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

The members of the Committee approve the doctoral
dissertation of Clive W. McClelland III

Susan Herring
Supervising Professor

Donald Burquest

Charles Nussbaum

Frank Robbins

John Paolillo

Dean of the Graduate School
INTERRELATIONS OF PROSODY, CLAUSE STRUCTURE
AND DISCOURSE PRAGMATICS
IN TARIFFIT BERBER

by

CLIVE W. MCCLELLAND III

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To the Lord Jesus

—who makes life worth living
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ABSTRACT

INTERRELATIONS OF PROSODY, CLAUSE STRUCTURE
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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.

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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.
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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)

der. cl. dependent clause

der. 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 F0
double hyphen (--):: false start/truncation
forward slash (/): clause-initial rising F0
lengthening (=): after lengthened segment
percentage symbol (%): glottal stop
periods (...): pause
underscore (__): clause-final non-rising/non-falling F0
vocal noises: (TSK) click of tongue
   (COUGH) clearing throat
   (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 F0
   <LO LO>: lower F0
<W W>: widened F₀ span
<N N>: narrowed F₀ 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. 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 storytelling. 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 writing Standard Arabic could have some influence, but most speakers are illiterate.
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.
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 (F₀) 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 F₀ '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.

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3 Fundamental frequency is the technical term roughly equivalent to pitch (pitch is perceived while F₀ 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 \{mrt\}, referring to death, takes the forms:

- armot 'death
- θammuθ 'dead one' (f.)
- i-mmuth 'he-died'
- i-t-mattæ 'he-is.dying' (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)

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<td></td>
<td></td>
</tr>
<tr>
<td>pharyngeal</td>
<td>d</td>
<td>n</td>
<td>l</td>
<td>r</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>semi-velar</td>
<td>y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>velar</td>
<td>g</td>
<td>k</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>back</td>
<td>q</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>glottal/phar.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.


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)

<table>
<thead>
<tr>
<th></th>
<th>SING</th>
<th>PLUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>-ŋ</td>
<td>n-</td>
</tr>
<tr>
<td>2nd</td>
<td>MASC</td>
<td>t-</td>
</tr>
<tr>
<td></td>
<td>FEM</td>
<td>t-</td>
</tr>
<tr>
<td>3rd</td>
<td>MASC</td>
<td>i-</td>
</tr>
<tr>
<td></td>
<td>FEM</td>
<td>t-</td>
</tr>
</tbody>
</table>

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

(1) 8yuša a-t-zara-m 6ndint
    Tomorrow you-will-see [the] city. (adapted from Justinard 1926)

(2) i-ruh 9-ruq
    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)

<table>
<thead>
<tr>
<th></th>
<th>SING</th>
<th>PLUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>-i</td>
<td>-naŋ</td>
</tr>
<tr>
<td>2nd</td>
<td>MASC</td>
<td>-š</td>
</tr>
<tr>
<td></td>
<td>FEM</td>
<td>-šam</td>
</tr>
<tr>
<td>3rd</td>
<td>MASC</td>
<td>-t</td>
</tr>
<tr>
<td></td>
<td>FEM</td>
<td>-ø</td>
</tr>
</tbody>
</table>

(3) 1-zargu-ø dagg-ižan-ize
    3A:SG:MASC-3O:SG:FEM ILL-one-dress
    He-twisted-it in-a-dress. (adapted from McClelland 1987)
A verb may also be inflected for indirect object (IO):

Table 5. Verb affixation: agreement markers for indirect object

<table>
<thead>
<tr>
<th></th>
<th>SING</th>
<th>PLUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>-i</td>
<td>-na</td>
</tr>
<tr>
<td>2nd</td>
<td>MASC</td>
<td>-k</td>
</tr>
<tr>
<td></td>
<td>FEM</td>
<td>-m</td>
</tr>
<tr>
<td>3rd</td>
<td>MASC</td>
<td>-s</td>
</tr>
<tr>
<td></td>
<td>FEM</td>
<td>-s</td>
</tr>
</tbody>
</table>

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/-de/θ- (before [h])/-ə 'here'
- distal (DIST): -n 'there'

The verbal affix m- expresses the reciprocal (RECIP). It is often found in conjunction with the causative s-:
The causative (CAUS) verbal prefix s- is affixed immediately before the verb stem and after all other prefixes:

(9) tamtstu8 anni 8-s-yud
    woman DEM:DIST:SG/PLUR 3A:SG:FEM-CAUS-go

    [The] woman made-

    sanaq gar igzar
    PRO:30: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- (-šə)

(10) war ufi-g
    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) \( \text{ax}^{-5} \):

\[
\text{SUBJUNC}
\]

(11) \( \text{ax- tif-} \, \text{abrid} \)

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: \( \text{ad-} / \text{a-} \):

(12) \( \text{ad-am ini-} \)

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:

• iterative t-/θ-:

(13) \( \text{i-sans kul dżirt i-t-tirar} \)

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 \( \text{æ-} / \text{a-} / \text{aqq}- \):

(14) \( \text{aqq-li-yj læ-bâes} \)

IMM-INES-11O: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:

\[
\]

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) \text{i-xss -e6-kki-de}

3A:SG:MASC-need IRR-pass-PROX

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

Auxiliaries are realized as uninflected verbs (AUX):

- \text{tuga} 'there was/it was/had':

(16) \text{tuga iwa-a-q}

AUX arrive-IS:SG:MASC/FEM

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

Some verbs such as \text{komas/abdae} 'start' and \text{xas} '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-xəs i-həem u-rabbir kabur
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)

<table>
<thead>
<tr>
<th></th>
<th>SING</th>
<th>PLUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>naš</td>
<td>našnin</td>
</tr>
<tr>
<td>2nd</td>
<td>MASC Šak</td>
<td>kəniw</td>
</tr>
<tr>
<td></td>
<td>FEM Šam</td>
<td>kənint</td>
</tr>
<tr>
<td>3rd</td>
<td>MASC natta</td>
<td>nitnin</td>
</tr>
<tr>
<td></td>
<td>FEM nattəθ</td>
<td>nitənti</td>
</tr>
</tbody>
</table>

(18) nattəθ t-sən a-t-a-nən saksu

She knows [how to] make couscous. (adapted from Justinard 1926)
A non-human pronoun (PRO:NH) is 'thing'. In the example below this pronoun has a proximal demonstrative suffix plus a complementizer (COMP) which signals a copula construction:

PRO:NH

(19) Qlah wa3-8a- e amziw
hey PRO:NH-PROX-COMP ogre

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

2.1.2.2 Case marked nominals (CM; affixes)

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

<table>
<thead>
<tr>
<th>Case Type</th>
<th>Affix</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>adessive</td>
<td>zziθs-</td>
<td>'near'</td>
</tr>
<tr>
<td>genitive</td>
<td>n-</td>
<td>'of/from'</td>
</tr>
<tr>
<td>locative</td>
<td>x-/ga-/iđu-/ado-/</td>
<td>'at/to/about/on/onto/after/under'</td>
</tr>
<tr>
<td>ablative</td>
<td>k-/ga-/gar-/u-/g-/</td>
<td>'with/to/by/from'</td>
</tr>
<tr>
<td>temporal</td>
<td>alli-/si-</td>
<td>'until/at'</td>
</tr>
<tr>
<td>illative</td>
<td>d-/e-/đađg-/đi-/di-/</td>
<td>'in/inside'</td>
</tr>
<tr>
<td>inessive</td>
<td>g-/điđr-/đa-/li-</td>
<td>'in'</td>
</tr>
<tr>
<td>elative</td>
<td>z-/zi-</td>
<td>'from'</td>
</tr>
<tr>
<td>dative</td>
<td>ga-</td>
<td>'to/for'</td>
</tr>
<tr>
<td>correlative</td>
<td>ŝ-/eđa-/lįgali-/mašnu-</td>
<td>'as/like'</td>
</tr>
<tr>
<td>associative</td>
<td>k-</td>
<td>'with/along with'</td>
</tr>
</tbody>
</table>

Use of case suffixes is illustrated in the examples below:
(20) iž-nhar æyw ušæ
one-day well then
Well. then. one-day

LOC
mæ y-udaf xæ-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-usaŋ zi-BamurB-annag
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)

<table>
<thead>
<tr>
<th></th>
<th>SING</th>
<th>PLUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>-inu/-i</td>
<td>-annag</td>
</tr>
<tr>
<td>2nd</td>
<td>MASC -inak</td>
<td>-ankum</td>
</tr>
<tr>
<td></td>
<td>MASC -annam</td>
<td>-ankum</td>
</tr>
<tr>
<td>3rd</td>
<td>MASC -annæs/-s</td>
<td>-ansæn</td>
</tr>
<tr>
<td></td>
<td>MASC -annæs/-s/-θ</td>
<td>-ansænt</td>
</tr>
</tbody>
</table>
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) \(\text{æriæz-ag d-æmdækar-inu} \)


