INTERRELATIONS OF PROSODY, CLAUSE STRUCTURE AND DISCOURSE PRAGMATICS IN TARIFIT BERBER

by

CLIVE W. MCCLELLAND III

Presented to the Faculty of the Graduate School of

The University of Texas at Arlington in Partial Fulfillment

of the Requirements

for the Degree of

DOCTOR OF PHILOSOPHY

THE UNIVERSITY OF TEXAS AT ARLINGTON

August 1996

To the Lord Jesus

---who makes life worth living

ACKNOWLEDGMENTS

Many have contributed to my success in this work without whose help I would have encountered much more difficulty than I did. First, I would like to thank the Chair of my committee, Dr. Susan Herring, who plodded through multitudinous drafts of this work. Her suggestions were very constructive and kind, and her guidance has proved critical. Second, Geoffrey Hunt gave me some things to think about over 10 years ago which were the seeds for this research. Third, Dr. Nussbaum and his class *Conceptual Bases for the Humanities* provided me with some of the philosophical basis upon which this work is founded. His penetrating mentality has helped me think through relevant issues.

Also special thanks go to committee member Dr. Donald Burquest. I appreciate his assistance in putting together all the necessary documents in my efforts to procure permission to conduct linguistic research in Morocco. Because of eventually receiving that permission in April of 1987, I was able to quit teaching English for a time at University Mohammed I, Oujda, Morocco, in order to devote myself full-time to linguistic research.

In addition, I appreciate very much the help of Dr. John Paolillo with statistical calculations.

I also should express my appreciation to my Berber students at University Mohammed I who provided me with much of the language data upon which this work is based.

I should also relate that without the encouragement, support and direction of Dr. Frank Robbins, I would not have sought to complete this degree.

I thank my wife Janet who took care of me, the kids and our household, in circumstances sometimes trying, during the time of this work.

Finally, and above all, I thank God for giving me the motivation, energy and ability to carry out this project. His faithfulness never ceases.

April 29, 1996

ABSTRACT

INTERRELATIONS OF PROSODY, CLAUSE STRUCTURE AND DISCOURSE PRAGMATICS IN TARIFIT BERBER

Publication No._____

Clive W. McClelland III, Ph.D.

The University of Texas at Arlington, 1996

Supervising Professor: Susan Herring

The interconnections that exist among prosody, clause structure, and discourse pragmatics have been noted by many linguists (e.g., Halliday 1967; Givón 1983; Longacre 1983). These interconnections have included such phenomena as pausing after a paragraph or episode, and other interconnections have concerned characteristics of certain types of discourse such as narrative in which the use of intonation indicates topic and/or focus. Still others pertain to changes in clause structure which characterize certain sections of a discourse, such as peak, where clauses may display unusual word ordering, inflection, and unique intonation (Longacre 1983). However, few of these interconnections have been studied quantitatively and systematically.

This study is a systematic investigation of the links among prosody, clause structure, and discourse pragmatics in four oral narratives of Tarifit, a VSO Berber language spoken in northeastern Morocco. Using the speech analysis program *Signalyze*, levels of amplitude, fundamental frequency, length, and speed were analyzed. In addition, factors relating to clause structure (word order and clause constituency) and discourse pragmatics (discourse profile, storyline, episode boundaries, and topic and focus) were quantified using the program *Excel*.

Excel charting revealed connections of prosody to clause structure and discourse pragmatics, but the weights of these connections were not apparent. A variable rule program, Goldvarb, was used in filling this gap to demonstrate the relative strengths of correlation among the three sets of factors.

The results of this investigation support some, but not all, claims of previous researchers, and revealed numerous additional interrelations not previously noted. For example, amplitude and frequency proved to operate independently; prominences of amplitude are part of climax clauses and topic/focus, while prominences of frequency are tied to clause constituency (i.e., accompanying major clause constituents such as verbs and subjects). Also, there were more and stronger correlations between discourse pragmatics and prosody than between discourse pragmatics and clause structure.

These results suggest that prosody in relation to discourse pragmatics and clause structure may be a rich field of future linguistic endeavor. They also contribute to greater knowledge of a little known language in North Africa.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS AND SYMBOLS

.	a period between words in the free translation of a Tarifit clause signifies that the multiple English words represent one word/morpheme in Tarifit
1	first person
2	second person
3	third person
A	transitive subject
ABL	ablative
amp.	amplitude
app. val.	application value
CAUS	causal
cl. adv.	clause adverbial
COMP	complement
DEM	demonstrative (either proximal or distal)
dep. cl.	dependent clause
dep. var.	dependent variable
DIST	distal
ELA	elative
FEM	feminine gender
Fø	fundamental frequency
GEN	genitive
ILL	illative

INES	inessive
INTERR	interrogative
IO	indirect object
IRR	irrealis
ITER	iterative
LOC	locative
MASC	masculine gender
MASC/FEM	masculine or feminine
NH	non-human (in reference to a non-human pronoun)
NP	noun phrase
O	object
PL	plural
POSS	possessive
pred. nom.	predicate nominal
PROX	proximal
RECIP	reciprocal
REL	relative clause marker (on the noun preceding the accompanying verb)
S	intransitive subject
SG	singular
TEM	temporal
V	verb
VP	verb phrase

Symbols use in transcription system (adapted from Du Bois et al., 1993):

'at' symbol (@):			one syllable of laughter
(H):			inhalation
(Hx):			exhalation
(number in milliseconds):			clause-initial/-final pause
backslash (\):			clause-final falling Fø
double hyphen (--):			false start/truncation
forward slash (/):			clause-initial rising Fø
lengthening (=):			after lengthened segment
percentage symbol (%):			glottal stop
periods (...):			pause
underscore (__):			clause-final non-rising/non-falling Fø
vocal noises:	(TSK)		click of tongue
	(COUGH)		
	(THROAT)		clearing throat
	(GULP)		
	(SNORT)		
	(BURP)		
	(YAWN)		
voice quality:	<F	F>:	loud (forte)
	<P	P>:	soft (piano)
	<CR	CR>:	gradually louder (crescendo)
	<DIM	DIM>:	gradually softer (diminuendo)
	<HI	HI>:	higher Fø
	<LO	LO>:	lower Fø

	<W	W>:	widened Fø span
	<N	N>:	narrowed Fø span
	<@	@>:	laugh quality
	<SM	SM>:	smile quality
	<X	X>:	indecipherable; unclear
tempo/rhythm:	<ARH	ARH>:	arrhythmic: jerky
	<WH	WH>:	whispered
	<BR	BR>:	breathy
	<HSK	HSK>:	husky
	<%	%>:	creaky
	<FAL	FAL>:	falsetto
	<TRM	TRM>:	trembling
	<SOB	SOB>:	sobbing
	<CRY	CRY>:	crying
	<YAWN	YAWN>:	yawning
	<SGH	SGH>:	sighing

CHAPTER I

INTRODUCTION

1.0 The problem

Oral language is a puzzle with many interlocking pieces. What the essential pieces are in this puzzle are controversial. Some say that clause structure is primary, governing morphology, while discourse pragmatics is secondary (e.g., Chomsky 1957). Others maintain that the context in which clause structure is found, i.e., discourse pragmatics, is the most important because it influences syntactic form (e.g., Longacre 1977). Still others argue for the role that prosody plays in delineating both syntactic and discoursal form (e.g., Chafe 1994). However, in spite of disagreement regarding what is most fundamental, there is a growing realization that these elements are more interrelated in producing structure and meaning than previously thought. Du Bois and Schuetze-Coburn (1993) explain:

> Discourse-oriented linguists deserve the chance to address the fundamental questions about why grammars are as they are, which the grammarian's theories have left unexamined. If the study of discourse is to contribute to a general theory of language, the specific domains of grammar, prosody, and so on must be taken as integral parts of, rather than complementaries to, any truly general theory of discourse. Discourse research must embrace hierarchical grammatical structure, to the extent that it interacts with all the other features that are necessarily brought into relation to it in any actual token of language use. (1993: 222)

If this is true, then it is incumbent upon linguists to study these interrelations in some way and arrive at a model of integration. The problem is that spoken discourse is complex, so much so that it has been hard to find a systematic method to 'capture' it in its entirety. In the

past, the task of analyzing the interrelationships among the domains of grammar, prosody, and discourse would have been far too difficult, but thanks to recent advances in computer technology and computer-assisted analysis, we can now begin to approach the problem.

This study endeavors to do just that, by utilizing data from Tarifit, a little researched Berber language spoken in northeastern Morocco. Tarifit is ideal for this sort of investigation because it is a language with no literature, and thus has been little influenced by a reading and writing tradition.[1] Its discourse structure and prosody have not been studied before. It is also a vibrant growing language of over one million speakers, with a strong tradition of story-telling. This tradition implies norms for oral narrative, and thus is conducive to systematic study. Figure 1 shows the area in Morocco where Tarifit is spoken (i.e., 'the Riff' named after the Riff mountains that roughly run east and west through the middle of the region). Figure 2 shows 'the Riff' in the context of other Berber languages in North Africa.

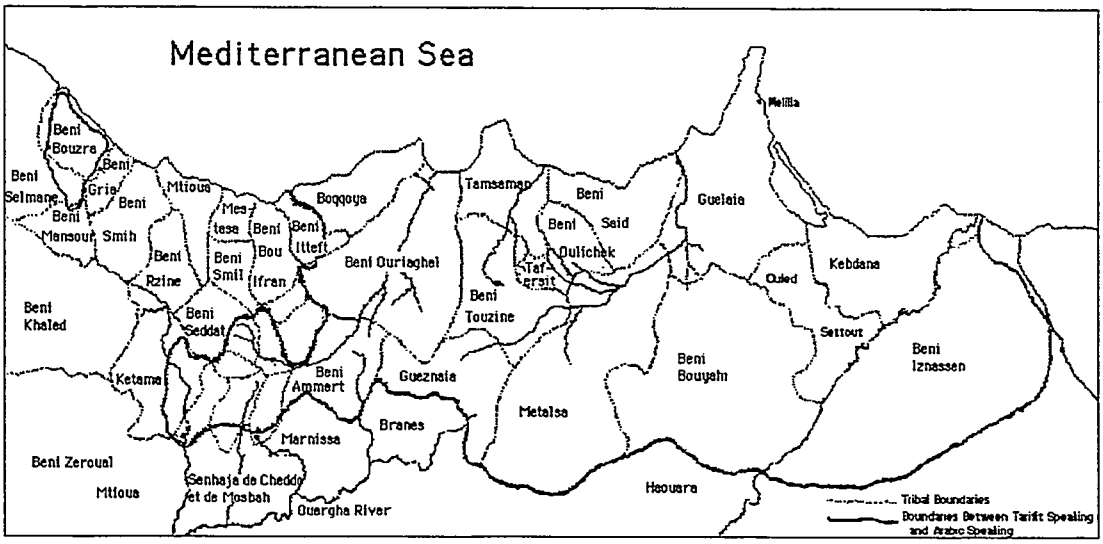

Figure 1. Area in northeastern Morocco where Tarifit is spoken (adapted from Renisio 1932).

[1] Reading and writting Standard Arabic could have some influence, but most speakers are illiterate.

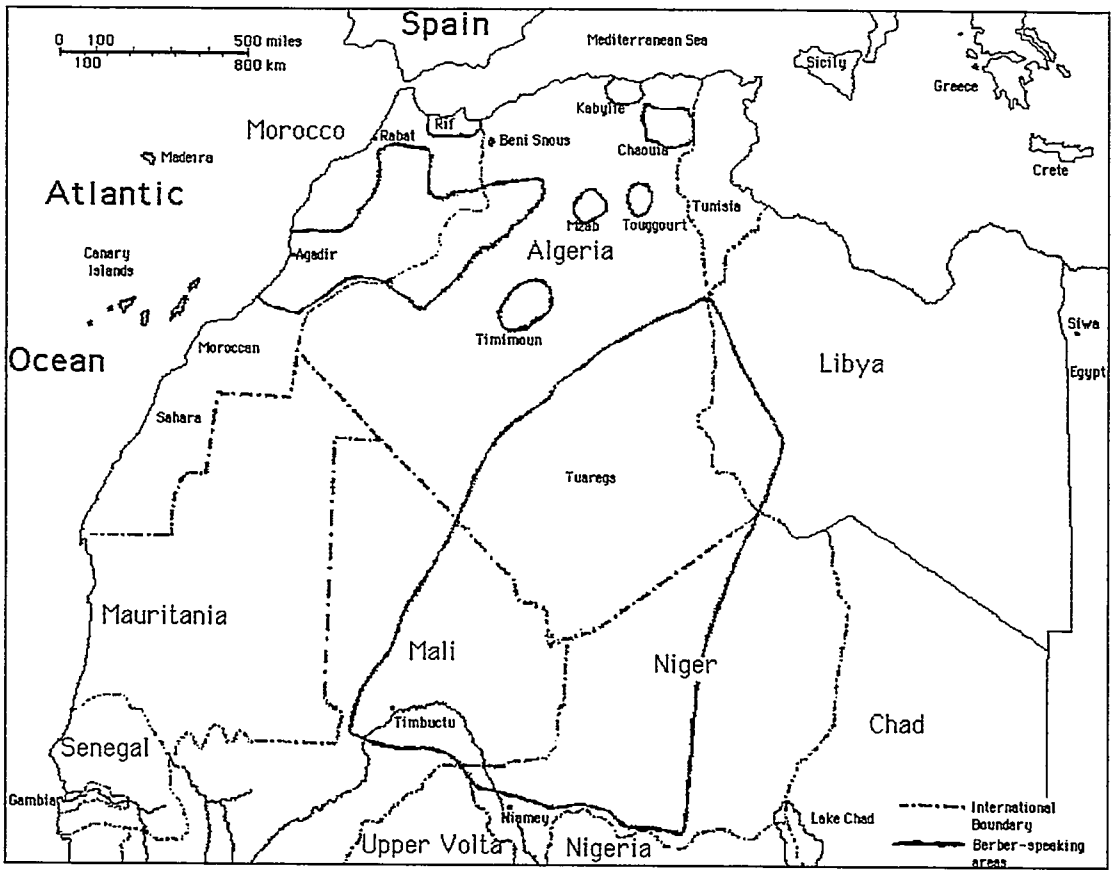

Figure 2. Locations of Berber languages (adapted from Gellner 1972).

The data for this study are four oral narratives, three of which are folktales, and one of which is a narrative of personal experience.

1.1 Rationale

The analysis employed in this study of Tarifit oral narratives seeks statistical correlations among three sets of linguistic features. The first is discourse pragmatics which, for the purposes of this investigation, covers profile, storyline, episode juncture, and topic/focus. The second is clause structure, which includes word order and clause constituency. The third is prosody, which includes frequency, amplitude, clause length, pause length, and speed. The possible interrelations among these sets of features are illustrated schematically in figure 3.

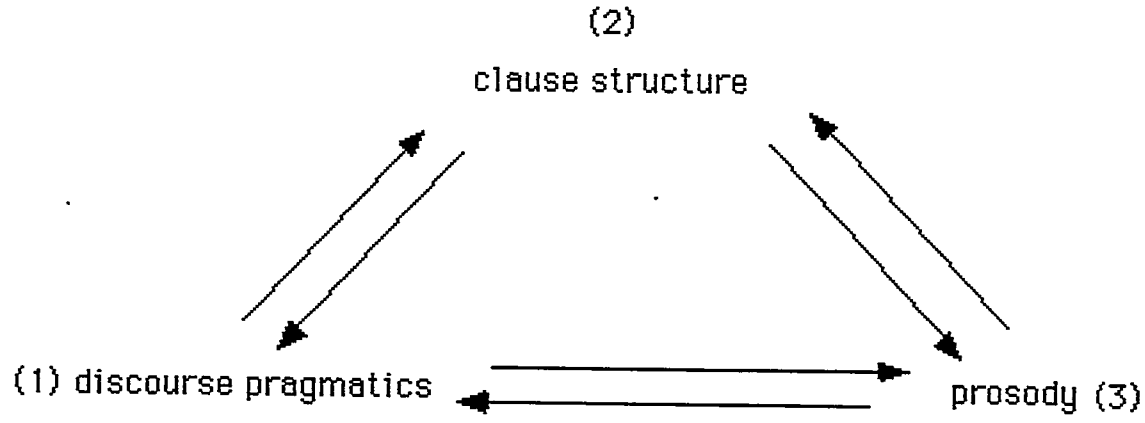

Figure 3. Possible interrelationships among the linguistic features investigated.

Discourse pragmatics was chosen as a focus because Longacre (1977, 1979, 1983), Givón (1983), and others have demonstrated that discourse structure and topic/focus phenomena are necessary parts of a fuller study of language. For instance, Longacre (1977) has shown that certain aspects of syntax are necessarily extra-clausal, as in the use of definite articles and clause adverbials, both of which may be optional in clauses but in discourse are required at some points. Also, Givón (1983) has shown that discourse continuity, or breaks in continuity, of time, event, participant, and place can trigger syntactic changes, such as a shift of subject from after the verb to before the verb in some languages.

Clause structure is included here since it is the area of language that has been most investigated over the centuries, especially relative to Tarifit. Recent theoretical advances have broadened our knowledge of 'system' on the syntactic level. According to discourse theorists (e.g., Hopper 1988), this system is part of the larger system of discourse, and thus the two need to be examined together.

Prosody is included in this research because Chafe (1980, 1994), Givón (1983), Halliday (1967) and others have theorized and observed that prosodic features interact with clause structure and discourse pragmatics. For example, Chafe (1980) shows that intonation

and pausing often accompany 'idea units,'[2] which approximate clauses. Givón (1983) mentions a long pause as a signal of a paragraph boundary.

Despite isolated observations concerning these and similar interactions, the nature and extent of the correlations among the three areas as shown in figure 3 have never been demonstrated quantitatively or instrumentally in any systematic way.

1.2 Theoretical approach

The analytic approach taken in this study is necessarily eclectic, since a wide range of linguistic phenomena are analyzed. However, several assumptions underlie the study as a whole. I assume that spoken language is primary, meaning that it is ultimately the basis for written language, and therefore is preferred for linguistic investigation. I further assume that spoken language features are indicative of language structure, and are not merely performance features of an idealized syntax (cf. Chomsky 1957). These features operate in tandem with grammar for the sake of effective communication. Accordingly, the approach taken here is 'etic' (Pike 1947) or reliant upon surface observations. Prosodic analysis is done instrumentally and transcriptions are phonetic.

1.3 Data and methodology

The basic goal of this investigation is to establish an empirical method of determining the interrelation of discourse structure with grammar and prosody in Tarifit oral narrative. I do this by conducting analyses of clause structure, word order, fundamental frequency, amplitude, duration, intonation units, etc., and then systematically relating them to one another and to discourse structure.

Two types of analytical methods are used: instrumental and qualitative. The instrumental part of the methodology concerns prosody. Each clause of the four narrative texts

[2] Chafe (1994) later calls these 'intonation units'.

was digitized, entered into a computer by means of the program *SoundEdit Pro*, and analyzed with the program *Signalyze*. A set of prosodic attributes was recorded and coded for each clause for later analysis by the programs *Excel* and *Goldvarb*. The latter two programs are also used to show correlations with discourse pragmatics and clause structure.

The qualitative method is discourse analysis to determine profile and pragmatic relations such as topic and focus, and grammatical analysis (structuralist approach) to determine word order and clause constituency. Resultant features were then coded for analysis by *Excel* and *Goldvarb* in order to find correlations with each other and with prosody.

The results of the instrumental and qualitative analyses are then analyzed quantitatively using the computer programs *Goldvarb* and *Excel* in order to show the strengths or 'weights' of correlations among the three sets of features or 'factors'.

A total of forty-four factors are investigated for each clause. These forty-four factors are described in general terms in the following paragraphs.

Eleven factors concern discourse pragmatics. The first seven in this category are associated with discourse profile, e.g., what function a clause fulfills in the development of a narrative over time (Longacre 1983). A climax clause is one example. I also determine a clause's place in the discourse structure in terms of storyline, i.e., whether or not the clause is part of the chronological sequence of events, and also in terms of episode juncture, i.e., whether or not the clause is located at an episode boundary. The last two factors in this category involve utterance-level topic and focus.

Four factors have to do with clause structure, such as word order variants. Tarifit is a VSO language, but variants such as SVO as well as clauses with zero subjects and objects are also found.

Another eleven features relate to intonation. Among other features, these include measurements of intonation at various points in a clause. For instance, I measure and record

the fundamental frequency (Fø)[3] at the beginning of each clause so as to ascertain its correlation with, e.g., word order variants. Does an SVO clause have a higher beginning frequency than a VSO clause, given that the subject is first in the former case? Another measurement is the overall span of fundamental frequencies, or the degree of contrast between the highest and lowest frequencies in a given clause. Do climax clauses, for instance, have higher Fø 'contrast' than other clauses?

Eleven features of loudness or amplitude are also examined. Similarly to fundamental frequency, I look at clause-initial amplitude and determine relations to other phenomena. One question is the relation of frequency to amplitude. Do they work in tandem (as is the case in English) with word stress and clause contrast, or do they have distinct functions?

Also measured is the length of a clause along with its initial and final pauses. This enables me to test the hypotheses of Givón concerning pauses at episode (or paragraph) boundaries.

Clause speed is another factor I measure for determining when in a Tarifit narrative the speaker either speeds up or slows down. This enables me to see if clauses of high information content, such as orientation clauses, are slower than others, e.g., so that the speaker and hearer can process the information.

In addition, each clause is labeled according to whether it is an intonation unit (IU). This allows me to evaluate Chafe's (1994) claim that the majority of IU's are grammatical clauses.

Finally, I label each clause for the narrative in which it is found. This is for the purpose of finding out what correlations are unique to individual narratives.

---

[3] Fundamental frequency is the technical term roughly equivalent to pitch (pitch is perceived while Fø is measured).

1.4 Hypotheses

Since the goal of this research is to seek significant correlations, the precise nature of the correlations resulting from the methodology employed is difficult to predict. However, the following hypotheses (1)-(5) can be advanced based upon the claims of previous researchers. The first of these is very general; the four that follow make more specific predictions. It is hypothesized that:

(1) Significant correlations will be found between discourse pragmatics and clause structure, between discourse pragmatics and prosody, and between prosody and clause structure in Tarifit oral narrative.

(2) Prosody will correlate with discourse structure or the global macro organization of discourse (Chafe 1994; Gumperz 1982). Aspects of prosody can signal episode boundaries, peak, and climax (Givón 1983).

(3) Topic and focus will correlate with word order (Firbas 1964; Mithun 1987; Herring 1991; etc.).

(4) Intonation units will be found to be grammatical clauses a majority of the time in Tarifit (Chafe 1994).

(5) Fundamental frequency and amplitude will be found to work in tandem as has been claimed to be the case in English stress (Halliday 1967; Edwards 1993).

1.5 Limitations and delimitations of the study

I have delimited the focus of the research by choosing one language that has been little studied. A disadvantage of this choice is that the results cannot easily be compared with other analyses of the same language. An advantage is helping to broaden general knowledge of the world's languages. I have also chosen to focus on oral narrative texts, in that narrative is a universal discourse type that has a clear and recurring structure (Labov 1972; Longacre 1983).

In the area of grammar, I have concentrated on word order and clause constituency to the exclusion of other grammatical phenomena because Tarifit is a 'verb plus subject plus object' (VSO) language, a relatively uncommon word order type. Few studies exist concerning its morphology and syntax, and no studies at all exist of the prosodic attributes of Tarifit and their relation to its VSO word order. Word order is especially interesting since in many languages it relates to topic and focus placement either before or after the verb. Typologically, it is also important because it is a predictor of the ordering of other constituents in clauses such as noun and prepositional phrases. For example, VSO languages are generally head-initial, such that, for example, a noun phrase begins with the noun followed by its modifiers (Greenberg 1966). In the area of discourse pragmatics, I limit my analysis to the global (discourse-level) phenomena of discourse profile (Longacre/Levinsohn 1978; Longacre 1981), storyline (Hopper 1979; Longacre 1983), and episode marking (Givón 1983), and the local (utterance-level) phenomena of topic and focus (Halliday 1967; Chafe 1976; Herring 1990). These have not been yet been investigated for Tarifit, and have proven interesting and revealing in other languages. In addition, I have chosen to analyze only independent non-quotation clauses throughout this study. Longacre (1983) determined that clauses in narrative are not equal in saliency, that is, the role of one clause may be more important than another in delineating text structure. In his scheme, non-quote clauses are more salient in this respect than quote clauses. Further, prosodic and grammatical attributes of quotations may reflect conversational features which are not necessarily characteristic of narrative discourse structure. Finally, I have chosen four narratives told by four different speakers. The advantage of this is increased diversity of input. Similarities among all four narratives are thus more likely to represent valid generalizations than if only one narrator had been used. The disadvantage is that if differences are found, they may be caused by individual speaking styles rather than by linguistic principles.

1.6 Key terms

Throughout this study certain terms are used repeatedly which may not be familiar to the general linguist. A 'factor' in reference to a clause is synonymous with an attribute or feature. Thus, for example, the word order of a given clause would be one 'factor' relative to that clause. A factor group, then, would be a cluster of clause features such as all the possible word orders of Tarifit clauses.

Variable rule analysis (e.g., *Goldvarb*) is a statistical measure for determining the relative strengths of correlation of one feature with another. Thus, if an analyst observed that a shifted topic appeared to occur often at episode boundaries, then the strength of this correlation could be measured compared to other points in the narrative where topic shift occurred.

An intonation unit is a spurt of speech typically bounded by pauses and equivalent to a clause (Chafe 1994). In addition, it has a distinctive intonation that 'starts over' with the next intonation unit, thereby further demarcating it.

'Clause structure' is a cover term used here to include clause constituency, i.e., elements of a clause present in a given instance, such as subjects, objects, case nouns, etc. It also includes word order.

'Discourse pragmatics' is a cover term which includes profile, storyline, episode juncture and topic and focus.

A 'subject' in Tarifit (McClelland 1993) is a 'grammaticalized topic/participant' (Givón 1983) and figures prominently in Tarifit topic and focus. These facts are important as we shall see in subsequent discussion in chapters 2-5.

1.7 Organization of the dissertation

In chapter 1, I have briefly described the overall rationale of the study, the hypotheses to be tested, and the method to be employed. In chapter 2, I review the relevant literature upon which this research is founded. Chapter 3 is a description of the methodology employed in the

investigation. Chapter 4 presents results, and chapter 5 discusses conclusions and implications for current linguistic theory and practice. The specific hypotheses introduced here in the introduction are discussed in terms of what correlations support the hypotheses, what correlations did not support the hypotheses, and what correlations were unexpected.

CHAPTER II

REVIEW OF RELEVANT LITERATURE

2.0 Theory and research literature specific to this study

In this chapter I review literature that is relevant to this investigation. The first part of the chapter discusses previous grammatical descriptions of Tarifit, and presents an overview of the grammar. The areas of previous research on which this study is based are discourse pragmatics, clause structure, prosody, and their interconnections. These are surveyed in the second part of the chapter.

Section 2.1 is a discussion of research literature pertaining to the phonology, morphology and syntax of Tarifit. Sections 2.2-2.4 discuss discourse pragmatics, clause structure, and prosody, respectively. Section 2.5 concerns the relationship of discourse pragmatics to clause structure. Then the connection of discourse pragmatics to prosody is discussed in section 2.6. Finally, links between prosody and clause structure are examined in section 2.7.

2.1 Grammar of Tarifit

Tarifit is a Berber language spoken by approximately one million speakers in northeastern Morocco. It is in the Afro-Asiatic language family along with such major languages as Arabic and Hebrew. It is generally accepted that Tarifit has agglutinative morphology and VSO word order, i.e., the default clause constituent order is finite verb plus subject plus object if the subject and object arguments are present (Greenberg 1966). These arguments, however, are not obligatory and can be represented as affixation on the verb stem.

They can also appear before the verb in special discourse situations which exhibit various types of thematic change, and markings of topic and focus (McClelland 1993). In addition, Tarifit is a prepositional language in that a noun may be prefixed by a prepositional affix or case marker. It is also head-initial such that a noun is followed optionally by a modifying possessive pronoun and/or a demonstrative. The above general aspects and more specific ones are discussed below, to provide a basis for the presentation and discussion of research findings in chapter 4. I begin with phonology in section 2.1.1, continue with morphology in 2.1.2, and end with syntax in 2.1.3.

2.1.1 Phonology

The phonology of Tarifit has been little investigated, but what is known is that the language has a root system similar to Arabic where consonants, typically two or three, are modified by insertion of the phonemic vowels a, i, u and some consonants (McCarthy 1986). Thus, the root {*mt*}, referring to death, takes the forms:

ərmot	'death	
θəmmuθ	'dead one' (f.)	
i-mmuθ	'he-died'	
i-t-məttæ	'he-is.dy-ing	(McClelland 1985)

Tarifit consonant and vowel phonemes are listed separately in tables 1 and 2.

Table 1. Consonant phonemes of Tarifit (Hamdaoui 1985; McClelland 1985)

	voiced					voiceless				
	occ	ns	lt	spir	flp	occ	ns	lt	spir	flp
bilabial	b	m				p				
sem-vowel				w						
labio-dental									f	
inter-dental				ð					θ	
pharyngeal				ḍ						
dental				z		t			s	
pharyngeal				ẓ		ṭ			ṣ	
alveo-palatal	d	n	l	ž	r				š	
pharyngeal	ḍ				ṛ					
semi-vowel				y						
velar				ɣ		k			x	
back						q				
glottal/phar.	ʔ			ʕ					ḥ	h

Table 2. Vowel phonemes of Tarifit (Hamdaoui 1985; McClelland 1985)

		Front		Central		Back	
		unrnded	rnded	unrnded	rnded	unrnded	rnded
high	close	i					u
	open						
mid	close						
	open						
low	close						
	open			a			

Some consonants are pharyngealized (those with a dot underneath the phonemic character) like Arabic. The language has no phonemic word stress (McClelland 1985).

2.1.2 Morphology

The morphology and syntax of Tarifit (Justinard 1926; Renisio 1932; Applegate 1963) has been well known for over 60 years. It is a VSO language (Greenberg 1966) with a high degree of verb inflection.

Previous treatments of Tarifit grammar include those of Justinard (1926), Renisio (1932), Applegate (1963), McClelland (1985; 1986; 1987; 1987; 1992; 1993), Cadi (1987) and Ouhalla (1988). These treatments primarily concern Tarifit morphology and syntax.

2.1.2.1 Verbs

There are three classes of verbs in Tarifit: finite, non-finite and auxiliary (Cadi 1987; McClelland 1987). The finite verb may be inflected whereas the auxiliaries and non-finite verbs have restricted inflection.

2.1.2.1.1 Finite verbs

Finite verbs may be inflected for subject and person (either intransitive subject (S) or transitive subject (A); 1, 2 or 3 as first, second or third person), number (SG or PL), gender (MASC or FEM), object and indirect object agreement (O and IO), location (PROX and DIST), reciprocal action (RECIP), causation (CAUS), negation (NEG), mode, and aspect. Person, number and gender affixation is shown in table 3 below. Affixes are appended before and/or after the verb stem. In the examples below table 1, the relevant portions are underlined.

Table 3. Verbal affixation: agreement markers for subject and person (Justinard 1926)

		SING		PLUR	
1st			-ɡ	n-	
2nd	MASC	t-	-d	t-	-m
	FEM			t-	-nt
3rd	MASC	i-			-n
	FEM	t-			-nt

Examples (1)-(2) illustrate plural subject and person agreement:

(1) θyuša a-t-zara-m θndint
tomorrow IRR-2A:SG/PLUR:MASC/FEM-see-2A:PLUR:MASC

Tomorrow you-will-see [the] city. (adapted from Justinard 1926)

(2) i-ruḥ ɡ-rsuq
3S:SG:MASC-go LOC-market

He-went to-[the]market. (adapted from Applegate 1963)

A verb may also be inflected for object (O), in which case the verb is suffixed (table 4):

Table 4. Verb affixation: agreement markers for object (Applegate 1963)

		SING	PLUR
1st		-i	-naɡ
2nd	MASC	-š	-kum
	FEM	-šam	-kant
3rd	MASC	-t	-san
	FEM	-θ	-sant

(3) i-zargɩ-θ ɗagg-ižan-iẓæ
3A:SG:MASC-3O:SG:FEM ILL-one-dress

He-twisted-it in-a-dress. (adapted from McClelland 1987)

(4) θ-assæ-sɪn zzɪθs-θ
3A:SG:FEM-place-3O:PL:MASC ADS-3O:SG:FEM

She-placed-them near-her. (adapted from McClelland 1987)

A verb may also be inflected for indirect object (IO):

Table 5. Verb affixation: agreement markers for indirect object

		SING	PLUR
1st		-i	-nəɡ
2nd	MASC	-k	-kum
	FEM	-m	-kənt
3rd	MASC	-s	-sən
	FEM	-s	-sənt

(5) θ-ša-s
3S:SG:FEM-give-3IO:SG:MASC/FEM

She-gave[it]-to.him. (adapted from McClelland 1987)

(6) aɬ-am ini-ɡ
IRR-2IO:SG:FEM tell-1A:SG:MASC/FEM

I-will-tell-you [something] (adapted from Cadi 1987)

Proximal (PROX) and distal (DIST) verbal suffixes indicate that an action or state expressed by the verb is either in close proximity or distant. They are adverbial in function:

- proximal (PROX) : -d/-da-ɬæ/θ- (before [h])/-a 'here'
- distal (DIST): -n 'there'

(7) ɣ-ufi-d-da
3A:SG:MASC-find-3O:SG:MASC-PROX

He-found-him-here. (adapted from Renisio 1932)

The verbal affix *m-* expresses the reciprocal (RECIP). It is often found in conjunction with the causative *s-* :

(8) am-s-araq-n
RECIP-CAUS-part-3S:PL:MASC

[Since] they-cause-themselves-[to]separate,

ibriɣ-naɣ
roads-1POSS:PL:MASC/FEM

[the]roads on.which.we.are.walking (lit. 'our-road'),

am-s-araq ra-nši
RECIP-CAUS-part also-1S:PL:MASC/FEM

also we-[should make]ourselves-[to]separate.
(or 'go our separate ways') (adapted from McClelland 1987)

The causative (CAUS) verbal prefix s- is affixed immediately before the verb stem and after all other prefixes:

(9) tamṭṭuθ anni θ-s-yuḍ
woman DEM:DIST:SG/PLUR 3A:SG:FEM-CAUS-go

[The] woman made-

anaɣ ɣar iɣzar
PRO:3O:PLUR:MASC/FEM LOC-river

us-go to [the]river. (adapted from Justinard 1926)

Negation is positioned before all other affixation on the verb (and optionally after):

- negation (NEG): wa(r)-/o- (-šæ)

(10) war ufi-ɣ
NEG find-1A:SG:MASC/FEM

I did not find [it]. (adapted from Cadi 1987)

The subjunctive (SUBJUNC) modal prefix is affixed before the verb stem, in the same position as the irrealis.[4]

[4] Irrealis and subjunctive marking are mutually exclusive.

• subjunctive (SUBJUNC) ax-[5]:

SUBJUNC
(11) ax- tif-ɣ abrid
SUBJUNC-take-1A:SG:MASC/FEM road

"Would.that-I-[could]hit [the] road!" (adapted from McClelland)

Verbal aspect is indicated by affixation before subject inflection and the verb stem. The term 'irrealis' (IRR) is used in the French literature on Berber dialects, and concerns an 'imperfect' or unfinished/non-realized action:

• irrealis or imperfect: æɛ-/ɣa-:[6]

(12) aɛ-am ini-ɣ
IRR-2IO:SG:FEM tell-1A:SG:MASC/FEM

I-will-tell-you [something] (adapted from Cadi 1987)

The iterative (ITER) aspect prefix t- connotes a progression of action over time:[7]

• iterative t-/θ-:

(13) i-sans kul džirt i-t-tirar
3S:SG:MASC-spend all night 3S:SG:MASC-ITER-play

He-spent [the] whole night playing. (adapted from Justinard 1926)

The immediate aspect (IMM) prefix represents immediacy of action or presence:

• immediate æ-/a-/aqq-:

(14) aqq-li-yi læ-bæs
IMM-INES-1IO:SG:MASC/FEM no-evil

Now-I [am] not-unhealthy. (adapted from Renisio 1932)

[5] This is rarely used.

[6] Past linguists have referred to these as the 'future tense' (Basset 1883; Renisio 1932).

[7] If both irrealis and the iterative are found on the verb, the irrealis affix immediately precedes the iterative.

In sum, a Tarifit finite verb may be diagrammed as follows. Affix ordering is relative to the verb stem:

NEG:IRR/ SUBJUNC:ITER:S/A:RECIP:CAUS:**STEM**:S/A:IO:O:PROX/ DIST:NEG

Figure 4. Relative orderings of Tarifit verbal affixation (Cadi 1987; Applegate 1963; Renisio 1932; Justinard 1926).

2.1.2.1.2 Non-finite verbs

Infinitives, copulas, and auxiliaries are the typical nonfinite verbal forms in Tarifit. In the example below, the first verb is inflected for subject but the second one is not. Oftentimes the reverse is true where the first verb is not inflected for subject and person, but the second one is; in such cases the first verb functions as an auxiliary:

non-finite verb

(15) i-xss -ɑɖæ-kki-dɑ
3A:SG:MASC-need IRR-pass-PROX

It-is.necessary to-pass-here. (adapted from McClelland 1987)

Auxiliaries are realized as uninflected verbs (AUX):

- tuga 'there was/it was/had':

(16) tuga iwɖa-g
AUX arrive-1S:SG:MASC/FEM

I had [already] arrived. (adapted from Cadi 1987)

Some verbs such as *kɑmɑs/ɑbɖæ* 'start' and *xɛs* 'want' or 'need,' although normally finite verbs, may function as uninflected auxiliaries. In both examples below, the auxiliary precedes the main verb:

AUX

(17) a-xas i-ḥæm u-rabbi kabɪr
IRR-need 3S:SG:MASC-judge by-God big

"He needs to judge him, by God!" (adapted from McClelland 1995)

2.1.2.2 Nominals and pronominals

Nouns and pronouns may be prefixed by various case markers. As subjects, objects, and indirect objects, nouns and pronouns agree with the markers on the verb. They may also be suffixed by possessive markers, by the locational affixes mentioned above for verbs (i.e., proximal *-d* and distal *-n*), demonstratives, and a complementizer that signals a copula construction.

2.1.2.2.1 Pronouns (PRO)

Personal pronouns are summarized in Table 6 and illustrated with examples below:

Table 6. Tarifit personal pronouns (Applegate 1963)

		SING	PLUR
1st		nəš	nəšnin
2nd	MASC	šək	kəniw
	FEM	šəm	kənint
3rd	MASC	nətta	nitnin
	FEM	nəttæθ	nitənti

(18) nəttæθ t-sən a-t-snən səksu
PRO:3A:SG:FEM 3A:SG:FEM-know IRR-3A:SG:FEM-cook couscous

She knows [how to] make couscous. (adapted from Justinard 1926)

A non-human pronoun (PRO:NH) is [illegible] 'thing'. In the example below this pronoun has a proximal demonstrative suffix plus a complementizer (COMP) which signals a copula construction:

PRO:NH
(19) qləh wæ-θa-đ əmziw
hey PRO:NH-PROX-COMP ogre

"Hey [that] thing-here-is [an]ogre..." (adapted from McClelland 1987)

2.1.2.2.2 Case marked nominals (CM; affixes)

Nouns, noun phrases, and pronouns (PRO) may be preceded by a case affix such as one of the following:

adessive (ADS)	zzιθs-	'near'
genitive (GEN)	n-	'of/from'
locative (LOC)	x-/ǥa-/idu-/ado-/ æθ-/axox-/-i/-žə/ šæwən-	'at/to/about/on/onto/ after/under'
ablative (ABL)	k-/ǥa-/ǥar-/u-/g-/ žu-	'with/to/by/from'
temporal (TEM)	əlli-/si-	'until/at'
illative (ILL)	d-/đ-/đəgg-/đi-/di- tə-	'in/inside'
inessive (INES)	g-/đir-/đa-/li-	'in'
elative (ELA)	z-/zi-	'from'
dative (DAT)	ǥa-	'to/for'
correlative (CORR)	š-/əǥa-/liǥali-/ məšnu-	'as/like'
associative (ASSOC)	k-	'with/along with'

Use of case suffixes is illustrated in the examples below:

(20) iža-nhar æyw ušæ
one-day well then

Well, then, one-day

LOC
mæ y-uɬaf xa-sn
later 3S:SG:MASC-come LOC-3:PL:MASC

later that-ogre came

uwamzuw-annia
ogre-DEM:DIST:SG/PL

to-them. (adapted from McClelland 1987)

(21) y-usaɬ zi-θamurθ-annaɡ
3S:SG:MASC-come ELA-country-GEN:1:PLUR:MASC/FEM

He-came from-our-country. (adapted from Justinard 1926)

2.1.2.2.3 Case marked nominals (suffixed): Genitive (GEN)

Nominals may have possessive pronoun suffixes or genitive case which vary according to person and number. This is the only case marker that is suffixal.

Table 7. Suffixal genitive case markers (Renisio 1932)

		SING	PLUR
1st		-inu/-i	-annaɡ
2nd	MASC	-inak	-ankum
	FEM	-annam	-ankum
3rd	MASC	-annas/-s	-ansan
	FEM	-annas/-s/-θ	-ansant

(22) ɣ-usaḍ zi-ϑamurϑ-annaɣ
3S:SG:MASC-come ELA-country-GEN:1:PLUR:MASC/FEM

He-came from-our-country. (adapted from Justinard 1926)

2.1.2.2.4 Demonstrative noun affixes (DEM)

Nouns may be specified by the use of a demonstrative suffix[8] which can co-occur with case markers. These express orientation to a given location or person and are of several types:

• anni/-an/-ni	'that/those'	(DEM:DIST:SG/PL)
• a/u	'this'	(DEM.PROX.SG)
• i	'these'	(DEM.PROX.PL)

(23) æriæz-an ḍ-amdukar-inu
man-DEM:DIST:SG/PL COMP-friend-GEN:1:SG:MASC/FEM

That-man [is] my-friend. (adapted from Justinard 1926)

2.1.2.2.5 Relative clauses

A subject noun plus a finite verb function as a relative clause, as in example (24).[9] These are in the word order one would expect for a head-initial language such as Tarifit. The relative clause uses the suffix -n after the object of the independent clause and before the modifying verb in the dependent relative clause:

REL

(24) i-ttafa-ϑsæ-n i-naɣi-t
3A:SG:MASC-take-lady-REL 3A:SG:MASC-kill-her

He-picked.up [the] lady that he-had.killed. (adapted from McClelland 1987)

---

[8] This is a further indication of the 'head-initial' character of Tarifit, as was mentioned earlier.

[9] Tarifit does not have adjectives. However, there are some true adjectives which are Arabic borrowings.

In a verbless relative clause the relative pronoun (PRO:REL) is *iɛin/wiɛin/ɛwanni* 'who'. This is illustrated in example (25) where the relative clause is the object of the finite verb 'know'. In this case, there is no verb at all but a copula construction with the relative clause functioning as a predicate nominal (Renisio 1932):

(25) aqšoɛ alɛrɛr ɛwanni ɛ-ariæz-annam
stick [of] thuya PRO:REL COMP-man-GEN:2:SG:FEM

That stick of 'thuya' [is] your-husband. (adapted from Renisio 1932)

This section may be summarized with figure 5 which shows the potential modifications which may be made on a noun or pronoun in a Tarifit relative clause. Notice that POSS and DEM are mutually exclusive:

CM: **STEM:** POSS/DEM: DIST/PROX: COMP/PRO.REL: REL.CL

Figure 5. Noun stem and affix/relative clause template.

2.1.3 Syntax

In this section, I discuss independent, dependent, and verbless clauses as well as clause adverbials and conjunctions (Cadi 1987; Applegate 1963; Renisio 1932; Justinard 1926).

2.1.3.1 Finite clauses

Finite clauses are (1) independent, (2) dependent, or (3) verbless.

2.1.3.1.1 Independent finite clauses

Independent finite clauses may be indicative, imperative, or interrogative. Example (26) illustrates an independent clause with a finite verb in the default constituent ordering:

V S O

(26) musintid θ-sgʊm θamza hamuša-nni
for.years 3A:SG:FEM-raise Tamza child-DEM:DIST:SG/PL

For.years, Tamza raised that-child. (adapted from McClelland 1995)

An imperative clause is composed of an uninflected finite verb; consequently, Berberists use this type of verb for the citation form in lexicons:

(27) af
find

Look [for it]! (adapted from Renisio 1932)

Interrogative clauses consist of an interrogative pronoun (INTERR) such as *min* 'what' plus an independent clause:

min	'what'
əmšəhæ	'how much'
mæni	'where'
misæ	'how'
moɣš	'why'

(28) min y-arẓu
INTERR 3A:SG:MASC-search

What is he-looking.for? (adapted from Cadi 1987)

In the next example *min* is suffixed by the illative case marker *di-* 'in' which would normally be attached to a noun (Cadi 1987):

(29) min-di y-aɛžən
INTERR-ILL 3S:SG:MASC-walk

What did he-walk into? (adapted from Cadi 1987)

2.1.3.1.2 Dependent finite clauses

Dependent finite clauses are conjunctive, and may precede or follow an independent clause. A conjunction borrowed from Arabic *balli* 'that' begins a complement clause:

(30) ošši-ny æ-yi-ḥæs
wolf-DEM:DIST:SG/PL IMM-3A:SG:MASC-feel

That-wolf then-felt

balli θ-ta-d zi-ta-- tamza
that 3A:SG:FEM-grab-PROX ELA-Tamza

that Tamza had.grabbed-[him]here [by the tail].
(adapted from McClelland 1995)

Another type of dependent clause begins with a temporal conjunction *ærmi* 'when'.

Dependent Clause
(31) ærmi y-uđf đagg-wæhfi a-θ-alḥæyg tamza
after 3S:SG:MASC-enter ILL-hole IRR-3S:SG:FEM-arrive Tamza

After he-had.entered [the] hole, Tamza arrived.
(adapted from McClelland 1995)

2.1.3.1.3 Verbless clauses

A verbless clause consists of a subject and complement with no verb. Sometimes the subject is followed by a copula marker or complementizer *-đ* denoting that there is no verb.

(32) æriæz-an đ-amdukar-inu
man-DEM:DIST:SG/PL COMP-friend-GEN:1:SG:MASC/FEM

That-man [is] my-friend. (adapted from Justinard 1926)

When the interrogative has no clause following, it is inflected like a verb. In example (33) the IO suffix *-s* is attached to *mæmi* 'where':

INTERR

(33) mæni-s
where-3IO:SG:MASC/FEM

"Where-[is]he?" (adapted from McClelland 1986)

2.1.3.2 Additional elements in clauses

Clause adverbials and conjunctions modify, connect or subordinate clauses.

2.1.3.2.1 Clause adverbials (CL.ADV)

The adverbials listed below function as introducers and, when they are present, are usually found at the beginning of an independent clause (McClelland 1995).

iž-nhar	'one-day'
mkur-nhær	'each day'
iɖanaɖ	'yesterday'
ḥaṣul	'finally/next'
aranna	'next/then'
æywa	'well' (from Arabic)

CL.ADV

(34) arannæ žaḥæ wld laḥæram n-æḥdidænni
then Jeha son illegitimate GEN-Haddami

Then Jeha, the illegitimate son of Haddami,

tɣwæ y-ggɪzi sæɖiž
AUX 3A:SG:MASC-make pool

before.had made [a] pool

u-wæmæn ɖir-usθ-anni n-tabarrak
GEN-water INES-middle-DEM:DIST:SG/PL GEN-house

of-water in-[the]middle of-[his]house. (adapted from McClelland 1995)

2.1.3.2.2 Conjunctions (CONJ)

The following free morphemes can begin dependent clauses (Applegate 1963; McClelland 1986):

ærmi	'when/after'
wælækin	'but' (from Arabic)
maša	'but'
balli	'that' (from Arabic)
nɣ	'or'
usa	'so that'
bæš	'so that'
ḥasul	'so'
madža	'if'

(35) madža θ-xisa-ɖ
CONJ 3A:SG:MASC/FEM-want-3A:SG:MASC/FEM

If you-want,

a-n-raḥ ɣar-fæs
IRR-2S:PLUR:MASC/FEM-go LOC-Fez

we-could-go to-Fez. (adapted from Justinard 1926)

This concludes the overview of Tarifit phonology, morphology, and syntax. These structural properties of the language will assist the reader in better understanding the examples cited in chapters 3 and 4 which illustrate features of clauses and major clause constituents such as clause adverbials, verbs, objects, and subjects.

2.2 Discourse pragmatics

Discourse pragmatics in this study includes narrative profile, storyline, episode juncture, and topic/focus. Narrative profile (Longacre 1976, 1978, 1983) encompasses plot progression and information status (as in storyline clauses). Episode boundaries and topic

continuity (Givón 1983) further segment the narrative. Topic and focus (Firbas 1964; Mithun 1987; Herring 1990: etc.) give the hearer cues as to information status.

2.2.1 Discourse structure

2.2.1.1 Clause saliency

Clauses in narrative are not equal in saliency, that is, the role of one clause may be more important than another in communicating the basic plot of the story (Longacre 1983). Thus, events are more salient than participants and/or setting, and independent clauses are more salient than dependent clauses. Non-quotation clauses are typically more salient than quotation clauses. Foreground and event-line (or 'storyline' clauses) are more salient than background clauses which provide information about participants, setting, and ongoing activities (Hopper 1979; Hopper and Thompson 1980).

