

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Samenvatting

Dit proefschrift geeft een uitgebreide beschrijving en analyse van de *ER* constructie in het Whitesands, een taal die wordt gesproken in Vanuatu. Het vangt aan met een inleiding waarin achtergrondinformatie wordt gegeven over het onderzoek. Deze inleiding, hoofdstuk 1, bevat een overzicht van de onderzoeksdoelen, een etnografische beschrijving van de Whitesands gemeenschap en informatie over de methoden en data.

Deel I is een grammaticaschets van het Whitesands. Het doel van deze schets is om 1) kort het Whitesands te documenteren en 2) lezers van genoeg informatie te voorzien om in de overige hoofdstukken de bespreking van de *ER* constructie te begrijpen. De inleiding van deel I geeft een typologisch georienteerde samenvatting van de grammatica van het Whitesands.

Hoofdstuk 2 begint met een beschrijving van de fonologie. Hierin wordt informatie gegeven over de medeklinkers en klinkers van de taal, de fonotaxis en klemtoon. Vervolgens wordt ingegaan op woordklassen, waarbij een verschil wordt gemaakt tussen nominale en verbale constituenten. De sectie over nominale constituenten, §2.2, bevat informatie over persoonlijke voornaamwoorden, de morfologie van zelfstandige naamwoorden, aanwijzende voornaamwoorden, getal, bijvoeglijke naamwoorden en de structuur van het naamwoordelijk zinsdeel. Ook worden possessieve constructies in detail besproken, waarbij een verschil wordt gemaakt tussen *inalienable* en *alienable* vormen en de *eat*, *drink*, en *plant* classifiers. Deze sectie bevat ook een analyse van relatieve bijzinnen in het Whitesands, die structureel lijken te verschillen van relative bijzinnen in verwante talen. Sectie 2.3 beschrijft de morfologie en syntaxis van het werkwoord, waarbij onder andere tijd en aspect, ontkenning, en congruentie met het onderwerp worden besproken. Congruentie met het onderwerp is van speciaal belang voor dit proefschrift omdat door neutralisatie van de congruentiepatronen, beschreven in §2.3.3, het *switch-reference* systeem ontstaat.

Hoofdstuk 3 beschrijft de syntaxis van Whitesands zinnen. Sectie 3.1 beschrijft de woordvolgorde en de configuratie van argumenten, waaronder ook informatie over zinnen zonder werkwoord. Deze sectie bevat een analyse en beschrijving van finiete zinnen, waarbij de nadruk ligt op *privileged arguments*, complementen, oblieke argumenten en bijwoordelijke bepalingen.

Deze sectie bevat ook een beschrijving van de preposities van het Whitesands. Sectie 3.2 beschrijft kort de verschillende voegwoorden. Sectie 3.3 beschrijft *illocutionary force*, waarbij de nadruk ligt op de imperatief en vraagzinnen. Het hoofdstuk sluit af met een bespreking van de integratie van leenwoorden uit het Bislama in Whitesands zinnen.

Deel II is een gedetailleerde beschrijving en analyse van het *switch-reference* systeem in het Whitesands. In hoofdstuk 4 geef ik achtergrondinformatie over *switch-reference* in het algemeen en over de *echoing* systemen van de talen die in de buurt van Whitesands, in zuidelijk Vanuatu, worden gesproken.

Hoofdstuk 5 gaat over complexe zinnen — hoe ze worden gevormd, welke grammaticale restricties er zijn en hoe ze worden gebruikt in spontane spraak in het Whitesands. Dit hoofdstuk bevat een gedetailleerde beschrijving van congruentie met het onderwerp, hoe de *ER* markeerder contrasteert met complete finiete congruentiepatronen en hoe deze een *same subject/different subject* paradigma vormen. Het hoofdstuk presenteert ook inleidende informatie over de relatie van de anafoor *m-* met zijn antecedent. In latere hoofdstukken wordt hier uitgebreider op ingegaan. Hoofdstuk 5 bespreekt de interactie van tijd, aspect, ontkenning en *illocutionary force* en laat zien dat verschillende *operators* op verschillende manieren gedeeld worden door complexe *ER* zinnen. In §5.4 worden voegwoorden behandeld vanuit het oogpunt van *clause chaining*. Sectie 5.6 vat de grammaticale eigenschappen van het *ER* systeem samen.