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) \(\text{i-ttæfa-θæ-n i-nægi-t} \)


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 \textit{idin/wi\text{\textacute{e}}in/\text{\textacute{e}}wanni} '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) \textit{aq\text{\textacute{s}e} \text{\textacute{e}}\text{\textacute{e}}r \text{\textacute{e}}wanni \text{\textacute{e}}-\text{\textacute{a}}\text{\textacute{r}}\text{\textacute{a}}z-\text{\textacute{e}}nnem} \\
stick [of] thuya \hspace{1em} \text{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:

\begin{center}
\begin{tabular}{llllll}
\end{tabular}
\end{center}

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:

\[
\begin{array}{cccc}
V & S & O \\
\end{array}
\]

(26) musintid \textit{θ-sgum βamza hamyša-nni}  
For.years, Tamza raised that-child. \textit{(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) \textit{af} find  
Look [for it]! \quad \textit{(adapted from Renisio 1932)}

Interrogative clauses consist of an interrogative pronoun (INTERR) such as \textit{min} 'what' plus an independent clause:

\[
\begin{array}{ll}
\text{min} & \text{‘what’} \\
\text{amšahə} & \text{‘how much’} \\
\text{mæni} & \text{‘where’} \\
\text{mise} & \text{‘how’} \\
\text{mogš} & \text{‘why’} \\
\end{array}
\]

(28) min \textit{y-arzu}  
INTERR 3A:SG:MASC-search  
What is he-looking for? \quad \textit{(adapted from Cadi 1987)}

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

(29) min-\textit{di y-æžən}  
INTERR-ILL3S:SG:MASC-walk  
What did he-walk into? \quad \textit{(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 *bālli* 'that' begins a complement clause:

(30) ṣāṣūn-ny ʷu-yi-hōō
    wolf-DEM:DIST:SG/PL IMM-3A:SG:MASC-feel
    That-wolf then-felt

*bālli* ṣ-ta-d ʷi-ta-- tarmza
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 *emmi* 'when'.

Dependent Clause

(31) *emmi* y-uaf aagg-wēēflr a-θ-alḥūyy tarmza
    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 -*ū* denoting that there is no verb.

(32) ṣērēēz-an ʷa-amdūkār-inu
    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 1O suffix -*ēiswa* attached to *mēni* 'where':
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).

\[
\begin{align*}
\text{iz-nhar} & \quad \text{‘one-day’} \\
\text{mkur-nhar} & \quad \text{‘each day’} \\
\text{idanae} & \quad \text{‘yesterday’} \\
\text{hasul} & \quad \text{‘finally/next’} \\
\text{aranne} & \quad \text{‘next/then’} \\
\text{aywa} & \quad \text{‘well’ (from Arabic)} \\
\end{align*}
\]

Then Jeha, the illegitimate son of Haddami.

\[
\text{twi} \quad \text{y-ggzi} \quad \text{sadi} \\
\text{AUX 3A:SG:MASC-make pool} \\
\text{before had made [a] pool}
\]

Then Jeha, the illegitimate son of Haddami.

\[
\begin{align*}
\text{u-waen an eir-us\-en} & \quad \text{ann} \quad \text{n-tabarrak} \\
\text{GEN-water INES-middle-DEM:DIST:SG/PL GEN-house} \\
\text{of-water in-[the]middle of-[his]house. (adapted from McClelland 1995)}
\end{align*}
\]
2.1.3.2.2 Conjunctions (CONJ)

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

- aermi 'when/after'
- weelækin 'but' (from Arabic)
- maša 'but'
- bellli 'that' (from Arabic)
- m.tg 'or'
- usa 'so that'
- beš 'so that'
- ḥasul 'so'
- madža 'if'

(35) madža 8-xisa-ą
CONJ3A:SG:MASC/FEM-want-3A:SG:MASC/FEM

If you want,

a-n-rah gar-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.  

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 (F₀) according to cycles per second or the number of hertz (Hz) (Fry 1979). Length is

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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):
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:

\[ \text{V} \quad \text{S} \quad \text{=default word order} \quad \text{old character} \]

(36) \text{koma}s\text{ee} \text{lgwo}l\text{ee}-\text{nni-}\text{d}\text{ee}

\text{start} \quad \text{Tamza-DEM:DIST:SG-PROX}

That-Tamza started here.
Her family brought wood 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):

Finally, Tamza-said to him, she-

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

However, Hammu Lahraimi was only 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:

\[(39)\]
\[\text{i-zazig} \quad 3S:SG:MASC-twist\]
He-[the older brother] twisted [the snake inside the dress].

\[(40)\]
\[\text{t-ndari-é} \quad 3S:SG:MASC-throw.down-PROX\]
He-throw.down [the snake].

\[(41)\]
\[\text{y-ust-d} \quad 3S:SG:MASC-come-PROX\]
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:

\[(42)\]
\[\text{?ntæ-dæ-s-i-niya} \quad 3PRO:SG:MASC-IRR-3IO:SG:MASC/FEM-say\]
[Consequently] he said-to-her, "Woe-to.me!

\[\text{waæd-i waæd-i ð-taff} \quad \text{woe-1IO:SG:MASC woe-1IO:SG:MASC3A:SG:FEM-grab}\]
Woe-to.me! She-grabbed

\[\text{æzwar n-ziggwærθ} \quad \text{root GEN-plant}\]
[a]plant root!"
The above marked structure signals the end of one paragraph or episode. The topic of the next episode is 'Tarnza' 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):

\[
\begin{array}{c}
V & S \\
\end{array}
\]

(43) \[
\text{šẹẹe i-\text{kke \text{hasse}i\text{n}}}
\]
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). 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 F0, 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 F0, speed, amplitude, vocalization (to silence), and voice quality. Typical IU-final F0 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 F0 from beginning to end and a restart at the next IU. Falling F0 shows clause terminus. Rising F0 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 F0 is for intonation. Thus, F0 'direction'
changes over time as the clause is pronounced. High F₀ can signal the beginning of an utterance, paragraph, or topic. A narrowing of F₀ 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 F₀ 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-quotations clauses.

Table 8. Characteristics of the four narratives

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

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 proceeded 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, 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'. 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. 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. Finally, in preparation for further analysis, I glossed the transcriptions based upon knowledge gleaned from pedagogical grammars 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, F0, 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 Signalize. I then compared and contrasted features of (1) discourse pragmatics, (2) clause structure, and (3) prosody by means of the charting

\^14Often 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.  

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 3.2.2-3.2.5 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-żamma-s a hammu lhayami
    be-name-GEN:SG:MASC/FEM Hammu Laharai

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) \[ \theta\text{-}c\text{\textperiodcentered}i\text{-}k\text{-}o\text{\textperiodcentered}i\text{\textperiodcentered}g\text{-}ar\text{-}am\text{\textperiodcentered}n\text{\textperiodcentered}i\text{\textperiodcentered}a \]
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) \[ \theta\text{-}uru\text{-}ki\text{-}s\text{-}a\text{\textperiodcentered}z\text{-}o\text{\textperiodcentered}h\text{\textperiodcentered}a\text{-}n\text{\textperiodcentered}n\text{\textperiodcentered}zi\text{\textperiodcentered}o \]
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) \[ ?nt\text{\textperiodcentered}ae\text{-}i\text{-}mmu\text{\textperiodcentered}\theta \]
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:
Then and there she-gave-him peanuts.

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) َقِرَ كَمْ تَهِؤَز

I still remember how much laugh

[We] 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) َأَفِ

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.
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) arannee zahee wld laaeram n-aehdideenni
    then    Jeha  son  illegitimate GEN-Haddami

Then Jeha, the illegitimate son of Haddami,

tewee y-ggizi saeijz
AUX 3A:SG:MASC-make pool

before. had made [a] pool

u-waamæn dir-us8-anni n-tabarrak
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\(^7\)) 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'):

\[(53) \quad \text{iwee zid} \]
\[
\text{well continue}
\]

Well, [he] continued.

\[\text{nuwa e-ddi š-ohænžæ-θ} \]
\[
\text{REL.PRO:3A:SG:MASC IRR-live CORR-child-PROX}
\]

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

\[\text{heey y-ŋub di-ræbhæ} \]
\[
\text{behold 3A:SG:MASC push ILL-sea}
\]

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'):

\[\text{The overwhelming majority of subjects in the corpus are grammaticalized topic/participants.}\]
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) \( D-a \)koma\( sa \)a-s i-ra\( er \)
\text{IRR-start-3IO:SG:MASC/FEM 3S:SG:MASC-play}

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

\begin{verbatim}
ana n\( t\)\( t\)\( t\)\( a\) \( t\)\( t\)\( t\)\( t\)\( a\) \( f\)\( q\)ab
then \text{PRO:3S:SG:FEM IRR-3S:SG:FEM-return}
\end{verbatim}

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) \( i\)d\( z\)in-\( ?\)n\( h\)a\( r\)a\( e\) Tam\( za\) \( \theta\)\( \omega\)\( w\)\( z\)\( i\)
one-day Tamza 3S:SG:FEM-run

One-day, Tamza ran

\begin{verbatim}
xa-1\( ?\)mqi[t\( s\) axo-x-u\( \$i\)B x-u\( \$i\)B
LOC-cat LOC-LOC-wolf LOC-wolf
\end{verbatim}

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 ɪdžan 'a' or 'one'.