A main (or independent) clause carries topic continuity and the bulk of sequentially-ordered new information in discourse, while subordinate clauses carry discontinuous, non-sequential background information (Givón 1983).

2.2.1.2 Profile

Profile is the macro-organization of narrative along information and plot progression lines. Narrative may be defined as a way of recounting one's experiences with clauses that are sequenced similarly to the sequence of events described (Labov 1972). The following are the basic constituents of narrative profile (Longacre and Levinsohn 1978; Longacre 1981):

(1) exposition (or 'orientation' (Labov 1972) or 'stage'): introducing the characters and setting
(2) inciting incident: first action or actions that create circumstances for other actions to happen
(3) mounting tension: classification of clause that is in a series of chronological events (a 'knotting up') leading to a climax
(4) climax: culmination of a series of chronological events
(5) denouement: an 'unknotting' of events after a climax, which leads to resolution
(6) lessening tension: classification of clause that continues to 'unknot' events after a climax
(7) closure (or 'coda' (Labov 1972)): a final 'wrap up,' often of the form 'that's it' or 'the end'.

These distinctions are important because they help to segment a story and relate those segments to morphosyntactic choices, such as degrees of verb inflection and clause length. For example, climax can be a series of short and repetitive clauses (Longacre 1983).

Within the progression of events in a narrative, one may rate the information status of a clause as either 'event-line' or 'non-event-line' (Longacre and Levinsohn 1978). Another term for event-line is 'storyline'. Storyline is a list of chronologically-sequenced clauses that are foregrounded. If this sequence is broken by, e.g., a flashback recalling some earlier incident that has some bearing on the present series of events, then the flashback clause is 'non-storyline' or backgrounded. Other types of beginning information include setting and ongoing activities (Hopper 1979). These are important distinctions as they are signaled in many languages by distinguishing grammatical features. For example, in Anglo-Saxon and Biblical Hebrew (both VSO languages), storyline clauses generally have the word order VSO, with background information in SVO order (Hopper 1979; Longacre 1983).

2.2.1.3 Episode boundaries

Episode boundaries in narrative are signaled by a change in setting, discontinuity in time, and/or absence of thematic linking (Longacre and Levinsohn 1978). Another marking system notes changes in one or more of four 'thematic unities' in the progression of narratives: place, time, event and participant (Givón 1983).

2.2.2 Pragmatics: topic and focus

The notions of 'topic' and 'focus' are variously labeled as 'topic' and 'comment,' 'theme' and 'rheme,' among others. A topic in English is 'what a clause is about' or its theme, as is similarly the case with Chinese (Chafe 1976). The terms are related to given and new information. Topics tend to be given information and grammatically definite. Different types of focus tend to be new information and grammatically indefinite (Prince 1981). Conversely, if the noun is new information, as perceived by the speaker, it is generally focus/comment/rheme. If it is old information it is generally the topic/theme.

All of these perspectives can be subsumed in the 'functional sentence perspective' (Mathesius 1939; Firbas 1964) that refers to information flow in discourse. The functional sentence perspective is "...a complex interaction of word order (linear modification), activation cost and identifiability (the contextual factor), various semantic elements and relations that underlie grammar (the semantic factor) and prosody" (Chafe 1994:163). Topic and focus, having to do with nouns, are part of the 'identifiability' or what the speaker perceives that the hearer knows and does not know. This perception is similar to Firbas' (1964) notion of 'communicative dynamism' which is "...the extent to which the sentence element contributes to the development of the communication, to which it "pushes the communication forward..." (1964:270), in the mind of the speaker. Thus, unknown/new information has higher communicative dynamism than known/old information.

Herring (1990) identifies two kinds of topic: 'shifted topic' where 'what is talked about' changes to a new topic in the discourse, and 'continuing topic' where the topic is the same but is mentioned (reactivated) again. These distinctions are useful, as we shall see in chapter 4, in tracking topics. A 'grammaticalized topic' is usually the subject of a clause (Givón 1983).

In addition, Herring (1990) distinguishes two types of focus; these are contrastive focus and presentational focus. Contrastive focus concerns an interruption of thematic flow when idea or plot directions take an unexpected turn. This can result in unusual noun positioning (Chafe 1976) in a clause. The other type of focus is presentational, where a participant or prop is introduced in the discourse for the first time, often with an indefinite marker, or some equivalent, in order to signal to the hearer that the information is new. [10]

2.3 Clause structure

According to Greenberg (1966), languages can be divided into three categories according to word order of subjects, objects, verbs and modifiers within clauses. Type I languages are VSO, as is the case with Tarifit, such that positional words or affixes precede the noun they modify; hence they are *prepositions*. Further, noun modifiers such as adjectives are generally found after the noun or *head* (meaning that they have the order item + possessor rather than possessor + item, e.g., 'box his' rather than 'his box,' and head + attribute rather than attribute + head, e.g., 'box large,' not 'large box'). Thus, Type I languages are *head-initial*. Type II languages are SVO in their default word ordering and are also prepositional and head-initial. Type III languages are SOV and are *postpositional* and can be either head-initial or head-final, although the head-final type is more common.

Type I characteristics, among others, are described in section 2.2.

2.4 Prosody

The study of prosody in previous literature has centered around three general areas: pitch, length, and loudness (Cruttenden 1986). Pitch is measured as fundamental frequency (Fø) according to cycles per second or the number of *hertz* (Hz) (Fry 1979). Length is

[10] There are other types of focus as well, e.g., WH-focus, which has implications for the placement of question words.

measured in milliseconds (ms). Loudness is measured according to *decibels* (a relative measure referring "...to maximum displacement in a cycle of movement" (Fry 1979:10) or a measure of distance in millimeters from no sound to the greatest sound in a cycle). The study of 'stress' has encompassed much of what has been researched concerning prosody to date. Stress in English, for example, with prominences of amplitude and pitch concurrent on the stressed segment, has been the subject of some study (Halliday 1967). Much prosodic research has sought connections of prosody with other aspects of language such as clause structure and discourse pragmatics (Chafe 1980, 1994; Gumperz 1982; Cruttenden 1986; Givón 1983 et al.). Discussion of previous research pertaining to the link of prosody to clause structure and discourse pragmatics is found in sections 2.5 and 2.6.

2.5 Discourse pragmatics and clause structure

A number of previous analysts have noted links between discourse pragmatics and clause structure, especially word order. Three different kinds of explanations have been proposed concerning the relation of topic and focus to word order. The first was originated among Prague School linguists and hypothesized that new highlighted information would naturally occur at the end of a clause in the world's languages (Mathesius 1939; Firbas 1964). The second was the opposite: that what is most newsworthy (or 'new highlighted information') would be found clause-initially in most languages (Mithun 1987). However, there is enough evidence of languages of one or the other type that some linguists looked for another model to explain the discrepancy. Examination of word order typology (Creider 1983; Herring 1990; Payne 1990) suggests that in some languages the default word order determines where given and new information is placed in a clause. Herring (1990) hypothesized that, in verb-initial languages, topic (often the subject of the clause) would follow the verb, and focus would precede it. Conversely, in SV languages focus would follow the verb, and topic would precede it. Thus, the 'Word Order Principle' (Herring 1990) states that:

> Information structure is determined relative to a language's basic word order, as a rhetorical marking strategy. Verb-subject languages tend to order focus (comment) before topic, in contrast with languages of either the SVO or the SOV type. (1990:164)

This principle predicts that topic (theme) is post-posed (i.e., after the main verb) and focus (within comment/rheme) is preposed (i.e., before the main verb) in VS languages. These predictions are supported in the verb-initial languages Luo (Creider 1983) and Ojibwa (Tomlin and Rhodes 1979), among others, and help to explain why constituent order sometimes changes.

Longacre (1991) observed that clause constituent order changes relate to discourse structure in three languages, i.e., Trique of Mexico, Luwo in Sudan and Biblical Hebrew. All of these are strongly Verb + Subject + Object (VSO) languages which are head-initial. Trique shifts the grammatical subject or object before the verb for contrastive focus as well as for marking the initial setting of a story (i.e., the 'stasis'). Luwo and Hebrew generally exhibit SVO orderings in clauses which are 'off the story-line,' i.e., in clauses which carry the story forward. Generally for the three languages, left-shifting functions to take the hearer off the story-line to setting, background (e.g., a parenthetical comment) and explanation.

Payne (1990) has also written about constituent order changes in VSO languages, specifically in the Yagua language of Peru. Contrary to Hebrew, Trique and Luwo discussed above, Yagua is postpositional, meaning that the 'preposition' comes after the head that it modifies rather than before (as in English). Payne maintains that changes away from the VSO ordering are discourse-pragmatically determined. She posits the following general order for the Yagua clause (from left to right):

Pragmatically Marked Constituent	+	**Verb**	+	Subject	+	Object	+	Object

Figure 6. Payne's word order schema for Yagua.

She calls the VSO order the 'neutral' ordering (pragmatically speaking) of this language. The pragmatically marked constituent (PMC) can have the following functions:

(1) contrastive focus
(2) focus on some topic in a question (with the answer to the question also containing a left-shifted NP)
(3) recapitulation of the topic of the previous clause
(4) amplification paraphrase (which is similar to recapitulation)
(5) counter to expectation (which is like contrastive focus)
(6) threats, where the motivation for the left-shift is like contrast and counter-expectation
(7) negation, where the thing refused is left-shifted, again, like contrast
(8) augmenters/adverbials, where there is a restatement of some quality or quantity

Regarding thematic issues relative to discourse structure, a change or shift in one of four 'thematic unities' (Givón 1983) often corresponds to grammatical change on the clause level. In VSO languages there is often a word order shift to SVO when there is a change of theme. In the examples below, from Tarifit (McClelland 1993), there have been only three characters when a fourth party is introduced, a group of unnamed family members. The subject, which represents this group of family members, is pre-verbal while in the immediately preceding clause the subject is post-verbal. This is an example of presentational focus (Herring 1990), where a new character is introduced and the subject (or noun signifying the new character) is placed pre-verbally. It also involves a change in the participants:

V S =default word order
'old' character

(36) komaṣæ lɣwolæ-nni-ɗæ
start Tamza-DEM:DIST:SG-PROX

That-Tamza started here.

S V =marked word order
'new' character

(37) familæ-nnas iwa-nd aqšoẓdan
family-3POSS:SG:FEM/MASC bring-3A:PL:FEM wood

Her family brought wood

axæ/xa-da-barakt
LOC-LOC-PROX-house

to [his] house. (adapted from McClelland 1995)

In contrastive focus (Herring 1990), the subject is preverbal. In the example below, the main character (Tamza) thinks her daughter has killed the other main character (Hammu Lahraimi). However, Hammu was pretending to be dead, contrary to Tamza's thinking. In the clause which refers to this feigning of death, 'Hammu' the subject is preverbal indicating contrastive focus (Tamza expects Hammu to be dead, but he is only pretending to be dead):

haṣul...at-t-æynnæ-s æ%θæ-
finally 3A:SG:FEM-ITER-say-3IO:SG:MASC/FEM 3A:SG:MASC/FEM-

Finally, Tamza-said to.him, she-

θæ-yna-s ažahægima___
3A:SG:MASC/FEM-say-3IO:SG:MASC/FEM defeat

she-said-to.him, "[He's] defeated!"

S V

(38) hæmmu-lhæræym i-ggu
Hammmu-Lahraimi 3S:SG:MASC-do

However, Hammu Lahraimi was only

nman-s i-ḥof
person-GEN 3S:SG:MASC-fall.down

pretending to be defeated.

Continuous topic (Herring 1990) is by far the most common type of topic. In Tarifit, it manifests itself by zero pronominalization with an agreement marker on the verb. If the

subject of each clause in a string of clauses remains constant, overt subject marking is not obligatory. Zero pronominalization is also possible for direct objects. This is illustrated in examples (39)-(41) which are in narrative sequence:

V

(39) i-zəzig
3S:SG:MASC-twist

He-[the older brother]twisted [the snake inside the dress].

V

(40) ɩ-ndari-ɖ
3S:SG:MASC-throw.down-PROX

He-threw.down [the snake].

V

(41) ɣ-usɩ-d
3S:SG:MASC-come-PROX

He-returned-here[to where his mother was].

Occasionally a continuous topic is overt and preverbal, which signals a thematic change in event, time or place. McClelland (1993) claimed that such preverbal topics often serve to mark an episode (or paragraph) boundary. In example (42) the subject has not changed from that of previous clauses:

S V O (=whole quotation)

(42) ʔntæ-ɖæ-s-i-niya
3PRO:SG:MASC-IRR-3IO:SG:MASC/FEM-say

[Consequently] he said-to-her, "Woe-to.me!

waɛd-i waɛd-i ɵ-ṭaff
woe-1IO:SG:MASC woe-1IO:SG:MASC 3A:SG:FEM-grab

Woe-to.me! She-grabbed

æzwar n-zɩggwærɵ
root GEN-plant

[a]plant root!"

The above marked structure signals the end of one paragraph or episode. The topic of the next episode is 'Tamza' who believes what the wolf says and therefore lets go of his tail.

Finally, there is shifted topic (Herring 1990; McClelland 1993) which is seen overtly after the verb. This is seen in example (43):

	V	S
(43)	šənæ i-kkæ	hæssɪn
	then 3S:SG:MASC-come	Hassan

Then Hassan came.

In the above example, the topic is 'Hassan'. In the immediately preceding clauses the topic was 'my husband'. We shall see in chapter 4 whether or not pre-verbal shifted topic tends to appear at episode boundaries.

Thematic change, topic and focus necessarily overlap. For instance, when there is a change in participants (if the participant is the grammatical subject) then there is generally a change of topic, since most topics are nominal arguments.

2.6 Discourse pragmatics and prosody

Categories of discourse pragmatics have been found to interrelate with features of prosody. Orientation clauses, inherently high in information content (in that they set the stage for narrative), can have identifying pitch levels (Halliday 1967). These levels are lower or higher relative to other clause types.

Episode boundaries often are accompanied by a longer-than-usual initial pause (Chafe 1980; Halliday 1967). These are points where the speaker needs time for cognitive reorientation, because the setting changes (Chafe 1980, 1994). An episode-initial clause adverbial may also help to effect this change, e.g., by specifying a time or a location (Gumperz 1982). Segmental lengthening may signal the end of an episode (Johns-Lewis 1986), as may a decline in pitch and amplitude (Chafe 1994).

Prosodic correlations with episode boundaries may also reveal clues to the orientation of the speaker. Slow delivery and a pause at the end of a paragraph or episode could indicate a hearer-based strategy (Herring personal communication) whereby the speaker gives the hearer time to process what has preceded.

Regarding fundamental frequency, a rise in pitch in English has been found to accompany the introduction of new and important information (Gumperz 1982). Conversely, old/given information can have low pitch (Chafe 1980).

Topic and focus typically have prosodic correlates, especially intonation prominence on the topic and/or focus noun (Creider 1983; Halliday 1967; Herring and Paolillo 1995).

2.7 Prosody and clause structure

In previous research, prosody has been linked to clause structure. As related in section 2.3, the study of prosody in the previous literature has centered around three general areas: pitch, length, and loudness (Cruttenden 1986), all of which are features of linguistic structure (Johns-Lewis 1986).

Gumperz (1993) notes the role of prosody in clause structure. He mentions intonation, vowel length, amplitude, and pitch as 'markers':

> Intonation, along with other signaling mechanisms such as vowel lengthening, increase or decrease in volume or pitch level, also enter into the signaling of communicatively significant prosodic prominence or accent. (1993:106)

Most previous research on prosody concerns intonation, with less pertaining to length and loudness.

2.7.1 Pitch and clause structure

Most notable regarding pitch and its connection to structure is the information or intonation unit (Halliday 1967; Chafe 1980, 1994; Cruttenden 1986) where a clause is roughly

equivalent to intonational phrasing or grouping that recurs, often accompanied by pauses that bracket the clause. According to Chafe (1994), an intonation unit (IU) is a 'focus of consciousness' and the realization of one new idea at a time.

Du Bois et al., (1993) determined that IU's in English are marked by pause, IU-initial rising Fø, and lengthening of final syllable. Inhalation and exhalation do not happen within a word but at grammatical boundaries.

Edwards (1993:229) describes an IU as "...a stretch of speech bounded by a single coherent intonation contour..."; she calls it the "...primary prosodic unit of spoken discourse." It functions to help structure the discourse and is often equivalent to some grammatical unit, such as a finite clause, thereby aiding the researcher in identifying syntactic structure.

Chafe (1994) states that intonation units are necessary because of limits on what human consciousness can focus on at one time, and therefore lends to language its 'spurt-like' character; these spurts operate in tandem with 'functional segmentations of discourse' and clause structure. Clause structure is cognitively determined, and therefore a clause is typically an IU and of a typical length. One IU is distinguished from another IU by changes in Fø, speed, amplitude, vocalization (to silence), and voice quality. Typical IU-final Fø contour is falling and sometimes creaky. Intonational phrasing accompanies a clause (which includes a finite verb in surface structure). Intonation is used to focus or emphasize, to link sections of discourse (by means of intonation contrast), and to mark IU's by decline of Fø from beginning to end and a restart at the next IU. Falling Fø shows clause terminus. Rising Fø show that the clause is not at its ending point.

Further proof of links between syntax and tone are found in Cariban. The finite verb appears to be accompanied by pausing and certain intonation contours (Gildea 1992).

Fry (1979) observes that the average fundamental frequency for English-speaking men is 120 Hz, for women 225 Hz, and for children 265 Hz, with the total range being 60-500 Hz. The most important function of change in Fø is for intonation. Thus, Fø 'direction'

changes over time as the clause is pronounced. High Fø can signal the beginning of an utterance, paragraph, or topic. A narrowing of Fø span may signal some other grammatical boundary such as the end of a clause or paragraph (Johns-Lewis 1986). There a the tendency for amplitude to progressively decrease as Fø increases.

The relation of stress to syntax has also been studied from the perspective of Generative Phonology (Selkirk 1984). For example, vowels in English words change according to whether or not they are stressed in relation to phrasing.

2.7.2 Length and clause structure

A substantive IU, usually a clause, is 4.84 words long in English (Chafe 1994), and is delineated by pauses either before and/or after the IU (Du Bois et al., 1993: Chafe 1994). Thus, a pause can have a communicative function: to signal to the hearer significant boundaries in the stream of speech (usually clause boundaries; Garman 1990).

2.7.3 Loudness and clause structure

Frye (1979) claims that loudness generally decreases along with pitch over the duration of an utterance.

One IU can be distinguished from other IU's by changes in loudness (Chafe 1994).

2.8 Summary

The observations presented in this chapter point to the need for a systematic study of the nature and extent of the interrelations of prosody, clause structure, and discourse pragmatics. No such study, to my knowledge, has been done, least of all in a Berber language. It should be revealing to conduct such an analysis of Tarifit because (1) it has a well developed oral narrative tradition and hence is likely to have a variety of means for encoding discourse structure, (2) it is verb-initial and thus is liable to indicate discourse-pragmatically

motivated variation in word order similar to previously-described VSO languages. and (3) it has no phonemic word/syllable stress and therefore may show a limited role for prosody in discourse pragmatics.

CHAPTER III

RESEARCH DESIGN AND PROCEDURES

3.0 Introduction

This chapter describes the research design and procedures used in this investigation. Section 3.1 describes the sampling strategy, the settings in which the data were collected, the preparation of texts, the contents of the texts, and the equipment used in recording and analyzing the texts. Section 3.2 presents the methodology, including the coding of dependent and explanatory variables for use with *Excel* and *Goldvarb*. Section 3.3 explains some terms that will be used in chapter 4.

3.1 Data

3.1.1 Setting and apparatus

Four speakers were selected, representing four different communities in the language area. Two were male and two female. The males were approximately 35 and 45 years of age. The 35-year-old was university-educated with a degree in nursing. The other male was a day-laborer with an eighth grade education. Of the two females, one was in her fifties, a maid and illiterate. The other was in her twenties and also illiterate. All were at least bilingual in Tarifit and Arabic. Oral narratives from two to five minutes long were recorded in the homes of the speakers or at my home in Oujda, Morocco using one of two battery-powered cassette recorders with condenser microphones. The audiences were native speaker friends of the story-tellers, and usually myself.

Analysis was done using a Macintosh Powerbook 520.

3.1.2 Texts

The following sections describe the texts and their contents.

3.1.2.1 Description of texts

The characteristics of the narrators of the four texts are summarized in table 8. Table 8 also includes the total number of clauses per text, including the number of non-quotation clauses.

Table 8. Characteristics of the four narratives

Narrative	Narrator Sex	Narrator Age	Narrator Occupation	Non-Q Clauses	All Clauses
Tamza and the Wolf	male	35	nurse	11	12
The Ogre and His Neighbor	female	50	maid	96	171
Night Fears	female	25	housewife	39	77
Hammu the Trickster	male	45	day laborer	65	139
Totals				211	399

All of the narratives are fictional except for 'Night Fears'. A recurring theme in many of the narratives in Tarifit-speaking communities is trickery, often by a person or animal that fools the wicked, but dim-witted, 'Tamza'. Tamza is a witch-like character who eats people, marries animals, and has children by them.

3.1.2.2 Contents of narratives

The following are free translations of each of the four narratives:

'Tamza and the Wolf'. The tale begins with Tamza chasing the wolf. The wolf ran away from her and jumped into a hole. Tamza arrived at the hole and grabbed the wolf by the tail. When the wolf felt that she had grabbed him, he yelled out that Tamza had *really* grabbed the root of a plant, not his tail. Tamza believed him, so she let go of his tail. Then the wolf escaped. That was it.

'Hammu the Trickster'. One time Tamza was living in the same neighborhood as Hammu Laharaimi. Each day Tamza would go to get water, and while she was gone Hammu would play around with her donkey. When she came back, he would get off the donkey and go into his house (which had an iron door). After some time, Tamza got fed up with Hammu and decided to do something about him. She would tell herself, "Oh, God. I think I'll go get Hammu and eat him up!"

One day a beggar came by and began to beg. Tamza came out of her house and said to him, "Oh, sir, I have a neighbor named Hammu Laharaimi. He bothers me. He constantly irritates me. When I go to get water, he plays around with my donkey. When I come back, he sees me and runs away. He goes into his house and closes the door. When he comes out again, how can we catch him?"

The beggar said to her, "You should catch an old man (but not me!), split open his head and get out his brains. Then put the brains on the donkey's back. Later, when Hammu tries to get off the donkey, he will be stuck."

Tamza said to the old man, "I won't find anyone else like you!" So she killed that beggar and put his brains on her donkey's back. Then she went to get water. While she was gone, Hammu got on the back of the donkey. He then saw Tamza coming, so he tried to get off but he was stuck. Well, Tamza grabbed him. She said to him, "I've caught you now, you jerk!"

Hammu began to cry (and began to think of a plan). He said, "Well, Granny Tamza, you can't eat me. I'm too skinny! Why don't you put me in a well. Each day throw down to me dates, almonds, bread, and peanuts. On the day that I become strong, eat me."

Tamza thought it was a good idea, so she put him in a well and gave him dates, almonds, bread, and peanuts. After a while she asked him, "Are you strong now?"

Hammu said to her, "Yes, that's enough. I am strong. Now eat me."

Then she pulled him out of the well.

Now Tamza had a daughter who was blind. She said to her daughter, "Go fight him." Then they fought each other.

After some time, Tamza said, "You've defeated him!" But Hammu was only pretending to be defeated. She said, "Invite your aunt and your children. Then kill him and cook him. Then we will eat him." Then Tamza went out to invite her family over for dinner.

Then Hammu got up, grabbed Tamza's daughter, choked and killed her. After cooking her, he dressed himself up in the daughter's clothes.

Then Tamza returned and said, "Did you choke and kill him."

Hammu said, "Oh, yes, mother, I did." (But the one that Tamza intended to kill would eat her daughter! [i.e., she intended to kill Hammu, but he would not only not be killed but he would eat her daughter]).

Finally, they proceded to eat and drink. After dinner, Hammu went back to his house and shut the iron door behind him.

From his house he started to call out, "Wik,[11] wik, you ate your daughter! And I look just like her! Wik, wik, you ate your daughter, and I look just like her!"

Tamza picked up her daughter's clothes, and said to him, "You jerk, you tricked me! You killed and cooked my daughter and I ate her! You jerk!" She ran to Hammu's house.

Hammu said, "If you and your family want to eat me and be finished with me, bring a log of wood and put it on top of my house. Then set it on fire, so that my house will burn and I will die. Then you all can eat me."

(Sometime before all this happened, Hammu had installed a pool inside his house.)

Then Tamza began to do what Hammu said. Her family put wood on top of his house and set it on fire. When the house got very hot inside, Hammu got into his pool so that he wouldn't get burned up. He said to them, "Now you and your family distance yourselves so you can get a good running start and run toward my house and hit it with your heads. Then

[11] This is Tarifit epithet used in taunting someone.

you will knock down my iron door. When your family pulls me out of my house, then you can eat me."

Tamza and her family did as Hammu said. They went a distance from the house in order to get a good running start. They ran into Hammu's house. The roof collapsed on them and they all died.

Then Hammu came out and laughed at them.

'Night Fears'. One time at night in the summer we were sleeping. I got up and left two patio windows open. While I was up I saw a shadow that looked like a person (but it wasn't really anybody). I went to my husband and said, "Mohammed, Mohammed, there is a thief at the door!"

He said to me, "What?"

I said to him, "Get up quickly!"

Then he said to me, "Well, I'll take care of it after I go to the bathroom."

I said to him, "But if you go to the bathroom, the thief could come in!"

He said to me, "Okay, no problem. Leave the thief alone." Then he went back to sleep.

Later, our friend Hassan came, knocked on the door, and came in. I said to Mohammed, "That's him! Get the stick!" Then I started to shout loudly.

I can still remember how much we laughed.

Another time I had been repairing the kitchen. I had taken off the roof. At night while we were in bed, I could hear cats. They were walking around doing something. I said to my husband, "Oh, Mohammed, somebody's trying to break in!" I grabbed an ax.

Mohammed asked me, "Where is the one trying to break in?"

I replied, "He passed by over there! No, now he's over here!"

Mohammed said to me, "Stay here and keep watch. I'm going to sleep."

I held the ax waiting to see if he would come down from roof so that I could hit him, but Mohammed said that he was going to sleep and that I should guard the house!

I stayed up the whole night and guarded the house by myself! I waited for my husband to help, but he was heedless, like a turkey. How calmly he slept!

Was he always like this? No.

One night when we were asleep, I jiggled the bed. I jiggled it again, and again. Mohammed whispered to me, "Khadija! Khadija!"

I said to him, "What's the matter?"

He said, "I think someone is under our bed!"

I said to him, "Leave me alone. Let me sleep in peace."

He said to me again, "Khadija, Khadija, I think somebody's under there!"

I said, "Come on, leave me alone."

It went on like this until Mohammed was about to croak. He was too afraid to turn on the light so that he could see who was under the bed. He thought there was a man there, and I was making fun of him. During the whole night he was saying, "Khadija! Khadija!" I wasn't going to be the one to turn on the light. It went on like this all night.

Finally, he said, "Turn on the light! Turn on the light!"

Then I said, "It's me! What a coward you are!"

'The Ogre and His Neighbor'.[12] Once there was an ogre who lived with his female neighbor. Later this neighbor's son came into her house and asked his mother, "Why do you love this ogre?" Each day he bothered her like that.

He would say to her, "Hey, he's an ogre, not a man."

She replied, "No, he's a good Muslim man. No, you're mistaken."

Each day the son would come and go like that.

---

[12] The narrator told me that such stories were for the purpose of frightening children so that they would be quiet and go to sleep.

Well, one day when the ogre came into the house, the woman and her son left. She said to her son, "Let's go to the snake's house." So they lived with the snake. After a while, she had a child by the snake, and this child grew.

One day the snake, the woman and her two sons wanted to leave. When they were about to go, the woman wrapped her youngest son in a dress, gave him to her oldest son and said, "Here, take him. Go kill him."

The oldest son went out to think for a while. After thinking for a while, he went and grabbed the snake and wrapped him in the dress instead of his younger brother. He twisted the dress and struck it repeatedly until the snake was dead. Then he threw him away.

He returned to where his mother was. She asked him, "Where is your father?"

He replied, "I don't know where he is."

The woman went to the river. There she found the snake's bones. She got the bones all together, made malto-meal out of them, and gave them to her older son. She told him, "Give this to your brother for him to eat. Go! "

Then the older brother told his younger brother, "Knock over the water jar, and yell. We will then say to our mother, 'Run, oh Mother! The water jar fell over!'"

Then the younger brother went to the jar, overturned it, and started to yell. Their mother left. While she was gone, the older brother put the bone malto-meal in her place. When she returned she ate the whole bowl-full, from the first to the last spoonful. Then she died.

The older brother said to the younger, "Let's go." At dawn, they left, carrying their dead mother. They traveled a long way until they came to a fork in the road. The older brother said, "You take one road and I'll take the other. Since the road separates, we also ought to separate." He also said, "Be careful. Don't be a shepherd for the blond man or the bald-headed man. And don't shepherd at Mhardi Shnafa."

Well sir, after saying this they went their separate ways. The younger brother left carrying his mother's corpse. He found that wherever he went he saw the blond man and the bald-headed man. He said to himself, "I'll shepherd for the blond man." So he began to work for him.

He told the blond man to carry his mother for him and to get small birds for them to eat. For quite some time they went on like this.

One day his older brother came to him. He said, "Where have you been? I have suffered much on account of you. Let's go."

The older brother took his mother's body and told his brother to put her in a coffin. They then dragged the coffin to the older brother's house. While doing this, the mother bit one of them but the other saved him.

The older brother put the coffin in a corner of his house, and he began to taunt her, "Get going, Mother! Cook for us!" They made some flour cooked in oil, and the older brother made some of it into a mouth-sized ball. He began to yell out, "Run, oh dead woman! Run, oh dead woman!" They got up, buried her, and ran to the ogre's house.

They said to the ogre, "We're just now getting ready to make a pilgrimage to Simanda, the holy man's tomb. Come with us."

The ogre replied, "Okay, let's go."

They said to him on the way, "A lion regularly goes to the tomb. He calls to us when he needs us."

At Simanda, while they were sleeping, the ogre got up, put the younger brother in his place and slept where the younger brother was sleeping. Afterwards, during the night, the older brother and someone else ran off carrying who they thought was the younger brother. After traveling for a while, they came to a place and the older brother told his companion, "Alas, we left the ogre behind at Simanda! The lion will eat him!"

The ogre said, "Let me down. I, your father, am on your back. I am here, not at Simanda!" They let him down and returned to Simanda to get the younger brother, but they found that the lion had eaten him.

They went to another place and tried again to kill the ogre. The older brother said to the ogre, "Come with us to the sea. Let's make a sacrifice there."

The ogre told him, "Okay, I'll go."

On the way, they met a shepherd. The older brother said to him, "Get some people together and come with us to the sea."

The ogre whispered to the shepherd, "Oh brother, protect me!"

They arrived at a house on the seashore. The ogre brought them coals of fire. He said to them, "Open the door! Oh my son, open the door!" They let him in.

The older brother asked him, "Where did you get these coals of fire?"

The ogre replied, "If you'll let me stay, I'll bring you some more."

They said, "After we go to the beach, we'll let you stay."

They went to the beach and the older brother (who was the son of the ogre) threw the ogre into the sea. He sank to the bottom because he was heavy. He was gone just like that.

That was it.

3.1.2.2 Preparation of texts and system of transcription

After recording stories from the four speakers onto cassette tapes, I hired a native speaker to transcribe them into Arabic script and then translate them clause by clause into Spanish.[13] Then I hired a Spanish teacher to translate the Spanish into English. I transferred the Arabic script transcription into Roman phonetic script and listened to the taped stories in order to eliminate the translator's embellishments, improvements and additions, and also to fill

[13] Spanish is a common second language in northeastern Morocco.

in omissions.[14] Finally, in preparation for further analysis, I glossed the transcriptions based upon knowledge gleaned from pedagogical grammars,[15] from my previous research in phonology and morphology, and from the free translations. In these transcriptions and glosses I included all hesitations, repetitions, false starts, stutterings, laughter, pause lengths, terminal intonation contours, etc., using the Du Bois et al., (1993) system of transcription. The Du Bois et al., transcription scheme is tailored for spoken discourse. With his system, the analyst can mark IU boundaries, truncated clauses, lengthened vowels, pitch contour, pause lengths, inhalation, exhalation, laughter, smiling, and voice qualities having to do with levels of amplitude, Fø, speed, and rhythm.

Transcriptions, glosses and free translations were divided into independent finite clauses and numbered consecutively. Then I selected the independent non-reported speech clauses for the data base of this research.

3.2 Methodology

The method employed was a combination of qualitative and quantitative procedures designed to show the relationship, or lack thereof, between prosody and clause/narrative structure. The qualitative methods included (1) discourse profile and pragmatic analysis to identify narrative constituents, (2) clause demarcation or the division of speech strings into independent non-reported speech clauses, (3) constituent identification in each of these clauses, and (4) coding of the latter three, including the prosodic factors (attributes) of each. The first quantitative method was the measurement of prosodic factors with the aid of the sound measurement programs *SoundEdit Pro* and *Signalyze*. I then compared and contrasted features of (1) discourse pragmatics, (2) clause structure, and (3) prosody by means of the charting

[14]Often I found that the native speaker would 'improve' the transcription by inserting morphology as well as whole clauses that were absent on the tape. Also, some longer portions had been skipped altogether. I was able to correct these modifications and omissions because I lived in Morocco for a number of years in the 1980's and had acquired a functional level of speaking ability in Tarifit.

functions of the computer program *Excel* and the variable rule statistical program *Goldvarb*. Discourse pragmatics, clause structure, and prosody each functioned as dependent and explanatory variables in turn in the *Goldvarb* analysis. *Goldvarb* yielded 'weightings' or strengths of correlation between factor groups.

3.2.1 Dependent and explanatory variables and their coding

The coding design was necessitated by the program-specific requirements of*Excel* and *Goldvarb*. [16]

Clause constituency, discourse pragmatics and prosody each in turn functioned as dependent and explanatory variables in variable rule analyses. There were a total of 44 factor (or attribute) groups for each of 211 clauses in four stories. These factors and their codings are listed in sections 3.2.2.5-3.2.5 along with explanations of each coding category.

3.2.2 Discourse pragmatics

3.2.2.1 Discourse profile analysis

I undertook a discourse profile analysis of each narrative, recording the presence or absence of factors.

I labeled those clauses as 'orientation' in which the speaker introduces to the hearer the participants, places, times, and activities of the narrative. The following is an example from one of the four narratives, 'Hammu the Trickster,' where Hammu is being introduced for the first time:

(44) d-žamma-s aḥammu lḥaraymi
be-name-GEN:SG:MASC/FEM Hammu Laharaimi

His-name-was Hammu Laharaimi.

---

[15] These grammars were done in the early part of this century (see section 2.1).

[16] Analysis with *Excel* used actual measurements from *Signalyze* without coding.

Inciting incident clauses signify an action which causes other actions or circumstances. In example (45) from 'The Ogre and His Neighbor,' the act of living with a snake greatly influences the eventual fates of the snake and the woman who lived with him:

(45) ϑ-ɛ̌ši k-ofiɡar amnia
3S:SG:FEM ASSOC-snake like.that

She-lived with-the.snake like.that.

Mounting tension clauses are those which occur in a sequence of increasingly tense actions leading to a climax. An example is the following, again from 'The Ogre and His Neighbor'. This action is one in a series that leads to the deaths of the snake and the woman who had just given birth to his child:

(46) ϑ-uru ki-s až-oḥænžiæ
3A:SG:FEM ASSOC-3:SG:MASC/FEM-boy

She-birthed a-boy with-him.

Climax clauses are the culmination of a series of actions and situations. The following is a typical example, from 'Night Fears,' when the husband has reached the pinnacle of his fear before he realizes that his wife has played a trick on him:

(47) ʔntæ i-mmuϑ
1PRO:3S:SG:MASC 3S:SG:MASC-die

He died (or 'was scared to death').

Lessening tension clauses are the opposite of mounting tension in that actions and/or situations occur after a climax where 'tension' decreases and does not lead to a climax. Example (48), from 'Hammu the Trickster,' describes what happened after a sequence of actions leading to the deceit of Tamza. Hammu convinces her to feed him in order to fatten him up rather than eat him now in his current scrawny condition:

(48) wəṭṭə t-maṭṭara-f əθæl qawqaw
then 3A:SG:FEM-give-3IO:SG:MASC/FEM there peanuts

Then and there she-gave-him peanuts,

θələɬæysumkatælluz/ (818 ms)
θələɬ æysum kat ælluz
there bread more almonds

bread, [and] more almonds.

Denouement clauses reveal 'unknottings' in the four narratives, where after a climax there is a relaxation of tension accompanied by resolution. This is the case in example (6) from 'Night Fears'; tension is relaxed and the problem is solved when the husband and wife realize that the night burglar was merely their friend Hassan. They laugh at themselves for their fearful imagination:

(49) ɛɬ ɛqara žɛm təḥæz
still remember how.much laugh

[I] still remember how.much [we] laughed.

Coda clauses are the final clause of each story. They signify 'that was it' or 'that's what happened' or 'that's enough said'. Example (50) is the final clause of 'Tamza and the Wolf,' after the wolf escaped from her:

(50) ṣəfi
enough

[That is] enough.

Concerning episode juncture clauses, I labeled them as such if they were at the end or beginning of a series of actions leading to a climax, or if they were transition clauses, leading from one situation to another. Example (51), from 'The Ogre and His Neighbor,' occurs at the end of an episode and is transitional to the next episode in which the ogre is murdered.

(51) æɣwæ ɣ-roḥ
well/then 3S:SG:MASC-go

Then he-left [with them].

3.2.2.2 Storyline analysis

Storyline clauses were identified by looking at where actions and situation fit on a time line. If actions in the series of clauses of a specific narrative were chronological then I identified them as storyline. If a clause represented a break in the storyline (e.g., background information or previous event with some bearing on the present) then I did not mark it as storyline. Example (9) is from 'Hammu the Trickster' and concerns an event off the storyline in which he had built a pool of water inside his house. The fact that he had done this in the past saved his life when Tamza and her family tried to kill him by burning his house down:

(52) arannæ žaḥæ wɪd ləḥæram n-æḥdidænni
then Jeha son illegitimate GEN-Haddami

Then Jeha, the illegitimate son of Haddami,

tɣwæ ɣ-ggɪzi sædiž
AUX 3A:SG:MASC-make pool

before.had made [a] pool

u-wæmæn dir-usθ-anni n-təbarrak
GEN-water INES-middle-DEM:DIST:SG/PL GEN-house

of-water in-[the]middle of-[his]house.

3.2.2.3 Episode boundaries

Using notions from Longacre and Levinsohn (1978) and Givón (1990), I identified clauses at episode boundaries. These clauses indicate a break in thematic unity through a change in event, time, participant, and/or place. These are described in further detail below.

3.2.2.4 Topic and focus

I noted topic and focus phenomena (numbers 14-15; '14' corresponds to types of topic, and '15' to types of focus).

3.2.2.4.1 Topic

For identifying topic, I primarily tracked the overt subjects (or grammaticalized topics[17]) of clauses and noted (1) whether they were pre- or post-verbal and (2) whether they signaled a continuous topic or a shifted topic. Example (53) has a pre-verbal continuous topic, meaning that the topic (overt or explicit) of the previous clause is the same. In this case, 'he who lived as a child' (underlined) is the topic (from 'The Ogre and His Neighbor'):

(53) iwæ zid
well continue

Well, [he] continued.

nuwa ɡ-ddi š-oḥænžæ-θ
REL.PRO:3A:SG:MASC IRR-live CORR-child-PROX

The son of the ogre (lit. 'he who lived as a child')

hæ y-ɛnɬb di-rəbḥæ
behold 3A:SG:MASC-push ILL-sea

pushed him into the sea!

Example (54) has a post-verbal continuous topic (underlined). It is the beginning of an episode after Tamza returned to her house (from 'Hammu the Trickster'):

[17] The overwhelming majority of subjects in the corpus are grammaticalized topic/participants.

(54) ə= ʔntɛ lætæs əlɡwulæ-nni
well PRO:3S:SG:FEM return Tamza-DEM:DIST:SG/PL

Well, that Tamza returned.

komasɛ ʔəlɡulə twosit
start Tamza old.woman

Tamza [the] old.woman started.

Example (55) has pre-verbal shifted topic (from 'Hammu the Trickster'). The topic of the preceding clause was Hammu who was playing with Tamza's donkey.

(55) ɖ-akomaṣə-s i-rær
IRR-start-3IO:SG:MASC/FEM 3S:SG:MASC-play

He-would-start [to] play [with him].

ənə nttæθ æt-t-ɛqəb
then PRO:3S:SG:FEM IRR-3S:SG:FEM-return

Then she would.return.

The next is an example of post-verbal topic shift (from 'Tamza and the Wolf'). The topic of the previous clause was Tamza who was chasing the wolf. The topic has shifted to the wolf (underlined).

(56) idžɪn-ʔnharæ θamzə θ-æwzɪl
one-day Tamza 3S:SG:FEM-run

One-day, Tamza ran

xə-lʔmqitš əxo-x-ušɪθ x-ušɪθ
LOC-cat LOC-LOC-wolf LOC-wolf

after-[a]cat---, after-[a}wolf---, after-[a]wolf.

æywə sid i-ruhæ
well sir 3S:SG:MASC-go

Well sir, that-wolf

y-tt-æzzəl wuššən-ni
3S:SG:MASC-ITER-run wolf-DEM:DIST:SG/PL

would-run [from Tamza].

3.2.2.4.2 Focus

I identified two types of focus: presentational focus and contrastive focus. Presentational focus is the introduction of some participant for the first time; this type of focus is typically signaled by some indefinite marker. Example (57) introduces 'the neighbor' at the beginning of 'The Ogre and His Neighbor'. Grammatically, the focus noun is a case noun in the associative case, and is also prefixed by the indefinite affix *idžən* 'a' or 'one'.

(57) i-zəgə ʔækš-idžən-nɩwə
3S:SG:MASC ASSOC-one-neighbor

He-lived with-a-neighbor.

Contrastive focus in the four narratives concerns something happening contrary to expectations. This is signaled by a subject before the verb. Example (58) has the subject before the verb emphasizing that *Tamza* was fooled by the wolf even though the wolf's ruse was nonsense.

(58) ʔntæ ɬæ-s-i-niə
3PRO:SG:MASC IRR-CAUS-3A:SG:MASC-say

He (the wolf) made.himself-say,

wəɛd-i wəɛd-i
woe-GEN:1:SG:MASC/FEM woe-GEN:1:SG:MASC/FEM

"Woe [is] me! Woe [is] me!

ṭ-affæ ṭ-affæ
3A:SG:FEM-grab 3A:SG:FEM-grab

She grabbed-- she grabbed

zwar n-ɀggwærθ
root GEN-plant

a plant's root [not my tail]!"

θkmza θ-alaɣas bəsæḥ
Tamza 3A:SG:FEM-think truth

Tamza thought it.was.true.

3.2.2.5 Coding for discourse pragmatics

Each of the 211 clauses in the four narratives was coded for one or more of the discourse profile and pragmatic groups below. This coding was utilized in order to ascertain whether or not there is any correlation between discourse profile/pragmatics and marked word order/clause constituency.

factor group number and name	factor name	factor number/code
5- orientation:	presence	R
	absence	0
6- inciting incident:	presence	I
	absence	0
7- mounting tension:	presence	M
	absence	0
8- climax:	presence	C
9- lessening tension:	presence	L
	absence	0
10- denouement:	presence	D
	absence	0
11- coda:	presence	C
	absence	0
12- episode juncture:	presence	J
	absence	0
13- storyline:	presence	S

	absence	0
14- topic:	continuous/pre-verb	1
	continuous/post-verb	2
	shift/pre-verb	3
	shift/post-verb	4
	non-overt/not present	0
15- focus:	presentational/pre-v.	1
	presentational/post-v.	2
	contrastive/pre-verb	3
	contrastive/post-verb	4
	non-overt/not present	0

3.2.3 Clause structure

3.2.3.1 Identifying clause structure

I labeled all clause types and their contents. This entailed grouping constituents around main verbs and labeling the constituents, locating clause adverbials, preceding dependent clauses, case nouns, subjects, and objects.

3.2.3.2 Coding for clause structure

Factor group 1 represents clause types, such as V-only, VO, SVO, etc., in Tarifit narratives. Coding '1' is least complex, i.e., it has the fewest number of arguments (only a finite verb); coding '9' is the most complex in that it has the most arguments (subject, verb, and object) and has the marked word order SVO. Group 2 represents clauses that do or do not begin with a clause adverbial such as [illegible] 'well' or aranna 'then/finally'. Group 3 codes for a clause which has a preceding dependent clause, and group 4 records the presence or absence of a case noun.

factor group number and name	factor name	factor number/code
1- word order/ clause constituency:	verb-only clause	1

	verb + object	2
	verb + subject	3
	subject + pred. nom.	4
	verb + obj. + subj.	5
	verb + subj. + obj.	6
	object + verb	7
	subject + verb	8
	subject + verb +obj.	9
2- clause adverbial:	presence	A
	absence	0
3- preceding dependent cl.:	presence	D
	absence	0
4- case noun:	presence	P
	absence	0

It will be shown to what degree, if any, that these clause types conform to discourse pragmatic and prosodic correlates.

3.2.4 Prosody

3.2.4.1 Using *SoundEdit Pro*

It was necessary to use *SoundEdit Pro* to digitize the stories and segment them into clauses, because Signalyze would only accept SoundEdit Pro files for analysis. Thus, I was able to insert each clause of each text into my computer. I saved each clause's file in 'audio IFF' format since this was the most compatible with *Signalyze*.

With the file open in *SoundEdit Pro*, I began the process of dividing the text into clause-length segments. I chose for analysis only independent clauses that were non-reported speech. I continued in like manner until all 211 clauses of the four narratives were in separate files whose file names corresponded to the printed reference texts. Thus I could refer back to specific clauses as my analysis proceeded.

3.2.4.2 Using *Signalyze*

The purpose of *Signalyze* is to measure duration, fundamental frequency, and amplitude of speech strings. I opened *Signalyze* and imported the first clause in order to measure and record the factors described in section 3.2.4.3. A typical set of windows for a clause is shown in figure 7.

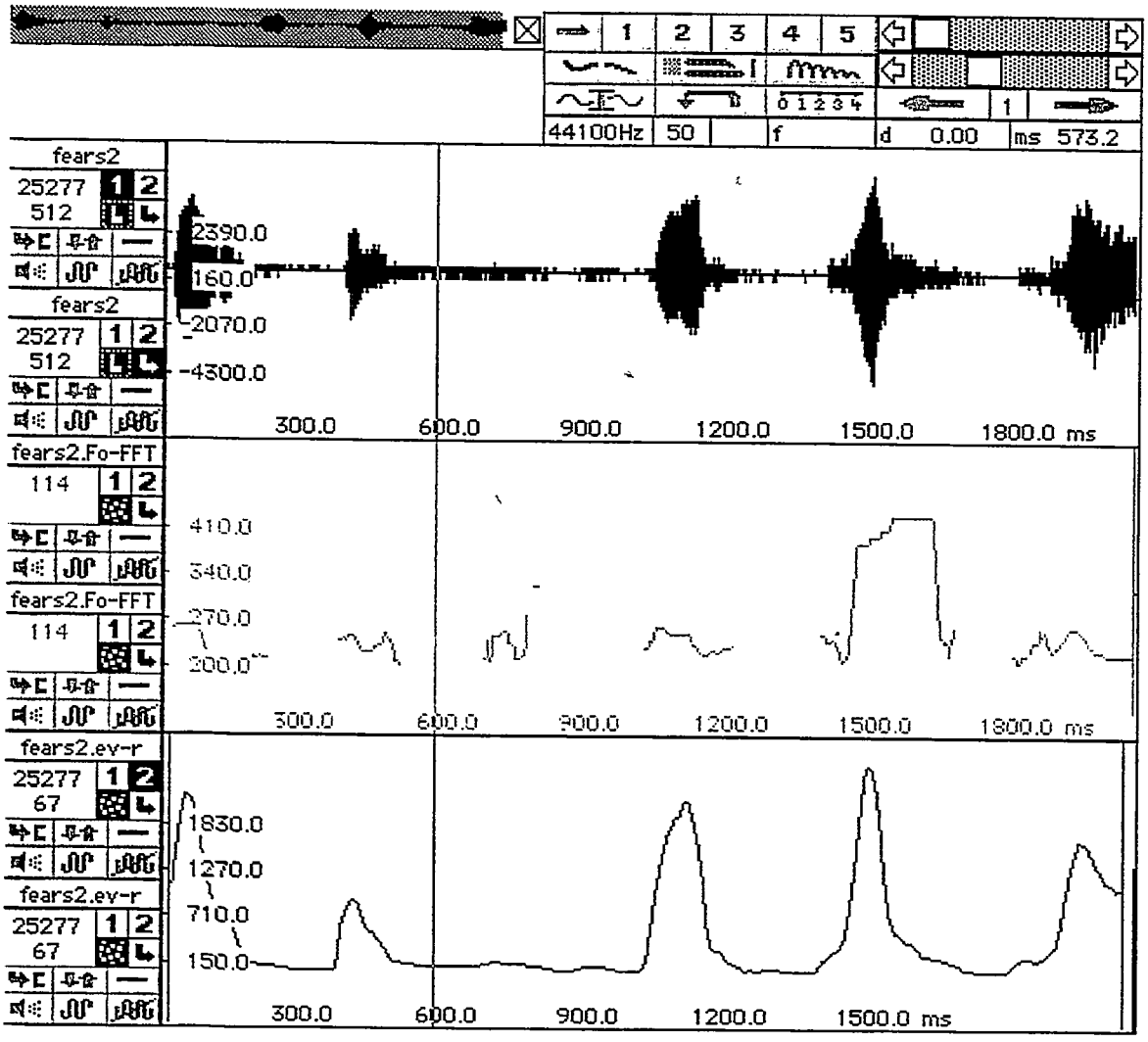

Figure 7. Signalyze window sound wave (top), Fø contour (middle), and amplitude wave (bottom). From clause 2 of 'Night Fears'.