Hoofdstuk 6 begint met een gedetailleerde beschrijving van de verschillende congruentievormen als onderdeel van een systeem. In §6.1.1 onderzoek ik het gebruik van *switch reference* in verhalen, openbare redevoeringen en conversaties. Hierna, in §6.1.2, wordt de frequentie van *switch-reference* constructies in een breder corpus besproken. De bevindingen bevatten informatie over hoe vaak *ER* zinnen voorkomen per genre en persoon van het onderwerp en hoe vaak het systeem afwijkt van de canonieke vormen die in hoofdstuk 5 werden gepresenteerd. Deze sectie bevat ook een bespreking van woordvolgorde en naamwoordelijke zinsdelen en het gebrek aan unieke intonatiepatronen van *ER* zinnen. Hoofdstuk 6 sluit af met twee secties waarin de eigenschappen van de afwijkende constructies worden besproken. Er zijn twee soorten afwijkende constructies: §6.2 bestudeert gevallen van coreferentie waarin de *ER* constructie niet gebruikt wordt, en §6.3 geeft een overzicht van typen antecedenten die fundamenteel verschillen van het canonieke 'onderwerp van de voorgaande zin'. In deze sectie wordt *discourse topicality* voor het eerst genoemd als belangrijke factor in de eigenschappen van *ER* antecedenten. De discussie-sectie verbindt de bevindingen met eerdere beschrijvingen van verwante talen en blikt vooruit op de experimentele studie van deel III.

Deel III presenteert experimenteel onderzoek naar hoe sprekers *switch-reference* zinnen produceren en begrijpen, iets dat nog niet eerder is gedaan.

In dit deel worden hypotheses getest die voortkomen uit de analyse van het corpus beschreven in deel II. Ook wordt bewijs gegeven voor een voorlopige theoretische analyse van de werking van het *ER* systeem. In de inleiding van dit deel wordt beargumenteerd waarom dit nuttig en belangrijk onderzoek is.

Hoofdstuk 7 presenteert de methodologie — deelnemers, materialen en procedure — en resultaten van het eerste experiment. In het experiment moesten sprekers een verhaal afmaken dat ze te horen kregen. De resultaten worden besproken in §7.3. De bevindingen suggereren dat het *switch-reference* systeem niet afhankelijk is van de markering van getal op het werkwoord. Ook wordt de *topicality*-hypothese uit hoofdstuk 6 bevestigd.

Hoofdstuk 8 bespreekt het tweede experiment waarin onderzocht wordt hoe goed luisteraars constructies begrijpen met markering voor *same subject* en *different subject* in verschillende contexten. Het betreft een *forced-choice* experiment, waarvan eerst de methodologie en resulaten worden besproken, gevolgde door een discussie. Een belangrijk resultaat is dat nabijheid de grootste rol speelt in het bepalen van de referent waar de markering op het werkwoord naar verwijst.

Deel IV komt terug op een aantal belangrijke bevindingen uit deel II en deel III. Het *ER* probleem wordt gesitueerd binnen twee fenomenologische domeinen — *switch reference* en anaforen. In hoofdstuk 9 wordt de relevante theoretische achtergrond besproken en worden de te analyseren problemen geïntroduceerd. Er zijn twee belangrijke discussiepunten wat betreft *switch reference*: ten eerste, de grammaticale theorie van *clause nexus*; en ten tweede, de *pivot* van *switch-reference* systemen. Het hoofdstuk laat zien dat het begrip *anafoor* goed gebruikt kan worden om het Whitesands systeem te beschrijven, vanwege de eigenschappen van het *m-* prefix.

Hoofdstuk 10 geeft een overzicht van de grammaticale en experimentele beschrijvingen van het Whitesands systeem vanuit drie discussiepunten: 1) de betekenis en implicaties van de eigenschappen van het systeem, zoals de interactie met voegwoorden, 2) de neiging naar antecedenten die *topical* zijn, en 3) het delen van *operators*. Ik gebruik ideeën uit de pragmatiek — in het bijzonder *implicature* — om de variatie binnen het systeem te verklaren. Het hoofdstuk eindigt met een samenvatting en een aantal ideeën voor vervolgonderzoek.

Biographical note

Jeremy Hammond studied Linguistics and Geography at the University of Sydney, Australia, graduating with Honours (First Class and University Medal) in 2009. He took a PhD fellowship in 2009 at the Max Planck Institute for Psycholinguistics in the Syntax, Typology and Information Structure group, led by Prof. Robert Van Valin Jr.. He has conducted fieldwork on the Vanuatu islands of Tanna and Aniwa since 2007, and has supervised undergraduate and Honours students across a variety of research projects in Vanuatu. He has been involved as a linguistic and anthropological consultant in three ethnographic documentaries about the people of Tanna. During his time at the Max Planck Institute for Psycholinguistics he was keenly involved in digital methodology for fieldwork and helped develop numerous software programs to support video-based fieldwork projects. He currently works as an eResearch analyst for Intersect Australia at the University of Sydney.

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