(57) i-zaga ʔækš-ɪdžan-nwa
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) ?ntæ ʔæs-s-i-nia
3PRO:SG:MASC IRR-CAUS-3A:SG:MASC-say

He (the wolf) made.himself-say,

wæd-i wæd-i

"Woe [is] me! Woe [is] me!"
She grabbed-- she grabbed

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

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.

<table>
<thead>
<tr>
<th>factor group number and name</th>
<th>factor name</th>
<th>factor number/code</th>
</tr>
</thead>
<tbody>
<tr>
<td>5- orientation:</td>
<td>presence</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>absence</td>
<td>0</td>
</tr>
<tr>
<td>6- inciting incident:</td>
<td>presence</td>
<td>I</td>
</tr>
<tr>
<td></td>
<td>absence</td>
<td>0</td>
</tr>
<tr>
<td>7- mounting tension:</td>
<td>presence</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td>absence</td>
<td>0</td>
</tr>
<tr>
<td>8- climax:</td>
<td>presence</td>
<td>C</td>
</tr>
<tr>
<td>9- lessening tension:</td>
<td>presence</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>absence</td>
<td>0</td>
</tr>
<tr>
<td>10- denouement:</td>
<td>presence</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>absence</td>
<td>0</td>
</tr>
<tr>
<td>11- coda:</td>
<td>presence</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>absence</td>
<td>0</td>
</tr>
<tr>
<td>12- episode juncture:</td>
<td>presence</td>
<td>J</td>
</tr>
<tr>
<td></td>
<td>absence</td>
<td>0</td>
</tr>
<tr>
<td>13- storyline:</td>
<td>presence</td>
<td>S</td>
</tr>
</tbody>
</table>
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 ƙwani ‘well’ or ƙoƙoŋ na ‘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.

<table>
<thead>
<tr>
<th>factor group number and name</th>
<th>factor name</th>
<th>factor number/code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- word order/</td>
<td>verb-only clause</td>
<td>1</td>
</tr>
</tbody>
</table>
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), F\textsubscript{o} 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 F0 wave and the bottom one is the amplitude contour.

I recorded clause-initial and final F0 and the highest F0 of the clause. Then I noted the clause constituent which corresponded to the highest F0 in that particular clause. I also noted the location of the highest F0: either before or after the verb. Then I recorded the lowest F0. From subtracting the lowest F0 from the highest I arrived at the F0 span, and by dividing the span by 2 and adding the result to the F0 low I determined the clause F0 mean.

For F0 contours (or F0 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 F0 was rising, falling, or level. In the example in figure 7, the first syllable peak is marked by a sharp amplitude crest; the F0 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 F0 after syllable peak, so I call this a clause-final rise.

For determining F0 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 F0 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 F0.

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 F0 highs, I looked for the highest amplitude wave. In figure 7 the highest wave is on the last syllable of *n-Atlas* '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 F₀ low, mean, span, and boundary (1-4). The only difference is that amplitude 'contour' does not exist as it does with F₀ since amplitude rises and falls sharply according to the high sonority of syllable peaks. Thus, rising, falling and level contours as in F₀ 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 F₀ level was different from the preceding clause’s F₀ level and if the final F₀ level was different from the following clause F₀ level, then the clause was considered an intonation unit. However, sometimes there was no pause either before or after but the F₀ 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 (F₀). Groups 16-17 list F₀ degrees for the purpose of determining if there is any relation between initial and ending F₀ and discourse pragmatics and/or clause structure. Factor groups 18,19 and 20 code for the highest F₀, where it is found (either pre- or post-verb), and on what clause constituent it is found. Factor groups 21-26 are F₀ low (which represents the lowest fundamental frequency in a given clause), F₀ mean (between the highest and lowest F₀ of a clause), the F₀ span (the arithmetic difference between the highest and the lowest F₀) and three measures of intonational contour. The F₀ 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 F₀ contrast and pragmatics, profile, and/or marked word order/clause constituency. The first F₀ group (24) is a subjective determination (mainly from listening) of the diminution, augmentation, or neither, of F₀ at clause-initial and final positions. The second group (25) codes the initial and ending F₀ 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.

<table>
<thead>
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<th>factor name</th>
<th>factor number/code</th>
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<tbody>
<tr>
<td>16- initial F₀:</td>
<td>100-159</td>
<td>L(ow)</td>
</tr>
<tr>
<td></td>
<td>160-179</td>
<td>M(edium)</td>
</tr>
<tr>
<td></td>
<td>180-239</td>
<td>H(igh)</td>
</tr>
<tr>
<td>17- ending F₀:</td>
<td>100-159</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>160-179</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td>180-239</td>
<td>H</td>
</tr>
<tr>
<td>18- F₀ high:</td>
<td>140-159</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>160-179</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td>180-239</td>
<td>H</td>
</tr>
<tr>
<td>19- clause constituent as F₀ high:</td>
<td>object</td>
<td>Ø</td>
</tr>
<tr>
<td></td>
<td>verb</td>
<td>V</td>
</tr>
</tbody>
</table>
For the sake of analysis using *Excel* charting, F₀ mean values above were multiplied by 30 so that resultant values would be in the 1000s and therefore comparable to amplitude.

<table>
<thead>
<tr>
<th>factor group number and name</th>
<th>factor name</th>
<th>factor number/code</th>
</tr>
</thead>
<tbody>
<tr>
<td>23- F₀ span:</td>
<td>0-59</td>
<td>N(arrow)</td>
</tr>
<tr>
<td></td>
<td>60-119</td>
<td>W(ide)</td>
</tr>
<tr>
<td>24- F₀ contour clause-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>initially and finally:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>start falling/end falling</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>start falling/end level</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>start falling/end rising</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>start level/end level</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>start level/end falling</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>start level/end rising</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>start rising/end rising</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>start rising/end falling</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>start rising/end level</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>25- F₀ levels clause-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>initially and finally:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>start level 1/end level 2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>start 2/end 3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>start 1/end 3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>start 3/end 2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>factor group number and name</td>
<td>factor name</td>
<td>factor number/code</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>27- initial amplitude:</td>
<td>0-3999</td>
<td>L</td>
</tr>
<tr>
<td>4000-7999</td>
<td>H</td>
<td></td>
</tr>
<tr>
<td>28- ending amplitude:</td>
<td>0-3999</td>
<td>L</td>
</tr>
<tr>
<td>4000-6999</td>
<td>H</td>
<td></td>
</tr>
<tr>
<td>29- amplitude high:</td>
<td>0-3999</td>
<td>L</td>
</tr>
<tr>
<td>4000-7999</td>
<td>H</td>
<td></td>
</tr>
<tr>
<td>30- clause constituent as amplitude high:</td>
<td>object</td>
<td></td>
</tr>
<tr>
<td>verb</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>adverb</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>subject</td>
<td>S</td>
<td></td>
</tr>
<tr>
<td>conjunction</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>case noun</td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>predicate nominal</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>indeterminate</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>31- location amplitude high:</td>
<td>pre-verb</td>
<td>l</td>
</tr>
</tbody>
</table>