In figure 7, the top window is the amplitude wave, the second is the Fø wave and the bottom one is the amplitude contour.

I recorded clause-initial and final Fø and the highest Fø of the clause. Then I noted the clause constituent which corresponded to the highest Fø in that particular clause. I also noted the location of the highest Fø: either before or after the verb. Then I recorded the lowest Fø. From subtracting the lowest Fø from the highest I arrived at the Fø span, and by dividing the span by 2 and adding the result to the Fø low I determined the clause Fø mean.

For Fø contours (or Fø direction -whether rising, falling, or level) at clause boundaries, I listened to each clause and also scrutinized the pitch directions. In these ways I determined whether an initial or final Fø was rising, falling, or level. In the example in figure 7, the first syllable peak is marked by a sharp amplitude crest; the Fø wave drops slightly after the syllable peak so I call this a clause-initial fall. The second syllable peak marked by the second and higher amplitude crest shows a gentle augmentation of Fø after syllable peak, so I call this a clause-final rise.

For determining Fø level at clause boundaries, I superimposed the four horizontal lines (figure 7) each of which signifies a level relative to the wave in the *Signalyze* window; the lowest level is '1,' the next '2,' and so on. In the Fø wave in figure 7 the clause begins at level 2 and ends at level 3. As one can see, the wave actually ends between levels 1 and 2. I 'counted' the levels on the initial and final syllable peaks because the peaks are the points of maximum sonority where a more reliable reading can be had. In addition, both syllables end with a voiceless consonant which brings down the Fø.

For determining initial and final amplitude, I placed the cursor at the point of highest amplitude in the first and last syllables. Also, much the same as for Fø highs, I looked for the highest amplitude wave. In figure 7 the highest wave is on the last syllable of *n-ellas* 'we-were.sleeping'. In this case, the clause is verb-only so the amplitude high can only be on the verb and cannot be before or after the verb. In determining the amplitude low, mean, span,

and clause-boundary levels (1-4), I used the identical method that was used in determining Fø low, mean, span, and boundary (1-4). The only difference is that amplitude 'contour' does not exist as it does with Fø since amplitude rises and falls sharply according to the high sonority of syllable peaks. Thus, rising, falling and level contours as in Fø cannot apply. Nevertheless, I did make rough approximations of the progression of amplitude clause-finally, and coded it as either rising, falling, or level, although this is subject to a large degree of subjectivity.

Clause duration, important for determining clause speed, was ascertained by selecting all and only the clause string and noting the resultant number in the upper right-hand box above the sound wave (figure 7). In this case, the clause duration is 967 milliseconds.

Clause length was ascertained simply by counting the number of morphemes in the clause.

In figure 7, the speed is calculated by doing a direct proportion where 3 (morphemes) is to 967 milliseconds as X is to 1000 milliseconds, or 3000 divided by 967 ms, which is 3.1 morphemes per second.

Pause length is calculated by selecting the area on the voice wave where there is little or no sound. This can be checked by selecting the area and re-playing that segment in order to be certain that no speech resides therein.

Finally, I determined whether or not the clause was an intonation unit (IU). If the clause began and ended with a pause, however slight, and if the initial Fø level was different from the preceding clause's Fø level and if the final Fø level was different from the following clause Fø level, then the clause was considered an intonation unit. However, sometimes there was no pause either before or after but the Fø levels changed; in such cases I called these IU's as well.

3.2.4.3 Coding of prosody

Factor groups 16-43 pertain to prosodic characteristics of clauses. Each group contains two to nine factors.

Factor groups 16-26 relate to fundamental frequencies (Fø). Groups 16-17 list Fø degrees for the purpose of determining if there is any relation between initial and ending Fø and discourse pragmatics and/or clause structure. Factor groups 18,19 and 20 code for the highest Fø, where it is found (either pre- or post-verb), and on what clause constituent it is found. Factor groups 21-26 are Fø low (which represents the lowest fundamental frequency in a given clause), Fø mean (between the highest and lowest Fø of a clause), the Fø span (the arithmetic difference between the highest and the lowest Fø) and three measures of intonational contour. The Fø low is divided into three low levels because these levels were predominant in the 211 clauses of the corpus. With these, I wanted to ascertain if there was any link among Fø contrast and pragmatics, profile, and/or marked word order/clause constituency. The first Fø group (24) is a subjective determination (mainly from listening) of the diminution, augmentation, or neither, of Fø at clause-initial and final positions. The second group (25) codes the initial and ending Fø according to 4 tone levels shown in a Signalyze window (see section 3.2.4.2 for details). The third (26) is the contour for clause-final position, whether falling, rising or level.

factor group number and name	factor name	factor number/code
16- initial Fø:	100-159	L(ow)
	160-179	M(edium)
	180-239	H(igh)
17- ending Fø:	100-159	L
	160-179	M
	180-239	H
18- Fø high:	140-159	L
	160-179	M
	180-239	H
19- clause constituent as Fø high:	object	Ø
	verb	V

	adverb	A
	subject	S
	conjunction	C
	case noun	P
	predicate nominal	N
	indeterminate	0
20- location Fø high:	pre-verb	1
	post-verb	2
	indeterminate	0
21- Fø low:	100-119	L (level 1)
	120-139	L (level 2)
	140-159	L (level 3)
	160-179	M
	180-219	H
22- Fø mean:	120-159	L
	160-179	M
	180-219	H

For the sake of analysis using *Excel* charting, Fø mean values above were multiplied by 30 so that resultant values would be in the 1000s and therefore comparable to amplitude.

factor group number and name	factor name	factor number/code
23- Fø span :	0-59	N(arrow)
	60-119	W(ide)
24- Fø contour clause-initially and finally:	start falling/end falling	1
	start falling/end level	2
	start falling/end rising	3
	start level/end level	4
	start level/end falling	5
	start level/end rising	6
	start rising/end rising	7
	start rising/end falling	8
	start rising/end level	9
25- Fø levels clause-initially and finally:	start level 1/end level 2	1
	start 2/end 3	
	start 1/end 3	
	start 3/end 2	2
	start 2/end 1	
	start 3/end 1	

	start 3/end 3	3
	start 2/end 2	4
	start 1/end 1	
	start 2/end 4	5
	start 4/end 4	6
	start 4/end 3	7
	start 4/end 2	8
	start 3/end 4	9
26- Fø contour: end:	rising	R
	falling	F
	level	L

Groups 27-37 apply to amplitude with numbers representing decibel root mean square sample values of clauses at specific points in the clause string, taken from the amplitude contour window in *Signalyze*. Each amplitude value represents a relative distance from a line signifying 0 (or no sound). Groups 29-31, as in Fø groups 18-20, are present in this research in order to identify prominences and to determine if one or both Fø and amplitude are present in a specific position in a given clause.

factor group number and name	factor name	factor number/code
27- initial amplitude:	0-3999	L
	4000-7999	H
28- ending amplitude:	0-3999	L
	4000-6999	H
29- amplitude high:	0-3999	L
	4000-7999	H
30- clause constituent as amplitude high: object		Ø
	verb	V
	adverb	A
	subject	S
	conjunction	C
	case noun	P
	predicate nominal	N
	indeterminate	0
31- location amplitude high:	pre-verb	1

	post-verb	2
	indeterminate	0
32- amplitude low:	0-999	L
	1000-1999	L
	2000-2999	L
	3000-3999	L
	4000-4999	H
33-amplitude mean:	0-3999	L
	4000-5999	H
34- amplitude span:	0-2999	N(arrow)
	3000-3999	M(edium)
	4000-6999	W(ide)
35- amplitude levels at clause boundaries:	start low/end low	1
	start low/end medium	2
	start low/end high	3
	start medium/end medium	4
	start medium/end low	5
	start medium/end high	6
	start high/end high	7
	start high/end low	8
	start high/end medium	9
36- amplitude levels at clause boundaries:	start level 2/end level 2	1
	start 2/end 1	2
	start 3/end 3	3
	start 3/end 2	4
	start 3/end 1	5
	start 1/end 1	6
	start 1/end 2	7
	start 1/end 3	8
	other	9
37- end amplitude contour: falling		F
	rising	R
	level	L

Clause duration is represented in milliseconds and extends from under one second in length to 9 seconds.

38- clause duration:	0-2999 (milliseconds)	S(hort)
	3000-8999	L(ong)

Group 39 lists the number of morphemes per clause, from 1 to 9 or 'short' to 10-18 or 'long'.

39- morphemes per clause:	1-9	S
	10-18	L

For *Excel* charting, group 39 numbers were multiplied by 500 so that clause length could be compared to, e.g., a 3000-level amplitude.

Group 40 is clause speed or 'morphemes spoken per second per clause,' ranging from 'slow' to 'fast'. In *Excel* charting, as in marked word order/clause constituency and clause length, the numbers below were modified so as to be comparable to other factors, in this instance by multiplying by 1000.

40- morphemes per second:	1-6	S(low)
	7-18	F(ast)

Groups 41 and 42 apply to the length of pause at clause initial and final position, measured in milliseconds. This factor group was chosen to see if there is any link among pauses at clause boundaries and, e.g., episode juncture and topic shift.

41- initial pause dur.:	0-499 (milliseconds)	S(hort)
	500-999	M(edium)
	1000-1999	L(ong)
42- end pause duration:	0-499 (milliseconds)	S(hort)
	500-999	M(edium)
	1000-2999	L(ong)

Factor group 43 identifies whether or not a clause is an intonation unit, for the purpose of comparing IU's to discourse profile and/or pragmatics.

43- clause=intonation unit?:	yes	U
	no	0

3.2.5 Coding of the four narratives

Factor group 44 indicates where a given clause and its factors comes from, for the reason that specific narratives may favor some prosodic, pragmatic, and/or grammatical aspects over other narratives.

44- which narrative?	Tamza and the Wolf	W
	Hammu the Trickster	H
	Night Fears	N
	The Ogre and His Neighbor	Ø

3.2.6 Variable rule analysis

Variable rules determine probability values, or predict occurrences in relation to random distribution, and determine which factor group or groups is the best predictor or 'model' of the dependent variable, i.e., the factor group to which other factor groups are being compared; (Sankoff 1988). Sankoff explains:

> In variable rule analysis we are given a sample of choice outcomes in various *contexts*, usually an exhaustive compilation from a corpus considered to be a sample of discourse from one or more speakers or texts. The essence of the analysis is an assessment of how the choice process is influenced by the different *factors* whose specific combinations define these contexts. While accepting that the choice cannot usually be predicted with certainty, it is still possible to ascertain what, if anything, favors a given alternative, and how strongly, and what disfavors it. (1988:3)

The result of variable rule application is factor group weights which reveal the degree to which factors in a factor group favor the dependent variable factor group's presence. In

other words, variable rules are useful when the analyst desires to determine the strength of correlation of two groups of factors. For example, suppose the analyst notices that high clause-initial amplitude seems to occur often with climax, juncture, and inciting incident clauses in a given language. To determine the strength of correlation, variable rules are ideal. The utilization of variable rule analysis starts with a factor group (the dependent variable) which will be compared to other factor groups (the explanatory variables). The analyst chooses these dependent variables because s/he suspects that one influences the other to some degree.

The following is some output from the variable rule program *Goldvarb*, where numbers representing strengths of correlation to high clause-initial amplitude are listed after Group numbers 5, 7, and 8. The hypothesis being tested here was: high initial amplitude accompanies types of discourse profile, especially clauses of 'high tension' such as inciting incident, climax, and episode juncture clauses.

Group # 5 -- 0: 0.594, I: 0.226
Group # 7 -- 0: 0.420, C: 0.909
Group # 8 -- J: 0.715, 0: 0.392

Figure 8. Partial output from Goldvarb : weightings of correlations with high clause-initial amplitude.

Group 5 is 'inciting incident clauses', group 7 is 'climax clauses', and group 8 is 'episode juncture clauses'. Group 5 records '0:0.594', which is a weighting of the strength of correlation to the *absence* of high initial amplitude. The closer this value is to .500, the weaker is the correlation; thus this correlation is rated 'very weak'. The next record is 'I: 0.226'. Since this value is less than .500, the correlation is an *inverse* one, i.e., rather than favoring the correlation, it disfavors it. The closer the value is to .000, the stronger the inverse correlation is. In this case, the inverse correlation is neither strong nor weak, but moderate. Thus we may say that inciting incident clauses moderately disfavor high initial amplitude. Group 7 has 0:0.420, showing a very weak inverse correlation to high amplitude, whereas C:0.909 shows a very strong correlation to high initial amplitude. In Group 8, juncture clauses are seen to

moderately favor high initial amplitude, and inversely (and weakly) disfavor its absence. The hypothesis was incorrect for inciting incident clauses, but correct for climax and juncture clauses. The program has rated the correlation of climax to high amplitude as very strong, and the correlation of juncture to high amplitude as moderate.

Preparation for variable rule analysis necessitated the reduction of all data to codes. *Goldvarb* is unable to process more than 9 factors in a factor group and works best if a factor group is dichotomous, such as 'A' for 'clause adverbial presence' and zero '0' for 'clause adverbial absence' as in factor group 2. *Goldvarb* analysis yielded lists of strengths of factor correlations with the dependent variable (figure 9).

Run #19, 4 cells:
Convergence at Iteration 5
Input 0.208 **STEP UP RUN**
Group #4 -- 2: 0.291, 0: 0.549
Group #6 -- 0: 0.571, I: 0.285
Log likelihood = -107.375 Significance = 0.035

Run #143, 4 cells:
Convergence at Iteration 5
Input 0.208 **STEP DOWN RUN**
Group #4 -- 2: 0.291, 0: 0.549
Group #6 -- 0: 0.571, I: 0.285
Log likelihood = -107.375 Significance = 0.149

Groups eliminated while stepping down: 2 3 14 12 11 5 9 7 1 13 10 8
Best stepping up run: #19
Best stepping down run: #143

Execution time: 39 min, 27.9 sec.

Figure 9. Two sets of results from one Goldvarb run (with Fø low as dependent variable compared to clause structure and discourse pragmatics).

I imported each file into *Goldvarb*. First, I proceeded to make each coded factor, if applicable, of each factor group the dependent variable and all the rest as explanatory variables. Thus, for example, with marked word order/clause constituency I commenced with '1' (or verb-only clauses) and compared them to discourse profile/pragmatics and prosodic factors of

clauses; these were the explanatory variables. I continued in this fashion until I had processed all levels of marked word order/clause constituency. After re-coding, I loaded the list and the program indicated the number of correspondences to the dependent variable. This list included 'knockouts'[18] (figure 10).

[18] A 'knockout' is a factor that completely co-occurs with the dependent variable or is completely absent. For example, if the dependent variable were verb-only clauses and there were no verb-only clauses that were found in orientation, then orientation would be a 'knockout' and the 'knockout' would need to be deleted, or combined with other factor groups, in order for *Goldvarb* to work.

CELL CREATION 1/30/96 5:14 AM .....

Name of token file: NF.ASCI.GOLDVARB.Susan's order

Name of condition file: Untitled.Cnd

((1)(16)(17)(18)(19)(20)(21)(22)(23))

Number of cells: 34

Application value(s): 1

Total no. of factors: 36

Group		Apps	Non-apps	Total	%	
1 (16)						
2	N	12	7	19	49	
	%	63	37			
3	N	0	13	13	33	
	%	0	100			* knockout* (= no V-only
4	N	1	2	3	8	cl. with
	%	33	67			level 3 Fø
5	N	0	3	3	3	beginning)
	%		100			* knockout* (= no V-
7	N	0	1	1	3	only cl.with
						level 5 Fø
						beginning)
	%	0	100			* knockout* (= no V-only
Total	N	13	26	39		cl. with level 7
	%	33	67			Fø begin.)
2 (17)						
2	N	9	16	25	64	
	%	36	64			
3	N	3	4	7	18	
	%	43	57			
4	N	0	3	3	8	
	%	0	100			* knockout*
5	N	1	1	2	5	(= no V-only cl.
	%	50	50			with level 4 Fø
6	N	0	2	2	5	ending)
	%	0	100			* knockout*
						(= no V-only cl.
						with level 6 Fø
						ending)

Figure 10. V-only clauses compared to clause-initial and clause-final Fø levels.

Knockouts were significant because they indicated where there was complete correspondence, e.g., all 20 verb-only clauses were on the low end of the Fø mean scale, or complete lack of

correspondence between the dependent and explanatory variables. I noted these 'knockouts' on my log sheets for later interpretation of trends (Figure 11).[19]

Date: _____

Depend. variable -----> Explan. variables:_____ -----> _____

Best step up run:
Best step down run:

factor groups to delete: _____

	Goldvarb factor group number	Analyst's factor group number	
re-coding:	_____	(_____)	change: _____ to _____
	_____	(_____)	change: _____ to _____
	_____	(_____)	change: _____ to _____
	_____	(_____)	change: _____ to _____
	_____	(_____)	change: _____ to _____

Step up run results:

Step down run results:

Figure 11. Record-keeping log for *Goldvarb*.

Once knockouts were eliminated through the second re-coding, the list was re-loaded and analysis began by selecting 'binomial up-down' analysis. The analysis at this point was done by the computer and took from several minutes to several hours depending upon the strength of relationship between factors, the number of factor groups included, and the number

[19] Careful record keeping is critical at this stage. Otherwise, the analyst may not remember what s/he has done and may duplicate work needlessly.

of clauses. Ideally, the desired result is two sets of determinations of strength of correlation between factor groups, such as in figure 9. The first part is from the 'step up' process and the second from the 'step down'. These two sets of numerical weights of correlation should be identical except that the significance figure (lower right-hand corner) will vary. If the two sets of results are not identical, then there is some interaction between factor groups. A binomial one-level analysis is necessary to pinpoint which factor groups are interacting so that the program can arrive at consistent results; this analysis gives an error rating for each cell of the factor groups in a given run. Once this is done, the interacting factor group can be eliminated in re-coding and the analysis repeated.[20]

If the program chooses factor group(s) with the strongest correlation to the dependent variable, as in figure 9, factor group strengths are noted after factor group numbers. The closer the number rating is to 1.00, the stronger the correlation. Conversely, the closer the rating is to 0.00, the weaker the correlation. Also, the closer to 0.50, the more random is the association. For example, factor group 4 in run 19 shows an aversion or inverse correlation to the presence of case nouns in clause-initial low Fø clauses. This is shown by the low rating of .291. I recorded these weightings on a chart like table 9.

[20] The program assigns a sequence number rather than the analyst's group number for factor groups. Confusion is minimized by always referring to the re-code printout immediately preceding each list of correlations which notes the program-specific factor group number alongside the analysts factor group number (in parentheses; see Figure 9).

Table 9. Partial tally sheet showing number of clause instances per factor group and corresponding weightings

	Total Clauses	16-Fo begin.					
	ea. pr	1	2	3	4	5	6	7
		3	32	45	76	42	9	4
5-Orient.	29		8	4	16	1		
		<-----| .453---->		.783-	.183-		
6-Inciting In.	50		7	6	18	13	4	2
7-Mount. Tens	97	3	16	19	28	25	6	
		<-----| .566---->		.362-	<----	.597---->	
8-Climax	26		2	5	9	8		2
9-Less. Tens.	21		6	6	7	1	1	
10-Denoue.	8		1	2	5			
12-Epis. Junc	68	1	7	16	33	8		3
		<-----| .461---->		.651-	<---	.346---->	
13-Storyline	169	3	22	35	59	40	7	3
		<-----| .686---->		.260-	<---	.575---->	
14-1-Cont.To	17		5	5	4	1		2
14-2-Cont.To	5		1	2	1	1		
14-3-Shift.Te	28	1	5	8	9	3	2	
14-4-Shift.Te	19	1	1	3	6	7		1

16
.783

weighting indicating moderate/ strong correlation between orientation and level 4 initial Fo

number of clauses with level 4 initial Fo

For example, the number of orientation clauses with level 4 clause-initial Fø is '16,' as seen in the top cell of the two cells highlighted in table 9. The cell underneath records the weighting (if *Goldvarb* determined that there was one) of correlation to orientation clauses. With this table, trends can be seen as well as individual weights. In table 9, there are 16 out of a total of 29 orientation clauses that have level 4 initial Fø. This is a significant trend since over 50% have this connection, and the weighting of .783 confirms this trend.

I ran *Goldvarb* with all dependent variables for each story and then for all four of the stories together. I grouped the dependent variables into three categories: (1) marked word order/clause constituency as the dependent variables, and discourse profile/pragmatics plus prosodic factors as explanatory variables, (2) discourse profile/pragmatics as the dependent variables, and marked word order/clause constituency plus prosodic factors as the explanatory

variables, and finally (3) prosodic factors as the dependent variables, and marked word order/clause constituency plus discourse pragmatics as the dependent variables (figure 3). The result was 15 tables: three for each narrative and three for all the narratives combined.

3.2.7 Using *Excel*

The next task was to document all 44 clause factors on a table using the spreadsheet program *Excel* for the purpose of initial investigation of relations between discourse pragmatics and prosody.

With all 44 factors in each of the factor groups recorded for the 211 clauses, I did preliminary analyses with *Excel* charting to determine if there were any correlations among marked word order/clause constituency, discourse profile/pragmatics, Fø mean, amplitude mean, clause length and speed, coded as indicated in section 3.2.4.3. I chose these factor groups over the others because they more generally 'represent' a given clause, than, e.g., clause-initial Fø. I expected to find some degree of correlation of prosody with discourse profile and pragmatics. The results were charted in line graphs (see, e.g., figure 12). Then I noted with vertical solid and dotted lines where 4-5 wave crests[21] and troughs[22] coincided respectively (figures 12-15, section 4.4). These indicated some correlations where factor groups would sometimes 'work together', for example, in marking climax clauses.

3.3 Terminology for discussing results

Throughout chapter 4, I use the terms 'very strong,' 'strong,' 'moderate,' 'weak,' and 'very weak' in referring to positive and inverse weights of correlations (numbers ranging

---

[21] 'Crests' are points on the chart where the intensity of a factor stops increasing and starts decreasing.

[22] 'Troughs' are the converse of 'crests'. They are the points on the chart where the intensity of a factor stops decreasing and begins to increase.

from .000-.999) as found in tables 10 through 82. These are keyed according to the following list:

for positive correlations:	.900-.999	very strong correlation
	.800-.899	strong
	.700-.799	moderate
	.600-699	weak
	.500-.599	very weak
for inverse correlations:	.000-.099	very strong correlation
	.100-.199	strong
	.200-.299	moderate
	.300-.399	weak
	.400-.499	very weak

All examples illustrating correlations in chapter 4 are taken from the four narratives (some examples are used more than once), and are transcribed phonetically according to the Du Bois et al., (1993) system. Thus, unlike examples in chapters 1-3, the first line of text in each example includes special prosodic coding.

CHAPTER IV

RESULTS

4.0 Introduction

With the theoretical and methodological foundations in chapter 2 and procedures in chapter 3 in mind, we now turn to the presentation of specific results. Sections 4.1-4.3 present *Goldvarb* results pertaining to discourse pragmatics, clause structure, and prosody, respectively. Section 4.4 presents results from analyses utilizing the *Excel* charting as well as *Goldvarb* for examining unique features of each narrative.

Each section contains three parts: (1) a brief presentation and discussion of results, (2) a table of statistical correlations (or trends), and (3) illustrative examples. After each table caption is a number in parentheses signifying the number of clauses which contain the factor illustrated. In some cases where correlations were weak, I have not included examples and/or a table.

For the benefit of readers interested in a shorter presentation of these results, the most significant findings are highlighted at the beginning of each major section. For a broad view of all the following results and their implications, see chapter 5.

4.1 Discourse pragmatics

In this section I discuss results concerning discourse pragmatics (topic/focus and profile). This will aid in answering the question: does clause structure and/or prosody accompany elements of discourse pragmatics in any significant way? The most significant finding is that topic, focus, climax, and storyline are accompanied by prominences of amplitude. Another is that orientation clauses have low Fø and amplitude compared to other clauses in other sections of narrative. Finally, episode juncture clauses accompany long initial

pauses and the presence of a clause-initial clause adverbial. These results suggest that heightened amplitude is a 'pragmatics underliner' in narrative emphasis and foregrounding. Conversely, non-heightened amplitude, along with Fø, occurs with backgrounding. In addition, clause adverbials, along with pausing, signal episode juncture.

4.1.1 Profile

Among discourse profile types, climax clauses have the strongest correlations with clause structure and prosody, followed by orientation, lessening tension, inciting incident, mounting tension, and denouement/coda. Climax in Tarifit oral narrative strongly correlates with high amplitude levels and specific amplitude levels at clause boundaries. Orientation moderately correlates with a convergence of clause constituents and the highest Fø in a given clause. Lessening tension has moderate to weak correlations with Fø lows. Inciting incident has weak correlations with Fø and amplitude levels. Mounting tension has even weaker correlations with Fø and amplitude levels, with a slight leaning toward VO clauses. Denouement/coda clauses have no significant correlations other than that they tend to be slowly pronounced, low in Fø, and to be comprises of intonation units.

4.1.1.1 Orientation clauses

Significant in this section is that orientation clauses are marked differently from other clauses. For one, they favor the use of clause adverbials and predicate nominals, and underline them with heightened Fø.

Table 10 shows positive and inverse correlations with orientation clauses. The strongest correlation is with predicate nominal clauses where the predicate nominal is the Fø high. The next strongest correlation is with clauses with the clause adverbial as the Fø high. There are also moderate correlations with low Fø clause-finally, mid-level Fø clause-initially,

case nouns as the Fø high, and the presence of a clause adverbial. There is a weak correlation of orientation clauses to objects that are the Fø high in a given clause.

Table 10. Correlations of discourse profile: orientation clauses (N=29)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
disc. prag	**ori-ent.**	initial Fø	mid-level Fø initial	.783	high Fø initial	.183
					low Fø initial	.453
		final Fø	low Fø final	.785	mid-level Fø final	.240
					high Fø final	.388
		ident. Fø high	pred.nom=Fø high	.893	verb=Fø high	.450
			adv.=Fø high	.796		
			case noun=Fø high	.711		
			object=Fø high	.606		
cl. struc	cl. adv.	orientation cl.	**orientation cl.**	.704	non-orientation	.466
		epis. junc. cl.	episode juncture cl.	.711	non-episode junct.	.394

There is a strong inverse correlation between orientation clauses and high Fø clause-initially, a moderate inverse correlation with a mid-level Fø end, and weak correlations with a verb as the Fø high and a low Fø clause-initially.

These correlations are reasonable given that one would expect an orientation clause to be background information laying the foundation upon which the narrative is based. Predicate nominal clauses are primarily descriptive and would naturally be found in an orientation section, along with clause adverbials such as 'one day' or 'next'.

Overall, in orientation clauses there is a strong correlation of fundamental frequency highs with predicate nominals, adverbs, case nouns and objects. In the examples below, one can see the orientation nature of clauses that contain such elements. Example clause (59), from the 'Hammu the Trickster' narrative, gives the name of a main character. It has the predicate nominal as the Fø high (underlined), mid-level initial Fø and low final Fø. Clause (60) gives some background information for the following events in the 'Night Fears' narrative. It has a

case noun as the Fø high, low initial Fø, low final Fø and the presence of a clause adverbial (clause initial):

(Fø 164) (PN: Fø 167) (Fø 108)

(59) (0 ms) džammasahammulharaymi\ (1110 ms)
d-žamma-s aḥammu lḥaraymi
be-name-GEN:SG:MASC/FEM Hammu Laharaimi

His-name-was Hammu Laharaimi.

(Fø 252) (C: Fø 355) (Fø 247)

(60) (0 ms) ižumar/ ... sidžiriθ/ ... naṭṭas_ (525 ms)
iž-umar si-džiriθ n-aṭṭas
one-time TEMP-night 3S:PLUR:MASC/FEM-sleep

One-time at-night we-were.sleeping.

4.1.1.2 Inciting incident

The primary distinguishing characteristic, albeit a weak one, of inciting incident clauses is a lessening of amplitude at the end of such clauses.

Table 11 lists factors which correlate with inciting incident clauses. Positive correlations vary from weak (medium-end amplitude and falling Fø-end amplitude) to very weak (high Fø, low end of amplitude high, and low end of Fø high).

Inverse correlations are stronger: mid-Fø on Fø high scale, and rising amplitude clause-finally. A weak inverse correlation is with the high level on the amplitude high scale, and a very weak inverse correlation with an intonation unit when it is a clause.

Generally, the inciting incident clause is a moderate to very weak correlation with a combination of Fø and amplitude levels. Fø and amplitude in this instance do not underscore clause constituents such as adverbs, objects, case nouns and predicate nominals as was the case with orientation clauses. This suggests that the saliency of inciting incident clauses (as measured by Fø and amplitude) is weak.

Table 11. Correlations of discourse profile: inciting incident clauses (N=50)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Disc. Prag	Incit. Incid	Fø high	high on Fø high scale	.585	medium Fø-Fø high	.275
			low Fø high	.512		
		Amp. high	low amp. high	.555	high on amp. high scale	.305
		amp. final	medium-clause-final amp.	.602	rising amp. end	.287
			falling: clause-final amp.	.602		
		IU	clause not =intonation unit	.613	clause=intonation unit	.425

Example (61) is from the 'The Ogre and His Neighbor' where the witch incites her son against the snake by living with the snake. The clause has falling final amplitude, Fø high on the high scale, and low amplitude on the low scale:

(61) (0 ms) θɛšɪkofiɡaramia\ (H) (850 ms) Fø: 255
θ-ɛši k-ofiɡar amnia Amplitude: 2223
3S:SG:FEM ASSOC-snake like.that

She-lived with-the.snake like.that.

4.1.1.3 Mounting tension

Mounting tension clauses slightly favor little or no Fø and amplitude contrast, thus sounding monotonous with little variation in level of amplitude.

Table 12 shows correlations with mounting tension clauses. These correlations are even weaker than correlations with inciting incident clauses in table 11. There are very weak correlations with high Fø clause-initial, VO clauses, low Fø clause-initial, low on amplitude high scale, and narrow Fø span.

There are moderate to weak inverse correlations with wide Fø span, high amplitude on the high scale, and medium Fø clause-initial. Prosodic saliency of mounting tension clauses in Tarifit appears to be less than that of inciting incident clauses.

Table 12. Correlations of discourse profile: mounting tension clauses (N=97)

Dep. Var.	App. Val.	Significant Factor Group	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Disc. Prag	M. Ten.	Fø initial	high Fø initial	.597	medium Fø initial	.362
			low Fø initial	.566		
		Fø span	narrow Fø span	.536	wide Fø span	.273
		amp. high scale	low on amp. high scale	.556	high on amp. high scale	.302
Cl. Struc	VO	mount. tens.	**mount. tens.**	.591	non-mount. tens.	.422

Example (62) is from the 'The Ogre and His Neighbor' and is one of a series of events leading to a double-murder. It has an initial high Fø, VO, low on the amplitude high scale and narrow Fø span:

(Fø 215)

(62) (850 ms) θurukisažoḥænžiæ/ (H) (807 ms) ampl: 2522
θ-uru ki-s až-oḥænžiæ Fø span: 48
3A:SG:FEM ASSOC-3:SG:MASC/FEM-boy

She-birthed a-boy with-him.

4.1.1.4 Climax

Climax clauses are characterized by high amplitude, more so than with any other profile type. The number of strong correspondences suggest that this clause type is multiply emphasized by the speaker.

Factors that correlate with narrative climax are shown in table 13. These correlations in table 13 are the strongest thus far, and all have to do with amplitude. Correlation of climax with a high amplitude clause-initially is very strong. On the relative scale, starting mid/high

amplitude and ending high/low are strong correlations. Also on the relative scale, moderate correlations are found with starting high/low amplitude and ending high/mid. Last, there is a moderate correlation with high amplitude on the high scale.

Inverse correlations mirror the positive.

Table 13. Correlations of discourse profile: climax clauses (N=26)

Dep. Var.	App. Val.	Significant Factor Group	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Disc. Prag	Clim	amp. initial	high amp. initial	.967	low initial amp.	.403
		amp. levels	start mid/end high amp.	.861	start high/end low amp.	.161
			start mid/end low amp.	.817	start high/end medium amp.	.263
			start high/end high amp.	.790	start mid/end medium amp.	.315
			start low/end medium amp.	.734		

These data suggest that climax is strongly linked to levels of amplitude at clause boundaries and to the clause generally, making climax quite distinct from orientation, inciting incident, and mounting tension clauses.

Example (63) is from the 'Night Fears' narrative and is the climax of the narrative: the point where the husband reaches the pinnacle of his fear. It is a clause with high initial amplitude, amplitude contour start mid/end low, and high amplitude on the high scale:

(63) (ampl.10186) (ampl.: 15408)
(433 ms) ʔntæ=/...<LO immu=ə LO>\ (313 ms) ampl. : ML
ʔntæ i-mmuə
1PRO:3S:SG:MASC 3S:SG:MASC-die

He died (or 'was scared to death').

Example (64) is the final climax in the 'The Ogre and His Neighbor' when, after multiple attempts to kill him, the Ogre is finally drowned. It, too, exhibits high initial amplitude, the amplitude contour: start mid/end high, and is high amplitude on the high scale:

(ampl. 2047) (high ampl. 2435)

(64) (0 ms) zɪlyəmæyrəbḥæym/ (H) (896 ms) ampl.: MH

zɪl-y-əmæy rəbḥæym

the.one-3A:SG:MASC-carry cattle

He carried cattle (i.e., 'he was heavy').

4.1.1.5 Lessening tension

The main significant fact concerning lessening tension clauses is that they are found with low levels of Fø, suggesting that they are less prosodically salient than other clauses found in other sections of discourse.

Table 14 presents the factors that correlate with lessening tension clauses. All relate, moderate to weak, to levels 1-3 of Fø lows.

The only inverse correlation is moderately with level 4 Fø low, and is roughly the converse of the positive correlations.

Lessening tension clauses are primarily associated with low levels of Fø and thus unlike the other types of profile discussed so far.

Table 14. Correlations of discourse profile: lessening tension clauses (N=21)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Disc. Prag	Less Tens	Fø low	level 1 Fø low	.754	level 4 Fø low	.285
			level 3 Fø low	.663		
			level 2 Fø low	.632		

Example (65) is from the 'Tamza and the Wolf' narrative and occurs at the point where Tamza believes the lie of the wolf (who then is able to escape).

(65) (1807 ms)ϑəmzaϑəlaɡəsbəsæḥ/ (1865 ms) level 1 Fø low: 118
ϑkmza ϑ-əlaɡəs bəsæḥ
Tamza 3A:SG:FEM-think truth

Tamza thought it.was.true.

Similarly, in example (66), from 'Hammu the Trickster,' Tamza is tricked into feeding Hammu after he is captured by Tamza.

(66) (152 ms) wəṭṭətmaṭṭərəf...əϑælqawqaw
wəṭṭə t-maṭṭara-f əϑæl qawqaw
then 3A:SG:FEM-give-3IO:SG:MASC/FEM there peanuts

Then and there she-gave-him peanuts,

ϑələɬæysumkətælluz/ (818 ms) level 1 Fø low: 118
ϑələɬ æysum kət ælluz
there bread more almonds

bread, [and] more almonds.

4.1.1.6 Denouement/coda

There are too few coda clauses to analyze by means of Goldvarb (four examples), and no statistically significant correlations with denouement clauses. Of the eight denouement clauses, five have level-4 clause-initial Fø, seven have an indeterminate location for Fø and amplitude highs, five have falling Fø clause-finally, five are at level-1 amplitude low, five have level-2 speed, and five are intonation units.

4.1.2 Storyline

Storyline clauses contain a mixture of prosodic and grammatical attributes that are also typical of other clause types. Thus, no definitive characteristic is prominent, which is reasonable given that storyline clauses are found in most profile types.

Table 15 indicates correlations among storyline clauses and grammatical and prosodic factors. As table 15 shows, storyline clauses correlate strongly with the pre-V location of the

Fø high, with high clause-initial amplitude, and with level 1 on the Fø low scale. All of these correlations are reminiscent of correlations with types of discourse profile discussed earlier, especially climax, mounting and lessening tension. High initial Fø and amplitude also correlate with topic and focus, as we shall see in sections 4.1.4.1 and 4.1.4.2 below. This is to be expected, as such clauses will typically be on the narrative storyline.

Storyline clauses also inversely and strongly correlate with a predicate nominal as the Fø high, a case noun as the Fø high, a wide Fø span, with the 'Night Fears' narrative, and with a clause adverbial as the Fø high. Recall that the predicate nominal as an Fø high is a correlation factor of orientation clauses. The avoidance of case nouns also suggests a non-orientation slant of storyline clauses. The preference for a non-wide Fø span suggests a relatively near-monotone Fø contour in a storyline clause where there is not a significant difference between Fø highs and lows. Concerning storyline in relation to the 'Night Fears' narrative, results indicate a lesser weighting for storyline clauses in this narrative, presumably because there is some commentary mixed in with storyline clauses. Also notice the moderate correlation with 'The Ogre and His Neighbor'. This suggests that clauses from this narrative more strongly favor storyline than those of other stories. In a sense, then, it is the converse to 'Night Fears'; there is little commentary and flashback.

Table 15. Correlations of storyline clauses (N=169)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Disc. Prag	Stor-line	Fø initial	low Fø initial	.686	medium Fø initial	.260
			high initial Fø	.575		
		ident. Fø high	verb=Fø high	.796	pred. nom.=Fø high	.017
					case noun=Fø high	.043
					adverb=Fø high	.107
					object=Fø high	.249
					subject=Fø high	.414
		loc. Fø high	loc. of Fø High: pre-V	.858	indeter. loc. of Fø high	.241
			loc. of Fø high: post-V	.788		
		Fø low	level 1 on Fø low scale	.809	level 3 on Fø low scale	.234
			level 4 on Fø low scale	.617	level 2 on Fø low scale	.437
		Fø span	narrow Fø span	.605	wide Fø span	.052
		initial amp.	high initial amp.	.814	low initial amp.	.457
		which narr.?	'The Ogre & His Neighbor'	.788	'Night Fears' narr.	.081
			'Tamza and the Wolf' narr.	.541	'Hammu the Trickster'narr.	.374

Example (67) is a storyline clause from the 'Hammu the Trickster' narrative in which the witch kills a beggar in order to further her own grisly purposes. It is an AVO[23] clause and has a pre-V Fø high, high initial amplitude, level 1 Fø low, and low initial Fø (relative to other clauses):

(Fø 140: 1st syll) (ampl. 4217)
(Fø 172: 2nd syll)

(67) (789 ms) æywatæktaga... æmaggæy Fø low: 108

æywa t-æktaga æmaggæy
well/then 3A:SG:FEM-kill same

Well, she-killed

[23] This is a clause adverbial+verb+object clause.

šibaninnæymɘarunni/ (778 ms)
šibani-nnæy mɘaru-nni
old.man-DEM:DIST:SG/PL beggar-DEM:DIST:SG/PL

that-old.beggar.

Example (68) is from 'Night Fears,' and describes the husband's unconcerned behavior in the face of danger. It is an SV clause and has pre-V Fø high, high initial amplitude, high initial Fø and narrow Fø span:

(ampl. 16278)
(Fø 732)

(68) (1370 ms) <SM ʔntəxatrankɪrɪṭṭəs/ SM> (637 ms)
ʔntə xa trankɪr i-ṭṭəs Fø span: 394
PRO:SG:MASC how calm 3S:SG:MASC

How calmly he was.sleeping!

4.1.3 Episode juncture

Clauses found at episode boundaries are characterized by a long initial pause and clause adverbial. These are logical since pausing and adverbials give the speaker and hearer processing time between episodes or paragraphs.

Table 16 lists a strong correlation with a long clause-initial pause, along with a moderate correlation with the presence of a clause adverbial, and weak correlations with medium Fø clause-initially and medium clause-initial pause. Thus initial pause length and a clause adverbial characterize this clause type. Inverse correlations are weak.

Table 16. Correlations of episode juncture clauses (N=68)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Disc. Prag	epis. junc.	initial Fø	medium Fø initial	.651	high Fø initial	.346
					low Fø initial	.461
		initial pause	long initial pause	.814	short initial pause	.365
			medium initial pause	.643		
Cl. Struc	cl. adv.	episode junc.	**episode juncture**	.711	not episode junct.	.394
		orientation cl.	orientation cl.	.704	not orientation	.466

Episode juncture clauses are unique compared to other discourse profile types in that significant correlations with Fø and/or amplitude are weak or absent.

The examples below are found at episode junctures. Example (69) is from the 'Hammu the Trickster' narrative and concerns what happened just after Tamza decided to kill and eat Hammu. It is the episode when Tamza plans how to capture Hammu, and kills the beggar to further her aims. It exemplifies a long initial pause, a clause adverbial and medium initial Fø of 172 Hz:

(Fø 172)

(69) (1568 ms) arannæyžənhartædisižwæ=
arannæ yža-nhar tædis i-žwæ
then one-day beggar 3S:SG:MASC-be.poor

Then one-day [a] poor beggar

ižumənæθru\ (158 ms)
i-žumənæθru
3S:SG:MASC-come

came.

Example (70) occurs at the end of an episode in the 'The Ogre and His Neighbor' when the Ogre accompanies his son to the sea shore. It has a long initial pause, a clause adverbial, and a medium initial Fø of 160 Hz:

(Fø 160 Hz)

(70) (1422 ms) æywæyroḥ\ (H) (674 ms)
æywæ y-roḥ
well/then 3S:SG:MASC-go

Then he-left [with them].

4.1.4 Pragmatics

The most significant results regarding links among pragmatics and clause structure and prosody are that both topic and focus are primarily delineated by word order and heightened amplitude. Clauses in which focus is found, in contrast to topic, have a long initial pause and greater amplitude contrast.

4.1.4.1 Topic

Results in this section address the question: is topic linked in any significant way to clause structure and /or prosody? Generally, the strongest link is to heightened amplitude.

Topic in the four narratives has more, and stronger, correlations if it is pre-V. This is shown in tables 17-24. These pre-V topics are also indicated by amplitude more than by Fø, as shown in part by the prevalence of subject as the amplitude high pre-verbally as opposed to the subject as the Fø high post-V. Post-V topics exhibit the reverse pattern, which is not surprising seeing that Fø is more in focus post-V than pre-V. Also, notice the absence of any correlation between topic and discourse profile, episode juncture, or storyline. This shows that topic alone, separated from word order, is not specialized for any single discourse section in Tarifit narrative.

4.1.4.1.1 Continuous topic: pre-V

Interconnections to pre-verbal continuous topic were heightened amplitude, and the curious restriction where continuous topic and clause adverbials never occur together before the verb.

Table 17 reveals very strong positive correlations with SV, SVO, and long clauses.[24] There are also strong correlations with the subject as the amplitude high, with a low on the Fø low scale, and with a high on the amplitude high scale. There are moderate correlations with a case noun as the amplitude high, and weak to very weak correlations with the presence of a case noun and object as the amplitude high.

Moderate inverse correlations are with mid-level Fø on the high scale. Weak inverse correlations are with the verb as the amplitude high, and to low amplitude on the high scale, with a very weak inverse correlation with short clauses.

Not surprisingly, pre-V continuous topic favors the subject before the verb as well as greater clause length (since the presence of topic implies a clause longer than the most common V-only clause). No continuous topic pre-V clause has a clause adverbial, which shows that there is complementary distribution of the two, and implies some restriction.

[24] The strong correlation between pre-V topic and pre-V subject is to be expected since nearly all subjects are grammaticalized topic/participants.

Table 17. Correlations of clauses with pre-V continuous topic (N=17)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Disc. Prag	cont. topic preV	Fø high	low on Fø high scale	.857	medium on Fø high scale	.223
		amp. high	high on amp. high scale	.831	low on amp. high scale	.394
		ident. amp. hi	case noun=amp. high	.752	verb=amp. high	.386
			subject=amp. high	.876		
			object=amp. high	.537		
		morph/cl.	long clause	.905	short clause	.460
Cl. Struc	SV	topic	**cont.topic:pre-V**	.969	not pre-V topic	.255
			shifted topic: pre-V	.986		
Cl. Struc	SVO	topic	**cont.topic:pre-V**	.946	not topic	.336
			shifted topic: pre-V	.869		
			cont.topic:post-V	.832		
Cl. Struc	case noun	topic	**cont.topic:pre-V**	.666	not pre-V topic	.488
			shifted topic: pre-V	.694		

Some of these correlations are illustrated in the examples below. Example (71) is from the 'The Ogre and His Neighbor'. The subject is 'they' found pre-V and is the same topic found in the previous clause of the story. This clause appears in the final episode where the ogre, his son and others travel to the sea shore. It is an SV clause where the subject signals continuing topic; it is long, has the subject as the amplitude high, is medium on the Fø low scale, high on the amplitude high scale, and contains a case noun (the clause, which precedes (71) in the narrative, is included to provide some context):

(668 ms) iroh/ (380 ms)
i-roh
3S:SG:MASC-go
He-left.

(ampl. 2506)

(71) (380 ms) nihanitta — ampl. high: 2506
nihani tta — Fø low: 172
PRO:PL:MASC PRO:SG:MASC

They [and]

yuzduwani
y-uz-d uwani
3S:SG:MASC-come-PROX REL

he came here, the.one

nninɛnttarabḥær\ (883 ms)
nnin ɛ-n-t ta-rabḥær
PRO:3A:PL:MASC-push-3A:PL:MASC-DO:3:SG:MASC ILL-sea

they-pushed into-the.sea.

The next example is a SV clause also signaling continuous topic, and is long, has the subject as the amplitude high, is medium on the Fø low scale, and low on the amplitude high scale (the first clause is only provided for context):

(152 ms) iwæ (H) zi=d\
iwæ zid
well continue

Well, [he] continued.

(ampl. 2424)

(72) (99 ms) nuwaɡddišoḥænžæθ — Fø low: 172
nuwa ɡ-ddi š-oḥænžæ-θ
REL.PRO:3A:SG:MASC IRR-live CORR-child-PROX

The son of the ogre (lit. 'he who lived as a child')

hæyɛnɪbdirabḥæ___ (0 ms)
hæ y-ɛnɪb di-rabḥæ
behold 3A:SG:MASC-push ILL-sea

pushed him into the sea!

4.1.4.1.2 Continuous topic: post-V

Links of post-V continuous topic to clause structure and prosody are nearly non-existent. Even the link to amplitude, as with pre-verbal topic, is missing. Thus, the speaker does little to underscore it, either grammatically or prosodically.

Table 18 displays the factors that concern correlations with post-V continuous topic. The very strong (and only) correlation is VS clauses. This is to be expected since the presence of a topic after the verb indicates at least a VS clause.

Table 18. Correlations of clauses with post-V continuous topic (N=5)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Cl. Struc	VS	Topic	**cont.top.:post-V**	.992	not post-V topic	.311
			shifted top.: post-V	.999		

Example (73) is from the 'Hammu the Trickster' story where 'Tamza' is the topic, as was also the case in the previous clause where Tamza had just returned to her house. It is a VS clause with continuing topic (post-V) (the first clause is provide only for context):

(1262 ms) a=ʔntɛlætæsəlɡwulænni___
a= ʔntɛ lætæs əlɡwulæ-nni
well PRO:3S:SG:FEM return Tamza-DEM:DIST:SG/PL

Well, that Tamza returned.

(73) (1262 ms) komasɛʔəlɡulatwosit (800 ms)
komasɛ ʔəlɡula twosit
start Tamza old.woman

Tamza [the] old.woman started [to do something].

4.1.4.1.3 Shifted topic: pre-V

Pre-verbal shifted topic has strong links to heightened amplitude and SV and SVO clause types.

Table 19 displays factors correlating with a pre-V shifted topic.' Correlates are very strong for SV clauses and a wide span of amplitude, strong for a predicate nominal as the amplitude high, SVO clauses, a mid-span of amplitude, and the location of the amplitude high at the pre-V position. Moderate to weak correlations are the subject as the amplitude high, and level or falling Fø clause-finally.

Strong inverse correlations are the location of the amplitude high as post-V, a rising clause-final Fø contour, and the clause adverbial as the amplitude high. A moderate inverse correlation is the case noun as the amplitude high. Weak to very weak correlations are with a narrow amplitude span and the verb as the amplitude high. All of these tendencies indicate SV/SVO word orders with amplitude highs underlining the subject, medium to wide amplitude spans, and the predicate nominal as the clausal amplitude high (if a predicate nominal is involved in topic shift).

Table 19. Correlations of clauses with pre-V shifted topic (N=28)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Disc. Prag	shift top. preV	final Fø	level final Fø	.778	rising final Fø	.139
			falling final Fø	.655		
		ident. amp. hi	subject=amp. high	.790	case n.=amp. high	.240
			pred.nom.=amp. hi	.895	cl. adv.=amp. high	.180
					verb=amp. high	.422
		loc. amp. high	loc.amp. hi=pre-V	.830	loc. of amp. high=post-V	.121
		amp. span	medium amp. span	.834	narrow amp. span	.396
			wide amp. span	.935		
Cl. Struc	SV	topic	**shift topic:pre-V**	.986	not pre-V topic	.255
			contin. topic: pre-V	.969		
Cl. Struc	SVO	topic	**shift topic:pre-V**	.869	not pre-V topic	
			contin. topic: pre-V	.946		

The examples below illustrate these phenomena. Example (74) is a climax clause from the 'Night Fears' narrative in which there is a pre-V shifted topic from the teller of the story to her husband. It is an SV clause and has wide amplitude span, location of amplitude high pre-V (on the subject) and final falling Fø; the subject marks a change of topic (the first clause is to provide context):

(1395 ms) <HI žžittəkəmɪr/HI> (H)
žžitt əkəmɪr
night whole

[It went on like this] all night.

(ampl.10186)

(74) (433 ms) ʔntæ=/...<LO immu=θ LO>\ (313 ms)
ʔntæ i-mmuθ ampl. span: 11267
1PRO:3S:SG:MASC 3S:SG:MASC-die

He died (or 'was scared to death').

Example (75) is from the 'Hammu the Trickster' story where the topic switches from Hammu to Tamza (when she returns and catches him bothering her donkey). It is an adverb+SV clause with wide amplitude span, location of the amplitude high at the subject, and rising final Fø; the subject marks a change of topic (the first clause is to provide context):

(0 ms) ɖəkomaṣəsirær\ (H)
ɖ-əkomaṣə-s i-ræ̀r
IRR-start-3IO:SG:MASC/FEM 3S:SG:MASC-play

He-would-start [to] play [with him].

(ampl.high: 5949)

(75) (918) <LO ənənttæθættɛqəb/ LO> (0) ampl.span: 4346
ənə nttæθ æt-t-ɛqəb
then PRO:3S:SG:FEM IRR-3S:SG:FEM-return

Then she would.return.

4.1.4.1.4 Shifted topic: post-V

Post-verbal shifted topic correlates with the clause type VS and with subjects at the highest point of Fø in a clause.

Table 20 displays positive and inverse correlations of grammar and prosody relative to a post-V shifted topic. Very strong correlations are VS clauses and the subject as the Fø high, followed by moderate correlations with mid-level Fø clause-finally and the clause adverbial as the Fø high. There is also a weak correlation with a clause-final high Fø.

Inverse correlations of post-verbal topic shift are the moderate correlation of low clause-final Fø, the weak correlation of object as the Fø high, and the very weak correlation of verb as the Fø high.

Post-V topic shift contrasts sharply with pre-V shifted topic and post-V continuous topic in that the former heavily involves Fø, whereas post-V continuous topic is associated with word order only without amplitude and/or Fø, and pre-V continuous topic is correlated with amplitude.

Table 20. Correlations of clauses with post-V shifted topic (N=19)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Disc. Prag	shift topic pstV	final Fø	medium final Fø	.722	low final Fø	.245
			high final Fø	.608		
		ident. Fø high	subject=Fø high	.978	object=Fø high	.311
			cl. adv.=Fø high	.710	verb=Fø high	.436
		loc. Fø high	post-V	.561	pre-V	.095
Cl. Struc	VS	topic	post-V shifted topic	.999	not post-V topic	.311
			post-V contin. topic	.992		

Example (76) is the second clause of the 'Tamza and the Wolf' narrative where the wolf is the topic. In the preceding clause, Tamza is the topic. It is an adverb+VS clause where the post-V

subject indicates a shifted topic. In addition, the subject is the Fø high and on the high end of the high scale (first clause to provide context):

(0 ms) idžɪn?nhar/%%%æθamzaθæ=wzɪl
idžɪn-?nharæ θamza θ-æwzɪl
one-day Tamza 3S:SG:FEM-run

One-day, Tamza ran

xa=l?mqitš\ ... a=xo=xušɪθ ...) xušɪθ\
xa-l?mqitš axo-x-ušɪθ x-ušɪθ
LOC-cat LOC-LOC-wolf LOC-wolf

after-[a]cat---, after-[a}wolf---, after-[a]wolf.

(76) (1424 ms) æywasiḍiruḥæ
æywa siḍ i-ruḥæ
well sir 3S:SG:MASC-go

Well sir, that-wolf

(Fø high: 200)
yttæzzalwuššənni/ (752 ms)
y-tt-æzzal wuššən-ni
3S:SG:MASC-ITER-run wolf-DEM:DIST:SG/PL

would-run [from Tamza].

Example (77) is from the 'The Ogre and His Neighbor' and concerns a change of topic from Tamza and her son to the ogre. Notice that both begin with a clause adverbial (recall that no clause adverbial is found in pre-V continuous topics). It is also an adverb+VS clause with the subject as the Fø high. This Fø high is 'mid' on the Fø high scale (first clause for context):

(0 ms) ygɪssəzənnikurənhæærkurənhær__(H)
y-gɪss əzənni kur-ənhær kur-ənhær
3S:SG:MASC-come like.that each-day each-day

Each-day he-[would]come like.that.

(77) (0 ms) <A iža̱nhar A> ... æywušæ
iža̱-nhar æyw ušæ
one-day well then

Well, then, one-day

mæ ... yuɬafxasn
mæ y-uɬaf xa-sn
later 3S:SG:MASC-come LOC-3:PL:MASC

later that-ogre came to-them.

(Fø high: 178)
uwamzuwannia\ (H) (793 ms)
uwamzuw-annia
ogre-DEM:DIST:SG/PL

4.1.4.1.5 All pre-V topics

This section concerns prosodic and clause structural links to all pre-verbal topics, whether shifted or continuing. In general, the links are found to be heightened amplitude and lowered Fø.

Table 21 lists general correlations with all pre-V topics, whether continuous or shifted. Strongest correlations are with word order, amplitude highs and their location. These play dominant roles in indication of pre-V topic, in conjunction with Fø lows.

Table 21. Correlations of pre-V continuous and shifted topic (N=45)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Disc. Prag	Pre-Vtop	Fø low	level 1: Fø low	.922	level 4 on Fø low scale	.216
			level 6 on Fø low scale	.817	level 3 on Fø low scale	.375
			level 2 on Fø low scale	.798		
		amplitude high	high on amp. high scale	.925	low on amp. high scale	.336
		ident. amp.hi	object=amp. high	.962	cl. adv.=amp. high	.029
			subject=amp. high	.958	verb=amp. high	.292
			pred. nom.=amp. high	.872		
			case noun=amp. high	.844		
		loc. amp. high	loc. amp. high=pre-V	.824	loc. amp. high=post-V	.077
		IU?			clause=intonation unit	.354
Cl. Struc	SV	topic	**pre-V topic**	.981	not pre-V topic	.256
Cl. Struc	SVO	topic	**pre-V topic**	.899	not pre-V topic	.356

4.1.4.1.6 All post-V topics

In focusing on all post-verbal topics, results indicate relations to clause boundary pause length, heightened Fø, and the presence of a clause adverbial in the clause where post-verbal topic is found.

Table 22 generalizes correlations with all post-V topics whether continuous or shifted. These attest to word order, pause length, Fø high locations, and the presence of a clause adverbial as the strongest correlations with post-V topics. Especially noteworthy are the very strong correlations with VS clauses and the subject as the Fø high, pointing to the conclusion that word order and topic is very closely tied.

Table 22. Correlations of post-V continuous and shifted topic (N=24)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Disc. Prag	Post-Vtop	ident. Fø high	subject=Fø high	.972	object=Fø high	.291
			cl. adv.=Fø high	.744		
			verb=Fø high	.538		
		loc. Fø high	post-V	.778	loc. Fø high=pre-V	.079
		final pause	level 3 length end pause	.826	level 1 length end pause	.329
			level 2 length end pause	.704		
Cl. Struc	VS	topic	**post-V topic**	.998	not post-V topic	.315
Cl. Struc	cl. adv.	topic	**post-V topic**	.713	not post-V topic	.471

4.1.4.1.7 All shifted topic (pre- and post-V)

In this section I answer the question: are there any prosodic and/or clause structural interconnections with all shifted topics regardless of position relative to the verb? Table 23 summarizes the correlations. Correlation with the subject as the Fø high is very strong with pre-V amplitude high as moderate. Thus the tendency is for the subject (or grammaticalized topic/participant) to be underlined by the highest Fø in the clause.

Table 23. Correlations of pre- and post-V shifted topic (N=47)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Disc. Prag	shift topic	ident. Fø high	subject=Fø high	.918	object=Fø high	.240
			pred. nom.=Fø high	.664	case noun=Fø high	.264
					cl. adv.=Fø high	.320
					verb=Fø high	.489
		loc. amp. high	loc. amp. high=pre-V	.772		
			loc. of amp. high=post-V	.549		
		final pause	level 2+3 length end pause	.756	level 1 length end pause	.459

4.1.4.1.8 All continuous topic (pre- and post-V)

Investigation in this section addresses the question of whether or not continuing topics in general are linked to prosodic and clause structural features. Table 24 lists correlations for both types of continuous topics. The 'Tamza and the Wolf' narrative correlates most strongly with clause length. The subject as the amplitude high also strongly correlates. Moderate correlations are the 'Hammu the Trickster' narrative, levels 2+3 Fø (on the high scale), and the object as the amplitude high.

The 'The Ogre and His Neighbor' inversely (and moderately) correlates with continuous topic, meaning that the overt marking of 'same topic' is not as prevalent a strategy with the speaker in this text as in the other texts.

Table 24. Correlations of pre- and post-V continuous topic (N=23)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Disc. Prag	Con. Top.	Fø high	level 2+3 -Fø high scale	.761	level 4 -Fø high scale	.166
			level 5+6+7 -Fø high scale	.577		
		ident. amp.hi	subject=amp. high	.850	cl. adv.=amp. high	.309
			object=amp. high	.705	verb=amp. high	.375
			case noun=amp. high	.670		
		morph/cl	long clause	.898	short clause	.462
		final pause	short final pause	.599	long final pause	.061
		which narr.?	'Tamza and the Wolf' narr.	.953	'The Ogre & His Neighbor'	.204
			'Hammu the Trickster'narr.	.793		
			'Night Fears' narr.	.563		

4.1.4.2 Focus

Results in this section center around links of prosody and clause structure to types of focus. Focus clauses are likely to have high amplitude contrast within a clause. In addition,

with a long clause-initial pause, and with two of the narratives, contrastive focus plays an especially prominent role.

4.1.4.2.1 Presentational focus (pre- and post-V)

There were too few post-V presentational focus clause to analyze using *Goldvarb*. All 8 clauses where presentational focus was found contained case nouns, objects and and/or predicate nominals. The same is true for pre-V presentational focus (only 2 instances). An example is (78) which introduces Hammu as the 'neighbor' by means of a case noun (the following clause in the story gives his name):

(78) (0 ms) izəgəʔækšidžənnɪwə___ (1110 ms)
i-zəgə ʔækš-idžən-nɪwə
3S:SG:MASC ASSOC-one-neighbor

He-lived with-a-neighbor.

4.1.4.2.2 Contrastive focus: pre-V

All contrastive focus clauses are pre-V and involve high levels of amplitude. Table 25 indicates strong positive correlations with contrastive focus: high amplitude (on the high amplitude scale), the 'Night Fears' narrative, and the 'Tamza and the Wolf' narrative. The strong high amplitude correlation is reminiscent of climax and pre-V topic clauses that are heavily marked by high levels of amplitude (the pattern emerging here is that amplitude is especially part of some aspects of profile and topic). The more prominent usage of contrastive focus in the two narratives is a matter of narrative theme: 'Night Fears' is built around the contrast between a fearful husband and a courageous wife in confronting potential thieves in their home. Similarly, 'Tamza and the Wolf' contrasts the craftiness of the wolf with the gullibility of the witch.

Inversely, the 'Hammu the Trickster' narrative is moderately correlated with contrastive focus, meaning that contrastive focus is especially infrequent in that story.

Table 25. Correlations of clauses with contrastive focus (N=13)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Disc. Prag	Con. Foc.	amp. high	high on amp. high scale	.887	low on amp. high scale	.364
		which narr.?	'Night Fears' narr.	.826	'The Ogre & His Neighbor'	.451
			'Tamza and the Wolf' narr.	.821	'Hammu the Trickster'narr.	.289

Example (79) is a contrastive focus clause from the 'Tamza and the Wolf' narrative in which the witch believes the lie of the wolf. Contrastive focus with level 4 amplitude high is in evidence (the clause preceding (79) is to provide context):

ʔntæɬæsiniə/...
ʔntæ ɬæ-s-i-niə
3PRO:SG:MASC IRR-CAUS-3A:SG:MASC-say

He (the wolf) made.himself-say,

wəɛdiwəɛdi
wəɛd-i wəɛd-i
woe-GEN:1:SG:MASC/FEM woe-GEN:1:SG:MASC/FEM

"Woe [is] me! Woe [is] me!

ṭəffæ%%ṭəffæ%%
ṭ-əffæ ṭ-əffæ
3A:SG:FEM-grab 3A:SG:FEM-grab

She grabbed- she grabbed

zwəṛnzɪggwærθ\
zwəṛ n-zɪggwærθ
root GEN-plant

a plant's root [not my tail]!"

(79) (1807 ms) θəmzaθəlaɣəsbəsæḥ/ (1865 ms) level 4 ampl. high: 3947
θkmza θ-əlaɣəs bəsæḥ
Tamza 3A:SG:FEM-think truth

Tamza thought it.was.true.

Example (80), from 'Night Fears,' describes how the wife rather than her husband stands guard with an ax in order to protect her family. The clause also has contrastive focus with level 6 amplitude high:

(80) (474 ms) nɬššədžittəɬmɬ ampl. high: 13985
nɬšš ədžit təkɬmɬ
PRO:1S:SG:MASC/FEM night whole

[The] whole night

nšəqqimo\ (H) (175 ms)
nš əqqim-o
PRO:1S:SG:MASC/FEM stay.up-1S:SG:MASC/FEM

I stayed.up.

4.1.4.2.3 All pre-V focus

Pre-verbal focus clauses coincide with a long pauses and amplitude contrast. Table 26 summarizes all correlations of pre-V focus. These include a very strong wide amplitude span, a strong correlation with the 'Tamza and the Wolf' narrative, with mid-amplitude span, with a long clause-initial pause, and with the 'Night Fears' narrative. Inversely, there is a strong aversion to the presence of a case noun. Note that no correlations with Fø or amplitude are found on pre-V subjects as was the case with pre-V topic.

Table 26. Correlations of pre-V presentational and contrastive focus (N=15)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Disc. Prag	PreV Foc.	amp. span	wide amp. span	.925	narrow amp. span	.390
			medium amp. span	.873		
		initial pause	long initial pause	.845	medium initial pause	.222
			short initial pause	.590		
		which narr.?	'Tamza and the Wolf' narr.	.894	'Hammu the Trickster'narr.	.346
			'Night Fears' narr.	.829	'The Ogre & His Neighbor'	.388
Cl. Struc	Case N.	topic	pre-V topic	.718	not pre-V topic	.437
		focus	not pre-V focus	.535	**pre-V focus**	.140

Trends, then, regarding topic and focus emerge. In general (but not always), topic and focus accompany amplitude contrast and highs, while subjects accompany Fø highs.

4.2 Clause structure

In this section I want to know: what elements of discourse pragmatics and prosody accompany clause structure? The most noteworthy results pertaining to links between clause structure and prosody/pragmatics have to do with (1) heightened Fø underscoring of clause constituents (more so than amplitude) and (2) topic/focus corresponding to word order. The significant omission is linkage to discourse structure. The only correspondence is between clause adverbials and episode juncture, as stated earlier.

The following sections summarize the results of the *Goldvarb* analysis for clause structure (or word order and clause constituency).

4.2.1 V-only clauses

Significant ties of V-only clauses to discourse pragmatics are non-existent, but links are strong to clause constituents and accompanying heightened Fø. Since this clause type is

inherently short in duration and content, it is logical that there would be few significant correlations with prosody.

Table 27 lists features which correlate with V-only clauses (those without an overt subject and/or object). This clause type exhibits a very strong correlation with clause adverbials as the Fø high, and strong correlations with a level clause-final amplitude and a case noun as the Fø high. There is a moderate correlation with a verb as the Fø high.

A very strong inverse correlation is wide amplitude span, and moderate inverse correlations are high amplitude, pre- and post-V as the locations of amplitude highs, and a medium amplitude span. Thus, Fø appears to accompany clause constituents and amplitude does not.

Table 27. Correlations of V-only clauses (N=87)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Cl. Struc	V	ident. Fø high	cl. adv.=Fø high	.900	obj.=Fø high	.042
			case noun=Fø high	.809	subj=Fø high	.125
			verb=Fø high	.762		
		final Fø	level Fø end	.584	rising Fø end	.308
			falling Fø end	.602		
		loc. amp. high			post-V=loc. amp. high	.241
					pre-V=loc. amp. high	.241
		amp. span	narrow amp. span	.594	wide amp. span	.053
					medium amp. span	.250
		final amp.	level amp. end	.827	falling amp. end	.411
			rising amp. end	.508		

Example (81) is from the 'Hammu the Trickster' narrative, and is a V-only clause (with case noun) and has non-rising/non-falling amplitude and Fø clause-finally, the case noun is the Fø high, the amplitude span is narrow, and the amplitude is low on the high scale:

(Fø high: 222)

(81) (0 ms) kærimkəsxoɡyu___ (0 ms) ampl. span: 1653
kærimkəs x-oɡyu ampl. low: 2402
dismount LOC-donkey

[He would] dismount from-the.donkey.

Example (82) is from the 'The Ogre and His Neighbor' and has the clause adverbial as the Fø high pre-V, is non-rising/non-falling amplitude and Fø clause-finally, has narrow amplitude span, highest amplitude pre-V, and is low on the amplitude high scale:

(Fø high: 204)

(82) (505 ms) mkuranhær <A æɡəs ampl. span: 919
mkur-anhær æɡæ-s ampl. low: 2251
each-day LOC-IO:3:SG:MASC/FEM

Each-day, to-her

iḥæ A> (0 ms)
i-ḥæ
3S:SG:MASC-go

he-went.

4.2.2 Verb + object clauses

An interesting phenomenon in the VO clause type is that heightened Fø is likely clause-finally, but heightened amplitude is likely clause-initially. The object has the highest Fø while some pre-verbal constituent such as a clause adverbial takes the high amplitude. Thus, Fø appears to underscore the major clause constituent apart from the verb, and amplitude underscores the pragmatic constituent, suggesting that amplitude accompanies discourse pragmatics and Fø accompanies clause structure.

Table 28 lists correlations of VO clauses. Very strong correlations are objects as the Fø high, and the Fø clause boundary contour: start falling/end rising. Thus, the object draws the Fø high and causes the clause to rise in Fø clause finally. A strong correlation is high

clause-initial amplitude. Here the amplitude high position is on the opposite end of the clause from the object. A moderate correlation is the 'Night Fears' narrative.

A very strong inverse correlation is a non-rising/non-falling clause-final amplitude. Strong inverse correlations are clause adverbials as the Fø high and the 'Hammu the Trickster' narrative. These findings suggest that the object 'attracts' either falling or rising Fø and that clause adverbials do not. In addition, the 'Hammu the Trickster' narrative utilizes this clause type less often than the other narratives.

Table 28. Correlations of VO clauses (N=42)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Cl. Struc	VO	ident. Fø high	object=Fø high	.964	subj=Fø high	.083
					cl. adv.=Fø high	.133
					verb=Fø high	.440
					case noun=Fø high	.417
		Fø levels	start falling/end rising Fø	.909	start/end level Fø	.243
			start/end falling Fø	.631	start/end rising Fø	.269
			start level/end rising Fø	.577	start rising/end falling Fø	.271
			start level/end falling Fø	.534		
		initial amp.	high initial amp.	.880	low initial amp.	.442
		final amp.	rising amp. end	.682	level amp. end	.096
			falling amp. end	.517		
		which narr.?	'Night Fears' narr.	.750	'Hammu the Trickster'narr.	.177
			'The Ogre & His Neighbor'	.679	'Tamza and the Wolf' narr.	.208
Cl. Struc	VO	mount. tens.	mounting tension	.591	not mounting tens.	.422

Some of these correlations are illustrated by example (83) from the 'The Ogre and His Neighbor'. Note that the clause exhibits high amplitude clause-finally in spite of the strong correlation with the contrary. It manifests a VO constituency and word order, and exhibits

mounting tension, rising amplitude clause-finally, the object with the Fø high, the Fø contour 'start falling/end rising,' and low amplitude clause-initially:

(initial ampl.: 2021) (Fø high: 247)
(83) (0 ms) æɬoɬnižənwəmšæn/ (0 ms)
æɬ-oɬ-n ižən-wəmšæn
IRR-reach-3A:PL:MASC one-place

They-reached some-place.

Clause (84) from the 'Night Fears' narrative is an example of a VO clause with the object (underlined) as the Fø high, start falling/end rising Fø contour, high initial amplitude, rising amplitude clause-finally, and mounting tension:

(initial ampl.: 15546) (Fø high: 689)
(84) (1553 ms) <@ isiɬššæqə/ @> (H) (288 ms)
isi-ɬ ššæqə
take-1A:SG:MASC/FEM ax

I-grabbed [an] ax.

4.2.3 Verb + subject clauses

Interesting results concerning VS clauses' relation to prosody/pragmatics are that (1) again, clause constituents, especially the subject, are underlined by heightened Fø, and (2) post-verbal topic is linked to the subject following the verb. This further suggests the separate domains of Fø and amplitude: Fø with clause structure and amplitude with discourse pragmatics.

Table 29 lists correlations of VS clauses. The strongest correlations are post-V shifted topic, post-V continuous topic, subject as the Fø high, and post-V as the location of the amplitude high. Given that the subject is post-V, these correlations are reasonable.

Table 29. Correlations of VS clauses (N=21)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Cl. Struc	VS	ident. Fø high	subject=Fø high	.962		
			cl. adv.=Fø high	.842		
			verb=Fø high	.682		
		final Fø	rising Fø end	.787	falling Fø end	.303
					level Fø end	.436
					contour	
		loc. amp. high	post-V=loc. amp. high	.873		
			pre-V=loc. amp. high	.559		
Cl. Struc	VS	topic	shift topic/post-V	.999	not topic/post-V	.311
			continuous topic/post-V	.992		

Example (85) is from the 'Tamza and the Wolf' narrative. It is a VS clause showing a shifted topic post-V, the subject is the Fø and amplitude high, and the clause ends with falling Fø:

(ampl. high: 3623)
(Fø high: 173)

(85) (757 ms) aθalḥæygtamza\ (2335 ms)
a-θ-alḥæyg tamza
IMM-3S:SG:FEM-arrive Tamza

Here-came Tamza.

Example (86) is from 'Hammu the Trickster'. There is also a shift of the topic post-V, the subject is the Fø and amplitude high, and the clause ends with non-rising/non-falling Fø:

(86) (611 ms) qæɬifəɮ
q-æɬ-i-fəɮ
IMM-IRR-3S:SG:MASC-come.out

Then he came out,

(ampl. high: 3678)
(Fø high: 172)
aḥadiddænawɬdlaḥarrəb___ (0 ms)
aḥadiddæn awɬd laḥarrəb
Hadiddan son illegitimate

Hadiddan the illegitimate son.

4.2.4 Predicate nominal clauses

In predicate nominal clauses, the predicate nominal is linked to high amplitude. Since predicate nominal clauses are also linked to orientation clauses, again it appears that amplitude is utilized with discourse pragmatics. This is the strongest correlation, followed by clause-final level 5 Fø, and the case noun as the amplitude high (table 30).

A strong inverse correlations is medium Fø clause-finally.

Table 30. Correlations of predicate nominal clauses (N=8)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Cl. Struc	Pred Nom	final Fø	level 5 Fø end	.953	medium Fø end	.163
					low Fø end	.221
		ident. amp. hi	pred. nom.=amp. high	.994	cl. adv.=amp. high	.426
			case noun=amp. high	.876		

Example (87) is from 'Night Fears' and is a comment about a fearful husband. It shows the predicate nominal as the amplitude high, including level 5 Fø end:

(ampl. high: 16854)
(Fø final: 516)

(87) (0 ms) mmædgæyagagagaga\@@@@ (H) (1370 ms)
mmæd gæ-ya gagagaga
Mohammed DAT-IO:SG:MASC/FEM heedless.one

To me, Mohammed [was an] irrational.being [like a turkey].

Example (88) is from the 'Hammu the Trickster,' and has the predicate nominal as the amplitude high, and level 1 Fø end:

(ampl. high: 3973)
(Fø end: 108)

(88) (0 ms) džammasahammulharaymi
d-žamma-s aḥammu lḥaraymi (1110 ms)
COMP-name-GEN:3:SG:MASC/FEM Hammu Laharaimi

His.name [was] Hammu Laharaimi.

4.2.5 Subject + verb clauses

SV clauses, as is the case with VS clauses, are strongly linked to high amplitude and topic.

Table 31 lists the correlations of SV clauses. Four very strong correlations are: (1) pre-V topic shift, (2) pre-V continuous topic, (3) pre-V amplitude high, and (4) the amplitude contour at clause boundaries: start low/end mid. Two strong correlations are (1) 'Tamza and the Wolf,' (2) 'Night Fears'.

Strong inverse correlations are post-V amplitude high, and the amplitude clause boundary contour 'start/end high'.

Most of these correlations are with the subject before the verb in pre-V topic and amplitude highs. However, at least in some instances, such a clause begins with low amplitude as in the amplitude contour at clause boundaries, thus running counter to stronger correlations. The 'Tamza and the Wolf' narrative favors utilization of SV clauses more than the other three narratives.

Table 31. Correlations of SV clauses (N=31)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Cl. Struc	SV	final Fø	falling Fø end	.682	rising Fø end	.202
			level end Fø	.615		
		loc. amp. high amp. level	pre-V=amp. high	.939	post-V=amp. high	.151
			start low/end medium amp.	.918	start/end high amp.	.171
			start mid/end high amp.	.797	start mid/end low amp.	.317
			start mid/end medium amp.	.775	start high/end medium amp.	.341
					start high/end low amp.	.362
					start/end low amp.	.474
		which narr.?	'Tamza and the Wolf' narr.	.897	'The Ogre & His Neighbor'	.223
			'Night Fears' narr.	.876		
			'Hammu the Trickster'narr.	.556		
Cl. Struc	SV	topic	shift topic/pre-V	.986	not topic pre-V	.255
			continuous topic/pre-V	.969		

Examples (89) from the 'Hammu the Trickster' story and (90) from the 'The Ogre and His Neighbor' illustrate these correlations. The example following shifts the topic pre-V, has a subject as the pre-V amplitude, starts low and ends at medium amplitude, and has non-rising/non-falling Fø at clause end:

(ampl.high: 3129)

(89) (0 ms) hɔmarhæymɪsinxɔgyɔ___ (0 ms)

ḥɔmə rḥæym ɪ-sin x-ɔgyɔ .

Hammu Laharaimi 3S:SG:MASC-climb LOC-donkey

Hammu Laharaimi [would] climb onto-[a]donkey.

The next example has continuous topic post-V, subject as the pre-V amplitude high, an amplitude contour starting mid/ending high, and non-rising/non-falling Fø end:

(ampl. 2424)

(90) (99 ms) nuwaɡddišoḥænžæθ
nuwa ɡ-ddi š-oḥænžæ-θ
REL.PRO:3A:SG:MASC IRR-live CORR-child-PROX

The son of the ogre (lit. 'he who lived as a child')

hæyɛnɪbdirabḥæ___ (0 ms)
hæ y-ɛnɪb di-rabḥæ
behold 3A:SG:MASC-push ILL-sea

pushed him into the sea!

4.2.6 Subject + verb + object clauses

SVO clauses have similar linkages as VS and SV clauses, but have the added distinction of Fø contrast. As we have seen, the object in VO clauses is typically underscored by high Fø as is also often the case with subjects. Thus, competing hegemony over the possession of highest Fø causes Fø contrast.

Table 32 lists correlations of SVO clauses in two cases: the first compared to prosody and the second compared to discourse pragmatics. The strongest correlations are pre-V continuous topics, pre-V topics (in general), pre-V shifted topic, and high amplitude (on the high scale), with a moderate correlation with wide Fø span.

Table 32. Correlations of SVO clauses (N=20)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Cl. Struc	SVO	Fø span	wide Fø span	.742	narrow Fø span	.461
		amp. high	high on amp. high scale	.822	low on amp. high scale	.398
Cl. Struc	SVO	topic	continuous topic/pre-V	.946	not topic	.336
			shifted topic/pre-V	.869		
			cont. topic/post-V	.832		

Examples illustrating some of these correlations are (91) from the 'Hammu the Trickster' narrative and (92) from 'Night Fears'. Clause (91) illustrates SVO word order, pre-V continuous topic (underlined), a high amplitude on the high scale, and a wide Fø span:

(91) (1287 ms) ərənnæžəhæwɬdləhæramnæhdidænni ...
ərənnæ žəḥæ wɬd ləḥæram n-æḥdidænni
then Jeha son illegitimate GEN-Haddami

Then Jeha, the.illegitimate son of Haddami,

ʈʂwæyggɪzisæɖiž ampl. high: 4618
ʈʂwæ y-ggɪzi sæɖiž Fø span: 95
AUX 3A:SG:MASC-make pool

before.had made [a] pool

uwæmænɖi=%%rusθannintəbarrak (585 ms)
u-wæmæn ɖir-usθ-anni n-təbarrak
GEN-water INES-middle-DEM:DIST:SG/PL GEN-house

of-water in-[the]middle of-[his]house.

Example (92) also illustrates pre-V continuous topic, high amplitude on the high scale, and wide Fø span:

(92) (646 ms) <@ nittæɣɬɣiggu ɬəwæ ampl.: 17469
nittæ ɣɬ-ɣi-ggu ɬ əwæ Fø span: 463
PRO:3A:SG:MASC IRR-3A:SG:MASC then

Then he-was.afraid

ɡæɣssiɡəmtəfot
ɡæ-ɣ-ssiɡəm təfot
IRR-3A:SG:MASC-turn.on light

to-turn.on [the] light

æɬixobəradoqæmaˈ @> (H) (277 ms)
æɬ-i-xobər ədo-qæma
IRR-3S:SG:MASC-look LOC-bed

to-look under-[the]bed.

4.2.7 Clauses with clause adverbials

Clause adverbials represent a convergence of prosody and discourse pragmatics. They accompany episode juncture and long initial pauses, and are always clause-initial. In addition, a topic is never found pre-verbally if the clause adverbial is present. This suggests that Tarifit has either a grammatical restriction concerning the co-occurrence of topics and clause adverbials or a restriction concerning how many constituents may precede the verb.

Table 33 summarizes correlations of clauses that contain clause adverbials. The strongest correlations are clause adverbials and predicate nominals as the amplitude highs, pre-V location for the amplitude high, and wide Fø span. In addition, 41 of 42 clause adverbial clauses place the clause adverbial clause-initially. Thus, clause adverbials carry prominences of Fø, amplitude and clause-initial pause length in addition to general contrast of Fø and amplitude levels (represented by wide and medium Fø and amplitude spans respectively).

Table 33. Correlations of clauses with clause adverbials (N=42)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Cl. Struc	cl. adv.	ident. Fø high	cl. adv.=Fø high	.975	verb=Fø high	.320
			pred. nom.=Fø high	.955	subject=Fø high	.399
					case noun=Fø high	.489
					object=Fø high	.284
		Fø span	wide Fø span	.821	narrow Fø span	.444
		ident. amp. hi	cl. adv.=amp. high	.625	subject=amp. high	.044
			verb=amp. high	.591	pred. nom.=amp. high	.146
					case noun=amp. high	.247
		loc. amp. high	pre-V	.987	post-V	.161
Cl. Struc	cl. adv.		topic/post-V	.713	not topic post-V	.471
Cl. Struc	cl. adv.	episode junc.	episode juncture	.711	not episode junct.	.394
		orientation	orientation	.704	not orientation	.466

Example (93) is found in the 'Tamza and the Wolf' narrative and (94) is from 'The Witch and the Ogre'. The example below has the clause adverbial as the Fø high (pre-V) and a wide Fø span. The clause is also at an episode juncture:

Fø high: 187 Fø span: 80

(93) (0 ms) idžɪn?nhar...%%%θamzaθæ=wzɪl

idžɪn-?nhar θamza θ-æwzɪl

one-day Tamza 3S:SG:FEM-chase

One day Tamza chased

xa=l?mqitš...a=xo=xušɪθ...
xa-l?mqitš axox-xušɪθ
LOC-cat LOC-wolf

after-[the]cat--after-[the]wolf--

xušɪθ\ (1424 ms)
xušɪθ
wolf

[the]wolf.

The next example has the clause adverbial as the Fø and amplitude high (pre-V, occurs at an episode juncture, and serves as narrative orientation:

ampl. high: 2251
Fø high: 204

(94) (505 ms) mkuranhær <A æɡæsiḥæ___ A> (0 ms)
mkur anhær æɡæ-s i-ḥæ
each day DAT-IO:3:SG:MASC/FEM-go

Each day he-[would]go.

4.2.8 Clauses with a preceding dependent clause

The primary link between clauses with a preceding clause and prosody/discourse pragmatics is high amplitude before the verb.

Correlations with clauses preceded by dependent clauses are listed in table 34. A strong correlation is with pre-V amplitude high. A moderate correlation is with a long clause-final pause.

Table 34. Correlations of clauses with a preceding dependent clause (N=21)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Cl. Struc	prec. dep. cl.	loc. amp. high	pre-V=amp. high	.890	post-V=amp. high	.405
Pros	long final paus	focus	pres.foc.: pre-V	.901		
			pres. foc.: post-V	.819		
			contrast. focus	.781		
		prec. dep. cl.	**prec. dep. cl.**	.774	not prec. dep. cl.	.466

Example (95) is from the 'The Ogre and His Neighbor' and (96) from the 'Hammu the Trickster' narrative. The example following has a preceding dependent clause with a following independent clause. In the independent clause the amplitude high is before the verb of the independent clause, and the end pause is long:

ampl. high: 2421

(95) ɹrimixasniyuɬfumzuwnnia/ (H)
ɹrimi xa-sn i-yuɬf umzuw-nnia
when LOC-3IO:PL:MASC 3S:SG:MASC-enter ogre-DEM:DIST:SG/PL

When that-ogre came to-them,

(818 ms) θæwarθamgaθ/ (H) (1262 ms)
θ-æwar θamgaθ
3S:SG:FEM-leave woman

[the]woman left.

The next example also has a preceding clause with an independent clause following, and the amplitude high is before the verb of the independent clause; the end pause is also long:

ampl.high: 3786

(96) ɣærəm ɖariæɖʔæygəθæ___
ɣærəm ɖ-ariæɖ ʔæy-gə-θæ
after COMP-man 3A:SG:MASC-do-3O:SG:FEM

After Hammu did-her,

(1053 ms) iθənəstəgəgərʂ
i-θənəst əgə-gərʂ
3S:SG:MASC-make.up CORR-choked

he-made.himself.up like-that.choked

θæθæθənni (1262 ms)
θæθæθ-ənni
woman-DEM:DIST:SG/PL

woman.

4.2.9 Clauses with case nouns

Clauses with case nouns are primarily connected to heightened Fø and high amplitude (on the case noun). Table 35 lists correlations of clauses with case nouns. Very strong correlations are case nouns as the amplitude and Fø highs, and long clauses. The next strongest correlation is the Fø clause boundary contour: start level 2/end level 1. A very strong inverse correlation is the Fø clause boundary contour: start level 3/end level 4. A strong inverse correlation is pre-V focus.

Thus, in general, if a clause has a case noun then it is underlined with both Fø and amplitude prominences.

Table 35. Correlations of clauses with case nouns (N=40)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Cl. Struc	case noun	ident. Fø high	case noun=Fø high	.945	verb=Fø high	.393
			cl. adv.=Fø high	.699	subject=Fø high	.412
					object=Fø high	.464
		Fø levels	start level 2/end level 1 Fø	.795	start level 3/end level 4 Fø	.026
			start level /end level 2 Fø	.669	start level 3/end level 3 Fø	.298
			start level 1/end level 2 Fø	.572		
		ident. amp. hi	case noun=amp. high	.961	cl. adv.=amp. high	.404
					subject=amp. high	.498
					verb=amp. high	.587
		morph/clause which narr.?	long clause	.911	short clause	.459
			'Hammu the Trickster'narr.	.788	'The Ogre & His Neighbor'	.247
			'Night Fears' narr.	.699	'Tamza and the Wolf' narr.	.271
Cl. Struc	case noun	topic	shifted topic: pre-V	.694	not pre-V topic	.448
			pre-V cont. topic	.666		
Cl. Struc	case noun	topic/focus	topic/pre-V	.718	focus/pre-V	.140

Example (97) is from the 'Hammu the Trickster' narrative and (98) is from the 'The Ogre and His Neighbor'. In the example below the case noun is the Fø and amplitude high, the clause is short (level 2), has pre-V continuous topic, and Fø contour of start level 2/end level 1:

ampl. high: 4014
Fø high: 180

(97) (757 ms) ʔntəθəsθgælliššæwənɣ%%wɛrurʉgyur/ (777 ms)
ʔntəθ əsθg æll-i šæwən-ɣwɛrur ʉgyur
PRO:3A:SG:FEM put-DEM:PROX:PL LOC-back donkey

She put these-brains onto-[the]back [of the] donkey.

As in the previous case, the case noun has the Fø and amplitude high, Fø contour is start/end level 2, and the clause is short (6 morphemes).

ampl. high: 2331
Fø high: 247

(98) (0 ms) izargɩθɗaggižanizæ/ (178 ms)
i-zargɩ-θ ɗagg-ižan-izæ
3A:SG:MASC-3O:SG:FEM ILL-one-dress

He-twisted-it in-a-dress.

4.3 Prosody

In the following sections are answers to the question: what features of clause structure and/or discourse pragmatics co-occur systematically with prosodic features? I present results pertaining to Fø, amplitude, clause length, speed, pauses at clause boundaries, and intonation units. A general finding is that Fø and amplitude work independently of, and complementarily to, each other (table 36).

Clause-initially, Fø has few strong correlations, but high clause-initial amplitude coincides with climax and episode juncture clauses. Low clause-final Fø/amplitude correlates with orientation clauses, but amplitude further coincides with clause adverbial, inciting incident and other clauses. High Fø marks climax, but high amplitude marks SVO and contrastive focus clauses. The clause constituents subject, verb, object, predicate nominal, case noun, and clause adverbial accompany highest Fø in a given clause, but only subjects, predicate nominals and verbs accompany highest amplitude in any significant way. Low amplitude is significant, but low Fø is not. High contrast for Fø and amplitude is significant but for mutually exclusive categories of clauses. And clause-final falling Fø is important for predicate nominal clauses but falling amplitude is not important at all.

Table 36. Comparison of strongest correlations of Fø and amplitude

category	Fundamental Frequency Correlations	Amplitude Correlations
clause-initial		high: climax, episode juncture low: orientation, lessening tension, denouement, post-V shift topic, post-V presentational focus
clause-final	low: orientation	low: cl. adv., orientation, inciting incident, clause with preceding dependent clause
high	high: climax; not lessening tension	high: SVO, contrastive focus low: pred. nom., VS
ident. high	subjects, verbs, objects, pred. nom.s, case nouns, cl. adv.	subjects, pred. nom.s, verbs
loc. high		pre-V
low		level 3: contrastive focus, inciting incident, not orientation, denouement, lessening tension
span	wide: SVO, cl. adv., VS, SV	wide: pre-V topic, contrastive focus, post-V presentational focus
contours: clause boundaries	high at topic, object, cl. adv.	high at pre-V continuous topic, post-V shifted topic, V-only, pred. nom.; medium at pre-V shifted topic
clause-final contour	falling: pred. nom. clauses	

Short clause length strongly correlates with pragmatics, especially with post-V topic shift, post-V continuous topic, and clause adverbial clauses. Slow clause speed is moderately linked to clause constituency, especially predicate nominal, clause adverbial, and SVO clauses. Clauses with long final pauses relate strongly to presentational and contrastive focus clauses. Finally, clauses that are intonation units are weakly associated with clause adverbial clauses. These and other results are listed and discussed in detail below.

4.3.1 Fundamental frequency

Aspects of Fø correlate with many categories of discourse profile, pragmatics, word order, and clause constituency. Strongest correlations indicate that the highest Fø of clauses underline clause constituents, thus affecting the general Fø contour. Also, low Fø accompanies orientation clauses.

4.3.1.1 Clause-initial Fø

These results concern whether or not there is a link between levels of clause-initial Fø and discourse pragmatics/clause structure. Few links were found, but there were some moderate to weak connections to predicate nominal and inciting incident clauses (with high clause-initial Fø).

General results concerning clause-initial Fø are as follows (ranked from strongest to weakest correlations):

Medium clause-initial Fø correlates most strongly with a predicate nominal clause, with a moderate inverse correlation with SVO clauses.

High clause-initial Fø correlates weakly with inciting incident clauses, and exhibits a strong inverse correlation with orientation clauses (also, *all* predicate nominal, denouement, coda and presentational focus clauses are non-Fø high clause-initially).

Low clause-initial Fø correlations are nearly non-existent, with a weak inverse correlation being with inciting incident clauses.

4.3.1.2 Fø at clause terminus

Interconnections between clause-final Fø levels and prosody/clause structure showed stronger links than did clause-initial Fø. Orientation and lessening tension clauses were the significant correlations (with low/medium Fø clause-finally).

General results relative to clause-final levels of Fø are as follows (ranked from strongest to weakest correlations):

Low : the orientation clause has a strong correlation, and the SV clause has a moderate correlation. The VS clause has a strong inverse correlation. The predicate nominal clause has a moderate inverse correlation.

Mid: the storyline clause has a very weak positive correlation. The orientation clause has a moderate inverse correlation, and the clause that contains a case noun has a weak inverse correlation.

High: lessening tension clauses have a moderate inverse correlation with Fø at clause terminus.

In table 37 are enumerated the correlations of low clause-final Fø. The strongest correlation is the orientation clause, with a moderate correlation being the SV clause. A strong inverse correlation is the VS clause, and a moderate inverse correlation is the predicate nominal clause. Note that most correlations are with word order.

Table 37. Correlations of low Fø clause-finally (N=80)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	low Fø	orientation	orientation	.801	VS clause	.179
		inciting incid.			inciting incident	.354
		word order	SV clause	.773	pred. nom. clause	.234
			SVO clause	.695	VO clause	.370
			V-only clause	.536		

Example (99) is from the 'Hammu the Trickster' story. It is an SVO orientation clause that has low Fø clause-finally:

(Fø end: 110)

(99) (291 ms) abit?nnəs
a-bit-?nnəs
DEM:PROX:SG-house-GEN:3:SG:MASC/FEM

This-his-house

iggæyaštwaɬlaḥdid\ (H) (782 ms)
i-ggæ yaš-twaɬ laḥdid
3A:SG:MASC-has one-iron door

had an-iron door.

4.3.1.3 Highest Fø in a given clause

There are few noteworthy correlations with the highest Fø in a clause. There is the moderate link to climax clauses, a link which is less strong than that of high amplitude to climax clauses.

4.3.1.4 Clause constituents with highest Fø

In general, heightened Fø underscores each of all clause constituents at one time or another. Subjects are underlined in topic clauses. Objects are underlined in VO clauses. Case nouns are underlined, but not in VS, VSO, and predicate nominal clauses.

Subsections 4.3.1.4.1-4.3.1.4.4 present the highest fundamental frequencies of clauses and their relation, or lack thereof, to individual clause constituents.

4.3.1.4.1 Clause adverbials

Clause adverbials' link is primarily to clause structure and discourse pragmatics, when the clause adverbial is underscored with the clause's highest Fø. Strong connections are to word orders, climax, and episode juncture. Table 38 lists correlations.

Table 38. Correlations of clause constituents with highest Fø: clause adverbials (N=21)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	Fø high: cl. adv.	word order	pred. nom. clauses	.914		
			VS clauses	.735	SV clauses	.266
			V-only clauses	.617	VO	.319
		climax	climax	.855	not climax	.438
		case noun	case noun	.823	not case noun	.411
		episode junct.	episode juncture	.746	not episode junct.	.375

Example (100) is the first clause of 'The Ogre and His Neighbor'. Example (101) is from 'Hammu the Trickster. Example (100) is a predicate nominal clause with the highest Fø at the clause adverbial; the clause is also found at an episode juncture:

(Fø high: 265)

(100) (0 ms) æywə/ ... ɖužanmæyyæz/ (0 ms)
æywə ɖ-užan-mæyyæz
well be-one-man

Well, there.was-a-man.

The next example also has the Fø high at a clause adverbial and is climax:

(Fø high: 189)

(101) (857 ms) æywaɬæɬan
æywa-ɬ æɬ-an
well-PROX IRR-3S:PL:MASC

Well-here they

muɬankulši/ (611 ms)
muɬ-an kulši
die-3S:PL:MASC all

all died.

4.3.1.4.2 Subjects

If the subject of a given clause is underlined with the highest Fø of that clause, then it is probably linked to topic. Table 39 shows the correlations of subjects possessing the highest Fø in clauses. Three very strong correlations are with: (1) post-V shifted topic, (2) post-V continuous topic, (3) pre-V shifted topic, and (4) pre-V continuous topic. These results suggest that when the subject of a clause has the highest Fø of any constituent of that clause, then it is most likely a topic.

Table 39. Correlations of clause constituents with highest Fø: subjects (N=24)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	Fø high: subj.	topic	shift topic/post-V	.980	not topic	.205
			continuous topic/post-V	.960		
			shift topic/pre-V	.936		
			continuous topic/pre-V	.829		

Subjects in presentational focus (post-V), orientation and predicate nominal clauses never have the Fø high in a clause.

Example (102) is from 'Tamza and the Wolf'; (103) is from 'Night Fears'. Example (102) has a topic shift post-V and the subject has the highest Fø:

(102) (1424 ms) æywasiḍiruḥæ
æywa siḍ i-ruḥæ
well sir 3S:SG:MASC-go

Well sir, that-wolf

(Fø high: 200)
yttæzzalwuššanni/ (752 ms)
y-tt-æzzal wuššan-ni
3S:SG:MASC-ITER-run wolf-DEM:DIST:SG/PL

would-run [from Tamza].

The next example has a pre-V continuing topic with the subject having the highest Fø:

(Fø 732)
(103) (1370 ms) <SM ʔntaxatrankɪriṭṭas/ SM> (637 ms)
ʔnta xa trankɪr i-ṭṭas
PRO:SG:MASC how calm 3S:SG:MASC

How calmly he was.sleeping!

4.3.1.4.3 Case nouns

If case nouns are present in a clause then they are most likely to be underscored with the highest Fø in the clause. Table 40 indicates the strong correlation of case nouns with the highest Fø in a given clause: clauses with case nouns. In addition, there is never a case noun as the Fø high in VS, VSO and predicate nominal clauses. No denouement, post-V topic and post-V focus clause has a case noun with the Fø high, presumably because the topic and focus would take those Fø highs rather than the case noun, and a denouement clause, low in information content, would not need the embellishment or description that a case noun would provide.

Table 40. Correlations of clause constituents with highest Fø: case nouns (N=20)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	Fø high: case noun	case noun cl.	case noun in clause	.899	not case noun	.375

Example (104) is found in 'Tamza and the Wolf'. It has a case noun which is the point of the highest Fø:

(104) (752 ms) ?ntætiyuɖfɖə%%ggwæfɩr\ (1937 ms)
?ntæt i-yuɖf ɖə%%gg-wæfɩr
PRO:3S:SG:MASC 3S:SG:MASC-enter ILL-hole

He went into-[a]hole.

4.3.1.4.4 Verbs

Generally, verbs with the highest Fø in a given clause are found in verb-only clauses (where other constituents may be present, such as clause adverbials and case nouns. Table 41 gives the moderate positive correlation with verbs which have the highest Fø in a given clause: V-only clauses (where the subject and object are absent).

Inversely, a strong correlation is the presence of a clause adverbial, with moderate inverse correlations with VS clauses, the presence of a case noun in the clause, SVO clauses, and VO clauses. This indicates that, strongly to moderately, the highest Fø will not be on verbs if there is a clause adverbial and/or a case noun, and if the clause has a subject and/or an object.

Table 41. Correlations of clause constituents with highest Fø: verbs (N=84)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	Fø high: verb	word order	V-only clauses	.776	VS clauses	.208
					SVO clauses	.248
					VO clauses	.265
					SV clauses	.485
		case noun cl.	not case noun	.571	case noun in clause	.227
		cl. adv. cl.	not adv. cl.	.227	cl. adv.	.175

Example (105) is from 'Night Fears'. The verb is at the point of highest Fø:

(Fø high: 279)

(105) (0 ms) <@ šabtazsaɡoyɡžɪ==n/ @> %%% (H) (1490 ms)
š abtaz-saɡoy gžɪn
then start-yell loud

Then [I] started [to] shout loudly.

4.3.1.4.5 Objects

The only significant link of clauses with objects (that have the highest Fø in the clause) is to clauses that have objects. Table 42 exhibits strong and weak correlations. A very strong correlation is VO clauses. A very weak correlation is SVO clauses. This suggests that Fø underlines or emphasizes the object in VO clauses.

A strong inverse correlation is V-only clauses, which is reasonable seeing that V-only clauses have no object.

Table 42. Correlations of clause constituents with highest Fø: objects (N=29)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	Fø high: obj.	word order	VO clauses	.948	V-only clauses	.162
			SVO clauses	.546		
			VS clauses	.612		

Example (106) is a VO clause from 'The Ogre and His Neighbor'. The Fø high is on the object (underlined):

(Fø high: 258)

(106) (740 ms) iṭṭafə%%<u>fiɡarənni</u>/ (0 ms)
i-ṭṭafə fiɡar-anni
3A:SG:MASC-grab snake-DEM:DIST:SG/PL

He-grabbed that-snake.