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 F0 groups 18-20, are present in this research in order to identify prominences and to determine if one or both F0 and amplitude are present in a specific position in a given clause.
<table>
<thead>
<tr>
<th>Post-Verb</th>
<th>Indeterminate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>32- Amplitude low:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-999</td>
</tr>
<tr>
<td>L</td>
</tr>
<tr>
<td>1000-1999</td>
</tr>
<tr>
<td>L</td>
</tr>
<tr>
<td>2000-2999</td>
</tr>
<tr>
<td>L</td>
</tr>
<tr>
<td>3000-3999</td>
</tr>
<tr>
<td>L</td>
</tr>
<tr>
<td>4000-4999</td>
</tr>
<tr>
<td>H</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>33-Amplitude mean:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3999</td>
</tr>
<tr>
<td>L</td>
</tr>
<tr>
<td>4000-5999</td>
</tr>
<tr>
<td>H</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>34- Amplitude span:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2999</td>
</tr>
<tr>
<td>N(arrow)</td>
</tr>
<tr>
<td>3000-3999</td>
</tr>
<tr>
<td>M(edium)</td>
</tr>
<tr>
<td>4000-6999</td>
</tr>
<tr>
<td>W(ide)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>35- Amplitude levels at clause boundaries:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start low/end low</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Start low/end medium</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>Start low/end high</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>Start medium/end medium</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>Start medium/end low</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>Start medium/end high</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>Start high/end high</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>Start high/end low</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>Start high/end medium</td>
</tr>
<tr>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>36- Amplitude levels at clause boundaries:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start level 2/end level 2</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Start 2/end 1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>Start 3/end 3</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>Start 3/end 2</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>Start 3/end 1</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>Start 1/end 1</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>Start 1/end 2</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>Start 1/end 3</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>37- End amplitude contour: falling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rising</td>
</tr>
<tr>
<td>R</td>
</tr>
<tr>
<td>Level</td>
</tr>
<tr>
<td>L</td>
</tr>
</tbody>
</table>
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.
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 |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hammu the Trickster</td>
<td>H</td>
</tr>
<tr>
<td></td>
<td>Night Fears</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>The Ogre and His Neighbor</td>
<td>Ø</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Group #</th>
<th>0</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>0.594</td>
<td>0.226</td>
</tr>
<tr>
<td>7</td>
<td>0.420</td>
<td>0.909</td>
</tr>
<tr>
<td>8</td>
<td>0.715</td>
<td>0.392</td>
</tr>
</tbody>
</table>

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
Group #4 -- 2: 0.291, 0: 0.549
Group #6 -- 0: 0.571, 1: 0.285
Log likelihood = -107.375 Significance = 0.035

Run #143, 4 cells:
Convergence at Iteration 5
Input 0.208
Group #4 -- 2: 0.291, 0: 0.549
Group #6 -- 0: 0.571, 1: 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 *F0* 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 ‘I’ (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' (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.
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 F0 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).

Date: __________

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

Best step up run:
Best step down run:

factor groups to delete: ______________

<table>
<thead>
<tr>
<th>Goldvarb factor group number</th>
<th>Analyst's factor group number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>re-coding</td>
</tr>
<tr>
<td></td>
<td>change: _____ to _____</td>
</tr>
<tr>
<td></td>
<td>change: _____ to _____</td>
</tr>
<tr>
<td></td>
<td>change: _____ to _____</td>
</tr>
<tr>
<td></td>
<td>change: _____ to _____</td>
</tr>
</tbody>
</table>

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 F0 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

<table>
<thead>
<tr>
<th></th>
<th>Total Clauses</th>
<th>16-Fo begin.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ea. pr</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>5-Orient.</td>
<td>29</td>
<td>3 32 45 76 42 9 4</td>
</tr>
<tr>
<td>6-Incit. Inc.</td>
<td>50</td>
<td>7 6 18 13 4 2</td>
</tr>
<tr>
<td>7-Mount. Tens.</td>
<td>97</td>
<td>3 16 19 28 25 6</td>
</tr>
<tr>
<td>8-Climax</td>
<td>26</td>
<td>2 5 9 8 2</td>
</tr>
<tr>
<td>9-Less. Tens.</td>
<td>21</td>
<td>6 6 7 1 1</td>
</tr>
<tr>
<td>10-Denoue.</td>
<td>8</td>
<td>1 2 5</td>
</tr>
<tr>
<td>12-Epis. June.</td>
<td>68</td>
<td>1 7 16 33 8 3</td>
</tr>
<tr>
<td>13-Storyline</td>
<td>169</td>
<td>3 22 35 59 40 7 3</td>
</tr>
<tr>
<td>14-1-Cont. To</td>
<td>17</td>
<td>5 5 4 1 2</td>
</tr>
<tr>
<td>14-2-Cont. To</td>
<td>5</td>
<td>1 2 1 1</td>
</tr>
<tr>
<td>14-3-Shift. To</td>
<td>28</td>
<td>1 5 8 9 3 2</td>
</tr>
<tr>
<td>14-4-Shift. To</td>
<td>19</td>
<td>1 1 3 6 7 1</td>
</tr>
</tbody>
</table>

For example, the number of orientation clauses with level 4 clause-initial F0 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 F0. 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, F0 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 F0. 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 and troughs 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 \(0.000-0.999\) as found in tables 10 through 82. These are keyed according to the following list:

<table>
<thead>
<tr>
<th>Interval</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0.900-0.999)</td>
<td>very strong correlation</td>
</tr>
<tr>
<td>(0.800-0.899)</td>
<td>strong</td>
</tr>
<tr>
<td>(0.700-0.799)</td>
<td>moderate</td>
</tr>
<tr>
<td>(0.600-0.699)</td>
<td>weak</td>
</tr>
<tr>
<td>(0.500-0.599)</td>
<td>very weak</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interval</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0.000-0.099)</td>
<td>very strong correlation</td>
</tr>
<tr>
<td>(0.100-0.199)</td>
<td>strong</td>
</tr>
<tr>
<td>(0.200-0.299)</td>
<td>moderate</td>
</tr>
<tr>
<td>(0.300-0.399)</td>
<td>weak</td>
</tr>
<tr>
<td>(0.400-0.499)</td>
<td>very weak</td>
</tr>
</tbody>
</table>

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 F0 and amplitude compared to other clauses in other sections of narrative. Finally, episode juncture clauses accompany long initial

82
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 F0, 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 F0 in a given clause. Lessening tension has moderate to weak correlations with F0 lows. Inciting incident has weak correlations with F0 and amplitude levels. Mounting tension has even weaker correlations with F0 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 F0, 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 F0.

Table 10 shows positive and inverse correlations with orientation clauses. The strongest correlation is with predicate nominal clauses where the predicate nominal is the F0 high. The next strongest correlation is with clauses with the clause adverbial as the F0 high. There are also moderate correlations with low F0 clause-finally, mid-level F0 clause-initially.
case nouns as the F0 high, and the presence of a clause adverbial. There is a weak correlation of orientation clauses to objects that are the F0 high in a given clause.

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

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>disc. orient.</td>
<td>initial F0</td>
<td>mid-level F0 initial</td>
<td>.783</td>
<td>high F0 initial</td>
<td>.183</td>
<td></td>
</tr>
<tr>
<td>final F0</td>
<td>low F0 final</td>
<td>.785</td>
<td>low F0 initial</td>
<td>.453</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ident. F0 high</td>
<td>pred.nom=F0 high</td>
<td>.893</td>
<td>mid-level F0 final</td>
<td>.240</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adv.=F0 high</td>
<td>.796</td>
<td>high F0 final</td>
<td>.388</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>case noun=F0 high</td>
<td>.711</td>
<td>verb=F0 high</td>
<td>.450</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>object=F0 high</td>
<td>.606</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cl. struct adv. orientation cl.</td>
<td>orientation cl.</td>
<td>.704</td>
<td>non-orientation</td>
<td>.466</td>
<td></td>
<td></td>
</tr>
<tr>
<td>epis. junc. cl.</td>
<td>episode juncture cl.</td>
<td>.711</td>
<td>non-episode junct.</td>
<td>.394</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There is a strong inverse correlation between orientation clauses and high F0 clause-initially, a moderate inverse correlation with a mid-level F0 end, and weak correlations with a verb as the F0 high and a low F0 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 F0 high (underlined), mid-level initial F0 and low final F0. Clause (60) gives some background information for the following events in the 'Night Fears' narrative. It has a
case noun as the \( F_0 \) high, low initial \( F_0 \), low final \( F_0 \) and the presence of a clause adverbial (clause initial):

\[
\begin{align*}
(F_0 164) & \quad (PN: F_0 167) & (F_0 108) \\
(59) & \quad (0 \text{ ms}) & d\-\text{zamma}s a\-\text{hammu} \ i\-\text{haraymi} \\
& \quad (1110 \text{ ms}) & \text{be-name-GEN:SG:MASC/FEM Hammu Laharaimi} \\
& \quad \text{His-name-was Hammu Laharaimi.}
\end{align*}
\]

\[
\begin{align*}
(F_0 252) & \quad (C: F_0 355) & (F_0 247) \\
(60) & \quad (0 \text{ ms}) & i\-\text{zumar}/ \ ... & \text{s}i-d\-\text{ziri}8/ \ ... & n\-\text{attas}_{-} \ (525 \text{ ms}) \\
& \quad \text{one-time TEMP-night } & \text{3S:PLUR:MASC/FEM-sleep} \\
& \quad \text{we-were.sleeping.}
\end{align*}
\]

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 II lists factors which correlate with inciting incident clauses. Positive correlations vary from weak (medium-end amplitude and falling \( F_0 \)-end amplitude) to very weak (high \( F_0 \), low end of amplitude high, and low end of \( F_0 \) high).