4.3.1.5 Location of Fø high relative to the verb

A clause constituent before or after the verb is sometimes underlined by heightened Fø. Clause adverbials are the most likely to have this underscoring, followed by pre-verbal shifted topics. After the verb, subjects and objects are most likely underlined.

4.3.1.5.1 Pre-V position

Results show that the clause adverbial (always pre-verbal) is the most probable constituent to be underlined pre-verbally with the highest Fø in a given clause. Secondarily, topic shift is can be underlined in like fashion.

Table 43 shows correlations of a pre-V location for the Fø high in a given clause. A very strong correlation is a clause adverbial. A strong correlation is pre-V topic shift.

Inversely, a strong correlation is lessening tension clauses, with a moderate correlation of post-V shifted topic.

Table 43. Position of Fø high: pre-V (N=27)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	Loc. Fø high: PreV	cl. adv. cl. topic	cl. adv.in clause	.903	lessening tension	.141
			shift topic/pre-V	.862	shift topic/post-V	.287
			continuous topic/pre-V	.566	cont. topic:post-V	.475

Example (107) is from 'Hammu the Trickster' in which Hammu finally convinces the witch to put him in the well. The clause has the location of the Fø high at the pre-V position. In addition, there is a clause adverbial and a shifted topic pre-V. It is also a climax clause:

(Fø high: 207)

(107) (0 ms) ḥəṣuld ... ɡwolæggidisæræf\ (152 ms)
ḥəṣul-d ɡwolæ ggi di-særæf
finally-PROX Tamza put ILL-well

Finally, Tamza put [him] in-[the]well.

Example (108) is from 'Night Fears'. It is a continuous topic and mounting tension clause with high Fø on the pre-V subject:

(Fø high: 215)

(108) (633 ms) <LO šɩθəggi\ LO> (119 ms)
šɩ θ-əggi
PRO:1S:SG:MASC/FEM ITER-move

I moved [it again].

4.3.1.5.2 Post-V position

If the location of the Fø high in a given clause is after the verb, then the clause type is likely VO or VS.

Correlations are shown in table 44. Strong correlations are VO and VS clauses. A moderate correlation is a case noun in the clause. A moderate inverse correlation is SV clauses. Thus, objects, subjects, and case nouns after the verb strongly to moderately correlate with post-V Fø high.

Table 44. Position of Fø high: post-V (N=66)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	Fø high: Post-V	word order	VO clauses	.848	SV clauses	.211
			VS clauses	.821	V-only clauses	.302
			SVO clauses	.645	pred. nom. clauses	.346
		case noun cl.	case noun in clause	.770	not case noun	.430

Example (109), from 'Tamza and the Wolf,' illustrates a VO clause with the Fø high as post-V and occurring on the case noun:

(109) (1865 ms) tɑlɑgəstɑṭṭf
t-ɑlɑgəs t-ɑṭṭf
3A:SG:FEM-think 3A:SG:FEM-grab

She-thought she-grabbed

Fø high: 177
ɑẓwɑrandzuggwærθ/ (807 ms)
ɑzwɑr ən-dzuggwærθ
root GEN-plant

[the]root of-[a]plant.

The second example, from 'The Ogre and His Neighbor,' is a VS clause where the Fø high is post-V:

(110) (876 ms) iždənhæyuzdgəs
iža-nhæ y-uz-d gə-s
one-day 3S:SG:MASC-come-PROX LOC-3IO:SG:MASC/FEM

One-day his-brother

(Fø high: 301)
omas\ (0 ms)
oma-s
brother-GEN:SG:MASC/FEM

came to-him.

4.3.1.6 Fø low point of clause

Links to low levels of Fø are weak, except to pre-verbal continuous topics.

Findings for correlations of Fø lows are mostly weak to non-existent. The only significant (or strong) correlation is level 2 Fø low with pre-V continuous topic, listed in table 45. Thus, continuous topics are less prosodically salient than shifted topics seeing that continuous topics lack Fø prominence.

Table 45. Correlations of lowest Fø in a given clause: 120-139 Hz (level 2) (N=54)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	low	topic	continuous topic/pre-V	.843	continuous topic/post-V	.499
	Fø		shift topic/pre-V	.659		
			shift topic/post-V	.546		
		mount. tens.	mounting tension	.679	not mounting tens.	.346
		storyline	not storyline	.840	storyline	.398

Example (111), from 'Tamza and the Wolf,' has continuous topic pre-V (underlined), and is a mounting tension clause with level 2 Fø low:

(111) (752 ms) ʔntætiyuɬfɬəʔʔggwæfɪr\ (1937 ms)
ʔntæt i-yuɬf ɬəʔʔgg-wæfɪr
PRO:3S:SG:MASC 3S:SG:MASC-enter ILL-hole

He went into-[a]hole.

The next example, from 'Hammu the Trickster,' is also level 2 Fø low, mounting tension and shifts the topic pre-V:

(112) (768 ms) ʔntæysaxsayzilɛfiθ
ʔntæ y-saxsay zi-lɛfiθ-
PRO:3S:SG:MASC 3S:SG:MASC-extinguish ELA-fire-

He extinguished this-fire

æðibarraknnizdaxr___ (450 ms)
æ ði-barrak-nni z-daxr
DEM:PROX:SG ILL-house-DEM:DIST:SG/PL ELA-inside

in-that-house from-[the]inside.

4.3.1.7 Span between lowest and highest Fø in a clause

This is a measure of Fø contrast and is for the determination of possible correlations with other prosodic, grammatical, and pragmatic phenomena. In general, wide Fø span has a stronger set of correlations than *narrow* span. Wide span correlates primarily with clause types, and narrow span with orientation.

4.3.1.7.1 Wide Fø span

Wide Fø span (or contrast) in a given clause is linked to specific clause types: SVO, clause adverbial clauses, VS, and SV.

Table 46 enumerates correlations. Three very strong correlations are SVO clauses, clause adverbial in a clause, and VS clauses. A strong correlation is SV clauses. Three very strong inverse correlations are post-V shifted topic, orientation clauses, and pre-V shifted topic. A strong inverse correlation is V-only clauses. In addition, all 8 denouement clauses are non-wide Fø span.

Thus, clause types such as SVO, SV and VS have high Fø contrast, along with clauses that have a clause adverbial. Also, high Fø contrast is averse to V-only clauses, shifted topic, orientation clauses, and denouement clauses.

Table 46. Correlations of span between lowest and highest Fø in a given clause: wide (N=27)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	wide Fø span	word order	SVO clauses	.972	V-only clauses	.143
			VS clauses	.941	VO clauses	.331
			SV clauses	.870	pred. nom. clause	.252
		cl. adv. cl.	cl. adv.in clause	.951	not cl. adv.	.323
		orientation	not orientation	.634	orientation	.031
		storyline	not storyline	.944	storyline	.331
		topic	not topic	.754	shift topic/post-V	.030
					shift topic/pre-V	.076
					continuous topic/pre-V	.425

The clause below, from 'Night Fears,' has a wide Fø span (level 4), is SVO, does not have a shifted topic, and is non-orientation and non-storyline:

(113) (646 ms) <@ nittæyɬyiggu ɬawæ
nittæ yɬ-yi-ggu ɬ awæ
PRO:3A:SG:MASC IRR-3A:SG:MASC then

Then he-was.afraid

ɡæyssiɡamtafot
ɡæ-y-ssiɡam tafot
IRR-3A:SG:MASC-turn.on light

to-turn.on [the] light

æɬixobaradoqæma\ @> (H) (277 ms)
æɬ-i-xobar ado-qæma
IRR-3S:SG:MASC-look LOC-bed

to-look under-[the]bed.

Similarly, the next example, from 'Tamza and the Wolf,' has wide Fø span (level 5), is SV, and is non-topic shift, non-orientation, but is storyline:

(114) (0 ms) idžɪn?nhar...%%%θamzaθæ=wzɪl
idžɪn-?nhar θamza θ-æwzɪl
one-day Tamza 3S:SG:FEM-chase

One day Tamza chased

xa=l?mqitš...a=xo=xušɪθ...
xa-l?mqitš axox-xušɪθ
LOC-cat LOC-wolf

after-[the]cat-- after-[the]wolf--

xušɪθ\ (1424 ms)
xušɪθ
wolf

[the]wolf.

4.3.1.7.2 Narrow Fø span

Clauses with narrow Fø span are strongly linked to orientation clauses.

Table 47 gives the strong correlation of orientation clauses with the very strong inverse correlations of SVO clauses and clauses with a clause adverbial. Also, all 8 denouement clauses and all 5 post-V continuous topic clauses have narrow Fø span. Thus, orientation, denouement and post-V continuous topic clauses are characterized by little Fø contrast. Conversely, SVO clauses and clauses with clause adverbials are averse to little Fø contrast.

Table 47. Correlations of span between lowest and highest Fø in a given clause: narrow (N=184)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	nar-row Fø span	word order	V-only clauses	.665	SVO clauses	.083
			pred. nom. clauses	.649	VO clauses	.453
					SV clauses	.456
					VS clauses	.467
		cl. adv. cl.	not cl. adv.	.636	cl. adv.	.095
		orientation	orientation	.887	not orientation	.419
		storyline	storyline	.636	not storyline	.096

Example (115), from 'The Ogre and His Neighbor,' illustrates a narrow Fø span (level 1), is a predicate nominal orientation clause, but is non-storyline:

(115) (807 ms) ðaniyaˈ (100 ms)
ðaniya
second.time

[It was the] second.time.

The next example, from 'Night Fears,' also has a narrow Fø span (level 1), is a V-only orientation clause, and is storyline:

(116) (751 ms) tɪggɪn___ (0 ms)
t-ɪggɪ-n
ITER-do-3A:PL:MASC

They-were-doing [something].

4.3.1.8 Fø contours at clause boundaries

Fø contours at clause boundaries rise at points of topic/focus and clause constituents (except the verb). Tables 49-52 display correlations.

4.3.1.8.1 Start/end falling

Inciting incident clauses have a weak link to clauses whose fundamental frequencies start and end falling (table 48). Also, all 8 denouement clauses do not start/end falling.

Table 48. Correlations of Fø contour direction at clause boundaries: start/end falling (N=28)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	start/ end fall	inciting incid.	inciting incident	.660	not inciting incid.	.449

Example (117), from 'Hammu the Trickster,' is an inciting incident clause that starts and ends falling:

(117) (37 ms) \tasigars\ (0 ms)
t-a-s-i-gars
ITER-IRR-3IO:SG:MASC/FEM-3S:SG:MASC-choke

He-choked-her.

4.3.1.8.2 Start falling/end rising

The primary link between start falling/end rising Fø in a clause and clause structure/discourse pragmatics is the VO clause type.

Table 49 shows correlations. A strong correlation is VO clauses. The two moderate correlations are clauses with case nouns, and VS clauses. A moderate inverse correlation is SV clauses. All 29 orientation clauses do not start falling and end rising.

Table 49. Correlations of Fø contour at clause boundaries: start falling/end rising (N=20)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	start fall/ end rise	word order	VO clauses	.844	SV clauses	.211
			VS	.729	SVO clauses	.389
					V-only clauses	.406
		case noun cl.	presence of case n.	.773	not case noun	.429

The table can be illustrated by example (118), from 'The Ogre and His Neighbor,' where the clause starts falling, ends rising and is VO:

(118) (850 ms) \A

She-birthed a-boy with-him.

The next example, from 'Night Fears,' has the same initial and final contour but is a VS clause:

(119) (414 ms) \šənæ...ikkæḥæssɪn/ (73 ms)
šənæ i-kkæ ḥæssɪn
then 3S:SG:MASC-come Hassan

Then Hassan came.

4.3.1.8.3 Start/end rising

A strong link to clauses that start and end rising (Fø) is the VS clause type.

Table 50 shows correlations. The strong positive correlation is VS clauses, with the moderate correlation as V-only clauses. Then there is the moderate inverse correlation of VO clauses.

Apart from the table, no predicate nominal, SV, or SVO clause, clause with a case noun, or clause with focus starts and ends rising.

Table 50. Correlations of Fø contour at clause boundaries: start/end rising (N=12)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	start/ end rise	word order	VS clauses V-only clauses	.811 .744	VO clauses	.223

The example, from 'Hammu the Trickster,' starts and ends rising and is VS:

(120) (585 ms) /komaṣælɡwolænniɗæ/(397 ms)
komaṣæ lɡwolæ-nni-ɗæ
start Tamza-DEM:DIST:SG-PROX

That Tamza started here.

The next example, from 'The Ogre and His Neighbor,' with the same contour, is a V-only clause:

(121) (0 ms) /ǔžuwæənd/ (0 ms)
ǔžuwæ-n-d
run-3S:PL:MASC/FEM-PROX

They-ran-here.

4.3.1.8.4 Start rising/end falling

Clauses that start with rising Fø and end falling are linked to contrastive focus.

Table 51 concerns the correlations. The very strong correlation is contrastive focus. The moderate correlation is clause adverbial clauses. These results are logical since all contrastive focus and clause adverbials are pre-V, thus tending to raise fundamental frequencies clause-initially.

Table 51. Correlations of Fø contour at clause boundaries: start rising/end falling (N=32)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	start rise/ end fall	focus	contrastive focus	.943	not contrastive foc.	.454
		cl. adv. cl.	cl. adv.in clause	.723	not cl. adv.	.441
		case noun cl.	case noun in clause	.689	not case noun	.454

The example below, from 'Hammu the Trickster,' illustrates a start rising/end falling contour plus a clause adverbial, a case noun and no contrastive focus:

(122) (1659 ms) /æywantættaffəg
æywə ntæt t-affəg
well PRO:3S:SG:FEM 3S:SG:FEM-come.out

Well, she came.out

...žəšəlmɛrəf\ (H) (1022 ms)
žə-šəlmɛrəf
LOC-beggar

to-[the]beggar.

The second example below, from 'Night Fears,' has the same contour, plus a clause adverbial, but this time *does* have contrastive focus:

(123) (474 ms) /nɩššədžittaɩmɩ
nɩšš ədžit takɩmɩ
PRO:1S:SG:MASC/FEM night whole

[The] whole night

nšəqqimo\ (H) (175 ms)
nš əqqim-o
PRO:1S:SG:MASC/FEM stay.up-1S:SG:MASC/FEM

I stayed.up.

4.3.1.8.5 Start/end level

Clauses that start and end level have no statistical significance or link to clause structure and/or discourse pragmatics; 14 of 27 are V-only clauses.

4.3.1.8.6 Start level/end falling

Clauses that start level and end falling have no statistical significance; 15 of 35 are V-only clauses; 18 of 35 were mounting tension clauses.

4.3.1.8.7 Start level/end rising

Clauses that start level and end rising have no statistical significance; 24 of 50 are mounting tension clauses.

4.3.1.8.8 Fø levels at clause boundaries (non-directional)

This section of results is for determining the link, if any, between Fø levels at clause boundaries and clause structure/discourse pragmatics. The primary conclusion is that clauses

that start at level 3 (relatively high) and end at level 2 (low) are strongly linked to presentational focus (after the verb).

The following presentation of results refers to Fø levels (in contrast to Fø contour directions) at clause boundaries. There are four levels; 1 is the lowest Fø; 4 is the highest. In general, Fø levels at clause boundaries have the following correlations (ranked from strongest to weakest). Since correlations were few, tables and examples are omitted.

start level 3, end level 2: very strong correlation of post-V presentational focus

all 13 of contrastive focus clauses do not start at level 3/end level 2.

start level 1, end level 2: moderate correlation of VS clauses

strong inverse correlation of SV clauses

all 8 denouement clauses are non-start level 1/end level 2 Fø.

start/end level 2: moderate correlations of focus clauses

start/end level 3: weak inverse correlation of mounting tension clauses

all 8 of the predicate nominal clauses, all 21 clauses with a preceding dependent clause, and all 6 presentational focus/post-V clauses do not start and end at level 3.

start/end level 1: no statistical significance; 4 of 8 are climax clauses

start level 1, end level 3: no statistical significance; 3 of 6 are mounting tension

start level 2, end level 1: no statistical significance; 4 of 9 are V-only clauses

start level 2, end level 3: no statistical significance; 17 of 34 are V-only and mounting tension

start level 3, end level 1: no statistical significance

4.3.1.8.9 Fø contours at clause terminus (rising, falling or level)

Fø contours found clause-finally are examined in this section in order to ascertain possible links to clause structure and discourse pragmatics. All are linked to clause types.

The three types of clause-final Fø are ranked below, from the greatest to the least set of correlations. Again, since correlations were few, charts and examples are omitted.

falling: strong correlation of predicate nominal clauses
weak correlation of SV clauses
moderate inverse correlation of VS clauses
weak inverse correlation of SVO clauses

rising: moderate correlations of VO and VS clauses
moderate inverse correlation of SV clauses

level: no statistical significance. However, all 8 predicate nominal clauses are *non-level* clause-final Fø.

4.3.2 Amplitude

In the sections following are detailed results of analyses of amplitude and its role in Tarifit discourse pragmatics and clause structure. In general, high clause-initial amplitude is

typical of climax and episode juncture clauses. Low initial amplitude is typical of orientation, lessening tension, denouement, post-V shifted topic, and post-V presentational focus clauses.

4.3.2.1 Clause-initial amplitude levels.

4.3.2.1.1 Low clause-initial amplitude

When a clause begins with low amplitude, it is moderately likely to be an inciting incident clause. However, *all* orientation, lessening tension, denouement, post-V shifted topic, and post-V presentational focus clauses have clause-initial low amplitude. These indicate a strong link between low amplitude and discourse pragmatics.

Table 52 indicates correlations of low clause-initial amplitude. A moderate correlation is inciting incident clauses. A very strong inverse correlation is climax clauses and a moderate inverse correlation is episode juncture clauses. Also, all 29 orientation clauses, all 21 lessening tension clauses, all 8 denouement clauses, all 19 shift topic/post-V clauses, and all 6 presentational focus/post-V clauses have low initial amplitude.

Table 52. Correlations of clause-initial amplitude: low (N=189)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	init. amp. low	inciting incid.	inciting incident	.774	not inciting incid.	.406
		climax	not climax	.580	climax	.091
		episode junct.	not episode junct.	.608	episode juncture	.285

The example below, from 'Hammu the Trickster,' is an inciting incident clause that is non-climax and non-episode juncture:

(124) (0 ms) ḥɔmərḥæɣɪsinxɔɬɣɔ___ (0 ms)
ḥɔmə rḥæɣ ɪ-sin x-ɔɬɣɔ
Hammu Laharaimi 3S:SG:MASC/FEM-climb LOC-donkey

Hammu Laharaimi [would] climb on-[the]donkey.

The next example, from 'Night Fears,' has the same factors as (124):

(125) (290 ms) <A tiggaɬæs
t-igga-ɬ-æs
ITER-move-1S:SG:MASC/FEM-3IO:SG:MASC/FEM

I-proceded-to.move

iqænaˈ A> (343 ms)
i-qæna
LOC-bed

[the]bed.

4.3.2.1.2 High clause-initial amplitude

High amplitude at the beginning of a clause is typical of climax and episode juncture clauses.

Table 53 has correlations with high clause-initial amplitude. The very strong correlation is climax clauses, along with the moderate correlation of episode juncture clauses. The moderate inverse correlation is inciting incident clauses.

Table 53. Correlations of clause-initial amplitude: high (N=22)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	init.	climax	climax clauses	.909	not climax	.420
	amp.	inciting incid.	not inciting incid.	.594	inciting incident cl.	.226
	high	episode junct.	episode juncture cl.	.715	not episode junct.	.392

The climax clause (126), from 'Hammu the Trickster,' has high initial amplitude and is non-episode juncture:

(126) (478 ms) θrḥɡas___ (0 ms)
θ-rḥ ɡa-s
3S:SG:FEM-go LOC:3IO:SG:MASC/FEM

She-went to-him.

The next example, from 'Night Fears,' has high initial amplitude, and is a climax and episode juncture clause:

(127) (1370 ms) <SM ʔntəxatrankɪrɪṭṭəs/ SM> (637 ms)
ʔntə xa trankɪr i-ṭṭəs
PRO:SG:MASC how calm 3S:SG:MASC

How calmly he was.sleeping!

4.3.2.2 Clause-final amplitude levels

4.3.2.2.1 Low clause-final amplitude

There is no statistical significance in relation to low clause-final amplitude according to *Goldvarb* analysis. However, all 42 clauses with clause adverbials, all 29 orientation clauses, all 50 inciting incident clauses, and all 21 clauses with preceding dependent clauses have low clause-final amplitude. Thus, this prosodic feature is linked to clauses of high information content.

4.3.2.2.2 High clause-final amplitude

There is no statistical significance relative to high clause-final amplitude.

4.3.2.3 Highest amplitude in each clause

Highest amplitude levels have strong correlations with SVO and contrastive focus clauses. Lower amplitudes (on the same high scale) have the strong correlations with predicate nominal and VS clauses.

4.3.2.3.1 Low end of highest amplitude

Within the group of clauses whose highest amplitude is lower compared to other clauses, the primary links are to predicate nominal and VS clause types.

Table 54 shows correlations of the low end of the highest amplitude scale. Strong correlations are predicate nominal and VS clauses. A moderate correlation is inciting incident clauses. Inversely, a very strong correlation is SVO clauses, followed by strong correlations of contrastive focus and clause adverbials. A moderate inverse correlation is climax.

Table 54. Correlations of highest amplitude in a given clause: low (N=166)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	high-est amp: low	word order	pred. nom. clauses	.852	SVO clauses	.068
			VS clauses	.803	VO clauses	.347
			V-only clauses	.634	SV clauses	.382
		cl. adv. cl.	not cl. adv.	.600	cl. adv.in clause	.164
		focus	not focus	.544	pres. focus/post-V	.300
					contrastive focus	.101
		inciting incid.	inciting incident cl.	.776	not inciting incid.	.405
		climax	not climax	.547	climax clauses	.207

Example (128), from 'Night Fears,' with low amplitude on the high scale, is a V-only clause and is 'inciting incident' and has no focus or a clause adverbial:

(128) (0 ms) ggwaran\ (H) (357 ms)
ggwara-n
walk-3S:PL:MASC

They were.walking.

The next example, from 'The Ogre and His Neighbor,' is a predicate nominal clause which is non-climax, non-inciting incident and has no clause adverbial and no focus:

(129) (885 ms) θæniyæ'\ (44 ms)
θæniyæ
second.time

[It was the] second.time [they pushed him into the sea].

4.3.2.3.2 High end of highest amplitude

Clauses whose highest amplitude is higher than other clauses are primarily identified as SVO and contrastive focus clauses.

Concerning the high end of highest amplitude of a given clause, table 55 indicates the correlations. The SVO clause's correlation is very strong. Contrastive focus clauses are strong. Strong inverse correlations are predicate nominal clauses and VS clauses.

Table 55. Correlations of highest amplitude in a given clause: high (N=45)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	high-est amp: high	word order	SVO clauses	.932	pred. nom. clauses	.148
			VO clauses	.653	VS clauses	.197
			SV clauses	.618	V-only clauses	.366
		cl. adv.. cl.	cl. adv.in clause	.600	not cl. adv.	.164
		climax	climax clauses	.547	not climax	.207
		inciting incid.	not inciting incid.	.776	inciting incident cl.	.405
		focus	contrastive focus/pre-V	.899	not focus	.456
			present. focus cl./post-V	.700		

The example below, from 'The Ogre and His Neighbor,' is an SVO inciting incident and mounting tension clause:

(130) (1364 ms) ʔnttæyɡæwqəbušənn___ (0 ms)
ʔnttæ y-ɡæ wqəbuš-ənn
PRO:3A:SG:MASC3A:SG:MASC-hit jar-DEM:DIST:SG/PL

He hit that jar.

The next example, from 'Tamza and the Wolf,' is also SVO, is a lessening tension clause and is contrastive focus:

(131) (1807 ms) θəmzaθəlaɣəsbəsæḥ/ (1865 ms)
θkmza θ-alaɣas basæḥ
Tamza 3A:SG:FEM-think truth

Tamza thought it.was.true.

4.3.2.4 Clause constituents with highest amplitude per clause

Results below answer the question: if a clause constituent. such as a subject, is underlined by the highest amplitude in a given clause, then is it linked to any element of discourse pragmatics and/or clause structure?

In general, only subjects, predicate nominals and verbs have any statistical significance if they are accompanied by amplitude highs, with subjects having the strongest set of correlations.

4.3.2.4.1 Subjects

Results below show that if a subject is underscored by the highest amplitude in a given clause, then it is strongly linked to topic.

Subjects with the highest amplitude in a given clause have the following correlations (table 56). Four very strong, and only, correlations are clauses that contain one of the four types of topic. These and other results follow in the discussion below.

Table 56. Correlations of clause constituents with highest amplitude: subjects (N=33)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	high-est amp: subj.	topic	shift topic/pre-V	.967	not topic	.172
			cont. topic/pre-V	.963		
			shift topic/post-V	.955		
			cont. topic/post-V	.951		

The example below, from 'Hammu the Trickster,' shifts the topic pre-V and the subject has the highest amplitude (underlined, level 5):

(132) (0 ms) ʔntæəmqitšhæyθəbərak___ (0 ms)
ʔntæ əmqitš hæ y-θəbərak
PRO:3S:SG:MASC Hammu go LOC-house

Hammu went to-[his]house.

The next example, from 'Tamza and the Wolf,' has the highest amplitude on the subject and has pre-V continuous topic:

(133) (807 ms) ʔntæʔæɬ--ʔnta
ʔntæʔ æɬ-- ʔnta
PRO:3S:SG:FEM IRR-- PRO:3S:SG:FEM

She would--, she

aθərzunˀ (0 ms)
a-θ-ərzun
IMM-3S:SG:FEM-release

then let.go [of the wolf's tail].

The next example, from 'The Ogre and His Neighbor,' along with the subject as the highest amplitude, has post-V shifted topic:

(134) (0 ms) bəɬænɬhænžæni___ (0 ms)
bəɬæ-n ɬhænžæn-i
start-3S:PL:MASC children-DEM:PROX:PL

These-children started.

The next example, from 'Hammu the Trickster,' with the subject as the highest amplitude, has continuous topic: post-V:

(135) (193 ms) komaṣaiɬgwai___ (0 ms)
komaṣa lɬgwal
start Tamza

Tamza started [to do something about him].

4.3.2.4.2 Objects

Objects with the highest amplitude in a given clause have no statistical significance or link to discourse pragmatics and/or clause structure. However, the object is never the point of highest amplitude in denouement clauses, clauses with a preceding dependent clause, and clauses with case nouns.

4.3.2.4.3 Verbs

Verbs underlined by the highest amplitude in a given clause are linked primarily to verb-only clauses.

Table 57 shows correlations. The moderate correlation is with V-only clauses. The strong inverse correlations are clause adverbial and SV clauses. The moderate inverse correlations are VS and SVO clauses.

Table 57. Correlations of clause constituents with highest amplitude: verbs (N=96)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	high-est amp: verb	word order	V-only clauses	.774	SV clauses	.190
			VO clauses	.504	VS clauses	.207
		storyline	storyline clauses	.550	SVO clauses	.265
		cl. adv. cl.	not cl. adv.	.630	cl. adv.in clause	.105
					not storyline	.308

This is illustrated by example (136), from 'Night Fears,' which is a V-only storyline clause, with the verb having the highest amplitude:[25]

(136) (0 ms) ggwaran\ (H) (357 ms)
ggwara-n
walk-3S:PL:MASC

They were.walking.

The next example, from 'The Ogre and His Neighbor,' is also V-only, +storyline, with the verb having the highest amplitude:

(137) (0 ms) θšəs ___ (0 ms)
θ-ša-s
3A:SG:FEM-give-3IO:SG:MASC/FEM

She-gave-to.him [the snake wrapped in the dress].

4.3.2.4.4 Predicate nominals

Predicate nominals with the highest amplitude in a given clause are connected to predicate nominal and presentational focus clauses.

Table 58 has the correlations. Very strong correlations are predicate nominal and presentational focus clauses. Strong correlations are contrastive focus and orientation clauses. Inverse correlations are weak.

Table 58. Correlations of clause constituents with highest amplitude: predicate nominals (N=7)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	high-est amp: pred. nom.	word order	pred. nom. clauses	.993	SV clauses	.452
		focus	present. focus	.961	not focus	.438
			contrastive focus	.899		
		orientation	orientation clauses	.875	not orientation	.423
		storyline	not storyline	.935	storyline clauses	.340

[25] Since there is only the verb in this example, then the high cannot be elsewhere. In other examples, other clause constituents can be present in V-only clauses such as case nouns and adverbs.

Example (138), from 'The Ogre and His Neighbor,' is a predicate nominal clause with presentational focus (underlined) and orientation:

(138) (0 ms) æywə/ ... ɖužənmæyyæz/ (0 ms)
æywə ɖ-užən-mæyyæz
well be-one-man

Well, there.was-a-man.

4.3.2.5 Location of amplitude high

This discussion concerns whether or not the location of the amplitude high in a given clause, whether pre- or post-V, is significant. The strongest set of correlations is with pre-V amplitude high. Pre-V topic shift and clause adverbial clauses are characteristic. Post-V, presentational focus and VS clauses are also significant. Thus, amplitude highs before or after the verb are linked to topic/focus and clause adverbials.

4.3.2.5.1 Pre-V amplitude high

If the amplitude high of a given clause is before the verb, then the clause is likely to have a clause adverbial or pre-verbal shifted topic.

Pre-V correlations are shown in table 59. Very strong correlations are clause adverbial and pre-V topic shift clauses. The other correlations are weak. Also, all eight denouement clauses do not have pre-V amplitude highs.

Table 59. Position of highest amplitude in a given clause: pre-V (N=48)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	high-est amp:	cl. adv. . cl. topic	cl. adv.in clause	.965	not cl. adv..	.304
			shift topic/pre-V	.955	not topic	.275
			continuous topic/post-V	.647		
	pre-verb	storyline	shift topic/post-V	.592		
			storyline clauses	.569	not storyline	.246

Example (139), from 'Night Fears,' has the location of the amplitude high on the clause adverbial (pre-V), has a shifted topic pre-V and is storyline:

(139) (593 ms) <LO šənšt
šə nš t-
then PRO:1A:SG:MASC/FEM ITER-

Then I-proceeded-

iggəgəs\ LO> (290 ms)
igga-g-əs
move-1A:SG:MASC/FEM-3IO:SG:MASC/FEM

[to]move-it.

The next example, from 'Hammu the Trickster,' also has a clause adverbial with the highest amplitude (underlined), continuous post-V topic and is storyline:

(140) (1262 ms) <u>ə=</u>ʔntɛlætæsəlgwulænni___ (800 ms)
ə= ʔntɛ lætæs əlgwulæ-nni
well PRO:3S:SG:FEM return Tamza-DEM:DIST:SG/PL

Well, that Tamza returned.

4.3.2.5.2 Post-V amplitude high

If the point of highest amplitude in a given clause is after the verb, then there is a strong probability that the clause has post-verbal presentational focus and is the VS clause type.

A very strong correlation of post-V amplitude high (table 60) is post-V presentational focus clauses. A strong correlation is VS clauses. Moderate correlations are lessening tension, VO, and SVO clauses. Moderate inverse correlations are predicate nominal, clause adverbial, and V-only clauses.

Table 60. Position of highest amplitude in a given clause: post-V (N=38)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	high-est amp: post-verb	focus	present. focus/post-V	.960	contrastive focus/pre-V	.318
		word order	VS clauses	.830	pred. nom. clauses	.239
			VO clauses	.769	V-only clauses	.256
			SVO clauses	.719	SV clauses	.470
		cl. adv. cl.	not cl. adv.	.568	cl. adv.in clause	.249
		lessening tens.	lessening tension cl	.793	not lessening tens.	.463
					not focus	.488

Illustration (141), from 'The Ogre and His Neighbor,' is a VS clause where the amplitude high is post-V (underlined), and the clause is at an episode juncture:

(141) (0 ms) bəđænιhænžæni___ (0 ms)
bəđæ-n ιhænžæn-i
start-3S:PL:MASC children-DEM:PROX:PL

These-children started.

The illustration (142), from 'Hammu the Trickster,' is also VS with the amplitude high located post-V, but it is a lessening tension clause:

(142) (611 ms) qæɬifaɣ
q-æɬ-i-faɣ
IMM-IRR-3S:SG:MASC-come.out

Then he came out,

(ampl. high: 3678)
(Fø high: 172)
ahadiddænawldlaharrab___ (0 ms)
aḥadiddæn awld laḥarrab
Hadiddan son illegitimate

Hadiddan the illegitimate son.

The next example, from 'Tamza and the Wolf,' is a lessening tension VO clause with the amplitude high as post-V:

(143) (1865 ms) tɘlaɣastaṭṭf
t-ɘlaɣas t-aṭṭf
3A:SG:FEM-think 3A:SG:FEM-grab

She-thought she-grabbed

azwarandzuggwærθ/(807 ms)
azwar an-dzuggwærθ
root GEN-plant

[the]root of-[a]plant.

4.3.2.6 Lowest amplitude in a given clause

Results presented below answer the question: is there any correspondence between low amplitude and clause structure/discourse pragmatics?

The significance, if any, of positions of lowest amplitude in a given clause is discussed in this section. Level 3 (a medium level) has the strongest set of correlations. Contrastive focus and inciting incident clauses predominate at this level, and all orientation, denouement and lessening tension clauses are non-level 3.

4.3.2.6.1 Lowest amplitude in a given clause: level 1

A significant link to low amplitude (level 1) is lessening tension.

Table 61 lists level 1 (lowest amplitude on scale) correlations. A strong correlation is lessening tension clauses. A moderate correlation is case noun clauses. An inverse correlation is very weak.

Table 61. Correlations of lowest amplitude in a given clause: level 1 (N=76)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	low-	lessening tens.	lessening tension clauses	.822	not lessening tens.	.458
	est	case noun cl.	clauses with case nouns	.744	not case noun	.438
	amp: lev.1	storyline	not storyline	.682	storyline clauses	.453

Example (144), from 'Night Fears,' illustrates a lessening tension clause having low amplitude, with a case noun (underlined), and non-storyline:

(144) (58 ms) tuɡaɖalxarifʕ (297 ms)
tuɡa ɖa-lxarif
AUX ILL-summer

It.was in-[the]summer.

The next example, from 'The Ogre and His Neighbor,' has low amplitude, a case noun, and is a storyline and lessening tension clause:

(145) (0 ms) izargɪθɖaggižanizæ/ (178 ms)
i-zargɪ-θ ɖagg-ižan-izæ
3A:SG:MASC-3O:SG:FEM ILL-one-dress

He-twisted-it in-a-dress.

4.3.2.6.2 Lowest amplitude in a given clause: level 2

As was the case with level 1 low amplitude, level 2 amplitude is linked to lessening tension clauses (but less so).

Level 2 (next to lowest amplitude on scale) correlations are listed in table 62. A moderate inverse correlation (the only significant correlation) is lessening tension clauses.

Table 62. Correlations of lowest amplitude in a given clause: level 2 (N=117)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	low-est	storyline	storyline clauses	.539	not storyline	.348
		lessening tens.	not lessening tens.	.530	lessening tension clauses	.251
	amp: lev.2	case noun cl.	not case noun	.543	clauses with case nouns	.323

Clause (146), from 'Hammu the Trickster,' has level 2 amplitude, is V-only, non-lessening tension, has no case noun, and is storyline:

(146) (450 ms) ttšæṣməɖ\ (748 ms)
ttš æṣməɖ
then be.cold

Then [it] became.cold [inside].

The next example, from 'Tamza and the Wolf,' also has level 2 amplitude, is a denouement, episode juncture, storyline, and non-lessening tension clause with no case noun:

(147) (807 ms) ʔntæʔæɬ--ʔnta
ʔntæʔ æɬ-- ʔnta
PRO:3S:SG:FEM IRR-- PRO:3S:SG:FEM

She would--, she

aθarzun/ (0 ms)
a-θ-arzun
IMM-3S:SG:FEM-release

then let.go [of the wolf's tail].

4.3.2.6.3 Lowest amplitude in a given clause: level 3

A very strong correlation of level 3 low amplitude is with contrastive focus clauses (table 63). A moderate inverse correlation is inciting incident clauses. Apart from the chart, all orientation, denouement and lessening tension clauses do not have level 3 amplitude low.

Table 63. Correlations of lowest amplitude in a given clause: level 3 (N=14)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	low-		contrastive focus clauses	.926	not contrast. foc.	.459
	est		episode juncture clauses	.680	not epis. junct.	.411
	amp: lev.3		storyline clauses	.592	not storyline	.182
			not incit. incid.	.606	inciting incident clauses	.200

The example below, from 'Night Fears,' has level 3 amplitude, contrastive focus (underlined), non-episode juncture, and is storyline:

(148) (282 ms) <@ ʔnšaɬkaɬɕssæ\ @> (H) (292 ms)
ʔnš aɬ-ka ɬ-ɕssæ
PRO:3S:SG:MASC/FEM IRR-go IRR-guard

I went to-guard [the house by myself].

The next example, from 'Night Fears,' (level 3 amplitude) also has contrastive focus, is a climax and non-storyline clause:

(149) (0 ms) mmædgæyagagagagaga\ @@@@ (H) (1370 ms)
mmæd gæ-ya gagagaga
Mohammed DAT-IO:SG:MASC/FEM heedless.one

To me, Mohammed [was an] irrational.being [like a turkey].

4.3.2.7 Amplitude span in a given clause

Amplitude span or contrast is most notably linked to inciting incident and clause adverbial clauses (when the span is narrow), and pre-V topic and post-V focus (when wide).

4.3.2.7.1 Narrow span

Moderate correlations of narrow amplitude span are with inciting incident, VS, and V-only clauses (table 64). A very strong inverse correlation is SVO clauses. A strong inverse correlation is clause adverbial clauses. In addition, all 21 shift topic/post-V clauses have low amplitude span.

Table 64. Correlations of span between highest and lowest amplitude in a given clause: narrow (N=175)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	amp.	inciting incid.	inciting incident clauses	.781	not incit. incid.	.403
	span: nar-row	word order	VS clauses	.755	SVO clauses	.057
			V-only clauses	.715	SV clauses	.232
			pred. nom. clauses	.628	VO clauses	.400
		cl. adv. cl.	not cl. adv.	.620	clauses with cl. adv.	.122
		climax	not climax	.542	climax clauses	.232

The example following, from 'Hammu the Trickster,' is an inciting incident clause with narrow amplitude span, and V-only:

(150) (37 ms) \tasigars\ (0 ms)
t-a-s-i-gars
ITER-IRR-3IO:SG:MASC/FEM-3S:SG:MASC-choke

He-choked-her.

The next example, from 'The Ogre and His Neighbor,' also has narrow amplitude span, and is a VS episode juncture clause:

(151) (788 ms) ikkænttæm/(493 ms)
i-kkæ nttæ-m
3S:SG:MASC-get.up PRO:3S:SG:MASC-RECIP

He-himself got.up.

4.3.2.7.2 Medium span

Medium amplitude span correlations are shown in table 65, where a very strong correlation is SVO clauses, followed by a strong correlation of clause adverbial clauses and the moderate correlation of SV clauses. A strong inverse correlation is VS clauses. All 8 denouement clauses are *not* medium amplitude span.

Table 65. Correlations of span between highest and lowest amplitude in a given clause: mid (N=21)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	amp. span: mid	word order	SVO clauses	.930	VS clauses	.196
			SV clauses	.718	V-only clauses	.340
			VO clauses	.513		
		cl. adv. cl.	clauses with cl. adv.	.887	not cl. adv.	.374
		storyline	storyline clauses	.587	not storyline	.195

The example following, from 'Night Fears,' is medium amplitude span, a SV clause, and is storyline:

(152) (282 ms) <@ ʔnšəɬkəɬɕssæ\ @> (H) (292 ms)
ʔnš əɬ-kə ɬ-ɕssæ
PRO:3S:SG:MASC/FEM IRR-go IRR-guard

I went to-guard [the house by myself].

The next example, from 'Hammu the Trickster,' is SVO, medium amplitude span, and is storyline:

(153) (813 ms) ərənnəttæɬiɬliksuwθənnɪs/ (0 ms)
ərən nəttæ ɬiɬ liksuwθ-ənnɪs
then PRO:3S:SG:MASC put.on clothes-GEN:3:SG:MASC/FEM

Then he put.on her-clothes.

4.3.2.7.3 Wide span

Wide amplitude span in a given clause is primarily associated with post-verbal focus and pre-verbal topic.

Wide amplitude span correlations are given in table 66 where there are four strong correlations and no inverse correlations: post-V presentational focus, contrastive focus, pre-V shifted topic, and pre-V continuous topic.

Table 66. Correlations of span between highest and lowest amplitude in a given clause: wide (N=15)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	amp.	focus	present. focus cl./post-V	.878	not focus	.402
	span:		contrastive focus cl./pre-V	.873		
	wide	topic	shift topic/pre-V	.813	not pre-V topic	.452
			continuous topic/pre-V	.810		

All examples below have wide amplitude span. The first example, from 'The Ogre and His Neighbor,' has post-V presentational focus:

(154) (0 ms) æywa/ ... ɖužanmæyyæz/ (0 ms)
æywa ɖ-užan-mæyyæz
well be-one-man

Well, there.was-a-man.

The next, from 'Hammu the Trickster,' has pre-V shifted topic:

(155) (1568 ms) arannæyžanhartædisižwæ=
arannæ yža-nhar tædis i-žwæ
then one-day beggar 3S:SG:MASC-be.poor

Then one-day [a] poor beggar

ižumanæθru\ (158 ms)
i-žumanæθru
3S:SG:MASC-come

came.

The next, from 'Tamza and the Wolf,' has pre-V continuous topic:

(156) (752 ms) ʔntætiyuɖfɖa%%ggwæfɪr\ (1937 ms)
ʔntæt i-yuɖf ɖa%%gg-wæfɪr
PRO:3S:SG:MASC 3S:SG:MASC-enter ILL-hole

He went into-[a]hole.

The next, from 'Night Fears,' has contrastive focus:

(157) (455 ms) išɪg <X sθæg X> tæ%%%ẖša g
iš ɪ-g sθæg t-æẖša-g
PRO:3S:SG:MASC/FEM ITER-make.fun-3S:SG:MASC/FEM

I was-making.fun [of him]

<X abθɪgaraṣ X>\ (84 ms)

4.3.2.8 Amplitude levels and direction at clause boundaries relative to amplitude wave pattern in window of *Signalyze*

Concerning amplitude levels and contours at clause boundaries, the strongest set of correlations is those concerning start/end high. Pre-V continuous topic, post-V shifted topic, V-only, or predicate nominal clauses are all significant, with strong aversions to SV, VS, denouement, clauses preceded by a dependent clause, and focus clauses. Other correlations were few. Thus charts and examples are omitted.

4.3.3 Morphemes per clause

This section presents results pertaining to the relation of *clause length* to prosodic, pragmatic, and grammatical factors of clauses. Length plays a role in delineating certain clause-types, especially in clauses of 1-3 morphemes. Post-V shifted topic, or post-V continuous topic, or V-only clauses correlate with shortness of clause. VS, case noun, SVO, pre-V shifted topic, and clause adverbial clauses are non-short.

4.3.3.1 Clause length: 1-3 morphemes

The shortest clauses (as measured by the number of morphemes) are most strongly associated with post-verbal topic and verb-only clauses.

For clauses of 1-3 morphemes (short: level 1), table 67 gives the correlations. Clauses with post-V shifted topic or continuous topic are very strong correlations. Strong correlations are V-only clauses. A very strong inverse correlation is VS clauses. Strong inverse correlations are case noun, SVO, pre-V shifted topic, and clause adverbial clauses.

Table 67. Correlations of the number of morphemes per clause: 1-3 (short: level 1) (N=70)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	mor-	topic	topic shift cl./post-V	.972	topic shift cl./pre-V	.160
	ph/cl		contin. topic cl./post-V	.934	contin. topic/pre-V clauses	.345
	short lev.1	word order	V-only clauses	.834	VS clauses	.031
			pred. nom. clauses	.633	VO clauses	.248
			SV clauses	.624	SVO clauses	.150
		case noun cl.	not case n.	.613	clauses with case nouns	.123
		cl. adv. cl.	not cl. adv.	.590	clauses with a cl. adv.	.187
					not topic	.459

Clause (158), from 'The Ogre and His Neighbor,' is VS, and is short (level 1: 1-3 morphemes):

(158) (1016 ms) θəqqimttæθ\ (235 ms)
θ-aqqim ttæθ
3S:SG:FEM-stay PRO:3S:SG:FEM

She stayed [there].

The next example, from 'Hammu the Trickster,' is also a VS clause, is short, has post-V continuous topic with no case noun or clause adverbial:

(159) (193 ms) komaṣalǧwal__ (0 ms)
komaṣa lǧwal
start Tamza

Tamza started [to do something about him].

The next example, from 'Night Fears,' is a V-only clause that is short:

(160) (0 ms) ggwaran\ (H) (357 ms)
ggwara-n
walk-3S:PL:MASC

They were.walking.

4.3.3.2 Clause length: 4-6 morphemes

For clauses of 4-6 morphemes there were no significant correlations.

4.3.3.3 Clause length: 7-9 morphemes

For clauses of 7-9 morphemes, table 68 lists correlations. SVO clauses are strong correlations, followed by clause adverbial and VO clauses as moderate correlations. A moderate inverse correlation is V-only clauses.

Table 68. Correlations of the number of morphemes per clause: 7-9 (short: level 3) (N=25)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	mor-ph/cl short lev.3	word order	SVO clauses	.868	V-only clauses	.272
			VO clauses	.743	SV clauses	.394
			VS clauses	.646		
			pred. nom. clauses	.583		
		cl. adv. cl.	clauses with cl. adv.	.730	not cl. adv.	.439

Clause (161), from 'Tamza and the Wolf,' has level 3 length, is a VS clause, and has a clause adverbial:

(161) (1424 ms) æywasiḍiruḥæ
æywa siḍ i-ruḥæ
well sir 3S:SG:MASC-go

Well sir, that-wolf

ɣttæzzalwuššanni/ (752 ms)
ɣ-tt-æzzal wuššan-ni
3S:SG:MASC-ITER-run wolf-DEM:DIST:SG/PL

would-run [from Tamza].

The next example, from 'Hammu the Trickster,' is a level 3 clause and is SVO:

(162) (478 ms) alaɡolaƟaxirina
alaɡola Ɵ-axirina
Tamza 3S:SG:FEM-pick

Tamza picked

ƭogwæyš?nkokillɪsiksu_(0 ms)
ƭog-wæyš?nkok illɪs iksu
ILL-clothing daughter clothes

up [her] daughter['s] clothes.

The next example, from 'Night Fears,' is a level 3 clause, has a clause adverbial and is VO:

(163) (554 ms) iždwalla\... (H) iždmara
iž-uw-alla iž-umara
one-ABL-God one-time

One time, by God, one time

tuɡaɛddɪroɡa=\...kuzina\ (158 ms)
tuɡa ɛddɪro-ɡa kuzina
AUX repair-1A:SG:MASC/FEM kitchen

I-was.repairing [the] kitchen.

4.3.3.4 Clause length: 10-18 morphemes

For clauses of 10-18 morphemes, table 69 lists the significant correlations. Again, a strong correlation is SVO clauses. Moderate correlations are case noun, VS, SV, and VO clauses. The only inverse correlation (strong) is V-only clauses.

All denouement clauses have fewer than 10 morphemes.

Table 69. Correlations of the number of morphemes per clause: 10-18 (long: levels 4-6) (N=14)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	mor-ph/cl long	word order	SVO clauses	.804	V-only clauses	.183
			VS clauses	.756		
			SV clauses	.740		
			VO	.698		
		case noun cl.	clauses with case nouns	.783	not case n.	.426

The example below, from 'The Ogre and His Neighbor,' is a long clause, has a case noun, and is SV:

(164) (99 ms) nuwaɡddišoḥænžæθ
nuwa ɡ-ddi š-oḥænžæ-θ
REL.PRO:3A:SG:MASC IRR-live CORR-child-PROX

The son of the ogre (lit. 'he who lived as a child')

hæyɛnɪbdirəbḥæ___ (0 ms)
hæ y-ɛnɪb di-rəbḥæ
behold 3A:SG:MASC-push ILL-sea

pushed him into the sea!

The next clause, from 'Tamza and the Wolf,' is long and is SVO:

(165) (0 ms) ošš ɪnnyæ=yiḥæs
ošš ɪn-ny æ-yi-ḥæs
wolf-DEM:DIST:SG/PL IMM-3A:SG:MASC-feel

That-wolf then-felt

ballɪθtədzi%tə-- təmzaʔ (1322 ms)
ballɪ θ-tə-d zi-tə-- təmza
that 3A:SG:FEM-grab-PROX ELA-Tamza

that Tamza had.grabbed-[him]here [by the tail].

4.3.4 Speed (morphemes per second)

Results concerning clause speed are listed and discussed in this section. The most notable result is for slow speed (1-3 morphemes per second); there is a somewhat significant link of this speed to predicate nominal, clause adverbial, and SVO clauses. These clauses are linked to orientation, episode juncture, and complex clauses (i.e., clauses with the most marked constituents, coded from '1' to '9', least to most complex) and would require more processing time than others; hence they are slower.

4.3.4.1 1-3 morphemes per second

The slowest speeds in the four narratives were linked to predicate nominal and SVO clause types.

Clauses of the speed 1-3 morphemes per second have the correlations below (table 70). Predicate nominal, clause adverbial, and SVO clauses are moderate correlations.