Inverse correlations are stronger: mid-\( F_0 \) on \( F_0 \) 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 \( F_0 \) and amplitude levels. \( F_0 \) 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 \( F_0 \) and amplitude) is weak.
Table 11. Correlations of discourse profile: inciting incident clauses (N=50)

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Disc. Incit.</td>
<td>Prag Incid</td>
<td>F₀ high</td>
<td>high on F₀ high scale</td>
<td>.585</td>
<td>medium F₀-F₀ high</td>
<td>.275</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>low F₀ high</td>
<td>.512</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>low amp. high</td>
<td>.555</td>
<td>high on amp. high scale</td>
<td>.305</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>medium-clause-final amp. falling: clause-final amp.</td>
<td>.602</td>
<td>rising amp. end</td>
<td>.287</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>clause not =intonation unit</td>
<td>.613</td>
<td>clause=intonation unit</td>
<td>.425</td>
</tr>
</tbody>
</table>

Example (61) is from '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, F₀ high on the high scale, and low amplitude on the low scale:

(61) (0 ms) θςικόφιγαράμια \ (H) (850 ms) θςικόφιγαραμια
She-lived with-the.snake like.that.

4.1.1.3 Mounting tension

Mounting tension clauses slightly favor little or no F₀ 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 F₀ clause-initial, VO clauses, low F₀ clause-initial, low on amplitude high scale, and narrow F₀ span.
There are moderate to weak inverse correlations with wide F0 span, high amplitude on the high scale, and medium F0 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)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Disc. M.</td>
<td>Prag. Ten.</td>
<td>F0 initial</td>
<td>high F0 initial</td>
<td>.597</td>
<td>medium F0 initial</td>
<td>.362</td>
</tr>
<tr>
<td></td>
<td></td>
<td>low F0 initial</td>
<td>.566</td>
<td></td>
<td>wide F0 span</td>
<td>.273</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F0 span</td>
<td>narrow F0 span</td>
<td>.536</td>
<td>high on amp. high scale</td>
<td>.302</td>
</tr>
<tr>
<td></td>
<td></td>
<td>amp. high</td>
<td>low on amp. high scale</td>
<td>.556</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 F0, VO, low on the amplitude high scale and narrow F0 span:

(62) (850 ms) θ-uru kíc əz-ohënžiæ (H) (807 ms) ampl: 2522

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)

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Disc. Prag Climb amp. initial amp. levels</td>
<td>high amp. initial start mid/end high amp.</td>
<td>.967</td>
<td>low initial amp. start high/end low amp.</td>
<td>.403</td>
<td>.161</td>
<td></td>
</tr>
<tr>
<td></td>
<td>start mid/end low amp. start high/end high amp.</td>
<td>.861</td>
<td>start high/end medium amp. start mid/end medium amp.</td>
<td>.263</td>
<td>.315</td>
<td></td>
</tr>
<tr>
<td></td>
<td>start low/end medium amp.</td>
<td>.817</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>.790</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>.734</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

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:

(ampI.10186) (ampl.: 15408)

(63) (433 ms) ?nt€=<...\LO immu=8 L0>\ (313 ms) ampl.: ML ?nt€ i-mmu8
IPRO: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:

(64) (ampl. 2047) (high ampl. 2435)
(0 ms) zul-ya-ya-mey rabbayeem/ (H) (896 ms) ampl.: MH
zul-y-amaey rabbayeem
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)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Disc.</td>
<td>Less Fø</td>
<td>low</td>
<td>level 1 Fø low</td>
<td>.754</td>
<td>level 4 Fø low</td>
<td>.285</td>
</tr>
<tr>
<td>Prag Tens</td>
<td></td>
<td></td>
<td>level 3 Fø low</td>
<td>.663</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>level 2 Fø low</td>
<td>.632</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

(65)  
\[(1807 \text{ ms}) \text{ θαμζα θ-αλαγας βασεη} / (1865 \text{ ms}) \quad \text{level 1 F₀ low: 118} \]
\[\text{θκμζα θ-αλαγας βασεη}\]
Tamza 3A:SG:FEM-think truth

Tamza thought it was true.

(66)  
\[(152 \text{ ms}) \text{ ωατταtματταφ...aθειlqawqaw} \]
\[\text{ωαττa t-mαtτaφ-θειl qawqaw}\]
then 3A:SG:FEM-give-3IO:SG:MASC/FEM there peanuts

Then and there she gave him peanuts,

\[\text{θαλαδεσυμκατειłuz} / (818 \text{ ms}) \quad \text{level 1 F₀ low: 118} \]
\[\text{θαλαδ εσυμ κατ ειłuz}\]
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 F₀, seven have an indeterminate location for F₀ and amplitude highs, five have falling F₀ 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
F0 high, with high clause-initial amplitude, and with level I on the F0 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 F0 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 F0 high, a case noun as the F0 high, a wide F0 span, with the 'Night Fears' narrative, and with a clause adverbial as the F0 high. Recall that the predicate nominal as an F0 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 F0 span suggests a relatively near-monotone F0 contour in a storyline clause where there is not a significant difference between F0 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)

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</thead>
<tbody>
<tr>
<td>Disc. Stor-Prag</td>
<td>F₀ initial</td>
<td>low F₀ initial high initial F₀</td>
<td>.686 medium F₀ initial</td>
<td>.260</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>ident. F₀ high</td>
<td>verb=F₀ high</td>
<td>.575</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>loc. F₀ high</td>
<td>loc. of F₀ high: pre-V</td>
<td>.796</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>post-V</td>
<td>.788</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F₀ low</td>
<td>level 1 on F₀ low scale</td>
<td>.809 level 3 on F₀ low scale</td>
<td>.234</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>level 4 on F₀ low scale</td>
<td>.617 level 2 on F₀ low scale</td>
<td>.437</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F₀ span</td>
<td>narrow F₀ span high initial amp.</td>
<td>.605 wide F₀ span low initial amp.</td>
<td>.052</td>
<td>.457</td>
<td></td>
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</tr>
<tr>
<td>initial amp. which narr.?</td>
<td>The Ogre &amp; His Neighbor' Tamza and the Wolf' narr.</td>
<td>.788 'Night Fears' narr.</td>
<td>.081</td>
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<tr>
<td>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 clause and has a pre-V F₀ high, high initial amplitude, level 1 F₀ low, and low initial F₀ (relative to other clauses):</td>
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</tbody>
</table>

(67) (789 ms)  òywa t-aektaga òmagaey F₀ low: 108
òywa t-àktaga òmagaey òmagaey well/then 3A:SG:FEM-kill same

Well, she-killed

---

23 This is a clause adverbial+verb+object clause.
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 F0 high, high initial amplitude, high initial F0 and narrow F0 span:

\[
\text{(ampl. 16278)}
\]
\[
\text{(F0 732)}
\]

(68) \( <\text{SM } \text{ntaxatrankuri-ttæs } \text{SM} > \) (637 ms)
\[
\text{ntæ xa trankur i-ttæs}
\]
PRO:SG:MASC how calm 3S:SG:MASC

\[
\text{F0 span: 394}
\]

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 F0 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)

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Disc. epis. junct.</td>
<td>initial F0</td>
<td>medium F0 initial</td>
<td>.651</td>
<td>high F0 initial</td>
<td>.346</td>
<td></td>
</tr>
<tr>
<td></td>
<td>initial pause</td>
<td>long initial pause</td>
<td>.814</td>
<td>low F0 initial</td>
<td>.461</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>medium initial pause</td>
<td>.643</td>
<td>short initial pause</td>
<td>.365</td>
<td></td>
</tr>
<tr>
<td>Cl. cl.</td>
<td>episode juncture</td>
<td>episode juncture</td>
<td>.711</td>
<td>not episode junct.</td>
<td>.394</td>
<td></td>
</tr>
<tr>
<td>Cl. cl.</td>
<td>orientation cl.</td>
<td>orientation cl.</td>
<td>.704</td>
<td>not orientation</td>
<td>.466</td>
<td></td>
</tr>
</tbody>
</table>

Episode juncture clauses are unique compared to other discourse profile types in that significant correlations with F0 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 F0 of 172 Hz:

(F0 172)

(69) (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.