Table 70. Correlations of clause speed: 1-3 morphemes per second (slow: level 1) (N=77)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	mor-ph/sc slow lev.1	word order	pred. nom. clauses	.752	V-only clauses	.347
			SVO clauses	.711		
			VS clauses	.631		
			VO clauses	.581		
			SV clauses	.516		
		cl. adv. cl.	clauses with cl. adv.	.732	not cl. adv.	.438

Clause (166), from 'Hammu the Trickster,' was pronounced between 1 and 3 morphemes per second (slow), is SVO, and has a clause adverbial:

(166) (1287 ms) arannæžaḥæwɪdlaḥæramnæḥdidænni....
arannæ žaḥæ wɪd laḥæram n-æḥdidænni
then Jeha son illegitimate GEN-Haddami

Then Jeha, the illegitimate son of Haddami,

tɕwæyggɪzisæɬiž
tɕwæ y-ggɪzi sæɬiž
AUX 3A:SG:MASC-make pool

before.had made [a] pool

uwæmænɬi=%%rusθannintabarrak\ (585 ms)
u-wæmæn ɬir-usθ-anni n-tabarrak
GEN-water INES-middle-DEM:DIST:SG/PL GEN-house

of-water in-[the]middle of-[his]house.

The next example, from 'The Ogre and His Neighbor,' is slow, a predicate nominal clause, and has a clause adverbial:

(167) (896 ms) walu (H) æywayamniyamnia\ (501 ms)
walu æywa yamni yamnia
nothing well like.that like.that

Then [he was a] dead.man [just] like.that.

4.3.4.2 4-6 morphemes per second

For clauses of the speed 4-6 morphemes per second, there is the weak correlation with clause adverbial clauses (table 71).

Table 71. Correlations of clause speed: 4-6 morphemes per second (slow: level 2) (N=110)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	mor- ph/sc slow lev.2	cl. adv. cl.	not cl. adv.	.542	clauses with cl. adv.	.339

Example (168), from 'Night Fears,' is of medium speed (4-6 morphemes per second) and has no clause adverbial:

(168) (0 ms) šɪroḥamoḥæmmɪd\ (0 ms)
šɪ roḥa moḥæmmɪd
PRO:1S:SG:MASC/FEM go Mohammed

I went [to] Mohammed.

The next example, from 'Hammu the Trickster,' is also of medium speed and has no clause adverbial:

(169) (680 ms) tɪgagasiogwalɪllas/ (0 ms)
tɪga ga-s i-ogwal ɪllas
AUX ABL-3IO:SG:MASC/FEM LOC-Tamza daughter

Tamza had [a] daughter.

4.3.4.3 7-18 morphemes per second

For clauses of the speed 7-18 morphemes per second there was no significant correlation, except to note that no focus, orientation or denouement clauses have this speed.

4.3.5 Pause duration at clause boundaries

Highlights of this section are the correlations of initial pause duration with clause adverbials and episode juncture, and final pause duration to focus.

4.3.5.1 Clause-initial pause duration

This section presents the results of the relation of clause-initial pause length to prosodic, pragmatic, and grammatical factors. Findings show that there is a slight link between long clause-initial pause on the one hand and clause adverbial and episode juncture clauses on the other.

4.3.5.1.1 Clause-initial pauses of 0-499 milliseconds

Clause-initial pauses of 0-499 milliseconds have the following correlations (table 72). Clause adverbial and episode juncture clauses are weak inverse correlations.

Table 72. Correlations of clause-initial pause duration: short (1-499 ms) (N=125)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	init.	cl. adv. cl.	not cl. adv.	.552	clauses containing a cl. adv.	.302
	paus: short	episode junct.	not epis. junct.	.586	episode juncture clauses	.325

Example (170), from 'Night Fears,' illustrates a pause between 0 and 499 milliseconds, has no clause adverbial, and is non-episode juncture:

(170) (292 ms) æɬəraža-g-æyuz\ (0 ms)
æɬ-əraža-g æyuz
IRR-wait-1S:SG:MASC/FEM husband

I-waited [for my] husband.

The next example, from 'The Ogre and His Neighbor,' also has a short initial pause, has no clause adverbial, and is non-episode juncture:

(171) (0 ms) zɬ-y-amæy-rabḥæym/ (H) (896 ms)
zɬ-y-amæy rabḥæym
the.one-3A:SG:MASC-carry cattle

He carried cattle (lit. 'he was heavy').

4.3.5.1.2 Clause-initial pauses of 500-999 milliseconds

Clause-initial pause length of 500-999 milliseconds has the following correlation (table 73). Episode juncture clauses are weak correlations.

Table 73. Correlations of clause-initial pause duration: medium (500-999 ms) (N=65)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	init. paus med.	episode junct.	episode juncture cl.	.631	not epis. junct.	.437

Example (172), from 'Hammu the Trickster,' has medium initial pause length and is an episode juncture clause:

(172) (611 ms) ɵrḥɡas___ (95 ms)
ɵ-rḥ ɡa-s
3S:SG:FEM-go LOC-3IO:SG:MASC/FEM

She-went to-him.

The next example, from 'Night Fears,' also has medium initial pause length and is an episode juncture clause:

(173) (593 ms) <LO šənšt
šə nš t-
then PRO:1A:SG:MASC/FEM ITER-

Then I-proceded-

iggaɡæs\ LO> (290 ms)
igga-ɡ-æs
move-1A:SG:MASC/FEM-3IO:SG:MASC/FEM

[to]move-it.

4.3.5.1.3 Clause-initial pauses of 1000-1999 milliseconds

Correlations with clause-initial pause length of 1000-1999 milliseconds are listed in table 74. Clause adverbial clauses are moderate correlations, followed by episode juncture clauses that are weak correlations.

Table 74. Correlations of clause-initial pause duration: long (1000-1999 ms) (N=21)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	init.	cl. adv. cl.	clauses containing a cl. adv.	.719	not cl. adv.	.442
	paus: long	episode junct.	episode juncture clauses	.674	not epis. junct.	.415

The clause following, from 'The Ogre and His Neighbor,' has a clause adverbial, a long initial pause, and is an episode juncture clause:

(174) (1422 ms) æɣwæɣroḥ\ (H) (674 ms)
æɣwæ ɣ-roḥ
well/then 3S:SG:MASC-go

Then he-left [with them].

The next example, from 'Hammu the Trickster,' has a long initial pause, a clause adverbial, and is an episode juncture clause:

(175) (1262 ms) a=ʔntɛlætæsalɠwulænni___ (800 ms)
a= ʔntɛ lætæs alɠwulæ-nni
well PRO:3S:SG:FEM return Tamza-DEM:DIST:SG/PL

Well, that Tamza returned.

4.3.5.2 Clause-final pause duration

Results concerning links among prosodic, pragmatic, and grammatical factors and clause-final pause duration are delineated in this section. In general, the longest end pause (1000-2999 ms) is the most significant, relating significantly to presentational and contrastive focus, and less significantly to clauses which are preceded by a dependent clause.

4.3.5.2.1 Clause-final pauses of 0-499 milliseconds

There are no significant correlations for clauses with clause-final pauses of 0-499 milliseconds.

4.3.5.2.2 Clause-final pauses of 500-999 milliseconds

For clauses with clause-final pauses of 500-999 milliseconds, correlations are in table 75. Post-V continuous topic clauses are a weak correlation, along with pre-V continuous topic clauses as very weak correlations. However, there is a strong inverse correlation of pre-V shifted topic clauses.

Table 75. Correlations of clause-final pause duration: medium (500-999 ms) (N=61)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	final	topic	contin. topic cl./post-V	.645	topic shift cl./pre-V	.174
	paus:		contin. topic/pre-V clauses	.532	topic shift cl./post-V	.338
	med.		not topic	.589		

The clause following, from 'Hammu the Trickster,' has medium-length end pause and post-V continuous topic (underlined):

(176) (1262 ms) komasɛʔalgulatwosit (800 ms)
komasɛ ʔalgula twosit
start Tamza old.woman

Tamza [the] old.woman started.

4.3.5.2.3 Clause-final pauses of 1000-2999 milliseconds

For clauses with clause-final pauses of 1000-2999 milliseconds, there are significant correlations (table 76). Pre-V presentational focus clauses are very strong correlations. Post-V

presentational focus clause are strong correlations, with contrastive focus clauses and clause with a preceding dependent clause as moderate correlations.

Table 76. Correlations of clause-final pause duration: long (1000-2999 ms) (N=27)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	final	focus	present. focus cl./pre-V	.901	not focus	.461
	paus:		present. focus cl./post-V	.819		
	long		contrastive focus	.781		
		prec. dep. cl.	clauses with a prec. dep. cl.	.774	not prec. dep. cl.	.466

Example (177), from 'Tamza and the Wolf,' has long final pause length and contrastive focus:

(177) (1807 ms) ɵamzaɵalaɡasbasæḥ/ (1865 ms)
ɵkmza ɵ-alaɡas basæḥ
Tamza 3A:SG:FEM-think truth

Tamza thought it.was.true.

The next example, from 'Hammu the Trickster,' along with long final pause length has presentational focus:

(178) (0 ms) džammasaḥammulḥaraymi\ (1110 ms)
d-žamma-s aḥammu lḥaraymi
be-name-GEN:SG:MASC/FEM Hammu Laharaimi

His-name-was Hammu Laharaimi.

The next example, from 'The Ogre and His Neighbor,' has no focus or topic but has a preceding dependent clause, and is followed by a long pause:

(179) ræmiɵantarqaɬ/
ræmi ɵ-antarqa-ɬ
after 3S:SG:FEM-gather-PROX

After she-gathered.together [the snake's bones],

(0 ms) θaggɩssmiɬḥæbiɬ/(1290 ms)
θ-aggɩ smiɬ ḥæbiɬ
3S:SG:FEM-make wheat noodles

she-made [them into] wheat noodles.

4.3.6 Clauses as intonation units

This section answers the question pertaining to whether or not IU's are significantly linked to any section of discourse, or clause type, or prosodic factor in Tarifit narrative. The answer is that they are not. Weak correlations are listed in table 77. Clauses that have clause adverbials are a weak correlation. Inversely, inciting incident clauses are weak correlations.

Table 77. Correlations with clauses as intonation units (N=127)

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
Pros	IU	cl. adv. cl.	clauses with a cl. adv.	.693	not cl. adv.	.450
		inciting incid.	not incit. incid.	.557	inciting incident clauses	.324
		storyline	not storyline	.741	storyline clauses	.435

Example (180), from 'Night Fears,' is an intonation unit with clause adverbial and is non-inciting incident and non-storyline.

(180) (147) (554 ms) ižuwalla\... (H) ižumara
iž-uw-alla iž-umara
one-ABL-God one-time

One time, by God, one time

tuga ɛddɩroga=\...kuzina\ (158 ms)
tuga ɛddɩro-ga kuzina
AUX repair-1A:SG:MASC/FEM kitchen

I-was.repairing [the] kitchen.

The next IU example, from 'Tamza and the Wolf,' also has a clause adverbial and is non-inciting incident and non-storyline. The clause/IU is written in two parts so that it will fit on the page:

(181) (1424 ms) æywasiḍiruḥæ
æywa siḍ i-ruḥæ
well sir 3S:SG:MASC-go

Well sir, that-wolf

yttæzzalwuššənni/ (752 ms)
y-tt-æzzal wuššən-ni
3S:SG:MASC-ITER-run wolf-DEM:DIST:SG/PL

would-run [from Tamza].

4.4 Individual differences among the four narratives

Investigation in this section is for the determination of unique prosodic, discourse pragmatic, and clause structural characteristics of each of the four narratives analyzed in this study. The four texts pattern in basically similar ways, except that 'Tamza and the Wolf' has the unique attributes of downdrift of number of morphemes and amplitude with a corresponding increase in speed, and no orientation or inciting incident clauses.

4.4.1 'Tamza and the Wolf'

'Tamza and the Wolf' has no unique attributes other than the number of morphemes per clause and amplitude decreasing, while speed increases during the progress of the narrative. Also, the narrative has no orientation or inciting incident clauses.

4.4.1.1 *Goldvarb* results

There are no significant correlations of 'Tamza and the Wolf' other than that it has no orientation and inciting incident clauses.

4.4.1.2 *Excel* results

Figure 12, an *Excel* chart, has five waves that show increases and decreases in speed, Fø, amplitude, number of morphemes, and word order in 'Tamza and the Wolf'.

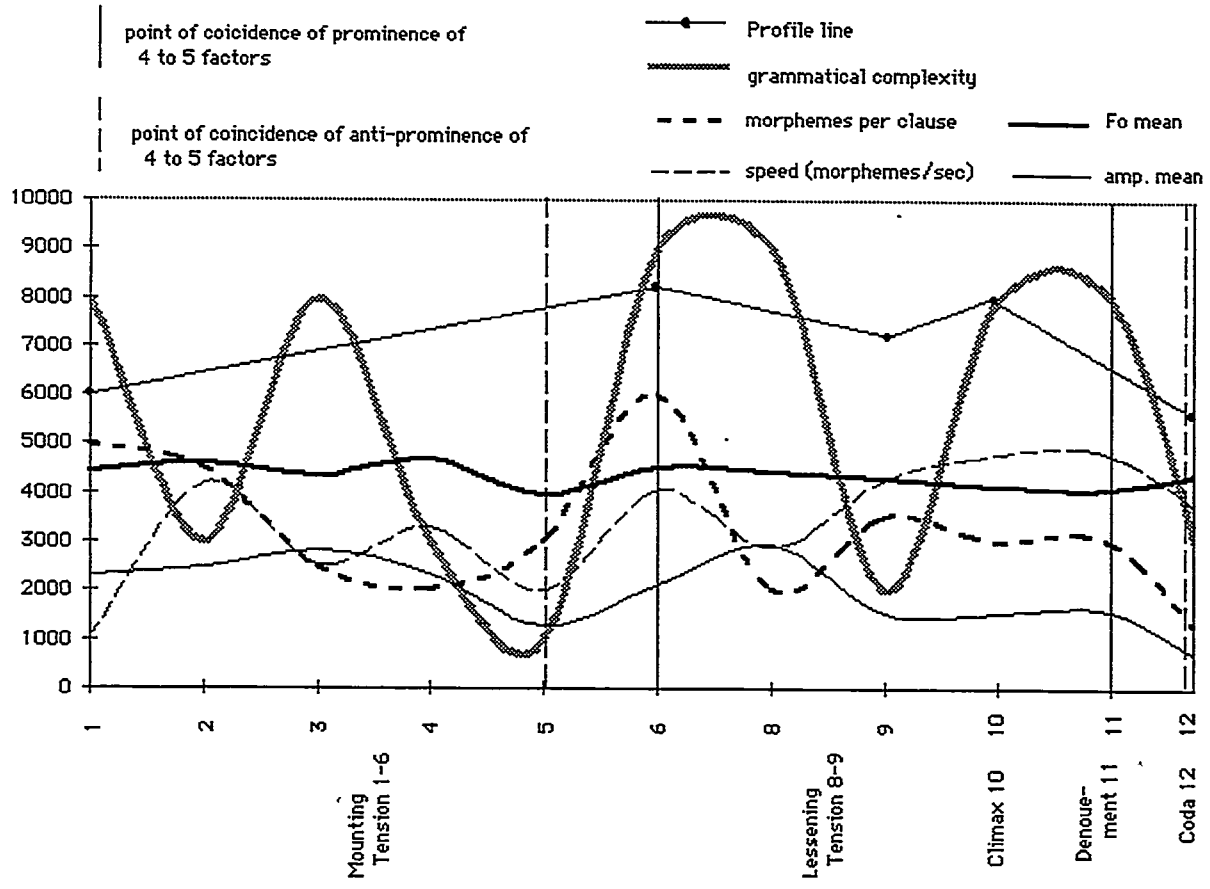

Figure 12. Discourse pragmatics' connection to prosody in 'Tamza and the Wolf'.

The chart indicates several general tendencies. Although Fø is more or less constant throughout, there is a downdrift of the number of morphemes per clause and the amplitude from the beginning of the story to the end. Conversely, there is a drift up of speed.

For 'Tamza and the Wolf' there are two points on the chart where at least four of the five factors crest together: on clauses 6 and 11 (see below):

(182) (0 ms) ošš ɪ nnyæ=yiḥæs (clause 6)
ošš ɪ n-ny æ-yi-ḥæs
wolf-DEM:DIST:SG/PL IMM-3A:SG:MASC-feel

That-wolf then-felt

ballɪθtadzi%ta-- tamza\ (1322 ms)
ball ɪ θ-ta-d zi-ta-- tamza
that 3A:SG:FEM-grab-PROX ELA-Tamza

that Tamza had.grabbed-[him]here [by the tail].

(183) (0 ms) tuwušɪnɬɪnɪyarwalæs\ (1231 ms) (clause 11)
tu wuš-ɪn ɬɪnɪ y-arwalæs
PRO:3S:SG:MASC wolf-DEM:DIST:SG/PL 3S:SG:MASC-escape

That-wolf escaped.

Clause 6 (example (182)) is a semi-climax clause that precedes two lessening tension clauses. After clause 6 there is a drop in all factors but amplitude. Clause 11 (example (183)) is the one denouement clause of the narrative, after which all factors but Fø drop. Clause 6 is a mounting tension, storyline, clause-final falling Fø, IU clause, whereas clause 11 is a denouement, episode juncture, storyline, shifted topic, clause-final falling Fø, non-IU clause. These two clauses have little in common, and thus it is unclear why four of the five factors in question crest at these points in the narrative. Conversely, there are two clauses where 4 of the 5 factors 'trough' together, on clauses 5 and 12 (examples (184) and (185)).

(184) (745 ms) aθtaffaɬa%%-- θtaffaɬa%%žubḥærur\ (2393 ms)
a-θ-taff-aɬa žu-bḥærur
IMM-3S:SG:FEM-grab-PROX ABL-tail (clause 5)

She-grabbed [him] by-[the]tail.

(185) (1231 ms) <LO ṣafi\ LO>
ṣafi
enough (clause 12)

[That is] enough.

Clause 5 is a mounting tension, storyline, clause-final falling Fø, IU clause. Clause 11 is a coda, episode juncture, clause-final falling Fø, IU clause. Again, significant similarities are not apparent.

4.4.2 'Hammu the Trickster'

Results following show that 'Hammu the Trickster' favors presentational focus and SVO clauses over the other three narratives. In addition, prominences of prosody correspond to episode juncture.

4.4.2.1 *Goldvarb* results

This section answers the question: are there features of clause structure, discourse pragmatics, and prosody that are prominent in 'Hammu the Trickster'? Table 78 indicates correlations that are specific to 'Hammu the Trickster'. A very strong correlation is post-V presentational focus clauses. A strong correlation is SVO clauses. Strong inverse correlations are predicate nominal and contrastive focus clauses. These patterns predominate more in this narrative than the other three.

Table 78. Correlations unique to 'Hammu the Trickster'

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
what	Ham	focus	present. focus/post-V	.921	contrastive focus/pre-V	.134
narr?	narr.	word order	SVO clauses	.884	pred. nom. clauses	.109
			SV clauses	.665	VO clauses	.268
			VS clauses	.597	V-only clauses	.466
		prec. dep. cl.	present. focus cl./pre-V	.537	clauses with a prec.dep. cl.	.241
			not prec. cl.	.532		
			not focus	.512		

Example (186) illustrates presentational focus in 'Hammu the Trickster':

(186) (0 ms) džammasahammulharaymi\ (1110 ms)
d-žamma-s aḥammu lḥaraymi
be-name-GEN:SG:MASC/FEM Hammu Laharaimi

His-name-was Hammu Laharaimi.

The next is an SVO clause from 'Hammu the Trickster':

(187) (757 ms) ʔntəθəsθgællišæwany%%wɛruruɣyur/ (777 ms)
ʔntəθ əsθg æll-i šæwən-ywɛrur uɣyur
PRO:3A:SG:FEM put brains-DEM:PROX:PL LOC-back donkey

She put these-brains onto-[the]back [of the] donkey.

The next is an SV clause from 'Hammu the Trickster':

(188) (918 ms) <LO ənənttæθætt ɛqəb/ LO> (0)
ənə nttæθ æt-t-ɛqəb
then PRO:3S:SG:FEM IRR-3S:SG:FEM-return

Then she would.return.

The next is a VS clause from 'Hammu the Trickster':

(189) (1262 ms) komasɛʔəlɣulatwosit (800 ms)
komasɛ ʔəlɣula twosit
start Tamza old.woman

Tamza [the] old.woman started.

4.4.2.2 *Excel* results

Figure 13 shows five waves of the same factors as for 'Tamza and the Wolf'.

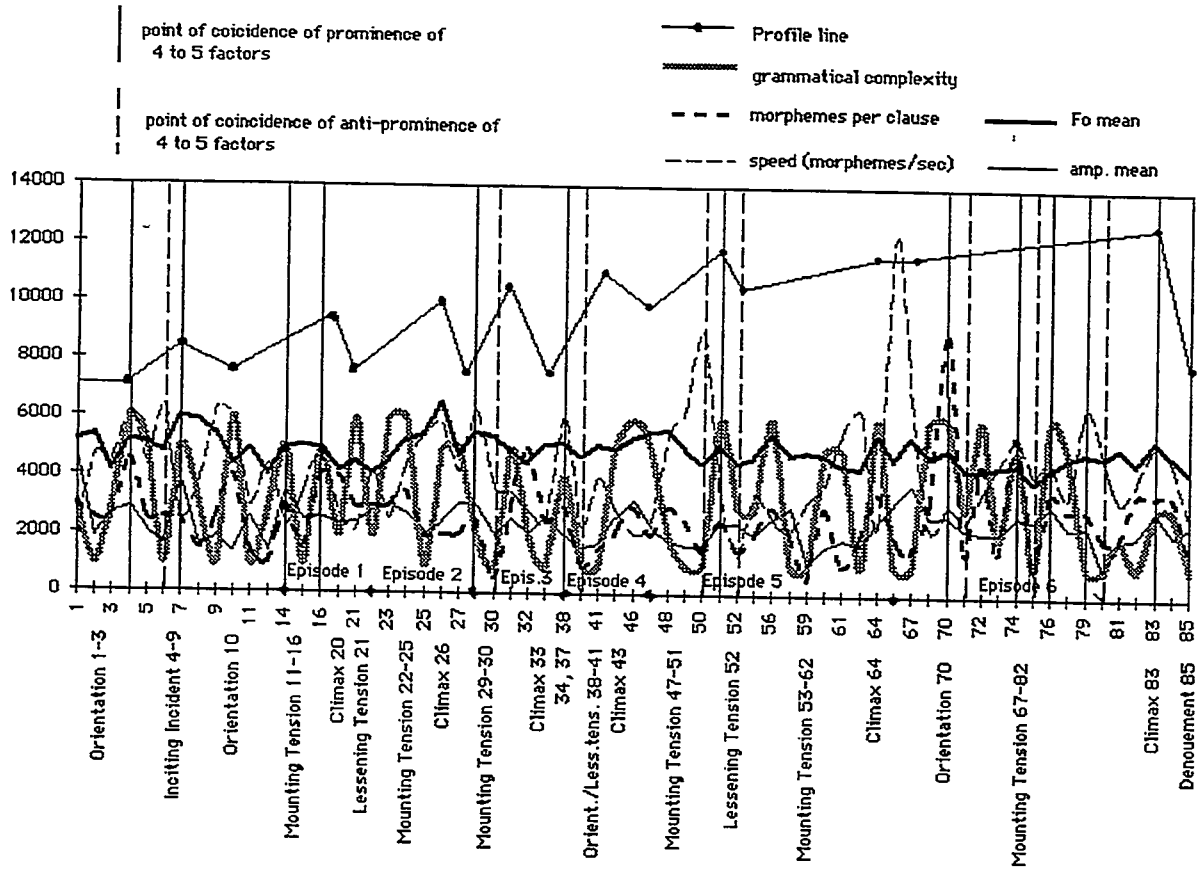

Figure 13. Connections of discourse pragmatics to prosody in 'Hammu the Trickster'.

As one can readily discern, this narrative is much more complex than 'Tamza and the Wolf'. There are six episodes, five climaxes and twenty clauses where 4-5 of the waves crest or trough together. Note the general pattern that 4-5 simultaneous troughs immediately follow the simultaneous crests. This is also a pattern in 'Night Fears' but not in 'The Ogre and His Neighbor' or 'Tamza and the Wolf'.

Table 79[26] lists profile and pragmatic types and to what degree they relate to clauses found on (1) crests, (2) troughs, and (3) between crests and troughs in figure 13. The numbers in parentheses in each column correspond to the number of clauses of that clause type

[26] The percentages are the number of instances of clause types in a given position (i.e., at coincidence of crests, troughs, or between crests and troughs) divided by the total number of clauses in that position, and then multiplied by 100.

that are found at the twelve points of cresting. The percentage to the right of each number in parentheses is calculated by dividing the number of instances by the total number of crests and then multiplying by 100. For example, this narrative has two orientation clauses that are found at two crests out of the total of twelve crests. Thus 2/12's of the crests are orientation clauses, or 17%. Notice that a given column of percentages does not add up to 100. This is because one clause is often classified as several different types of clauses. For example, a topic shift clause may also be at an episode juncture.

What predominates in cresting clauses is episode juncture, orientation, and topic shift clauses. For troughs, mounting tension clauses predominate, with a total absence of climax, denouement, episode juncture, continuous topic, presentational focus, and contrastive focus clauses. No clause types predominate between crests and troughs.

Table 79. Percentages of profile/pragmatic types: 'Hammu the Trickster'

Profile/Pragmatics Type	Number of Occurrences of Each Type	**Crests** on 12 Clauses		**Troughs** on 8 Clauses		**Between Crests & Troughs** on 45 Clauses	
		(N)	%	(N)	%	(N)	%
Orientation	7	(2)[27]	17%			(5)	11%
Inciting Incident	11	(2)	17%	(1)	13%	(8)	18%
Mounting Tension	24	(3)	25%	(6)	75%	(15)	33%
Climax	5	(1)	8%			(4)	9%
Lessening Tension	7	(2)	17%	(1)	13%	(4)	9%
Denouement	2					(2)	4%
Episode Juncture	25	(8)	67%			(17)	38%
Continuous Topic	10	(3)	25%			(7)	16%
Topic Shift	18	(6)	50%	(2)	25%	(10)	22%
Present. Focus	4	(1)	8%			(3)	7%
Contrastive Focus	3	(1)	8%			(2)	4%

These data suggest that when high degrees of word order, clause length, speed, Fø and amplitude converge on one clause then that clause is likely to be an episode juncture, orientation, or topic shift clause. When low degrees converge on a clause, then that clause is likely to be a mounting tension clause and not a climax, episode juncture, continuous topic, or focus clause. When these degrees do not converge on one clause then generally any type is possible.

Example(190) is a clause where all five factors converge in a crest (the first crest; on clause 4). It is an episode juncture and inciting incident clause:

(190) (1195 ms) ælgulamarathatayim/
ælgula mar a-t-h a-t-ayim
Tamza each.day IRR-3S:SG:FEM-go IRR-3S:SG:FEM-get.water

Each.day Tamza would-go to-get.water.

The next example is a clause where all five factors trough together (clause 40 in the narrative). It is also a mounting tension clause:

(191) (446 ms) komasætmɛbbazɪn___ (0 ms)
komasæ t-mɛbbazɪ-n
start ITER-fight-3S:PL:MASC

They started fighting.

The next example is a clause where factors do not converge (clause 26). It is a contrastive focus and climax clause:

(192) (0 ms) ʔntətaɬisaqq___ (804 ms)
ʔntət aɬ-i-saqq
PRO:3S:SG:MASC IRR-3S:SG:MASC-stick

He got.stuck.

4.4.3 'Night Fears'.

The 'Night Fears' narrative favors contrastive focus over the other narratives, which is to be expected since the story is a comparison of a husband weak in the face of danger and a strong wife. Similarly to the other narratives, prominences of prosody correspond to episode juncture, as well as to contrastive focus and topic.

4.4.3.1 *Goldvarb* results

Narrative-specific correlations are listed below in table 80. A strong correlation is contrastive focus clauses. Moderate inverse correlations are post-V presentational focus and episode juncture clauses.

Table 80. Correlations unique to 'Night Fears'

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
what	N.	focus	contrast. focus	.883	present. focus	.259
			cl./pre-V		cl./post-V	
narr?	Fear	episode junct.	not epis. junct.	.607	episode juncture clauses	.286
		storyline	not storyline	.783	storyline clauses	.421
					not focus	.474

Clause (193) illustrates contrastive focus, storyline and non-episode juncture in the 'Night Fears' narrative:

(193) (282 ms) <@ ʔnšəɬkəɬɛssæ\ @> (H) (292 ms)
ʔnš əɬ-kə ɬ-ɛssæ
PRO:3S:SG:MASC/FEM IRR-go IRR-guard

I went to-guard [the house by myself].

The next example from the 'Night Fears' narrative also has contrastive focus, is non-episode juncture, but is non-storyline:

(194) (646 ms) <@ nittæyɬyigguɬəwæ
nittæ yɬ-yi-ggɬ əwæ
PRO:3A:SG:MASC IRR-3A:SG:MASC then

Then he-was.afraid

ɡæyssiɡəmtəfot
ɡæ-y-ssiɡəm təfot
IRR-3A:SG:MASC-turn.on light

to-turn.on [the] light

æɬixobaradoqæma\ @> (H) (277 ms)
æɬ-i-xobar ado-qæma
IRR-3S:SG:MASC-look LOC-bed

to-look under-[the]bed.

4.4.3.2 *Excel* results

The *Excel* chart for 'Night Fears' is figure 14, which has five clauses where 4-5 factors crest together, and four clauses where they trough together.

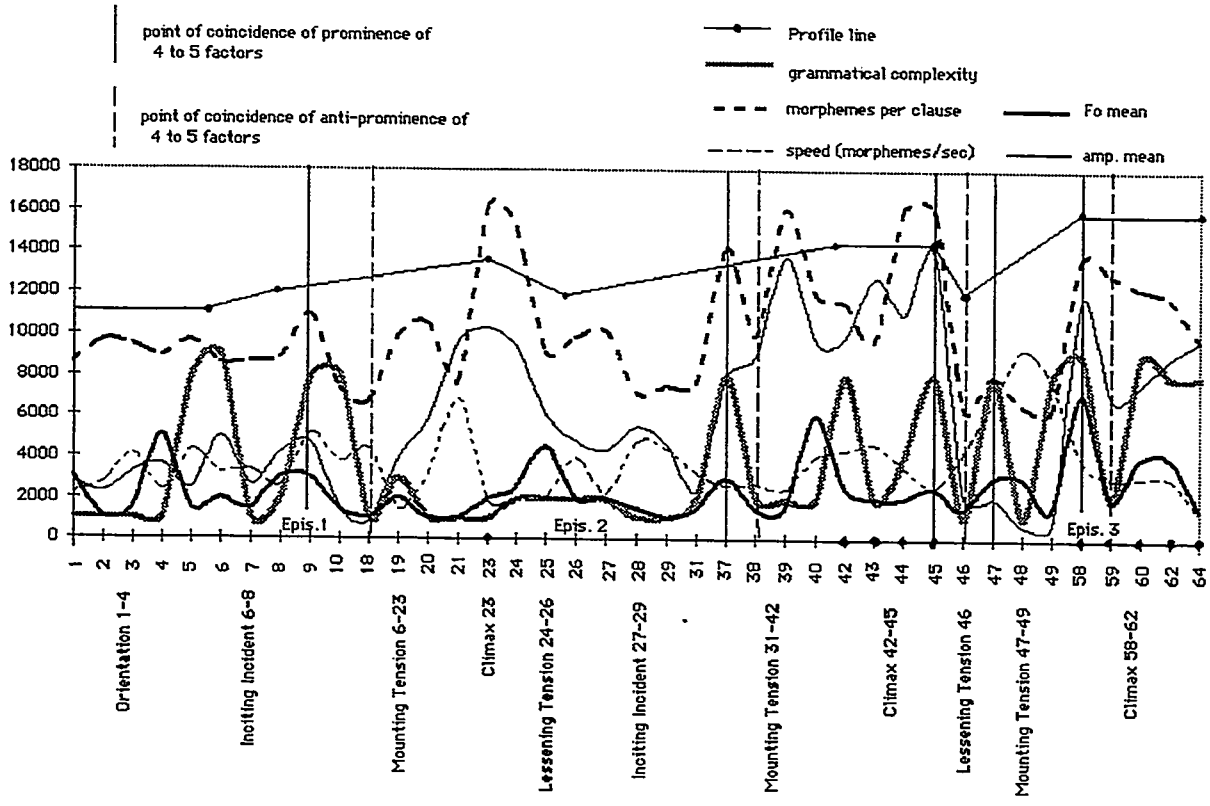

Figure 14. Connections of discourse pragmatics to prosody in 'Night Fears'.

Table 81 shows percentages of clause types that predominate in these crests. They are climax, episode juncture, topic, and contrastive focus clauses. There are no orientation, denouement, or presentational focus clauses represented. For the four troughs, lessening tension and denouement clauses predominate, with the smallest percentage of mounting tension clauses, and a total dearth of inciting incident, topic, and focus clauses.

Table 81. Percentages of profile/pragmatic types: 'Night Fears'

Profile/Pragmatics Type	Number Occurrences of Each Type	**Crests** on 5 Clauses - N	%	**Troughs** on 4 Clauses - N	%	**Between Crests & Troughs** on 30 Clauses N	%
Orientation	10			(1)	25%	(9)	30%
Inciting Incident	8	(1)	20%			(7)	23%
Mounting Tension	19	(2)	40%	(1)	25%	(16)	53%
Climax	9	(2)	40%	(1)	25%	(6)	20%
Lessening Tension	8	(1)	20%	(2)	50%	(5)	17%
Denouement	2			(1)	25%	(1)	3%
Episode Juncture	7	(2)	40%	(1)	25%	(4)	13%
Continuous Topic	5	(2)	40%			(3)	10%
Topic Shift	10	(3)	60%			(7)	23%
Presentation. Focus	1					(1)	3%
Contrastive Focus	9	(4)	80%			(5)	17%

For clauses between the crests and troughs, there is a slight predominance of mounting tension clauses, with the smallest percentages of episode juncture, topic, and contrastive focus clauses. Thus, when the five factors converge at a crest in the wave, most likely candidates for clause types will be climax, episode juncture, topic, and contrastive focus clauses, and not orientation, denouement, and presentational focus clauses. When converging at a trough in the wave, the clause is likely to be a lessening tension or a denouement clause and not a mounting tension, inciting incident, topic, or focus clause. When between crests and troughs, the clause could be any type, but leaning toward mounting tension clauses and leaning away from episode juncture, topic, and contrastive focus clauses.

4.4.4 'The Ogre and His Neighbor'

'The Ogre and His Neighbor' has strong correspondences between climax and topic clauses and prominences of prosody, unlike 'Hammu the Trickster' and 'Night Fears', which correspond more to episode juncture.

4.4.4.1 *Goldvarb* results

Correlations of 'The Ogre and His Neighbor' are displayed in table 82. The very strong correlation is predicate nominal clauses. Then the strong correlation is post-V shifted topic clauses. Post-V presentational focus clauses are very strong inverse correlations, with contrastive focus and SVO clauses as strong inverse correlations. Thus the use of predicate nominal and post-V shifted topic clauses, and the aversion to the use of post-V presentational focus, contrastive focus, and SVO clauses, predominate over the other three narratives.

Table 82. Correlations unique to the 'The Ogre and His Neighbor'

Dep. Var.	App. Val.	Significant Factor Groups	Positive Correlation Factors	Pos. Cor.	Inverse Correlation Factors	Inv. Cor.
what narr?	Ogre	word order	pred. nom. clauses	.988	SVO clauses	.186
			VO clauses	.600	VS clauses	.229
			V-only clauses	.572	SV clauses	.340
		topic	topic shift cl./post-V	.833	contin. topic/pre-V clauses	.266
			not topic	.509	topic shift cl./pre-V	.339
		focus	not focus	.553	present. focus cl./post-V	.059
					contrast. focus cl./pre-V	.130
		inciting incid.	inciting incident clauses	.679	not incit. incid.	.442
		storyline	storyline clauses	.587	not storyline	.197

Examples (195)-(199) illustrate the strongest correlations:

predicate nominal clause:

(195) (511 ms) kuranharkuranharkuranharyamnia/ (876 ms)
kur-anhar kur-anhar kur-anhar yamnia
each-day each-day each-day like.that

Each day [was] like.that.

VS clause with pre-V topic shift:

(196) (1016 ms) θaqqimttæθ\ (235 ms)
θ-aqqim ttæθ
3S:SG:FEM-stay PRO:3S:SG:FEM

She stayed [there].

VS clause with post-V shifted topic (underlined), and inciting incident and storyline:

(197) (0 ms) <A iženhar A> ... æywušæ
iža-nhar æyw ušæ
one-day well then

Well, then, one-day

mæ ... yuɬafxasn
mæ y-uɬaf xa-sn
later 3S:SG:MASC-come LOC-3:PL:MASC

later that-ogre came to-them.

(Fø high: 178)
uwamzuwannia\ (H) (793 ms)
uwamzuw-annia
ogre-DEM:DIST:SG/PL

A VO clause that is inciting incident and storyline:

(198) (740 ms) iṭṭafa%%figaranni/ (0 ms)
i-ṭṭafa figar-anni
3A:SG:MASC-grab snake-DEM:DIST:SG/PL

He-grabbed that-snake.

A V-only clause which is storyline:

(199) (807 ms) ɾoḥɪnˈ (H) (815 ms)
ɾoḥɪ-n
go-3S:PL:MASC

They [were about to] go.

4.4.4.2 *Excel* results

Waves of the five factors for 'The Ogre and His Neighbor' are displayed in figure 15. Clause types that predominate in crests are climax and topic clauses, with no instances of orientation, lessening tension, denouement, and focus clauses.

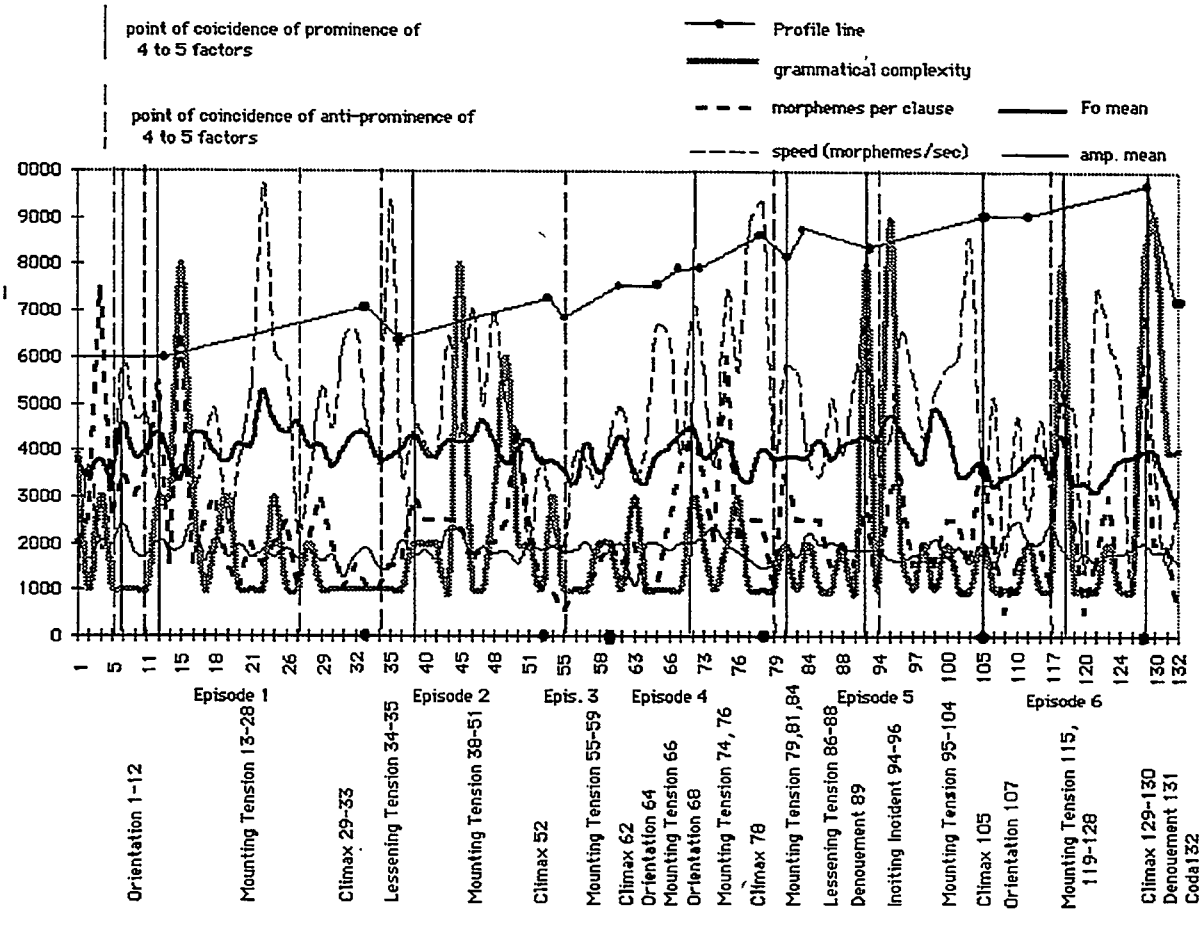

Figure 15. Discourse pragmatics' connections to prosody in 'The Ogre and His Neighbor'.

Table 83 shows that predominant types in troughs are orientation, inciting incident, and lessening tension clauses. There are no instances of climax, denouement, topic, or focus clauses.

For those types between crests and troughs, mounting tension and denouement clauses predominate. Continuous topic clauses are completely absent. Inciting incident and episode juncture clauses are less predominant than those found in crests and troughs.

Table 83. Percentages of profile/pragmatic types: 'The Ogre and His Neighbor'

Profile/Pragmatics Type	Number Occurrences of Each Type	**Crests** on 9 Clauses - N	%	**Troughs** on 8-Clauses - N	%	**Between Crests & Troughs** on 79 Clauses - N	%
Orientation	12			(2)	25%	(10)	13%
Inciting Incident	29	(4)	44%	(5)	63%	(20)	25%
Mounting Tension	48	(1)	11%	(2)	25%	(45)	57%
Climax	11	(2)	22%			(9)	11%
Lessening Tension	6			(1)	13%	(5)	6%
Denouement	3					(3)	4%
Episode Juncture	34	(6)	67%	(5)	63%	(23)	29%
Continuous Topic	2	(2)	22%				
Topic Shift	16	(3)	33%			(13)	16%
Presentation. Focus	1					(1)	1%
Contrastive Focus	1					(1)	1%

4.4.5 Comparison of *Excel* results

Summaries of the characteristics of each of the four narratives are given in table 84. The trend is that crests occur at clause boundary clauses and at shifted topic clauses. Thus, an episode juncture is often at a point in a narrative where the narrator reaches a prominence of speed, clause duration, grammatical complexity, Fø, and/or amplitude.

Table 84. Totals for stories together

Profile/Pragmatics Type	Number of Occurrences of Each Type	**Crests** on 26 Clauses		**Troughs** on 20 Clauses		**Between Crests & Troughs** on 154 Clauses	
		(N)	%	(N)	%	(N)	%
Orientation	29	(2)	8%	(3)	15%	(24)	16%
Inciting Incident	58	(7)	27%	(6)	30%	(35)	23%
Mounting Tension	91	(6)	23%	(9)	45%	(76)	49%
Climax	25	(5)	19%	(1)	5%	(19)	12%
Lessening Tension	21	(3)	12%	(4)	20%	(14)	9%
Denouement	7			(1)	5%	(6)	4%
Episode Juncture	66	(16)	62%	(6)	30%	(44)	29%
Continuous Topic	17	(7)	27%			(10)	6%
Topic Shift	44	(12)	46%	(2)	25%	(30)	19%
Present. Focus	6	(1)	4%			(5)	3%
Contrastive Focus	13	(5)	19%			(8)	5%

The four narratives have the following overlaps of predominances of clauses types (generalized from the previous figures):

Crest:	3 of 4:	topic shift
	3 of 4:	no orientation, denouement, present. focus
	2 of 4:	episode juncture
Trough: 4 of 4:		no focus, continuous topic
	3 of 4:	no climax, denouement
	2 of 4:	lessening tension
Between:	3 of 4:	no pred.
	2 of 4:	mounting tension
	2 of 4:	least episode juncture, continuous topic

In the four charts that there is little or no downdrift of any factor.

4.5 Conclusion

In this chapter, we have seen that discourse pragmatics is linked to amplitude, while Fø is more related to clause structure. Further, convergences of features of prosody, clause structure, and discourse pragmatics are often found at episode boundaries and/or at a shift of topic. In addition, episode juncture also accompanies a long initial pause and a clause adverbial. Climax and orientation clauses have prosodic characteristics that set them apart from other clauses.

CHAPTER V

CONCLUSION

5.0 Summary

The goal of this study, as stated in chapter 1, was to uncover links among elements of the Tarifit language. The results show that word order, discourse pragmatics, and prosody correlate with each other to varying degrees. Overall, the study reveals that ties between discourse pragmatics and prosody are stronger and ~~a~~more numerous than those between discourse pragmatics and clause structure. Beyond that, there is a network of interconnections, some of which have already been noted in previous research. In this chapter, I discuss the strongest correlates, and speculate as to the reasons for them. I also relate the findings to what others have found or theorized regarding the interrelations among the three focuses of investigation.

Discussions of results pertaining to the hypotheses as presented in chapter 1 are found in sections 5.1 through 5.5. Section 5.6 discusses strengths, weaknesses, and limitations of the study. In section 5.7, I present potential implications of these findings and methods for linguistic theory and practice. Finally, section 5.8 makes recommendations for further research.

5.1 Discussion of hypothesis #1

The first hypothesis as presented in chapter 1 is restated below:

(1) Significant correlations will be found between discourse pragmatics and clause structure, between discourse pragmatics and prosody, and between prosody and clause structure in Tarifit oral narrative.

The results of the quantitative and qualitative analyses show that there are significant correlations in all three areas, although some are stronger than others. A selection of the strongest correlations, as discussed below and depicted in figures 16 and 17, illustrates multiple correlations of prosody, discourse pragmatics, and clause structure; some support previous research and others are unexpected.

5.1.1 Discourse pragmatics and clause structure

5.1.1.1 Profile and clause structure

As described in chapter 4, orientation clauses are noted for their preference for, or favoring of, predicate nominals and clause adverbials. Otherwise, no category of profile figures strongly relative to specific word orders and/or clause constituencies. This implies that these measures of grammar are not significant factors in Tarifit discourse profile.

5.1.1.2 Storyline and clause structure

Longacre (1983) claims that grammatical features such as word order often delineate storyline clauses, but this does not appear to be the case in Tarifit. Again, grammar is not significant for any type of discourse profile.

5.1.1.3 Episode boundaries and clause structure

Episode juncture clauses generally are preceded by a long initial pause and a clause-initial clause adverbial. The clause adverbial appears to slow down speech progression in conjunction with pausing in preparation for another episode that may involve different activities, participants, time, and setting.

Payne's (1990) word order schema for Yagua, which shows the importance of the pre-verbal word position for VSO languages, is also valid for Tarifit as shown in its use of

clause adverbials before the verb in marking an episode boundaries and the underscoring of that position with heightened pitch and loudness. In addition, Tarifit restricts this position so that there cannot be a co-occurrence of topics and clause adverbials. Thus, generally, grammar and prosody converge and help to delimit episode boundaries.

5.1.1.4 Topic/focus and clause structure

Topic and focus clauses in general are characterized by the highest levels of loudness compared to non-topic/focus clauses, and are word-order based. SV clauses are characterized by highest pitch and loudness on the subject, as well as the subject being the pre-verbal topic. VS clauses also have the subject with the highest pitch and loudness, along with the subject being the post-verbal topic (and rising clause-final pitch). Thus, loudness is a prosodic signal of both topic and focus NPs in Tarifit.

Clause adverbials and topics do not co-occur in the same position relative to the verb, such that if a clause has a clause adverbial, the topic is never pre-verbal. This suggests a language-specific constraint against having more than one constituent before the verb.

5.1.2 Discourse pragmatics and prosody

There are significant interconnections between discourse pragmatics and prosody. Prominences of loudness and intonation accompany clauses found in certain categories of narrative profile, but loudness predominates over intonation. Climax clauses have a loud beginning. Storyline clauses favor a pre-verbal location for high pitch, clause-initial loudness, and low pitch. This confirms Longacre and Levinsohn's (1978) assertion that prosodic features help to identify storyline. Orientation clauses have clause adverbials and predicate nominals with high pitch. This supports Halliday's (1967) contention that focus on information affects pitch levels. In this case, high pitch accompanies clause adverbials and predicate nominals which are key information carriers in orientation clauses of Tarifit.

Clauses that pinpoint plot culminations (like climax), storyline clauses, and clauses of high information content (such as orientation clauses) reveal the strongest correlations with prosody. Inciting incident, mounting tension, lessening tension, denouement, and coda clauses have fewer correlations with grammar and prosody.

Intonation units did not strongly correlate with any category of discourse pragmatics or clause structure.

Episode juncture clauses generally are preceded by a long initial pause and a clause-initial clause adverbial. This supports Chafe's (1980) observations that pauses often occur where the speaker needs time for cognitive reorientation, with clause adverbials helping to orient the hearer to a new time and/or place.