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 F0 of 160 Hz:
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 F0, as shown in part by the prevalence of subject as the amplitude high pre-verbally as opposed to the subject as the F0 high post-V. Post-V topics exhibit the reverse pattern, which is not surprising seeing that F0 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. There are also strong correlations with the subject as the amplitude high, with a low on the F₀ 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 F₀ 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/partsicipants.
Table 17. Correlations of clauses with pre-V continuous topic (N=17)

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Disc. cont. topic preV</td>
<td>Prag</td>
<td>F0 high</td>
<td>low on F0 high, low on amp. high scale</td>
<td>.857</td>
<td>medium on F0 high scale</td>
<td>.223</td>
</tr>
<tr>
<td></td>
<td></td>
<td>amp. high</td>
<td>high on amp. high scale</td>
<td>.831</td>
<td>high scale</td>
<td>.394</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ident. amp. hi</td>
<td>case noun=amp. high subject=amp. high object=amp. high</td>
<td>.752</td>
<td>verb=amp. high scale</td>
<td>.386</td>
</tr>
<tr>
<td></td>
<td></td>
<td>morph/cl.</td>
<td>long clause</td>
<td>.876</td>
<td>short clause</td>
<td>.386</td>
</tr>
<tr>
<td>Cl. SV topic cont.topic:pre-V</td>
<td>Struc</td>
<td>cont.topic:pre-V shifted topic: pre-V</td>
<td>.969</td>
<td>not pre-V topic</td>
<td>.255</td>
<td></td>
</tr>
<tr>
<td>Cl. SVO topic cont.topic:pre-V shifted topic: pre-V</td>
<td>Struc</td>
<td>.946</td>
<td>not topic</td>
<td>.336</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cl. case topic cont.topic:pre-V shifted topic: pre-V</td>
<td>Struc</td>
<td>.666</td>
<td>not pre-V topic</td>
<td>.488</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 F0 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) i(roh/ (380 ms)
   i-roh
   3S:SG:MASC-go
   He-left.
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 F0 low scale, and low on the amplitude high scale (the first clause is only provided for context):

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

Well, [he] continued.

(99 ms) nuwa ę-ddi š-oḥenžee-g
REL.PRO:3A:SG:MASC IRR-live CORR-child-PROX
The son of the ogre (lit. 'he who lived as a child')

(0 ms) hee y-ẹnt di-rabhae__ beheld 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)

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cl. Struc</td>
<td>VS Topic</td>
<td>cont.top.:post-V</td>
<td>shifted top.: post-V</td>
<td>.992</td>
<td>not post-V topic</td>
<td>.311</td>
</tr>
</tbody>
</table>

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=nte l=at=es a=lg w=ul=æ =n=ni__
       a=nte l=at=es a=lg w=ul=æ =n=ni
       well PRO:3S:SG:FEM return Tamza-DEM:DIST:SG/PL

Well, that Tamza returned.

(73) (1262 ms) kom=æ=se a=lg u=at=wos it (800 ms)
       kom=æ=se a=lg u=at=wos it
       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 Fo clause-finally.

Strong inverse correlations are the location of the amplitude high as post-V, a rising clause-final Fo 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)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Disc. shift</td>
<td>Prag top. preV</td>
<td>final Fo</td>
<td>level final Fo falling final Fo</td>
<td>.778 .655</td>
<td>rising final Fo</td>
<td>.139</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ident. amp. hi</td>
<td>subject=amp. high pred.nom.=amp. hi</td>
<td>.790 .895</td>
<td>case n.=amp. high cl. adv.=amp. high verb=amp. high</td>
<td>.240 .180 .422</td>
</tr>
<tr>
<td></td>
<td></td>
<td>loc. amp. high</td>
<td>loc.amp. hi=pre-V</td>
<td>.830</td>
<td>loc. of amp. high high=post-V</td>
<td>.121</td>
</tr>
<tr>
<td></td>
<td></td>
<td>amp. span</td>
<td>medium amp. span wide amp. span</td>
<td>.834 .935</td>
<td>narrow amp. span</td>
<td>.396</td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>SV topic</td>
<td>shift topic: pre-V continu. topic: pre-V</td>
<td>.986 .969</td>
<td>not pre-V topic</td>
<td>.255</td>
<td></td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>SVO topic</td>
<td>shift topic: pre-V continu. topic: pre-V</td>
<td>.869 .946</td>
<td>not pre-V topic</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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 F0; the subject marks a change of topic (the first clause is to provide context):

(1395 ms) <HI źżittakamr/HI> (H)
źżitt akamr
night whole

[It went on like this] all night.

(AMPL. 10186)

(74) (433 ms) ?ntæ=/. ...<LO immu=θ LO>/ (313 ms)
?ntæ i- -mmuθ
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 F0; the subject marks a change of topic (the first clause is to provide context):

(0 ms) d-akomasasirær \ (H)
d-akomasas i-rær
IRR-start-31O:SG:MASC/FEM 3S:SG:MASC-play

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

(AMPL. HGH. 5949)

(75) (918) <LO anantteθættøqab/ LO> (0) ampl.span: 4346
anantteθ ætt-t-øqab
then 3S:SG:FEM 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 F₀ 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 F₀ high, followed by moderate correlations with mid-level F₀ clause-finally and the clause adverbial as the F₀ high. There is also a weak correlation with a clause-final high F₀.

Inverse correlations of post-verbal topic shift are the moderate correlation of low clause-final F₀, the weak correlation of object as the F₀ high, and the very weak correlation of verb as the F₀ high.

Post-V topic shift contrasts sharply with pre-V shifted topic and post-V continuous topic in that the former heavily involves F₀, whereas post-V continuous topic is associated with word order only without amplitude and/or F₀, and pre-V continuous topic is correlated with amplitude.

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

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Disc. Prag shift topic postV</td>
<td>final F₀</td>
<td>medium final F₀</td>
<td>.722</td>
<td>low final F₀</td>
<td>.245</td>
<td></td>
</tr>
<tr>
<td></td>
<td>high final F₀</td>
<td></td>
<td>.608</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ident. F₀ high</td>
<td>subject=F₀ high</td>
<td>.978</td>
<td>object=F₀ high</td>
<td>.311</td>
<td></td>
</tr>
<tr>
<td></td>
<td>cl. adv.=F₀ high</td>
<td></td>
<td>.710</td>
<td>verb=F₀ high</td>
<td>.436</td>
<td></td>
</tr>
<tr>
<td></td>
<td>loc. F₀ high</td>
<td>post-V</td>
<td>.561</td>
<td>pre-V</td>
<td>.095</td>
<td></td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>VS topic</td>
<td>post-V shifted topic</td>
<td>.999</td>
<td>not post-V topic</td>
<td>.311</td>
<td></td>
</tr>
<tr>
<td></td>
<td>post-V contin. topic</td>
<td></td>
<td>.992</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 $F_0$ high and on the high end of the high scale (first clause to provide context):

(0 ms) \textit{idžin?nhar/ənmaamzaθ=əwzil} \\
\textit{idžin-nənhar æamza θ-æwzil} \\
one-day Tamza 3S:SG:FEM-run \\
One-day, Tamza ran \\
\textit{xa=1?mqitš\ldots æ=xo=xušiθ \ldots } xušiθ \\
\textit{xa=1?mqitš axo-x-ušiθ x-ušiθ} \\
LOC-cat LOC-LOC-wolf LOC-wolf \\

(76) (1424 ms) \textit{æywasiðiruθæ} \\
\textit{æywa s i-rθæ} \\
well sir 3S:SG:MASC-go \\
Well sir, that-wolf

(F$\check{0}$ high: 200) \\
\textit{yttæzza\l wuśšanni/} (752 ms) \\
\textit{y-tt-æzzal wuśšan-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 $F_0$ high. This $F_0$ high is 'mid' on the $F_0$ high scale (first clause for context):

(0 ms) \textit{yg\l ssazannikuranhæərkuranhæə__(H)} \\
y-g\l ss azanni kur-anhæə kur-anhæə \\
3S:SG:MASC-come like.that each-day each-day \\
Each-day he-[would]come like.that.
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 F0.

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 F0 lows.
Table 21. Correlations of pre-V continuous and shifted topic (N=45)

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Disc. Prag</td>
<td>Pre-Vtop Fø low</td>
<td>level 1: Fø low</td>
<td>.922</td>
<td>level 4 on Fø low scale</td>
<td>.216</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>level 6 on Fø low scale</td>
<td>.817</td>
<td>level 3 on Fø low scale</td>
<td>.375</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>level 2 on Fø low scale</td>
<td>.798</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>amplitude high</td>
<td>.925</td>
<td>low on amp. high scale</td>
<td>.336</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>high on amp. high scale</td>
<td>.962</td>
<td>cl. adv.=amp. high</td>
<td>.029</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>object=amp. high subject=amp. high pred. nom.=amp. high</td>
<td>.958</td>
<td>verb=amp. high</td>
<td>.292</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>high case noun=amp. high</td>
<td>.872</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>loc. amp. high</td>
<td>.844</td>
<td>loc. amp. high=pre-V</td>
<td>.077</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>loc. amp. high=pre-V</td>
<td>.824</td>
<td>loc. amp. high=pre-V</td>
<td>.354</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>clause=intonation unit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>SV topic</td>
<td>pre-V topic</td>
<td>.981</td>
<td>not pre-V topic</td>
<td>.256</td>
<td></td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>SVO topic</td>
<td>pre-V topic</td>
<td>.899</td>
<td>not pre-V topic</td>
<td>.356</td>
<td></td>
</tr>
</tbody>
</table>

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.
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 F₀ 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 F₀ in the clause.