Topic and focus clauses in general are characterized by a clause's greatest loudness. However, specific types and locations of topic and focus have characteristics unique to each. Pre-verbal topic clauses have very low pitch. Pre-verbal focus clauses contain much contrast in loudness, with a long initial pause (similar to episode juncture clauses). Post-verbal topic tends to have the highest pitch in a given clause, and favors an accompanying clause adverbial (which is always pre-verbal). Prosodic correlations with topic and focus and word order lend empirical credence to previous research on topic, focus, and their relation to intonation (Halliday 1967; Creider 1983; Payne 1990).

Excel charting reveals coincidental high degrees of speed, pitch spans, loudness spans, and clause length. Coincidence of these factors appears on topic shift and episode juncture clauses (and, conversely, not on orientation, denouement, or presentational focus clauses). At coincidence of extreme lows of the four factors, there is some relation to lessening tension clauses and no relationship to focus, continuous topic, climax, and denouement clauses. Between the extremes, there is some relation to mounting tension clauses with little or no relation to predicate nominal, episode juncture, or continuous topic clauses. This suggests that topic shift and episode juncture clauses are points where the speaker chooses to utilize

together the highest degrees of prosody. This may involve some measure of cognitive reorientation (for the speaker and hearer). The speaker may be increasing the saliency of episode boundaries so as to alert the hearer to pay special attention.

High pitch at the beginning of a clause is associated with climax clauses while highest overall level of loudness is typical of SVO and contrastive focus clauses.

Long clause-final pauses correlate with presentational and contrastive focus clauses. Like speed, this is because of needed processing time after clauses of high information/counter expectation. This would imply a hearer-based strategy (Herring p.c.) where the speaker gives the hearer time for this processing. It is interesting to note that episode juncture clauses have a long *initial* pause. This confirms Johns-Lewis' (1986) assertion that pause length is used to mark boundaries in discourse. Chafe (1980) claims this also for processing reasons. If this is so, then we may have evidence here for a speaker-based strategy (Herring p.c.) which gives the speaker needed processing time.

Thus, episode juncture, climax, orientation, and topic/focus clauses figure most prominently with prosody.

5.1.3 Prosody and clause structure

Loudness and pitch, especially pitch, increase in the presence of major clause constituents such as subjects, verbs, objects, case nouns, and clause adverbials. This is especially the case with pitch when there are subjects. As mentioned previously, SV clauses are characterized by highest pitch and loudness on the subject, as well as pre-verbal topic. VS clauses also have the subject with the highest pitch and loudness, along with post-verbal topic and rising clause-final pitch. Clauses with a clause adverbial have the clause adverbial having the highest pitch and loudness, with a moderate to great loudness/pitch contrast. Thus, for *underlining* the subject in both SV and VS clauses and the clause adverbial, both pitch and loudness highs are utilized (this is similar to *Excel* results which show prosodic prominences

working in tandem to delineate or underline some aspect of language, in this case, episode juncture clauses). Predicate nominal clauses have the predicate nominals and case nouns as the points of greatest loudness in a clause. SVO clauses have the greatest loudness. Clauses with case nouns tend to be long and have the case noun with the highest pitch and greatest loudness. Finally, VO clauses have, typically, the object with the highest pitch, with the loudness occurring *clause-initially*. This is a case where pitch and loudness do not typically occur together, but sometimes in this same clause type they do.

The VO clause can have falling pitch clause-initially and rising clause-finally, and have increased loudness *clause-finally*. This appears to be in contradiction seeing that increased loudness is a characteristic both clause-initially *and* clause-finally in VO clauses, but such is not the case. It merely indicates that high loudness *can* be found on the object in tandem with pitch. Why this is the case is unknown, and further research is necessary.

Slow speed is linked to predicate nominal, clause adverbial, and SVO clauses. These are clauses of high information density and change: predicate nominal clauses are found in narrative orientations, clause adverbial clauses at episode juncture, and SVO clauses with contrastive focus. It appears that the speaker slows down at these points to allow herself and the hearer time to process these changes and encode the extra information in the clauses. Chafe (1980) claimed that in spoken discourse there is usually only one new piece of information per IU/clause. The clause types described here all potentially contain more than one new piece of information. It makes sense therefore that they would require more processing time.

Highest loudness is typical of SVO clauses, but highest pitch is found on subjects, verbs, objects, predicate nominals, case nouns, and clause adverbials. Wide pitch span is characteristic of SVO, clause adverbial, VS, and SV clauses. Low loudness clause-finally also is typical of clause adverbial clauses.

Loudness contrast is typical of predicate nominal clauses. Highest loudness is only on subjects, verbs, and predicate nominals (note that highest pitch is on subjects, verbs,

predicate nominals, as well as case nouns, objects, and clause adverbials). Thus, high pitch relates more to clause constituency than does loudness.

5.2 Discussion of hypothesis #2

The second hypothesis is as follows:

(2) Prosody will correlate with discourse structure or the global macro organization of discourse (Chafe 1994; Gumperz 1982). Aspects of prosody can signal episode boundaries, peak, and climax (Givón 1983).

This hypothesis is shown to be true in this research. Clauses that pinpoint plot culminations (like climax), storyline clauses, and clauses of high information content (such as orientation clauses) reveal the strongest correlations with prosody. Inciting incident, mounting tension, lessening tension, denouement, and coda clauses have fewer correlations with grammar and prosody.

Prominences of loudness and intonation accompany clauses found in certain categories of narrative profile, but loudness predominates. Climax clauses have a loud beginning. Storyline clauses favor a pre-verbal location for high pitch, clause-initial loudness, and low pitch. Orientation clauses have clause adverbials and predicate nominals with high pitch. In this case high pitch accompanies clause adverbials and predicate nominals which are key information carriers in orientation clauses of Tarifit.

Episode juncture clauses generally are preceded by a long initial pause and a clause-initial clause adverbial. These adverbials are also weakly associated with intonation units.

As was mentioned in section 5.1.2, *Excel* charting reveals simultaneous extreme high degrees of speed, pitch spans, loudness spans, and clause length, most of which occurred with clauses with a shifted topic at an episode juncture.

Slow speed, as discussed in section 5.1.3, is linked to clauses of high information density and change, in predicate nominal clauses as found in orientation, clause adverbial clauses at episode juncture, and SVO clauses with contrastive focus.

To sum up what has been discussed so far regarding prosody and its relation to discourse structure, Figure 16 illustrates and encapsulates the strongest correlations and how they fit in narrative structure proceeding from orientation and ending with coda. Clauses with initial pausing and clause adverbials divide one episode from another. Further, simultaneous prominences of loudness, pitch, speed and length coincide with episode boundaries. Within episodes, climaxes are underlined with loudness. Parts of speech are underlined with pitch and topics and focuses are underlined with loudness. Outside of episodes, typical orientation clauses have predicate nominals and/or clause adverbials.

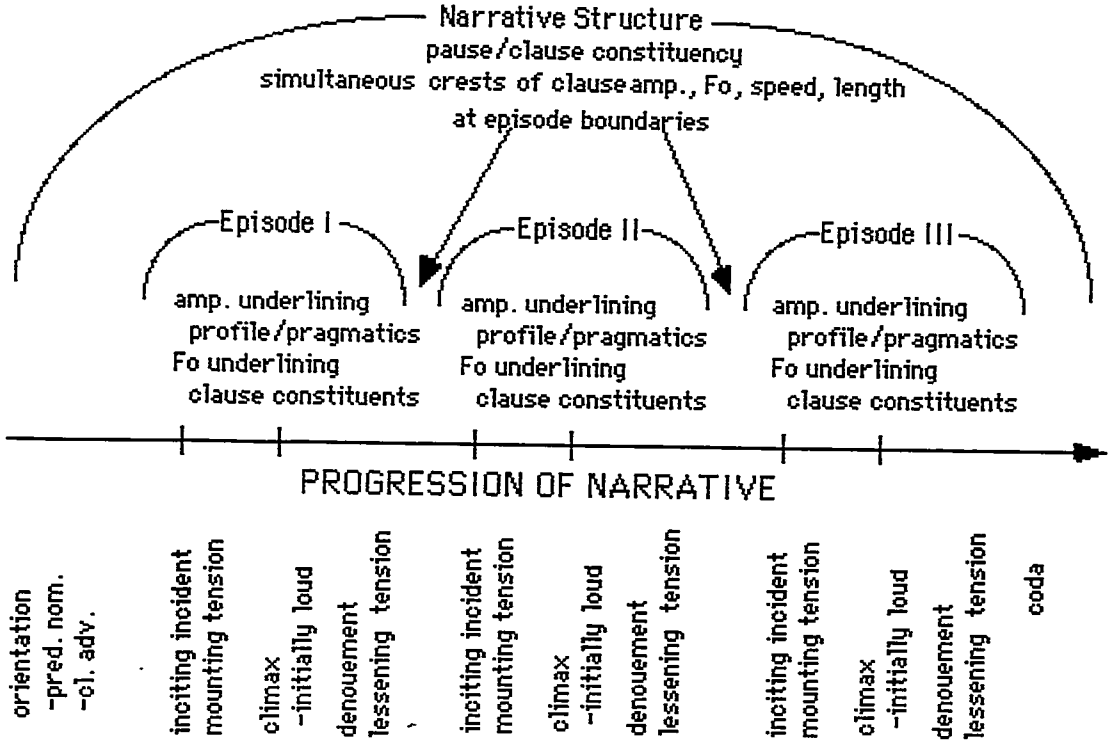

Figure 16. Narrative structure and the roles of prosody and clause constituency.

5.3 Discussion of hypothesis #3

The third hypothesis is as follows:

(3) Topic and focus will correlate with word order (Firbas 1964; Mithun 1987; Herring 1991 et al.).

This hypothesis is also revealed to be generally true in Tarifit. However, specific types of topic and focus, such as shifting and continuing topic, and presentational and contrastive focus, do not appear to be word-order dependent since they are found both before and after the main verb. In chapter 2, I presented three competing explanations for word order. The 'word order principle' (Herring 1990) predicted that shifted and continuing topics are typically found after the main verb, and focuses are found before the verb in VS languages. This is partially true for Tarifit. Contrastive focus is always before the verb. This finding also lends partial credence to one of the other explanations, i.e., the newsworthiness principle (Mithun 1987), according to which information that is most newsworthy is positioned clause-initially. The third word-order explanation (Firbas 1964) stressed the importance of clause-final placement of new or communicatively dynamic information. However, presentational focus, and shifted and continuous topics can be found both before and after the verb in Tarifit. There are a total of 84 topics and focuses in the corpus. Of the 47 shifted topics, 28 are before the verb and 19 are after the verb. Of the 22 continuing topics, 17 are before the verb and 5 after. Of the 8 examples of presentation focus, 2 are pre-verbal and 6 are post-verbal. All 13 contrastive focus examples are before the verb. Thus, the word order explanation is not supported. In addition, McClelland (1993) claimed that aberrant topics not adhering to the word order principle could be explained by the use of a topic before the main verb to help signal an episode boundary. However, the present results show that a topic's placement relative to the verb is not a statistically significant factor in episode boundaries. Thus, none of the word-order explanations account perfectly for Tarifit. The explanation for this may lie in the utilization of prosody. Creider (1979) mentions stress (in English) as an explanation for the lack of 'dative

movement' in an answer to a certain type of question. For instance, there are at least two ways to answer the question 'who did you give the food to?": either 'I gave it to John' or 'I gave *John* the food'. The second choice is only appropriate if the stress is on 'John'. This sort of system could account for the apparent waywardness of topic/focus placement in Tarifit. For instance, it is the case that continuing topics are not as significantly underscored as shifted topics. Thus, a stress rule for Tarifit could be:

> Heightened amplitude and, secondarily, fundamental frequency underscore focus and shifted topics to the degree that their placement relative to the verb is of secondary importance.

SV clauses are characterized by pre-verbal topic. VS clauses also have post-verbal topic. This correlation is largely trivial, however, in that topics in the data are overwhelmingly grammatical subjects. However, the relation of word order to topic and focus is not trivial in Tarifit as evidenced by the use of loudness and pitch. The Tarifit speaker singles out instances of topic and focus types by means of heightened loudness, which is in contrast to subjects that are underscored by pitch.

Payne's (1990) word order schema for Yagua, which shows the importance of the pre-verbal word position for VSO languages, is less valid for Tarifit given that shifted topics may be before or after the verb. However, the pre-verbal clause adverbial, used in conjunction with heightened amplitude and clause-initial pause length, does support Payne's schema.

5.4 Discussion of hypothesis #4

The fourth hypothesis is repeated below:

(4) Intonation units will be found to be grammatical clauses a majority of the time in Tarifit.

This investigation suggests that this is also the case in Tarifit. Of the 211 grammatical clauses, 127 were IU's (or 60%). Although the hypothesis does not include specific predictions

concerning prosody, clause structure, and/or discourse pragmatics, it is interesting to note that whether or not a clause was an IU did not strongly correlate with any factor group. IU's are weakly associated with clauses that have a clause adverbial. The average clause length of the 211 clauses is 4.85 morphemes per clauses. Of the 127 IU clauses, the average length was slightly longer: 5.05 morphemes per clause. This number of morphemes is remarkably close to Chafe's (1994) length of 4.84 words per IU (in English). This implies either that English words in informal spoken discourse are predominately mono-morphemic, or that IU's in Tarifit are shorter than those in English. It may be the case that these findings represent a cognitive constraint that Chafe (1994) alludes to which concerns a universal 'chunking of information' that the brain imposes on language.

5.5 Discussion of hypothesis #5

The fifth hypothesis is restated below:

(5) Fundamental frequency and amplitude will be found to work in tandem as has been claimed to be the case in English stress (Halliday 1967; Edwards 1993).

Gumperz (1993) identifies pitch and loudness as 'markers' of 'communicatively significant prominence'.

Prominences of loudness and pitch in Tarifit, contrary to hypothesis #5, are largely independent of each other in distribution. This is surprising given the tendency for the two to be analyzed together as co-features of stress in English and other languages. Table 85 compares loudness and pitch correlations in Tarifit. Loudness has more correlates with profile than does pitch, and pitch relates more to clause constituency than does loudness.

Figure 17 presents a more general idea of the different domains of pitch and loudness. There is coincidence of both with climax, orientation, subjects, verbs, and predicate nominals, but they

separate in most clause structures (where prominence of pitch is dominant in occurrence) and in most categories of discourse pragmatics (where prominence of loudness is dominant).

Table 85. Comparison of loudness and pitch correlations

	Loudness	Pitch
high	climax (very strong correl.) episode juncture	climax (moderate correl.) SVO contrastive focus
pre-V high		storyline
low (clause final)	clause adverbial inciting incident	
low	contrastive focus inciting incident orientation	 orientation pre-V topic
wide span	pre-V continuous topic post-V shifted topic verb-only predicate nominal pre-V focus	 SVO VS SV clause adverbial
highest in given clause	subjects verbs predicate nominal	subjects verbs predicate nominal case noun objects clause adverbial

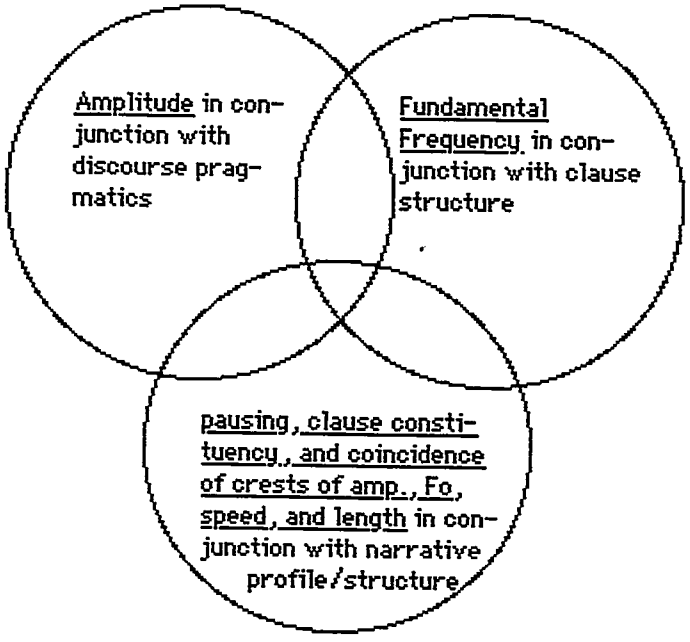

Figure 17. Prosodic features that accompany discourse pragmatics, clause structure, and narrative profile/structure.

5.6 Strengths, weaknesses, and limitations of the study

In spite of the vast amount of information gleaned from using *Goldvarb*, absolute consistency is not possible using *Goldvarb* because the program would not run if, for example, *all* clauses with high initial loudness were climax clauses (i.e., they are 'knocked out,' since *Goldvarb* assumes variation). If such a situation were to occur, then such clauses would have to be combined with some other group of clauses with similar attributes, or else deleted. Thus, such a strong correlation could not be demonstrated using *Goldvarb*. The advantage is that it selects relative weights among multiple conditioning factors.

Use of *Excel* spreadsheets and resultant charting are good ways to begin to discern correlations between factor groups and general trends, as we have seen, but the method does not indicate the *significance* of correlations. Variable rules with *Goldvarb* provide this missing factor.

The method described in this research is tedious and time-consuming. Absolute consistency in factor measurement, coding, and record keeping at each stage of the method is required for reliable results. However, the reward is well worth the effort: the fitting in of more of the pieces of the puzzle. The method I propose here can assist in our understanding of how language works. However, it does not answer the questions: what is the function of each correlation and how important is it to the communication of meaning? In order to address these questions, further study that extends beyond the scope of the present investigation is required.

5.7 Implications for linguistic theory and practice

The method I propose is not a replacement for, but a supplement to, current linguistic theory and practice. It is a means by which an analyst's results can be confirmed and expanded, taking into account the network of prosodic, grammatical, pragmatic, and discourse interconnections that characterize oral discourse. In addition, the analyst can ascertain the strengths of these interconnections. What s/he will then have obtained will be a more complete 'picture' of the language and how it 'holds together,' in line with the desiderata outlined by Du Bois and Scheutze-Coburn in the quote given at the beginning of chapter 1 of this dissertation.

Research such as that presented here can also help to build linguistic theories that are more representative of language as a whole entity. Linguistic theory must account for networks of linguistic attributes and their relative strengths, especially above the level of syntax, in order to attempt to truly encompass what a human language is. This research in Tarifit has shown how discourse pragmatics and clause structure may be further illuminated by their interconnections to prosody. The benefit has been a fuller understanding of salient prosodic markers for discourse structure (such as climax and episode juncture) and topic/focus, to name a few.

The interconnections discovered also have implications for the question of how valid it is to maintain rigidly separate levels of linguistic analysis. The complex network of

interconnections in Tarifit reveals that prosody, discourse pragmatics and clause structure are linked and not truly separate and autonomous (Stubbs 1983). That is, the interrelationships blur the boundaries, or separations, between levels of grammar. Thus, the results presented support the concept of 'emergent grammar' (Hopper 1987) which views grammar as "...provisional and incomplete... emerg[ing] in discourse" (1987:118). This 'emergent' quality and interconnectedness of features of Tarifit may lend credence to connectionist and network models of language and mental processing proposed by McClelland/Rumelhart (1986) and Judd (1990). The idea is that the brain operates as a complex network of nodes constructed in such a way as to learn and produce output.

Finally, the extent of the results obtained in this study imply that linguistic competence is more extensive and complex than current syntactic theory would suggest. Prosody, in particular, emerges as a component of language that has not been given sufficient attention by researchers and theorists, especially in relation to discourse pragmatics.

5.8 Recommendations for further research

I consider this research as not exhaustive, but merely a beginning. The method presented in this research and the results obtained do not solve all problems. For example, the focuses of investigation could be further delimited by coding finer distinctions than I have made here. A future study might examine only high loudness levels and code these levels with smaller ranges in order to determine more specific loudness utilization in profile and pragmatics. Alternatively, one could research only storyline clauses and determine their relation to prosody and tense/aspect. In addition, one could look at speed within a clause so as to ascertain the relative speed of verbs compared to subject and objects, and then relate results to profile.

This investigation shows the potential value of discourse prosody as an area for future research. Procedures similar to those employed here could be performed on well-

documented languages to determine areas of commonality, e.g., in order to expand our understanding of language typologies and language universals. It would be especially useful to try this method on English, to ascertain degrees of similarity between it and Tarifit. To what degree are these correlations specific to Tarifit and not other languages? Further, to what degree are these correlations specific to narrative and not to other discourse genres?

Further research is needed to clarify the relationships of pitch to topic, and answer questions such as: is higher/lower pitch dictated by certain plot progressions? Is there a hierarchy of prosodic salience depending upon context? Another focus of research should consider the lowest loudness and pitch in clauses; where do these lows occur and on what constituents? Are they merely inverses of the highs? The tendency in the present study for troughs in salience to occur immediately before or after 'peaks' suggests that the two may work together to create greater contrast.

Another area for future investigation relates to word order flexibility, which is characteristic of Tarifit. Could this flexibility be made possible by Tarifit's tie to prosodic marking? Is there, therefore, less functional pressure to maintain word order? This is true to some degree in English when 'dative movement' is substituted by a mere change in intonation (discussed in Creider 1979). In Tarifit, when one would expect a shifted topic after the verb given the word order principle (Herring 1990), it appears that intonation and/or loudness, at the prerogative of the speaker, is a greater determiner of topic than is placement relative to the main verb.

A further area for future research has to do with the implications for literacy in Tarifit. What should eventual written literature in this unwritten language look like? How, for example, should prosodic underscoring of elements of discourse pragmatics be coded on a printed page? However, before these questions can be answered, it is necessary to determine the functional load of the correlations revealed in this study. How important is each for good comprehension? In order to answer this question, a study could be undertaken that isolates

each of the strong correlations discussed here and determines their function. For example, intonation in recorded speech could be artificially altered so that clauses could be played back with little or no tone contrast. In this way, comprehension could be tested and compared with speech where the tone contrasts are intact. The same could be done with loudness, duration, and pausing. The testing could also be done in another way: re-playing clauses out of context, e.g., from some narrative, where speech is rendered incomprehensible but prosodic features are maintained, and then asking native speakers about what part of the narrative the clause may have come from. If the functional load of the correlations is great, then a native speaker should be able to identify clause types based on prosodic cues. If this proves to be the case, then translators would need the further insights that this method provides in order to better replicate the idiom of the people on the printed page or other media. Better understanding of how a language works in its totality will foster more easily understood translations.

This study suggests that many elements of word order, discourse pragmatics, and prosody have their own unique characteristics and applications, such as the use of amplitude to underscore climax, topic, and focus. The question remains however: why is it like this? Are these interrelations purely conventional, playing a minor role in communicating meaning? Are they cognitively or physically conditioned? It may be that interrelations reflect basic human brain function in speech production. Other results are trivial because of the methodological choices made in this study; for example, the decision to code as 'topics' only subject NP's. These questions must ultimately be addressed before the full significance of the interconnections can be understood and incorporated into linguistic theory.

Research methodology for linguistic analysis could benefit from an augmentation of present practices by incorporating elements of the method presented here. Quantitative correlation analysis could act as a 'check' on the accuracy of traditional analyses by giving further support, or not, to results, and by expanding those results. The method could be

abbreviated for a classroom situation by looking at fewer attribute groups and fewer clauses in shorter texts than those examined here.

Finally, this study has provided many new linguistic observations that need to be explained. Such research may lead to further conclusions about how spoken discourse works and indeed show how roles of grammar and prosody [operate] as "...integral parts of... any truly general theory of discourse" (Du Bois and Schuetze-Coburn 1993:222).

APPENDIX

COMPLETE TEXTS OF'THE OGRE AND HIS NEIGHBOR'

AND 'NIGHT FEARS'

The Ogre and His Neighbor

			discourse labels
(1)	(0 ms)	æywə/...ɖužənmæyyæz/ (0 ms)	orient.
		æywə ɖ-užən-mæyyæz	ep. junct.
		well COMP-one-man	
		Well, there.was-a-man.	
(2)	(0 ms)	izɖəgəkižəntəžžæθ/ (1580 ms)	orient.
		i -zɖəg ək -ižən-təžžæθ	
		3S:SG:MASC-live ASSOC-a -neighbor	
		He-lived with-a-lady.[who was his]neighbor.	
(3)	(1580 ms)	bɛtəžžæh__...nbɛtæzzæθənniə/...	orient.
		bɛ təžžæh nbɛ tæzzæθ-ənniə	in. incid.
		later neighbor later neighbor-DEM:DIST:SG/PL	ep. junct. storyline
		Later, [the] neighbor-- later, that-neighbor--	
		æywəsiɖiə/...æywəkurənhər	
		æywə siɖiə æywə kur-ənhər	
		well sir well each-day	
		well, sir, well, each-day	
		iyæyfammis\ (H) (1019 ms)	
		iy-æyf əmmi-s	
		3S:SG:MASC-enter son-POSS:3:SG:MASC/FEM	
		[that neighbor]'s-son came.into [her house].	
(4Q)	(1019 ms)	æθsinniə___...	
		æθ -s -i -nni=ə	
		IRR-3IO:SG:MASC/FEM-3A:SG:MASC-say	
		He-told-her,	
		minxəsθtətɪɖ\ (766 ms)	

min -xə-s -θ -t -tətɹ-ɬ
what-on-him-you-habitually-eat-you

"For-what [reason do] you-love-him?"

(5) (766 ms) mkunhæɣitti=t\ (H) (821 ms) orient.
mku -nhæ ɣi-tti-t in.incid.
each-day 3A:SG:MASC-eat-3DO:SG:FEM ep.junct.

Each-day he-bothered-her [like that].

(6) (821 ms) æɣwəs%%%ɬəgərs in. incid.
æɣwə-s -ɬ -əgər-s ep.junct.
well-3IO:SG:MASC/FEM-PROX just- storyline
3IO:SG:MASC/FEM

Well, only to-her [house]

ɣæys___ (0 ms)
ɣ -æys
3S:SG:MASC-enter

he-went.

(7Q) (0 ms) əssinnæ
əss -i -nnæ
3IO:SG:MASC/FEM-3A:SG:MASC-say

He-said-to.her,

qləh\wæθəɬəmziw\
qləh wæ-θə-ɬ əmziw
hey PRO:NH-PROX-COMP ogre

"Hey [that] thing-here-is [an]ogre,

maši ənædɪm\ (H)
maši ənædɪm
NEG man

not [a] person."

(8Q) sθinni
s -θ -inni
3IO:SG:MASC/FEM-3A:SG:FEM-say

She-replied-to.her.son,

llæɬæɣɪzərmumɪn___
llæ ɬ -æɣɪz ərmumɪn
NEG COMP-man Muslim

"No, he.is-[a]Muslim man.

ærɪɣɪz___
ærɪɣɪz
man

He's a man.

issəbaḥ/ (H)
i -ssəbaḥ
3S:SG:MASC-be.good

He-is.a.good.man."

(9Q) sθɪnn
s -θ -ɪnn
3IO:SG:MASC/FEM-3A:SG:FEM-say

She-said-to.him,

oddillæ
odd-i llæ
son-GEN NEG

"No, my-son, [you are mistaken]."

(10) (505 ms) mkurənhær <A ægas orient.
mkur-ənhær ægæ-s in.incid.
each-day LOC-IO:3:SG:MASC/FEM ep.junct.

Each-day, to-her

iḥæ___ A> (0 ms)
i-ḥæ
3S:SG:MASC-go

he-went,

(11) (0 ms) ɣgɩssəzənnikurənhærkurənhær__ (H)(0 ms) orient.
ɣ -gɩss-əzənni-kur -ənhær-kur -ənhær in.incid.
3S:SG:MASC-come-like.that-each-day -each-day ep.junct

[and] come.back like.that each-day.

(12) (0 ms) <A ižənhar A> ...æywušæ in.incid.
iža-nhar æyw ušæ ep.junct.
one-day well then storyline

Well, then, one-day

mæ ... yuɘəfxəsn
mæ ɣ-uɘəf xə-sn
later 3S:SG:MASC-come LOC-3:PL:MASC

later that-ogre came to-them.

uwəmzuwənnia\ (H) (793 ms)
uwəmzuw-ənnia
ogre-DEM:DIST:SG/PL

(13) (793 ms) ɩrimixəsniyuɘfumzuwnnia/ (H) mount.ten.
ɩrimi xə-sn i-yuɘf umzuw-nnia storyline
when LOC-3IO:PL:MASC 3S:SG:MASC-enter ogre-DEM:DIST:SG/PL

When that-ogre came to-them,

(818 ms) θæwarθəmgaθ/ (H) (1262 ms)
θ-æwar θəmgaθ
3S:SG:FEM-leave woman

[the]woman left.

(14Q) (1262 ms) θənnəs
θ -ənnə-s
3A:SG:FEM-say -3IO:SG:MASC/FEM

She-said-to.her.son,

ənššɩ?____...(H)ɖæræḥəɡ
ənšš-ɩ? ɖæ-ræḥə-ɡ
PRO:1S:SG:MASC/FEM-? IRR-go-
1S:SG:MASC/FEM

"I will-go

ɡæfæwɡæwfiɡæ\ (H) (697 ms)
ɡæ-fæw ɡæ-wfiɡæ
LOC-sna...LOC-snake

to-[the]snake['s house]."

(15) (697 ms) mbɛdfiɡæniyuzzəxɔfə--%% orient.
mbɛd fiɡæ-ni y-uzzə x-ɔfə--%% ep.junct.
later snake-DEM:DIST:SG/PL 3S:SG:MASC-run
LOC-sna--

Later, that-snake ran to-[the]sna--

yuzzərxəwinæt\ ... xwumzuwənniə\ (1125 ms)
y-uzzər x-əwinæt x-wumzuw-ənniə
3S:SG:MASC-run LOC-thing LOC-ogre-
DEM:DIST:SG/PL

he-ran to-[the]thing, to-that-ogre.

(16) (1125 ms) θəqqimttæθ\ (235 ms) ep.junct.
θ-əqqim ttæθ storyline
3S:SG:FEM-stay PRO:3S:SG:FEM

She stayed [there].

(17) (235 ms) θɛšɩkofiɡarəmiə\ (H) (850 ms) in.incid.
θ-ɛši k-ofiɡar əmniə mount.ten.
3S:SG:FEM ASSOC-snake like.that storyline

She-lived with-the.snake like.that.

(18) (850 ms) θurukisəžoḥænžiæ/ (H) (807 ms) in.incid.
θ-uru ki-s əž-oḥænžiæ mount.ten.
3A:SG:FEM ASSOC-3:SG:MASC/FEM-boy storyline

She-birthed a-boy with-him.

(19) (807 ms) amgaraḥanžæannia/ (807 ms) mount.ten.
amgar aḥanžæ-annia storyline
grow -boy -DEM:DIST:SG/PL

That-boy grew.

(20) (807 ms) roḥɪn\ (H) (815 ms) mount.ten.
roḥɪ-n storyline
go-3S:PL:MASC

They [were about to] go.

(21) (815 ms) rimigæroḥɪn/ mount.ten.
rimi-gæ -roḥɪ-n storyline
when IRR-go -3S:PLUR:MASC

When they[were]-about-[to]leave,

θɪšadgidiriyazæ/ (0 ms)
θ -ɪšadgi di-riyazæ
3A:SG:FEM-wrap ILL-dress

she-wrapped [her baby son] in-[a]dress,

(22) (0 ms) θšas___ (0 ms) mount.ten.
θ-ša-s storyline
3S:SG:FEM-give-3IO:SG:MASC/FEM

She-gave[it]-to.him.

(23Q) (0 ms) aḥa___
a -ḥa
IMM-go

[and said], "Go-now.

tanagab\
t -anaga-b
2A:SG:MASC/FEM-kill -?

Kill [him]."

(24Q) annas
anna-s
say -3IO:SG:MASC/FEM

She said to him.

ttaffunnia
ttaf-funnia
grab-DEM:DIST:SG/PL

"[Here], take-that.

nagiɬ
nagi-ɬ
kill-PROX

Kill [him]."

(25) (829 ms) ikkærammiθ__ (0 ms) mount.ten.
i-kkær ammi-θ storyline
3S:SG:MASC-get.up son-3POSS:SG:FEM

Her-son got.up.

(26) (0 ms) itsarin?nɬa\ (H) (992 ms) mount.ten.
i-t-sar i-n?nɬa storyline
3S:SG:MASC/FEM-ITER-listen LOC-dew

He-proceded-[to]listen to-dew (or, 'He went to think for a while')

(27) (992 ms) namitsarinnɬæ/... in.incid.
nam i -t -sar i-nnɬæ mount.ten.
after 3S:SG:MASC-ITER-hear DAT-dew storyline

After thinking for a while,

iroḥɛ__ (740 ms) (H)
i -roḥɛ
3S:SG:MASC-go

He-went

(28) (740 ms) iṭṭafa%%figaranni/ (0 ms) in.incid.
i -ṭṭaf afigar-anni mount.ten.
3A:SG:MASC-grab snake-DEM:DIST:SG/PL storyline

[and] grabbed that-snake [instead of his younger brother],

(29) (0 ms) izargɪθɬaggižaniẓæ/ (178 ms) in.incid.
i-zargɪ-θ ɬagg-ižan-iẓæ climax
3A:SG:MASC-3O:SG:FEM ILL-one-dress storyline

He-twisted-it in-a-dress.

(30) (178 ms) iṭṭafasaddɪgaddɪg/ (0 ms) in.incid.
i -ṭṭafa-s addɪgaddɪg climax
3A:SG:MASC-grab-3IO:SG:MASC/FEM hittingstoryline

He-struck-him repeatedly

(31) (0 ms) ina?__ (91 ms) in.incid.
i -na? climax
3A:SG:MASC-kill storyline

[until] he-killed [him].

(32) (91 ms) inaɡiθ/ (0 ms) in.incid.
i -naɡi-θ climax
3A:SG:MASC-kill-3DO:SG:MASC storyline

He killed him.

(33) (0 ms) izazig/ (0 ms) in.incid.
i-zazig climax
3S:SG:MASC-twist storyline

He-[the older brother]twisted [the snake inside the dress].

(34) (0 ms) ɪndari-ɬ\ (179 ms) in.incid.
ɪ-ndari-ɬ less.tens.
3S:SG:MASC-throw.down-PROX storyline

He-threw.down [the snake].

(35) (179 ms) yusɪd\ (H) (1165 ms) less.tens.
y-usɪ-d storyline
3S:SG:MASC-come-PROX

He-returned-here[to where his mother was].

(36Q) (1165 ms) rimidiyusæ/
rimi-d iy-usæ
when-PROX 3S:SG:MASC-come

After he-returned,

nəθəddəbæθwum\
nə θ-ədd ə bæθ-wum
where ?-be -father-GEN

[She asked him], "Where is your-father?"

(37Q) yinnæss
y -innæ-ss
3A:SG:MASC-say -3IO:SG:MASC/FEM

He-told-her,

æbæθənəgassinəg\ (H) (729 ms)
æbæ -θənəg ə -ssinə-g
father-GEN NEG-know -1A:SG:MASC/FEM

"I-don't-know [where] our-father [is]."

(38) (729 ms) θəgæyozæ/ (H) (986 ms) in.incid.
θ -əgæ-yozæ mount.ten.
3S:SG:FEM-LOC -river storyline

She-[went]to-[the]river.

(39) (986 ms) θəfəgəyəxsənsəɬin\ (890 ms) in.incid.
θ -əfə gə -yəxsən-sə ɬin mount.ten.
3A:SG:FEM-find only-bonesGEN there storyline

There she-found only his-bones.

(40) (890 ms) θərqəddixθænniə/ (960 ms) mount.ten.
θ -ərqəd -d ixθæn-niə storyline
3A:SG:FEM-gather-PROX bones-those

She-gathered.together [all of] those-bones.

(41) (960 ms) ræmiθəntərqəɬ/ mount.ten.
ræmi θ-əntərqə-ɬ storyline
after 3S:SG:FEM-gather-PROX

After she-gathered.together [the snake's bones],

(0 ms) θaggɪssmiɬḥæbiɬ/(1290 ms)
θ-aggɪ smiɬ ḥæbiɬ
3S:SG:FEM-make wheat noodles

she-made [them into] wheat noodles.

(42) (1290 ms) θassæsɪnzzɪθsθ/ (243 ms) mount.ten.
θ-assæ-sɪn zzɪθs-θ storyline
3A:SG:FEM-place-3O:PL:MASC ADS-3O:SG:FEM

She-placed-them near-her.

(43Q) (243 ms) innæs
innæ-s
say -3IO:SG:MASC/FEM

She-told-him,

æɬæšinniɡ/...(H) ɬinəɡd___
æɬæ-š -inni-ɡ ɬi-nəɡ-d
IRR-2DO:SG:MASC-say -1A:SG:MASC/FEM ILL-
1DO:PL:MASC/FEM -PROX

"I'm-telling-you

ɡəθssæsənmɪššɪmæšæ___
ɡə -θ -ssæ -s ənmɪ -š šɪ -mæšæ
IRR-2A:SG:MASC/FEM-put.before-
3IO:SG:MASC/FEM-brother-GEN some-food

to-put.[this food]in.front.of your-[younger] brother.

roḥ/ (H)
roḥ
go

Go!"

(44Q) qərɪb/...æqəbuš/...əwæmæ/...
qərɪb æqəbuš əwæmæ
overturn jar water

[Then the older brother said to the younger], "Overturn [the]
water jar,

θsgoyu\
θ -sgoyu
2S:SG:MASC/FEM-yell

[then] yell.

nənæs
n -ənæ-s
1A:PL:MASC/FEM-say-3IO:SG:MASC/FEM

We-[will then]say-to.her,

æzræymæy___
æzr æ -ymæ -y
run oh-mother-GEN

'Run, oh-mother!

qəbušənqrıb\ (H) (1364 ms)
qəbuš-ən -qrıb
jar -himself-overturn

[The water] jar fell.over!'"

(45) (1364 ms) ʔnttæygæwqəbušənn___ (0 ms) in.incid.
ʔnttæ y-gæ wqəbuš-ənn mount.ten.
PRO:3A:SG:MASC3A:SG:MASC-hit jar- storyline
DEM:DIST:SG/PL

He hit that-jar.

(46) (0 ms) iqərriθ/ (0 ms) in.incid.
i -qərri -θ mount.ten.
3A:SG:MASC/FEM-overturn-3DO:SG:FEM storyline

He-overturned-it.

(47) (0 ms) yəbəɬæysgoyo\ (79 ms) in.incid.
y -əbəɬæ y -sgoyo mount.ten.
3S:SG:MASC-start 3S:SG:MASC-yell storyline

[Then] he-started [to] yell.

(48) (79 ms) ɵæḥimmæs/ (56 ms) mount.ten.
ɵ -æḥ immæ -s storyline
3S:SG:FEM-go mother-GEN

His-mother left.

(49) (56 ms) ɵiruwærtətosi/ (0 ms) mount.ten.
ɵ-i -ruwær tə tosi storyline
?-3A:SG:MASC-turn PRO:3A:SG:MASC plate

[And the older son] turned [the] plate.

(50) (0 ms) yæræyyaxsænnigu...figargæyimmæs/ (857 ms)
y-æræy yaxsæn-ni gu-figar gæ-yimmæ-s
3A:SG:MASC-change bones-DEM:DIST:SG/PL mount.ten.
GEN-snake LOC-mother-GEN storyline

He-placed the bone.noodles at-his-mother['s place].

(51) (857 ms) štawžɪštəmzuwætallɪɵaŋgættə/ (504 ms)
št təwžɪšt təmzuwæt allɪ-ɵaŋgættə mount.ten.
eat spoon first INES-last storyline

[When she returned, she] ate the whole platefull.

(52) (504 ms) təmmut\ (H) (890 ms) in.incid.
t -əmmut climax
3S:SG:FEM-die ep.junct.
storyline

[Then] she-died.

(53Q) (890 ms) æywainnas
æywa i-nna-s
well 3A:SG:MASC -say-3IO:SG:MASC/FEM

Then [the older brother] said-to.the.younger,

iyæwmæyallæh\...(H) (871 ms)
iyæ-wmæ yallæh
oh -brother-let's.go

"Oh-brother, let's.go."

(54) (871 ms) səbḥærḥær/ (322 ms) ep.junct.
səbḥæ rḥær storyline
become morning

[It] became morning.

(55) (322 ms) užuæ\ (756 ms) mount.ten.
užuæ storyline
go

[They] left [carrying their dead mother].

(56) (756 ms) zidyəlla__ (0 ms) mount.ten.
zid yəlla storyline
continue let's.go

They traveled.

(57) (0 ms) zidyəlla/ (H) (704 ms) mount.ten.
zid yəlla storyline
continue let's.go

They traveled a long way.

(58) (704 ms) θənæywudθæ?ofiθ __ (0 ms) in.incid.
θənæy wud θæ?ofiθ mount.ten.
anew arrive fork storyline

Then [a] fork [in the road] appeared.

(59) (0 ms) qænæ <SING θnæyniburæd SING>\(H)in.incid.
qæ -næ θnæyn iburæd (1065 ms) mount.ten.
IMM-meet two roads ep.junct.
storyline

[They] met two roads.

(60Q) (1065 ms) niniburæd/
nin iburæd
two roads

[When they met the] two roads,

yinnəs
y -innə-s
3A:SG:MASC-say -3IO:SG:MASC/FEM

[The older brother] said to.[the younger one],

ixssəɬæ̈kkidə___ (H)
i -xss əɬæ̈ -kki -də
3S:SG:MASC-be.necessary IRR-pass-PROX

"It-is.necessary to-pass-here.

šəkəmmlɛ̨yžə/
šək əmmlɛ̨ yžə
PRO:2A:SG:MASC take one

You take one [road].

nšəɬəmɛ̨ɡəžən___
nš əɬə-mɛ̨-ɡ əžən
PRO:1A:SG:MASC/FEM -IRR-take-
1A:SG:MASC/FEM-one

I will-take the.other.

əmsəraqnibriɬ___
əm-s -əraq -n ibriɬ
RECIP-CAUS-separate-3S:PL:MASC roads

[Since the] roads separate themselves,

nəɡəmsəraqranši\ (H)
nəɡ-əm-s -əraq ra -nši
1DO:PL:MASC/FEM -RECIP-CAUS-separate also-
PRO:1A:PL:MASC/FEM

we [ought] also to.separate."

(61Q) nis
ni -s
say-3IO:SG:MASC/FEM

[The older brother] said-to.him,

wərtəsɡærwuqšæ/ (H)
wə -rtəs ɡær -wuqšæ
NEG-shepherd ABL-bald.man

"Don't-shepherd for-[the]bald.man.

wərttəsɡærəzɛr
wə -rttəs ɡær -azɛr
NEG-shepherd-ABL-blond.man

Don't-shepherd for-[the]blond.man.

wərttəsæɡæ%%%ʔmḥærišnæfə (H)
wə -rttəs -æ ɡæ-ʔmḥæri šnæfə
NEG-shepherd-PROX LOC-Mhari Shnafa

Don't-be.a.shepherd at-Mhari Shnafa."

(62) (535 ms) (Hx) <@@@> (H) <@@@> (snort)
æywæsiɬiræywæsiɬiræywærəmiyənæ/
æywæ siɬir æywæ siɬir æywæ rəmi y-ənæ
well lord well lord well after 3A:SG:MASC-say

Well, sir, after saying [this], climax ep.junct.

assəbaɬæn\ (788 ms) storyline
ass -əbaɬæ-n
CAUS-start-3S:PL:MASC

they-forced-[themselves.to].go[away from each other].

(63) (788 ms) ikkænttæm/ (493 ms) ep.junct.
i-kkæ nttæ-m storyline
3S:SG:MASC-get.up PRO:3S:SG:MASC-RECIP

[The younger brother]-himself got.up [carrying the corpse].

(64) (493 ms) yufæ= orient.
y -ufæ ep.junct.
3A:SG:MASC-find storyline

He-found [that]

æbæysmæyk
æbæys mæ y -k
no.matter where 3S:SG:MASC-go

no.matter where he-went,

ifəɬəqšəɬləzɛɬl=əzɛi___ (0 ms)
i-fə -ɬə -qšə -ɬ -ləzɛ-ɬ -ləzɛ-i
3A:SG:MASC-find COMP-bald.man COMP-
blond.man COMP-blond.man-?

he-met the-bald.man and.the blond.man.

(64Q) (0 ms) nšəɬæwsəɡæzɛrə\ (H) (669 ms)
nš əɬ -æwsə -ɡ æ -zɛr -ə
PRO:1S:SG:MASC/FEM IRR-shepherd-
1S:SG:MASC/FEM DAT-blond.man-
DEM:PROX:SG

[He said to himself], "I will work for-the-blond man."

(65) (669 ms) irəwoḥ\ (H) (1460 ms) ep.junct.
i -rəwoḥ storyline
3S:SG:MASC-go

He-left.

(66) (1460 ms) ræmiroḥ mount.ten.
ræm i -roḥ storyline
when 3S:SG:MASC-go

When he-left,

yəbɬæyttəræṣ/ (809 ms)
y -əbɬæ y -ttəræṣ
3A:SG:MASC-start 3S:SG:MASC-shepherd

he-started shepherding [for the blond man].

(67Q) (809 ms) yinnəs
y -innə-s
3A:SG:MASC-say -3IO:SG:MASC/FEM

He-told-him,

iwæyxəssɪšætæbuttossæθxiyɹriyənnɪš/ (H)
iwæ y-xəssɪ-š æ-t-æbu-t tossæθ x-iyɹriyə
n-nɪš
well 3A:SG:MASC-need-2DO:SG:MASC IRR-
2A:SG:MASC/FEM-carry-2A:SG:MASC/FEM
old.lady LOC-neck GEN-PRO:1:SG:MASC/FEM

"You-need to-carry this.corpse [which is] on-my-back.

ʔəttʔəttʔnhaʔnæšhattsiɬəɬəqo ɛn
ʔətt ʔətt ʔnha ʔnæš-ha t-t-siɬə-ɬ əqobɛn
hey hey today PRO:1S:SG:MASC/FEM-need-ITER-
2A:SG:MASC/FEM-hunt-2A:SG:MASC/FEM-birds

[And] I need you-[to]get small birds

iḥæyhænžyæn\ (H) (511 ms)
iḥæyhænžyæn
children

[for food]."

(68) (511 ms) kurənharkurənharkurənharyəmnia/ (H) (876 ms)
kur-ənhar kur-ənhar kur-ənhar yəmnia
each-day each-day each-day like.that orient.
ep.junct.
[For quite some time], each-day [was] like.that.

(69) (876 ms) iženhæyuzdɡas ep.junct.
iže-nhæ y-uz-d ɡa-s storyline
one-day 3S:SG:MASC-come-PROX LOC-
3IO:SG:MASC/FEM

One-day his-brother

omas\ (0 ms)
oma-s
brother-GEN:SG:MASC/FEM

came to-him.

(70Q) (0 ms) innass
i -nna-ss
3A:SG:MASC/FEM-say-3IO:SG:MASC/FEM

He-said-to.him,

mindiddir\
mindi -ddir
on.what-be

"Where [have you] been?"

(71Q) inəθ
i -nə -θ
3A:SG:MASC-tell-3DO:SG:FEM

He-continued,

æwddəqəngɪmɪræḥæɬæwəšɬitæmælæ\ (H)
æwdd əqəngɪmɪ-ræḥæ-ɬ æwə-š ɬi-tæmælæ
brother long.ago go-PROX LOC-2DO:SG:MASC ILL-suffering

"Brother, [I've] suffered [as I've looked] for-you."

(72Q) yinəs
y -inə-s
3A:SG:MASC-say-3IO:SG:MASC/FEM

[Finally, the older brother] said-to.him,

ærwaḥ___
ærwaḥ
go

"Let's.go.

əbæyššɪkɪkæḥæ___
əbæy šš ɪkɪ-k æḥæ
no.matter.what PRO:1S:SG:MASC/FEM ASSOC-2IO:SG:MASC-go

No.matter.what, I['ll] go with-you."

yəllə\ (H) (402 ms)
yəllə
let's.go

Let's.go."

(73) (402 ms) yittəfəθsæninəgit/ (H) (857 ms) ep.junct.
yi-ttəfə θsæ-n i -nəgi-t storyline
3A:SG:MASC-take old.lady-REL 3A:SG:MASC-kill-3O:SG:FEM

The.older.brother-took [the] old.woman he'd-killed.

(74) (857 ms) yittəfərqəbəɖæ=%%%___ (0 ms) mount.ten.
yi-ttəf-ərqəbə-ɖæ storyline
3S:SG:MASC-grab-gather-PROX

He-gathered-[her up]here.

(75) (0 ms) yinnæs___ ep.junct.
y -innæ-s storyline
3A:SG:MASC-say -3IO:SG:MASC/FEM

He-said-to.his.younger.brother,

lɛgərə itəggitəgiddiramoẓit/ (H) (932 ms)
lɛgərə i -t -aggi-t əgi-d di-ramoẓit
scorpion 3A:SG:MASC-ITER-put -3O:SG:FEM-put-3O:SG:FEM ILL-coffin

[the] scorpion, [to] put [the corpse] in-[a]coffin.

(76D) (932ms) æræmidyusæɡæθaddæθ\ (0 ms)
æræmi-d y -usæ ɡæ-θaddæθ
until-PROX 3S:SG:MASC-come LOC-house

Until they-came to- the.older.brother's.house,

(76) (0 ms) əɖænihænžæni___ (0 ms) ep.junct.
əɖæ -n ihænžæn -ɩ storyline
start-3S:PL:MASC children-DEM:PROX:PL

these-children started.

(77) (0 ms) zəbɖandɡaɖ___ (0 ms) mount.ten.
zəbɖə-n -d ɡa-ɖ storyline
pull -3S:PL:MASC -PROX LOC-PROX

They-dragged [the coffin] to-the.house.