Table 23. Correlations of pre- and post-V shifted topic (N=47)
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 F0 (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)

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Disc. Prag</td>
<td>Con. Top.</td>
<td>F0 high</td>
<td>level 2+3 -F0 high scale</td>
<td>.761</td>
<td>level 4 -F0 high scale</td>
<td>.166</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>level 5+6+7 -F0 high scale</td>
<td>.577</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ident. amp. hi</td>
<td>subject=amp. high</td>
<td>.850</td>
<td>cl. adv.=amp. high</td>
<td>.309</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>object=amp. high</td>
<td>.705</td>
<td>verb=amp. high</td>
<td>.375</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>case noun=amp. high</td>
<td>.670</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>morph/cl final pause which narr.?</td>
<td>long clause</td>
<td>.898</td>
<td>short clause</td>
<td>.462</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>short final pause</td>
<td>.599</td>
<td>long final pause</td>
<td>.061</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>'Tamza and the Wolf' narr.</td>
<td>.953</td>
<td>'The Ogre &amp; His Neighbor'</td>
<td>.204</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>'Hammu the Trickster'narr.</td>
<td>.793</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>'Night Fears' narr.</td>
<td>.563</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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) izagaʔækšidžanntwa (1110 ms)
     i-zaʔaʔækš-idžan-nuwa
     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)

<table>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Disc. Prag</td>
<td>Con. Foc.</td>
<td>amp. high which narr.?</td>
<td>high on amp. high scale</td>
<td>.887</td>
<td>low on amp. high scale</td>
<td>.364</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'Night Fears' narr.</td>
<td>'The Ogre &amp; His Neighbor'</td>
<td>.826</td>
<td>'Tamza and the Wolf' narr.</td>
<td>.451</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>'Hammu the Trickster' narr.</td>
<td>.821</td>
<td></td>
<td>.289</td>
</tr>
</tbody>
</table>

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):

```
?ntàææsinia/...
?ntå æ-s-i-nía
3PRO:SG:MASC IRR-CAUS-3A:SG:MASC-say

He (the wolf) made.himself-say,

waëdiwaëdi
waëd-i waëd-i

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

taffæ%taffæ%
t-taffæ t-taffæ
taffæ t-taffæ
3A:SG:FEM-grab3A:SG:FEM-grab

She grabbed- she grabbed

zwárnzíggwæerθ\nzwár n-žíggwæerθ
root GEN-plant

a plant's root [not my tail]!"
```
(79) (1807 ms) Thamzæ Balægasbasæh/ (1865 ms) level 4 ampl. high: 3947  
Thamza Th-alægas basæh  
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) nissadjittamn PRO:1S:SG:MASC/FEM night whole  
[nisš adžit tekum]  
[nisš adžit tekum]  
PRO:1S:SG:MASC/FEM night whole  
[The] whole night  

nisqqimo (H) (175 ms)  
nis aqqim-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 F0 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)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Disc. Pre</td>
<td>V Foc. amp. span</td>
<td>wide amp. span</td>
<td>.925</td>
<td>narrow amp. span</td>
<td>.390</td>
<td></td>
</tr>
<tr>
<td></td>
<td>initial pause</td>
<td>medium amp. span</td>
<td>.873</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>long initial pause</td>
<td>.845</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>short initial pause</td>
<td>.590</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>which narr.?</td>
<td>'Tamza and the Wolf' narr.</td>
<td>.894</td>
<td>'Hammu the Trickster' narr.</td>
<td>.346</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>'Night Fears' narr.</td>
<td>.829</td>
<td>'The Ogre &amp; His Neighbor'</td>
<td>.388</td>
<td></td>
</tr>
<tr>
<td>Cl. Case</td>
<td>N. Struc. topic focus</td>
<td>pre-V topic</td>
<td>.718</td>
<td>not pre-V topic</td>
<td>.437</td>
<td></td>
</tr>
<tr>
<td></td>
<td>focus</td>
<td>not pre-V focus</td>
<td>.535</td>
<td>pre-V focus</td>
<td>.140</td>
<td></td>
</tr>
</tbody>
</table>

Trends then regarding topic and focus emerge. In general (but not always), topic and focus accompany amplitude contrast and highs, while subjects accompany F0 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 F0 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 F0. 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 F₀ high, and strong correlations with a level clause-final amplitude and a case noun as the F₀ high. There is a moderate correlation with a verb as the F₀ 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, F₀ appears to accompany clause constituents and amplitude does not.

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

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cl. Struc V</td>
<td>ident. F₀ high</td>
<td>cl. adv.=F₀ high</td>
<td>.900</td>
<td>obj.=F₀ high</td>
<td>.042</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>case noun=F₀ high</td>
<td>.809</td>
<td>subj.=F₀ high</td>
<td>.125</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>verb=F₀ high</td>
<td>.762</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>final F₀</td>
<td>level F₀ end</td>
<td>.584</td>
<td>rising F₀ end</td>
<td>.308</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>falling F₀ end</td>
<td>.602</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>loc. amp. high</td>
<td>post-V=loc. amp. high</td>
<td>.241</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>pre-V=loc. amp. high</td>
<td>.241</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>amp. span</td>
<td>narrow amp. span</td>
<td>.594</td>
<td>wide amp. span</td>
<td>.053</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>final amp.</td>
<td>level amp. end</td>
<td>.827</td>
<td>medium amp. span</td>
<td>.250</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>rising amp. end</td>
<td>.508</td>
<td>falling amp. end</td>
<td>.411</td>
<td></td>
</tr>
</tbody>
</table>

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 F₀ clause-finally, the case noun is the F₀ high, the amplitude span is narrow, and the amplitude is low on the high scale:
(F₀ high: 222)

(81)  (0 ms) kærímkasðøgyu (0 ms)  ampl. span: 1653
      kærímkas x-øgyu       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 F₀ high pre-V, is non-rising/non-falling amplitude and F₀ clause-finally, has narrow amplitude span, highest amplitude pre-V, and is low on the amplitude high scale:

(F₀ high: 204)

(82)  (505 ms) mkur-arør <A ægæs ampl. span: 919
      mkur-anhar Ægæ-S ampl. low: 2251
      each-day   LOC-IO:3:SG:MASC/FEM

Each-day, to-her

i-hæ A> (0 ms)
i-hæ
3S:SG:MASC-go

he-went.

4.2.2 Verb + object clauses

An interesting phenomenon in the VO clause type is that heightened F₀ is likely clause-finally, but heightened amplitude is likely clause-initially. The object has the highest F₀ while some pre-verbal constituent such as a clause adverbial takes the high amplitude. Thus, F₀ appears to underscore the major clause constituent apart from the verb, and amplitude underscores the pragmatic constituent, suggesting that amplitude accompanies discourse pragmatics and F₀ accompanies clause structure.

Table 28 lists correlations of VO clauses. Very strong correlations are objects as the F₀ high, and the F₀ clause boundary contour: start falling/end rising. Thus, the object draws the F₀ high and causes the clause to rise in F₀ 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 $F_0$ high and the 'Hammu the Trickster' narrative. These findings suggest that the object 'attracts' either falling or rising $F_0$ 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)