(78D) (0 ms) ɡæyžəbənə=%/ (381 ms)
ɡæ -y -žəbə-nə
IRR-PART-pull-PART

While-dragg-ing [it],

(78) (381 ms) assəqsəɬ/ (0 ms) in.incid.
ə -s -s -aqsə-ɬ climax
IRR-3IO:SG:MASC/FEM-bite-PROX storyline

[she] bit one.of.them,

(79) (0 ms) iyæwər\ (918 ms) ep.junct.
iy-æwər storyline
3S:SG:MASC-save

[but] the.other-saved [him].

(80) (918 ms) ittəfəθsæɬninəɡit/ (H) (493 ms) ep.junct.
i -ttəfə θsæɬ -n -i -nəɡi-t storyline
3A:SG:MASC-take -old.lady-REL 3A:SG:MASC-kill-3O:SG:FEM

The.older.brother-took [the] woman-whom he-had.killed

(81) (493 ms) iggiddəɡəmæθ/ (H) (865 ms) mount.ten.
i -ggi-d də-ɡəmæθ storyline
3A:SG:MASC-put-3O:SG:FEM ILL-corner

[and] put-her in-[a]corner [of a room in his house].

(82Q) (865ms) yənnəθ___
y -ənnə-θ
3A:SG:MASC-tell-3O:SG:FEM

He-told-her,

iwæzid\
iwæ -zid
well-continue

"Get.going!"

(83Q) yannas___
y -anna-s
3A:SG:MASC-say -3IO:SG:MASC/FEM

He-said-to.her,

binaɡazmɩθowansia\ (H)
bi -naɡ azmɩθ owansia
make- 1O:PL:MASC/FEM flour.cooked.in.oil dinner

"Make-us [some] flour.cooked.in.oil [for] dinner."

(84D) umiθiggɩntazammihannia/ (H) (728 ms)
umi -θ i -ggɩ-n -tazammih-annia
after-3O:SG:FEM PART-do-PART
floor.cooked.in.oil-DEM:DIST:SG/PL

After mak-ing flour.cooked.in.oil,

(84) (728 ms) yiggɩsɛbbuzaqumum/ (0 ms) mount.ten.
yi-ggɩ-s ɛbbuz aqumum storyline
3A:SG:MASC-do -3IO:SG:MASC/FEM ball mouth

he-made [some of it into a] mouth.sized ball.

(85Q) (0 ms) yibaɗæysaɡoyu\
y -ibaɗæ y -saɡoyu
3S:SG:MASC-start 3A:SG:MASC-yell

He-[then]began [to] call.out,

æɗæwssættammuθæzærttarsærtammuθ/ (H)
(903 ms)
æ ɗæwssæt tammuθ æzært tarsært ammuθ
VOC old.lady dead.lady run old.lady dead.lady

"Run, old.dead.woman. Run, old.dead.woman!"

(86) (903 ms) æywæsiɗir?iqqærə/ (0 ms) less.ten.
æywæ siɗir ?i-qqærə storyline
well sir 3S:SG:MASC-get.up

Well, sir, [then] he-got.up

(87) (0 ms) ʔiggit\ (H) (TSK) (1145 ms) less.ten.
ʔi-ggi-t storyline
3A:SG:MASC-put-3O:SG:FEM

[and] he-put-her [somewhere else].

(88) (1145 ms) ššiddossæhannia/ (0 ms) less.ten.
šši -d -dossæh -annia storyline
take-3A:PL:MASC old.lady-DEM:DIST:SG/PL

They-took that-old.lady

(89) (0 ms) darzantaθ/ (H) (646 ms) denoue.
darza-n -taθ ep.junct.
bury -3A:PL:MASC-3O:SG:FEM storyline

[and] they-buried-her.

(90) (646 ms) ʔnttæmozzɪllxæs\ (0 ms)
ʔnttæ-m ozzɪl-l xæ-s ep.junct.
3PRO:SG:MASC-RECIP-run-3S:PL:MASC LOC- storyline
3IO:SG:MASC/FEM

The.two.brothers-ran to-[the]ogre.

(91Q) (0 ms) nus___
nu -s
say-3IO:SG:MASC/FEM

[He] said-[to]him,

ækiθæḥaɬ/ (H) ɡæyžuwamarabaɬa/
æk-i θ-æḥa-ɬ ɡæ-yž-uwamarabaɬa
ASSOC-1IO:SG:MASC/FEM 2S:SG:MASC/FEM-go-
2S:SG:MASC/FEM LOC-a -holy.man's.tomb

"Come with-me to-a.holy.man's.tomb.

naḥabaɬ/
n -aḥa- baɬ
1S:PL:MASC/FEM-go -start

We-were.just.getting.started.

ðəxæddzwær/
ð -əxæ -d d -zwær
2A:SG:MASC/FEM-need-2A:SG:MASC/FEM
2A:SG:MASC/FEM-make.pilgrimage

You-need [to] make.a.pilgrimage [with us].

ɗəræḥad\...səmɪnɛ̨nd___
ɗ -əræḥə-d səmɪnɛ̨nd
2A:SG:MASC/FEM-go-2A:SG:MASC/FEM Simanda

You-[should] go [to] Simanda."

(92Q) inəs\
i -nə -s
3A:SG:MASC-say-3IO:SG:MASC/FEM

The.ogre said to.[his].son (i.e., the older brother),

əɗəræḥə\ (H)
əɗə -ræḥə
IRR-go

"[Yes, I] will-go.

roḥæ\
roḥæ
go

Let's.go.

yallayallayalla/
yalla yalla yalla
let's.go let's.go let's.go

Let's.go [now]."

(93Q) nænis___
n -æni-s
3A:PL:MASC-say-3IO:SG:MASC/FEM

They-said to.him,

šæbšænitazdæwiræd/ (H)
š-æbšæn i -t -azd -æ wiræd
a-place 3S:SG:MASC-ITER-come-PROX lion

"[A] lion goes-regularly [to that] place.

ixsadšin/
i -xs -ad šin
3A:SG:MASC-need-PROX PRO:1O:PL:MASC/FEM

He-needs us.

æta/... (H) itsammæθanši\ (0 ms)
æta i-t -sammæ-θa nši
PRO:1A:SG:MASC he-ITER-call -3O:SG:FEM
PRO:1O:PL:MASC/FEM

He calls us."

(94) (0 ms) iqqær (0 ms) in.incid.
i -qqær ep.junct.
3S:SG:MASC-get.up storyline

[At Simanda while sleeping, the] ogre-got.up.

(95) (0 ms) ttætsɩbošænonammis/ (0 ms) in.incid.
ttæ ts ɩbošæno n-ammi-s mount.ten.
PRO:3S:SG:MASC sleep place GEN-son- storyline
GEN:3:SG:MASC

He slept [in]place of-his-son.

(96) (0 ms) iggɩmmisagušænnɩθs\ (0 ms) in.incid.
i -ggɩ mmi-s ag-ušæn -nɩθs mount.ten.
3A:SG:MASC-put son-GEN ILL-place-GENstoryline

[Before sleeping,] he-placed his-son [i.e., the younger brother]
in-his-place.

(97) (0 ms) užuwænd/ (0 ms) mount.ten.
užuwæ-n -d storyline
run -3S:PL:MASC-PROX

[During the night,] the.older.brother.and.someone.else-ran.off.

(98) (0 ms) ærbonæḥamni___ (0 ms) mount.ten.
ærbo -n æḥam -ni storyline
carry.on.back-3A:PL:MASC-child-DEM:DIST:SG/PL

They-carried [with them what they thought was] the-younger.brother.

(99) (0 ms) osində\ (H) (824 ms) mount.ten.
osi -n -də storyline
come-3S:PL:MASC-PROX

They-went somewhere.else.

(100D) (824 ms) æ=ræmiqarəbɪn\ (0 ms)
æræmi qarəbɪ -n
after approach-3S:PL:MASC

After traveling [a while],

(100) (0 ms) æɬoɬnižənwəmšæn/ (0 ms) mount.ten.
æɬ-oɬ-n ižən-wəmšæn storyline
IRR-reach-3A:PL:MASC one-place

They-reached some-place.

(101Q) (0 ms) innæs___
i -nnæ-s
3A:SG:MASC-say-3IO:SG:MASC/FEM

The.older.brother-told his.companion,

oɬžžæθsimaʕndɪ___
o ɬ -žžæθ simaʕndɪ
VOC 1A:PL:MASC/FEM-leave Simanda

"Alas, we-left Simanda

θišoɬzəw___
θ -i -š oɬzəw
IRR-3A:SG:MASC-eat ogre

[and the] lion-will-eat [the] ogre [there]!"

(102Q) ina___
i -na
3A:SG:MASC-say

[The] ogre-said,

sɬæræɣɪˊ
s -ɬæræ -ɣɪ
cause-come.down-1O:SG:MASC/FEM

"Let-me-down.

nišqæɣggwɛbæbæš
niš qæ-ɣ g -gwɛ bæbæ -š
PRO:1S:SG:MASC/FEM be-1O:SG:MASC/FEM LOC-back father-GEN

I, your-father, am on-[your]back.

ɪqæɣdiˊ (H) (616 ms)
ɪqæ-ɣ -di
be -1O:SG:MASC/FEM -PROX

I-am-here.!"

(103) (616 ms) ɣɪsɬariθiṭ/ (H) (955 ms) mount.ten.
ɣ -ɪs -ɬari -θ -iṭ storyline
3A:SG:MASC/FEM-CAUS-come.down-3O:SG:MASC-PROX

He [then] got-him-down [off his back].

(104D) (955 ms) miθinissəɬafimnimæ___ (0 ms)
mi -θin -i -ss -əɬaf imnimæ
after-him.there 3A:SG:MASC-CAUS-come.down like.that

After he-got-him-down,

(104) (0 ms) ɡæḥal___ (0 ms) mount.ten.
ɡæ -ḥa-l storyline
IRR-go-3S:PL:MASC

they went back to Simanda.

(105) (0 ms) ɪfænaḥænžænnišši=θɪt/...wæyṛæd\ (H)(748 ms)
ɪfæ -n aḥænžæ-nn i -šši-θɪt wæyṛæd
find-3A:PL:MASC child -DEM:DIST:SG/PL in.incid.
3A:SG:MASC-eat-3O:SG:MASC lionclimax
storyline
[and] found [that the] lion-had.eaten the-child.

(106) (748 ms) hawsiṇt\ (H) (865 ms) ep.junct.
ha -wsi-ṇ -t storyline
here-come-3S:PL:MASC-PROX

They went to another place.

(107D) (865 ms) rimidyussin/ (H) (807 ms)
rimi-d ɣ-ussi-n
when-PROX ?-come-3S:PL:MASC

When they-arrived [there],

(107) (807 ms) θæniya\ (100 ms) orient.
θæniya ep.junct.
twice

[it was the] second.time [to try and kill the ogre].

(108Q) (100 ms) innas___
i -nna-s
3A:SG:MASC-say-3IO:SG:MASC/FEM

The.older.brother-said-to.the.ogre,

ækæynaǥθæḥaȡ/ (H) ǥærabḥær\
ækæɣ-naǥ θ -æḥa-ȡ ǥæ-rabḥær
ASSOC-1O:PL:MASC/FEM 2S:SG:MASC/FEM-go-
2S:SG:MASC/FEM LOC-sea
"Come with-us to-[the]sea.

qqəlgɪninæsæȡqəθ___
qqə -lg-ɪnin æsæȡqəθ
make-1O:PL/MASC/FEM-DIST sacrifice

Make-for.us-there [a] sacrifice.

æḥəb/
æḥə-b
go sea

Go [to the] sea."

(109Q) inəs___
i -nə -s
he-say-to.him

The ogre told him,

wæxæɬəræḥ\ (1422 ms)
wæxæ ɬ-əræḥ
okay IRR-go

"Okay, I'll go."

(110) (1422 ms) æywæyroḥ\ (H) (674 ms) ep.junct.
æywæ y-roḥ storyline
well/then 3S:SG:MASC-go

Then he-left [with them].

111) (674 ms) irqæyžužunitiə/ (H) (524 ms) ep.junct.
i-rqæ yž-užunitiə storyline
3A:SG:MASC-meet one-shepherd

He-met a-shepherd.

(112Q) (524 ms) innəs___
i -nnə-s
3A:SG:MASC-say-3IO:SG:MASC/FEM

He-said-to.him,

waθəḥaɬaǥabəḥæ\
wa -θ -aḥa-ɬ -a ǥa-bəḥæ
NEG-2S:SG:MASC/FEM-go -2S:SG:MASC/FEM-DIST LOC-sea

"[Are] you-not-going to-[the]sea?"

(113Q) ynnəs/
y -nnə-s
3A:SG:MASC-say-3IO:SG:MASC/FEM

He-replied-to.him,

əllə\
əllə
no

"No."

(114Q) yinəs__
y -inə-s
3A:SG:MASC-say-3IO:SG:MASC/FEM

The.older.brother-told-him,

əroqšən__ (0 ms)
əroq -šən
gather-3O:PL:MASC

"Get-people [together]."

(115) (0 ms) ɪnɪθsu/ (H) (650 ms) mount.ten.
ɪ-nɪ θsu storyline
3A:SG:MASC-say same.thing

He-said [the] same.thing [to someone else].

(116Q) (650 ms) ynəs__
y -nə -s
3A:SG:MASC-say-3IO:SG:MASC/FEM

The.ogre-said to.the.shepherd [privately],

æwmæḥəɬæyiə\ (H) (TSK) (668 ms)
æwmæ ḥəɬæ -yiə
brother protect-1O:SG:MASC/FEM

"[Oh] brother, protect-me!"

(117) (668 ms) iroḥ/ (380 ms) ep.junct.
i -roḥ storyline
3S:SG:MASC-go

He-left

(118) (380 ms) nihanittayuzduwaninninɛnttarəbḥær\ (883 ms)
nihani tta y -uz-d uwani nnin ɛ-n-t ta-rəbḥær
PRO:3S:PL:MASC PRO:3S:SG:MASC 3S:SG:MASC-come-PROX the.one PRO:3S:PL:MASC push-3S:PL:MASC-3O:SG:MASC ILL-sea ep.junct. storyline

They arrived [including the ogre] whom they had.pushed into-[the]sea.

(119) (883 ms) æywahæɛnɪnt (H) (885 ms) mount.ten.
æywa hæ-ɛnɪ -n -t storyline
well about.to-push-3A:PL:MASC-3O:SG:MASC

Well, they were.about.to-push-him [in again].

(120) (885 ms) θæniyæ\ (44 ms) orient.
θæniyæ mount.ten.
second.time storyline

[It was the] second.time [they pushed him into the sea].

(121) (44 ms) yusəd\ (0 ms) mount.ten.
y -usə -d storyline
3S:SG:MASC-come-PROX

The.ogre-came [to them].

(122) (0 ms) dyuɬɪsantaḥærɪg___ (0 ms) mount.ten.
d -y -uɬɪ -san -t aḥærɪg storyline
PROX-3A:SG:MASC-carry-3IO:PL:MASC-PROX fire

He-brought-them coals.of.fire.

(123Q) (0 ms) inə___
i -nə
3A:SG:MASC-say

He-told [them],

θæwzanθæwaθakinuniɣəəbɛ___
θ -æwzan θæwaθ ak -inu n -iɣəəbɛ
2A:SG:MASC/FEM-open door ASSOC-POSS.PRO:1:SG:MASC/FEM GEN-God

"Open [the] door for-me, by-God!

æmniyazəmθæwæθ/ (167 ms)
æ mn-iy azəm θæwæθ
VOC son-GEN:1:SG:MASC/FEM open door

Oh my-son, open [the] door!"

(124) (167 ms) yuθəf\ (H) (949 ms) mount.ten.
y-uθəf storyline
3S:SG:MASC/FEM-enter

[They opened the door and] he-came.in.

(125Q) (949 ms) mæyθifəqɛnæyə/
mæy θ -ifə qɛ næyə
where 2A:SG:MASC/FEM-find all all.that

[The older brother asked,] "Where did-you-find the.coals?"

(126Q) innəs___
i -nnə-s
3A:SG:MASC-say-3IO:SG:MASC/FEM

He-said-to.him.

ærəkæyhærəmaɡædək___
ærək æy-h -ærə -m aɡæ-dək
if 1O:SG:MASC/FEM-2S:PL:MASC-allow-
2S:PL:MASC-LOC-interior

"If you-let-me inside,

iyæboɡəndɪkətə/
iyæbo-ɡ əndɪ kətə
carry-1A:SG:MASC/FEM for.you-more

I'll-bring you more."

(127Q) rimiɡəɡəṭṭəf/
rimi ɡə-ɡə-ṭṭəf
when LOC-LOC-shore

[They replied,] "When [we are] at [the] sea.shore,

aqqænəg/ (152 ms)
aqqæ -nəg
IMM-1O:PL:MASC/FEM

then-we [will allow you to stay]."

(128) (152 ms) iwæ\... (H) zid\ (99 ms) mount.ten.
iwæ zi=d storyline
well next

Well, they.went.on.

(129) (99 ms) nuwaggdišoḥænžæɵ climax
nuwa g-ddi š-oḥænžæ-ɵ storyline
REL.PRO:3A:SG:MASC IRR-live CORR-child-PROX

The son of the ogre (lit. 'he who lived as a child')

hæyɛnɪbdirəbḥæ___ (0 ms)
hæ y-ɛnɪb di-rəbḥæ
behold 3A:SG:MASC-push ILL-sea

pushed him into the sea!

(130) (0 ms) zɪlyəmæyrəbḥæym/ (H) (896 ms) climax
zɪl y-əmæy rəbḥæym storyline
the.one 3A:SG:MASC-carry cattle

He-was.heavy. (lit. 'he-carried cattle').

(131) (896 ms) walu\...(H) æywæyəmniyəmnia\(501 ms) orient.
walu -æywæ yəmni yəmnia less.ten.
nothing well like.that like.that denoue.

[Then he was] gone [just] like.that.

(132) (501 ms) ṣafi\ coda
ṣafi ep.junct.
enough

That's.the.end.

Night Fears

(1) (0 ms) ižumar/ ...(H) sidžiriθ/ ... naṭṭas_ (525 ms) orient.
iž-umar si-džiriθ n-aṭṭas ep.junct.
one-time TEMP-night 3S:PLUR:MASC/FEM-sleep

One-time at-night we-were.sleeping.

(2) (525 ms) naṭṭas/ (68 ms) orient.
n -aṭṭas
1S:PL:MASC/FEM-sleep

We-were.sleeping.

(3) (68 ms) qæraɡ/ (H) (530 ms) orient.
qæ -ra-ɡ
IMM-go-1S:SG:MASC/FEM

Then-I-went.

(4) (530 ms) žžɪɡabintanæ=npatyu=___ orient.
anwumθænitæθæwzum/ (H) (650 ms)
žžɪ -ɡ abintanæ n -patyu-anwum θæni-
tæθæwzum
left-1A:SG:MASC/FEM window GEN-patio-
GEN:2:PL:MASC/FEM two -open

I-left [the] two windows of-your-patio open.

(5) (650 ms) ?nškaraɡ/ (374 ms) storyline
?nš kara-ɡ
PRO:1S:SG:MASC/FEM get.up-1S:SG:MASC/FEM

I got.up [out of bed].

in.incid.
(6) (374 ms) naštwæriɡaæθiri___ (58 ms) mount.ten.
naš twæri-ɡa æθiri storyline
PRO:1A:SG:MASC/FEM see-1A:SG:MASC/FEM
shadow

I-saw [a] shadow.

(7) (58 ms) tugaɬalxarif\ (297 ms) orient.
tuga ɬa-lxarif less.ten.
AUX ILL-summer

It.was in-[the]summer.

(8) (297 ms) twærɪgižantiyadæ in.incid.
twærɪ-g ižan-tiyadæ mount.ten.
see-1A:SG:MASC/FEM one-shadow storyline

I-saw a-shadow

mašnubanæɬɪm\ (H) (1140 ms)
mašnu-banæɬɪm
CORR-person

like-[a]person.

(9) (1140 ms) ʔntawædžæšæɬabanæɬam\ (0 ms) mount.ten.
ʔnta wæ-džæ-šæ ɬa-banæɬam
PRO:3S:SG:MASC NEG-be-NEG COMP-person

[However] he was-not a-person.

(10) (0 ms) šɪroḥamoḥæmmɪd\ (0 ms) mount.ten.
šɪ roḥa moḥæmmɪd storyline
PRO:1S:SG:MASC/FEM go Mohammed

I went [to] Mohammed.

(11Q) (0 ms) moḥæmæyamoḥæmmɪdinninæyyæ\ (H)
<BR naxasæ
moḥæmæ -ya moḥæmmɪd inninæyyænaxasæ
Mohammed-my Mohammed there.is

"Mohammed, Mohammed, there.is

yužaxowɪnaqaθaθuwa BR> (H)
yuža-xowɪn aqa -θ a -θuwa
a -thief IMM-3O:SG:MASC LOC-door

a-thief at-[the]door!"

(12Q) inæɣwæ/
i -næ -ɣ wæ
3A:SG:MASC-say-1IO:SG:MASC/FEM yes

He-said-to.me, "Yes?"

(13Q) nəɡəsɩwæ\ (H)
nə -ɡ-əs ɩwæ
tell-1A:SG:MASC/FEM-3IO:SG:MASC/FEM well

I-told-him, "Well..."

(14Q) nəɡəs___
nə -ɡ-əs
tell-1A:SG:MASC/FEM-3IO:SG:MASC/FEM

I-said-to.him,

akkaɬɡi___
akka ɬɡi
get.up quickly

"Get.up quickly!"

(15Q) æɣnn/
æ -ɣ -nn
IMM-3A:SG:MASC/FEM-tell

Then-he-said [to me],

iwaražoražaɬarḥaɡbitalmæmzuwar?mmæra\
iwa ražoraž aɬ-arḥa-ɡ bitalmæ mzuwar
?mmæra
well wait IRR-go -1S:SG:MASC/FEM bathroom beginning
difficult

"Well, wait [until] I-go [to the] bathroom [when the] trouble
starts.

xannigæɣæḥaɡaxuwwa\
xann-i ɡæ -ɣ-æḥa-ɡ a -xuwwa
then-1O:SG:MASC/FEM-IRR-1O:SG:MASC/FEM-
go -I LOC-thief

Then I-will-go to-[the]thief."

(16Q) nnixas\
nni-x-as
say-1A:SG:MASC/FEM-3IO:SG:MASC/FEM

I-said-to.him.

mæšaqqamænæθroḥæɬ\...ɮabitalmæ/
mæš aqqa mænæ θ -roḥæ-ɬ ɮ-abitalmæ
but IMM if 2S:SG:MASC/FEM-go-2S:SG:MASC/FEM
LOC -bathroom

"But if then you-go to-[the] bathroom

qixawwaniɬiyif/
q -i -xawwan-i ɬ -iy-if
IMM-3S:SG:MASC/FEM-steal -1O:SG:MASC/FEM
IRR-3S:SG:MASC-come.in

the.thief-could-come in!"

(17Q) nnæy___
nnæ-y
say-1IO:SG:MASC/FEM

[He] said-to.me,

waxxamæɛæli/
waxxa mæɛæli
okay no.problem

"Okay, no problem

žžiddiyanni (414 ms)
žžid -diyanni
leave-there

Leave-[him]there."

(18) (414 ms) ižopɛ/ (73 ms) less.ten.
i-žopɛ storyline
3S:SG:MASC-sleep

He-went.back.to.sleep.

(19) (414 ms) šənæ...ikkæḥæssɪn/ (73 ms) mount.ten.
šənæ i-kkæ ḥæssɪn storyline
then 3S:SG:MASC-come Hassan

Then Hassan came.

(20) (73 ms) iṣəqəqəd/ (0 ms) mount.ten.
i -ṣəqəqəd storyline
3S:SG:MASC-knock.on.door

He knocked on the door.

(21) (0 ms) yod\ (0 ms) mount.ten.
y -od storyline
3S:SG:MASC-come.in

Then he came in.

(22Q) (0 ms) šɪdžnɪ-ɡaṣ___
šɪdž nɪ -ɡ-aṣ
PRO:1A:SG:MASC/FEM say-1A:SG:MASC/FEM-
3IO:SG:MASC/FEM

I said-to.Mohammed,

ṣafəqšuɬɪn/ (0 ms)
ṣafə qšuɬɪn
enough stick

"[That's him! Get the] stick!"

(23) (0 ms) <@ šabtəzsəɡoyɡžɪ==n/ @> %%% (H) (1490 ms) less.ten.
š abtəz səɡoy gžɪn ep.junct.
then start yell loud

Then [I] started [to] shout loudly.

(24) (1490 ms) ɛɬɛqarəžɛmtəḥæz/ (554 ms) less.ten.
ɛɬ ɛqərə žɛm təḥæz denoue.
still remember how.much laugh ep.junct.

[I] still remember how.much [we] laughed.

(25)	(554 ms)	ižuwalla\... (H) ižumara	orient.
		iž-uw-alla iž-umara	less.ten.
		one-ABL-God one-time	ep.junct.
		One time, by God, one time	
		tuga ɛddıroga=\...kuzina\ (158 ms)	
		tuga ɛddıro-ga kuzina	
		AUX repair-1A:SG:MASC/FEM kitchen	
		I-was.repairing [the] kitchen.	
(26)	(158 ms)	kasagasθazzaqqa\ (H) (104 ms)	orient.
		kasa -g-as θazzaqqa	less.ten.
		remove-1A:SG:MASC/FEM-3IO:SG:MASC/FEM roof	
		I-had.taken.off [the] roof.	
(27)	(104 ms)	tatsırıgimuššuwunæ=___ (751 ms)	orient.
		t -atsırı-g imuššuwun-æ	in.incid.
		ITER-hear -1A:SG:MASC/FEM-cats-PROX	mount.ten. storyline
		I-could-hear cats-nearby.	
(28)	(751 ms)	tıggın___ (0 ms)	orient.
		t-ıggı-n	in.incid.
		ITER-do-3A:PL:MASC	mount.ten. storyline
		They-were-doing [something].	
(29)	(0 ms)	ggwaran\ (H) (357 ms)	in.incid.
		ggwara-n	mount.ten.
		walk-3S:PL:MASC	storyline
		They were.walking.	
(30Q)	(357 ms)	<BR ušæniyas___ BR>	
		ušæ ni -y-as	
		then say-1O:SG:MASC/FEM-3IO:SG:MASC/FEM	
		Then I-said-to.my.husband,	

hæmoḥæmmædæmoḥæmmædɩ___
hæ moḥæmmæd æ moḥæmmæd-ɩ
VOC Mohammed VOC Mohammed-
GEN:1:SG:MASC/FEM

"Oh, Mohammed, oh, my-Mohammed,

aqšossiwæɣxsanadɡangiyas\ (640 ms)
aq š o-ssi wæ-ɣ-xsa-n ad-ɡangiyas
IMM PRO:1A:SG:MASC/FEM NEG-know PRO:NH-
3A:SG:MASC/FEM want-REL IRR-come.in

"I don't-know who-wants to-come.in!"

(31) (640 ms) <BR isixšaqqa\ BR> (H) (399 ms) mount.ten.
isi -x šaqqa storyline
take-1A:SG:MASC/FEM axe

I-grabbed [an] axe.

(32Q) (399 ms) innæɣ___
i -nnæ-ɣ
3A:SG:MASC-say-1IO:SG:MASC/FEM

Mohammed-asked-me,

mænis___
mæni -s
where-3IO:SG:MASC/FEM

"Where-[is]he?"

(33Q) næ___
næ
say

[I] said [to him],

ʔikkad___
ʔi-kka -d
3S:SG:MASC-pass.by-PROX

"He-passed-nearby!"

(34Q) niɡaz___
ni -ɡ-az
say-1A:SG:MASC/FEM-3IO:SG:MASC/FEM

I-said-to.him,

æy___
æy
well

"Well...

(35Q) nnɪɡas\
nnɪ-ɡ-as
say-1A:SG:MASC/FEM-3IO:SG:MASC/FEM

I-said-to.him,

aqqšassæni___
aqqšassæni
over.here

"[He's] over here!"

(36Q) dæyannæya\
dæ -y -annæ -ya
IRR-3A:SG:MASC/FEM-reply-1IO:SG:MASC/FEM

[Then] he-said-to.me,

huwaqɪm
huwa qɪm
here stay

"Stay here,

šəmaɬætɛssɪɬ/
šəm aɬæ -t -ɛssɪ -ɬ
PRO:2S:SG:FEM IRR-2S:SG:MASC/FEM-
keep.watch-2S:SG:MASC/FEM

[and] keep.watch.

ḥæɖavə/
ḥæɖavə
watch.over

Guard [the house].

nšəɖæḥægḍsəg\ (474 ms)
nš əɖæ -ḥæ-g ḍsə -g
PRO:1S:SG:MASC/FEM IRR-go-1S:SG:MASC/FEM
sleep-1S:SG:MASC/FEM

I am.going to.sleep."

(37) (474 ms) nɪššədžittəɪmɪ less.ten.
nɪšš ədžit təkɪmɪ
PRO:1S:SG:MASC/FEM night whole

[The] whole night

nšəqqimo\ (H) (175 ms)
nš əqqim-o
PRO:1S:SG:MASC/FEM stay.up-1S:SG:MASC/FEM

I stayed.up.

(38) (175 ms) isægššəqo/@@@ (H) (1553 ms) mount.ten.
isæ -g ššəqo storyline
take-1A:SG:MASC/FEM axe

I-grabbed [an] axe.

(39) (1553 ms) <@ isigššəqə/ @> (H) (288 ms) mount.ten.
isi -g ššəqə storyline
take-1A:SG:MASC/FEM axe

I-grabbed [an] axe.

(40) (288 ms) <SM tražɪgəbədnɪt\ mount.ten.
t -ražɪ-g əbədnɪt storyline
ITER-wait-1S:SG:MASC/FEM first

First, I-waited [to see]

mæræiɣahuwad__
mæræ iɣ-ahuwad
if 3S:SG:MASC/FEM-come.down

if he-would-come.down [from the roof]

wunnæθatuɡammo\ SM> (H) (263 ms)
wunn æ -θatu-ɡ ammo
so.that IMM-hit -1A:SG:MASC/FEM person

so.that I-could-hit [the] person.

(41Q) (263 ms) nɪttæɣnnæɣ__
nɪttæ ɣ -nnæ-ɣ
PRO:3A:SG:MASC 3A:SG:MASC-say-
1IO:SG:MASC/FEM

He said-to.me,

nšæɬaḥaɡttəso\
nš æɬ -aḥa-ɡ ttəs -o
PRO:1S:SG:MASC/FEM IRR-go -1S:SG:MASC/FEM
sleep-1S:SG:MASC/FEM

"I am.going to.sleep.

šɪmqənæssæs (282 ms)
šɪm qə n -ɛssæs
PRO:1S:SG:FEM stay CORR-guard

You stay [there and] guard [the house]."

(42) (282 ms) <@ ʔnšəɬkəɬɛssæ\ @> (H) (292 ms) mount.ten.
ʔnš əɬ-kə ɬ-ɛssæ climax
PRO:3S:SG:MASC/FEM IRR-go IRR-guard storyline

I went to-guard [the house by myself].

(43) (292 ms) æɬəraža ɡæɣuz\ (0 ms) climax
æɬ-əraža-ɡ æɣuz storyline
IRR-wait-1S:SG:MASC/FEM husband

I-waited [for my] husband.

(44) (0 ms) mmædɡæyaɡaɡaɡaɡa\@@@@ (H) (1370 ms)
mmæd ɡæ-ya ɡaɡaɡaɡa climax
Mohammed DAT-IO:SG:MASC/FEM heedless.one

To me, Mohammed [was an] irrational.being [like a turkey].

(45) (1370 ms) <SM ʔntaxatrankɪrɪṭṭas/ SM> (637 ms)climax
ʔnta xa trankɪr i-ṭṭas ep.junct.
PRO:SG:MASC how calm 3S:SG:MASC storyline

How calmly he was.sleeping!

(46) (637 ms) <LO manɑabidla\ LO> (H) (481 ms) orient.
man -ɑabid la less.ten.
like.this-always no denoue.
ep.junct.

[Was he] like.this-all.the.time? No.

(47) (481 ms) iža maɜaddžiriθqomox in.incid.
<BR ʔnaqqimθsanniqæna\ BR> (593 ms) mount.ten.
iž-ama s-addžiriθ qomox ep.junct.
ʔn-aqqim-θsan ni-qæna storyline
one-time TEM-night when 1S:PL:MASC/FEM-stay
sleep INES-bed

Once at-night when we-were.asleep in.bed,

(593 ms) <LO šanšt
ša nš t-
then PRO:1A:SG:MASC/FEM ITER-

I-proceeded-

iggaɡæs\ LO> (290 ms)
igga-ɡ-æs
move-1A:SG:MASC/FEM-3IO:SG:MASC/FEM

[to]move-it.

in.incid.
(48) (290 ms) <A tiggaɡæs mount.ten.
t-igga-ɡ-æs storyline
ITER-move-1S:SG:MASC/FEM-3IO:SG:MASC/FEM

I-proceeded-to.move

iqænaˈ\ A> (343 ms) (KNOCKING SOUND)
i-qæna
LOC-bed

[the] bed.

(49) (633 ms) <LO šɪθəggiˈ\ LO> (119 ms) in.incid.
šɪ θ-əggi mount.ten.
PRO:1S:SG:MASC/FEM ITER-move storyline

I moved [it again].

(50Q) (119 ms) <WH xadižaxadiža___ WH>
xadiža-xadiža
Khadija-Khadija

[He said to me (whispering),] "Khadija! Khadija!"

(51Q) qaṣ___
qa -ṣ
call-3IO:SG:MASC/FEM

[I] said-to.him,

iwaˈ\
iwa
well

"Well?"

(52Q) əqqæyræ___
əqqæ-y -ræ
call-1IO:SG:MASC/FEM-?

[He] called.out to.me,

wəssuwiθhætuqqamæ__
w -əss uwiθ hætu -qqamæ
NEG-know who LOC-bed

"[I do] not-know who [is] under-[the] bed!"

(53Q) ʔnɡaṣ___
ʔn -ɡ-aṣ
say-1A:SG:MASC/FEM-3IO:SG:MASC/FEM

I-said-to.him,

anšmæynižæṭažæṭaxatrangæržæyga\
(KNOCKING SOUND)
anšmæ-yni žæ-ṭa žæ-ṭa-x trangær žæ-y-ga
listen-1IO:SG:MASC/FEM let-sleep let-sleep-
1S:SG:MASC/FEM calmly let-
1IO:SG:MASC/FEM-be?

"Listen-to.me! Leave-me-alone! Let-me-sleep peacefully!"

(54Q) xadižaxadižawassawiɬiniduqqæmæ\
xadiža xadiža wa-ssa wiɬin idu-qqæmæ
Khadija Khadija not-know who LOC-bed

[He said to me again,] "Khadija, Khadija! [I] don't-know who [is] under-[the]bed!"

(55Q) žantrankižatar\
ža -n tranki .ža tar
leave-1O:SG:MASC/FEM tranquil leave sleep

"Let-me be. Let [me] sleep.

mižakammiš
mi-ža -kammiš
?-leave-alone?

Leave me alone."

(56D) <SM æræmiæžišwælu\ SM> (H)
æræmi æžiš wælu
until nearly nothing

[It went like this] until [he was] nearly nothing,

(57D) æræmi <HI aqqribæɬyamma\ HI> (H) (646 ms)
æræmi aqqrib æɬ-y-amma
until near IRR-3S:SG:MASC-die

until he was.about.to die.

(58) (646 ms) <@ nittæyɬyiggu ɬawæ climax
nittæ yɬ-yi-ggu ɬ awæ
PRO:3A:SG:MASC IRR-3A:SG:MASC then

Then he-was.afraid

ɡæyssiɡamtafot
ɡæ-y-ssiɡam tafot
IRR-3A:SG:MASC-turn.on light

to-turn.on [the] light

æɬixobaradoqæma\ @> (H) (277 ms)
æɬ-i-xobar ado-qæma
IRR-3S:SG:MASC-look LOC-bed

to-look under-[the]bed.

(59) (277 ms) otiɡɪrasqaɬinaryæz\ (H) (455 ms) climax
otiɡɪras qa-ɬin aryæz
think IMM-there man

[He] thought [a] man [was] there.

(60) (455 ms)išt ɪɡsθæɡtæ%%%ḥšaɡabzθɪɡaraṣ\ (84 ms)
(KNOCKING SOUND) less.ten.
iš tɪ-ɡ sθæɡ-tæ-ḥša-ɡ abzθɪɡaraṣ storyline
PRO:1S:SG:MASC/FEM do-1S:SG:MASC/FEM ?-
ITER-make.fun-1S:SG:MASC/FEM ?

I was.making.fun [of him].

(61Q) šaʕæntadæynk
šaʕænt adæ-y -n -k
night.entire IRR-3A:SG:MASC-say-?

[During the] whole.night, he-said,

xadižaḥæbib (0 ms)
xadiža xadiž
Khadija Khadija

"Khadija, Khadija!"

climax

(62) (0 ms) <@ṇṇ=wanštuɡažuɡantinam\@>@@(H)(1395ms)
ṇṇ wa -nš tuɡa žuɡa -n tinam
? not-PRO:1S:SG:MASC/FEM AUX turn.on?-REL
light

I was not [going to be] the.one to.turn.on [the] light.

(63) (1395 ms)<HI žžitəkamɪr/ HI> (H) (433 ms) climax

žžit -əkamɪr
night-whole

[It went on like this] all night.

(64) (433 ms) ʔntæ=/...<LO immu=θ LO>\ (313 ms) climax

ʔntæ i-mmuθ ep.junct.
1PRO:3S:SG:MASC 3S:SG:MASC-die

He died (or 'was scared to death').

(65Q) (313 ms)<A ræmisənæ__ A>

ræmi s-ənæ
when CAUS-say

When [he] made.himself-say,

asɪgθfam\

ə -sɪg θfam
IMM-turn.on light

"Now, turn.on [the] light!

sɪgθfam

sɪg θfam\
turn.on light

Turn.on [the] light."

gənnæžɛ\

gən næž-ɛ
it.is-PRO:1S:SG:MASC/FEM -?

[Then I said,] "It's me!

akubarɘimagtag___...ša?æntažɪ\

akubarɘi mag t -ag -ša?æntažɪ
coward because 2S:SG:MASC/FEM-fear-?

[You are a] coward since you're-[so]afraid!"

BIBLIOGRAPHY

Al-Badisi. 1926. El-Maqsad: Vies des saints du Rif. Paris: H. Champion.

Applegate, Joseph R. 1963. The structure of Riff. Washington, D.C.: U.S. Department of Health, Education and Welfare.

Basset, André. 1969. La langue berbère. London: Dawsons of Pall Mall.

Basset, René Marie Joseph. 1883/1888. Notes de lexicographie berbère. Paris: Imprimerie nationale.

Biarnay, S. 1917. Etude sur les dialectes berbères du Rif; lexique, textes et notes de phonetique. Paris: E. Leroux.

Bybee, Joan L. 1985. Morphology: A study of the relation between meaning and form. Amsterdam/Philadelphia: John Benjamins Publishing Co.

Cadi, Kaddour. 1987. Systeme verbal rifain: forme et sens linguistique tamazight (nord marocain). Paris: SELAF.

Chafe, Wallace L. 1976. Givenness, contrastiveness, definiteness, subjects, and topics. In Charles N. Li (ed.), Subjects and topic. New York: Academic Press, 27-55.

----------.1980. The deployment of consciousness in the production of a narrative. In Wallace L. Chafe (ed.), The pear stories: cognitive, cultural, and linguistic aspects of narrative production. Norwood: Ablex Publishing Corporation, pp 10-46.

----------. 1994. Discourse, consciousness, and time: the flow and displacement conscious experience in speaking and writing. Chicago and London: University of Chicago Press.

Chomsky, Noam. 1957. Syntactic structures. The Hague: Mouton.

Christopher, Gregory. 1991. Anaphora interpretation in Hausa narrative: Application of Topic-Set Theory. Journal of West African Languages 21.85-104.

Coon, Carleton Stevens. 1932. Flesh of the wild ox: A Riffian chronicle of high valleys and long rifles. New York: W. Morrow & Co.

Coulthard, Malcolm. 1985. An introduction to discourse analysis. New York: Longman.

Creider, Chet A. and Jane T. Creider. 1983. Topic-comment relations in a verb-initial language. Journal of African Languages and Linguistics 5.1-15.

Cruttenden, Alan. 1986. Intonation. London: Cambridge University Press.

Crystal, David. 1985. A dictionary of linguistics and phonetics. Oxford: Basil Blackwell, Ltd.

Dell, Francois and Mohamed Elmedlaoui. 1985. Syllabic consonants and syllabification in Imdlawn Tashlhiyt Berber. Journal of African Languages and Linguistics 7.105-130.

Dooley, Robert. 1993. Combining functional and formal approaches to language. University of North Dakota: Summer Institute of Linguistics. Unpublished ms.

Du Bois, John W., Stephan Schuetze-Coburn, Susanna Cumming, and Danae Paolino. 1993. Outline of discourse transcription. In Jane A. Edwards and Martin D. Lampert (eds.), Talking data: transcription and coding in discourse research. Hillsdale, NJ: Lawrence Erlbaum Associates, p. 57.

Edmondson, Jerold A. and Donald A. Burquest. 1992. A survey of linguistic theories. Dallas: Summer Institute of Linguistics.

El Kirat, Yamina. Gemination and spirantization in the Beni-Znassen dialect. Unpublished ms.

Firbas, Jan. 1964. On defining the theme in functional sentence analysis. Amsterdam/ Philadelphia: John Benjamins Publishing Co.

Fry, D.B. 1979. The physics of speech. London: Cambridge University Press.

Garman, Michael. 1990. Psycholinguistics. Cambridge: Cambridge University Press.

Gellner, Ernest and Charles Micaud (eds). 1972. Arabs and Berbers: from tribe to nation in North Africa. Lexington, Mass.: Lexington Books.

Gildea, Spike. 1992. Comparative Cariban morphosyntax: On the genesis of ergativity in independent clauses. Eugene, OR: University of Oregon Ph.D. dissertation.

Givón, Talmy. 1983. Topic continuity in discourse: an introduction. In T. Givón (ed.), Topic continuity in discourse. Amsterdam/Philadelphia: John Benjamins Publishing Co.

----------. 1984. Syntax: a functional-typological introduction, vol. I. Amsterdam/ Philadelphia: John Benjamins Publishing Co.

----------. 1990. Syntax: a functional-typological introduction, vol. II. Amsterdam/ Philadelphia: John Benjamins Publishing Co.

Greenberg, Joseph H. 1966. Some universals of grammar with particular reference to the ordering of meaningful elements, In Joseph H. Greenberg (ed.), Universals of language. Cambridge: MIT Press.

Gumperz, John J. (ed.) 1982. Discourse strategies: Studies in interactional sociolinguistics, vol.1. Cambridge: Cambridge University Press.

---------- 1982. Language and social identity: Studies in interactional sociolinguistics, vol.1. Cambridge: Cambridge University Press.

---------- and Norine Benenz. 1993. Transcribing conversational exchanges. In Jane A. Edwards and Martin D. Lampert (eds.), Talking Data: transcription and coding in discourse research. Hillsdale, NJ: Lawrence Erlbaum Associates.

Halliday, Michael and Ruqia Hasan. 1976. Cohesion in English. London: Longman.

----------. 1967. Notes on transitivity and theme in English: Part 2. Journal of Linguistics 3.199-244.

Hamdaoui, Salem. 1985. Description phonétique et phonologique d'un parler amazigh du rif marocain. Aix-Marseille: Université de Provence Ph.D. dissertation.

Hart, David M. 1976. The Aith Waryaghar of the Moroccan Riff. Tucson: University of Arizona Press.

Herring, Susan C. 1990. Information structure as a consequence of word order type. In Proceedings of the Sixteenth Berkeley Linguistic Society 16. Berkeley: Berkely Linguistic Society, Inc.

Herring, Susan C. and John C. Paolillo. 1995. Focus position in SOV languages. In Pamela Downing and Michael Noonan (eds.), Word order in discourse. Amsterdam/ Philadelphia: John Benjamins Publishing Co., pp ix, 180-189.

Hopper, Paul J. 1979. Some observations on the typology of focus and aspect in narrative language. Studies in Language 3(1).37-64.

---------- and Sandra A. Thompson. 1980. Transitivity in grammar and discourse. Language 56(2).251-299.

----------. 1987. Emergent grammar. In Proceedings of the Sixteenth Berkeley Linguistic Society 13. Berkeley: Berkely Linguistic Society, Inc. pp 139-157. Berkeley: University of California.

Ibanez, Esteban. 1944. Diccionario espanol-rifeno. Madrid: Imprenta de la viuda de E. Maestre.

----------. 1949. Diccionario rifeno-espanol (etimologico). Madrid: Consejo Superior de Investigaciones Cientificas, Instituto de Estudios Africanos.

Jassem, Wikor and Grazyna Demenko. 1986. On extracting linguistic information from Fø traces. In Catherine Johns-Lewis (ed.), Intonation in discourse. San Diego: College Hill Press.

Johns-Lewis, Catherine (ed.). 1986. Intonation in Discourse. San Diego: College Hill Press.

Judd, J. Stephen. 1990. Neural network design and the complexity of learning. Cambridge: MIT Press.

Justinard, Commandant (Leopold Victor). 1926. Manuel de berbère marocain (dialecte rifain). Paris: P. Geuthner.

Labov, William. 1972. The transformation of experience in narrative syntax. In Languages in the inner city: Studies in Black English vernacular. Philadelphia: University of Pennsylvania Press.

Levinsohn, Stephen H. 1992. Discourse features of New Testament Greek. Dallas: Summer Institute of Linguistics.

Longacre, Robert E. 1977. A discourse manifesto. Notes on linguistics 4. Dallas: Summer Institute of Linguistics.

----------. 1980. An apparatus for the identification of paragraph types. .Notes on Linguistics 15.5-22. Dallas: Summer Institute of Linguistics.

----------. 1981. A spectrum and profile approach to discourse analysis. Text 1.337-359.

----------. 1983. The grammar of discourse. New York: Plenum Press.

----------. n.d. Left shifts in strongly VSO languages. Unpublished ms.

----------. n.d. Five phonemic pitch levels in Trique. Unpublished ms.

---------- and Stephen Levinsohn. 1978. Field analysis of discourse. In Wolfgang U. Dressler (ed.), Current trends in textlinguistics 103-122. NY: de Gruyter.

Lowe, Ivan. 1983. Field methods in phonology. Horsleys Green, England: Summer Institute of Linguistics.

McCarthy, John J. 1986. OCP effects: Gemination and anti-gemination. Linguistic Inquiry 17:2.

McClelland, Clive. 1985. A phonological description of Northern Tamazight. Unpublished ms.

----------. 1986. Language lessons in Northern Tamazight. Unpublished ms.

----------. 1987. An English-Tarifit lexicon. Unpublished ms.

----------. 1987/1995. A grammatical sketch of Tarifit. Unpublished ms.

----------. 1992. Word-order shifting in two VSO Languages: Berber of Morocco and Trique of Mexico. Unpublished ms.

----------. 1993. Some aspects of the influence of Tarifit narrative structure on variant patterns of sentence grammar. Unpublished ms.

----------. 1993. Word-order in Thaqarasht and its relation, or lack thereof, to topic and focus. Unpublished ms.

McClelland, Jay L. and David E. Rumelhart (eds.). 1986. Parallel distributed processing: explanations in the microstructure of cognition, vol. 2: psychological and biological models. Cambridge: MIT Press.

Mithun, Marianne. 1987. Is basic word order universal? In Russell S. Tomlin (ed.), Coherence and grounding in discourse. Amsterdam/Philadelphia: John Benjamins Publishing Co..

Munoz Bosque, Angel. 1919. Manual de conversacion bereber rifena: Estudio practico de la lengua bereber amaciga, xeljha o zamacijz del Rif. Madrid: I. Martinez.

Ouhalla, Jamal. 1988. A note on bound pronouns. Linguistic Inquiry 19.485-494.

Payne, Doris L. 1990. The pragmatics of word order: Typological dimensions of verb initial languages. Berlin: Mouton de Gruyter.

Penchoen, Thomas G. 1973. Tamazight of the Ayt Ndhir. Los Angeles: Undena Publications.

Peregrin, Gines. 1944. Rudimentos de bereber rifeno. Tetuan: Imprenta El Mahdia.

Prince, Ellen. 1981. Toward a taxonomy of given/new information. In P. Cole (ed.), Radical pragmatics. Academic Press: New York.

Renisio, Amedée. 1932. Etude sur les dialectes berbères, des Beni Iznassen, du Rif et des Senhaja de Srair; grammaire, textes et lexique. Paris: E. Leroux.

Sankoff, David. 1988. Variable rules. In Ulrich Ammon, Norbert Dittmar, and Klauss J. Mattheier (eds.), Sociolinguistics. Montréal: Université de Montréal.

Sarrionandia, Pedro H. 1925. Gramatica de la lengua rifena. Tanger: Tipografia Hispano-Arabiga de la Mision Catolica.

Schmidt, Ron. 1991. Introduction to sound: SoundEdit Pro user's guide. San Francisco: MacroMind-Paracomp, Inc.

Selkirk, Elizabeth O. 1984. Phonology and syntax: The relation between sound and structure. Cambridge: MIT Press.

Stubbs, Michael. 1983. Discourse analysis: The sociolinguistic analysis of natural language. Chicago: University of Chicago Press.

Woods, Anthony. 1986. Statistics in language studies. Cambridge: Cambridge University Press.