<table>
<thead>
<tr>
<th>Cl. Struc</th>
<th>VO</th>
<th>Significant Factor Groups</th>
<th>Positive Correlation Factors</th>
<th>Pos. Cor.</th>
<th>Inverse Correlation Factors</th>
<th>Inv. Cor.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cl.</td>
<td></td>
<td>ident. $F_0$ high</td>
<td>object=$F_0$ high</td>
<td>.964</td>
<td>subj=$F_0$ high</td>
<td>.083</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>cl. adv.=$F_0$ high</td>
<td></td>
<td></td>
<td>.133</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>verb=$F_0$ high</td>
<td></td>
<td></td>
<td>.440</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>case noun=$F_0$ high</td>
<td></td>
<td></td>
<td>.417</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>start/end level $F_0$</td>
<td></td>
<td></td>
<td>.243</td>
</tr>
<tr>
<td>F0 levels</td>
<td></td>
<td>start falling/end rising $F_0$</td>
<td>.909</td>
<td></td>
<td>start/end rising $F_0$</td>
<td>.269</td>
</tr>
<tr>
<td></td>
<td></td>
<td>start/end falling $F_0$</td>
<td>.631</td>
<td></td>
<td>start rising/end</td>
<td>.271</td>
</tr>
<tr>
<td></td>
<td></td>
<td>start level/end rising $F_0$</td>
<td>.577</td>
<td></td>
<td>falling $F_0$</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>start level/end falling $F_0$</td>
<td>.534</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>initial amp.</td>
<td>high initial amp.</td>
<td>.880</td>
<td>low initial amp.</td>
<td>.442</td>
</tr>
<tr>
<td></td>
<td></td>
<td>final amp.</td>
<td>rising amp. end</td>
<td>.682</td>
<td>level amp. end</td>
<td>.096</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>falling amp. end</td>
<td>.517</td>
<td></td>
<td></td>
</tr>
<tr>
<td>which narr.?</td>
<td></td>
<td>'Night Fears' narr.</td>
<td>.750</td>
<td></td>
<td>'Hammu the Trickster' narr.</td>
<td>.177</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'The Ogre &amp; His Neighbor'</td>
<td>.679</td>
<td></td>
<td>'Tamza and the Wolf' narr.</td>
<td>.208</td>
</tr>
<tr>
<td>Cl.</td>
<td></td>
<td>mount. tens.</td>
<td>mounting tension</td>
<td>.591</td>
<td>not mounting tens.</td>
<td>.422</td>
</tr>
</tbody>
</table>

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 F0 high, the F0 contour 'start falling/end rising,' and low amplitude clause-initially:

\[(\text{initial ampl.: } 2021) \quad (\text{F0 high: } 247)\]
\[(\text{83}) \quad (0 \text{ ms}) \quad \text{æœønijənawmən} / (0 \text{ ms}) \quad \text{æø-øø-n iən-wamən} \quad \text{IRR-reach-3A:PL:MASC one-place} \]

They-reached some-place.

Clause (84) from the 'Night Fears' narrative is an example of a VO clause with the object (underlined) as the F0 high, start falling/end rising F0 contour, high initial amplitude, rising amplitude clause-finally, and mounting tension:

\[(\text{initial ampl.: } 15546) \quad (\text{F0 high: } 689)\]
\[(\text{84}) \quad (1553 \text{ ms}) \quad \text{<@ isi-gəšəqə/ @> (H) (288 ms)} \quad \text{isi-gəšəqəa} \quad \text{take-IA:SG:MASC/FEM ax} \]

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 F0, and (2) post-verbal topic is linked to the subject following the verb. This further suggests the separate domains of F0 and amplitude: F0 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 F0 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)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cl. Struc</td>
<td>VS</td>
<td>ident. F0 high</td>
<td>subject=F0 high</td>
<td>.962</td>
<td>falling F0 end</td>
<td>.303</td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>VS</td>
<td>cl. adv.=F0 high</td>
<td>cl. adv.=F0 high</td>
<td>.842</td>
<td>level F0 end</td>
<td>.436</td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>VS</td>
<td>verb=F0 high</td>
<td>verb=F0 high</td>
<td>.682</td>
<td>contour</td>
<td></td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>VS</td>
<td>final F0</td>
<td>rising F0 end</td>
<td>.787</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>VS</td>
<td>loc. amp. high</td>
<td>post-V=loc. amp. high</td>
<td>.873</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>VS</td>
<td></td>
<td>high</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>VS</td>
<td></td>
<td>pre-V=loc. amp. high</td>
<td>.559</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>VS</td>
<td>topic</td>
<td>shift topic/post-V</td>
<td>.999</td>
<td>not topic/post-V</td>
<td>.311</td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>VS</td>
<td></td>
<td>continuous</td>
<td>.992</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>VS</td>
<td></td>
<td>topic/post-V</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 F0 and amplitude high, and the clause ends with falling F0:

(757 ms) aBal-eygtamza (2335 ms)
a-θ-ælæyg 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 F0 and amplitude high, and the clause ends with non-rising/non-falling F0:
Then he came out.

(amp. high: 3678)
(F₀ high: 172)

āḥadidānāwīdīlaharrābāb (0 ms)
āḥadidān āwīd laḥarrāb
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 F₀, and the case noun as the amplitude high (table 30).

A strong inverse correlations is medium F₀ clause-finally.

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

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cl. Struc</td>
<td>Pred Nom</td>
<td>final F₀</td>
<td>level 5 F₀ end</td>
<td>.953</td>
<td>medium F₀ end</td>
<td>.163</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>low F₀ end</td>
<td></td>
<td>cl. adv.=amp. high</td>
<td>.221</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>high</td>
<td></td>
<td>cl. adv.=amp. high</td>
<td>.426</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>pred. nom.=amp. high</td>
<td>.994</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>case noun=amp. high</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>high</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 F₀ end:
(ampl. high: 16854)
(F0 final: 516)

(87) (0 ms) mmed§eyagagaaga@@@@ (H) (1370 ms)

mmed §e-ya gagaagaaga
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 F0 end:

(1) (ampl. high: 3973)
(F0 end: 108)

(88) (0 ms) džammasahammulharaymi

d-žamma-§ ahammu lharaymi (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 3 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)

<table>
<thead>
<tr>
<th>Cl. Struc</th>
<th>SV</th>
<th>Significant Factor Groups</th>
<th>Positive Correlation Factors</th>
<th>Pos. Cor.</th>
<th>Inverse Correlation Factors</th>
<th>Inv. Cor.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>final Fø</td>
<td>falling Fø end</td>
<td>rising Fø end</td>
<td>.682</td>
<td>post-V=amp. high start/end</td>
<td>.202</td>
</tr>
<tr>
<td></td>
<td></td>
<td>level end Fø</td>
<td></td>
<td>.615</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>pre-V=amp. high</td>
<td></td>
<td>.939</td>
<td>start/end high amp.</td>
<td>.151</td>
</tr>
<tr>
<td></td>
<td></td>
<td>start low/end medium amp.</td>
<td></td>
<td>.918</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>start mid/end high amp.</td>
<td></td>
<td>.797</td>
<td>start mid/end low amp.</td>
<td>.317</td>
</tr>
<tr>
<td></td>
<td></td>
<td>start mid/end medium amp.</td>
<td></td>
<td>.775</td>
<td>start high/end medium amp.</td>
<td>.341</td>
</tr>
<tr>
<td></td>
<td></td>
<td>which narr.?</td>
<td></td>
<td>.897</td>
<td>start high/end low amp.</td>
<td>.362</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'Tamza and the Wolf' narr.</td>
<td></td>
<td></td>
<td>'The Ogre &amp; His Neighbor'</td>
<td>.223</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'Night Fears' narr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>'Hammu the Trickster' narr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>topic</td>
<td>shift topic/pre-V</td>
<td>not topic pre-V</td>
<td>.986</td>
<td></td>
<td>.255</td>
</tr>
<tr>
<td></td>
<td></td>
<td>continuous topic/pre-V</td>
<td></td>
<td>.969</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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:

(89) (0 ms) **hammarhæymunsinxcægyc** (0 ms)
    **homerhæym i-sin x-ægyc**
    Hammu Laharaimi 3S:SG:MASC-climb LOC-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 F0 end:

(AMPL. 2424)
(90) (99 ms) nuwa g-ddi š-ohænžæg8
nuwa g-ddi š-ohænžæg8
REL.PRO:3A:SG:MASC IRR-live CORR-child-PROX

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

hæyænubdiåræk8 (0 ms)
hæyænubdiåræk8
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 F0 contrast. As we have seen, the object in VO clauses is typically underscored by high F0 as is also often the case with subjects. Thus, competing hegemony over the possession of highest F0 causes F0 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 F0 span.
Table 32. Correlations of SVO clauses (N=20)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Cl. Struc</td>
<td>SVO FØ span amp. high</td>
<td>wide FØ span high on amp. Ligh scale</td>
<td>.742 .822</td>
<td>narrow FØ span low on amp. high scale</td>
<td>.461 .398</td>
<td></td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>SVO topic</td>
<td>continuous topic/pre-V</td>
<td>.946 .869</td>
<td>not topic</td>
<td>.336</td>
<td></td>
</tr>
<tr>
<td>Cl. Struc</td>
<td>SVO topic</td>
<td>shifted topic/pre-V</td>
<td>cont. topic/post-V</td>
<td>.832</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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) urniture[zaheidla]hæramnæahdidæn

urniture[zaheidla]hæramnæahdidæn

urniture[zaheidla]hæramnæahdidæn

urniture[zaheidla]hæramnæahdidæn

urniture[zaheidla]hæramnæahdidæn

urniture[zaheidla]hæramnæahdidæn

urrence[zaheidla]hæramnæahdidæn

urrence[zaheidla]hæramnæahdidæn

urrence[zaheidla]hæramnæahdidæn

urrence[zaheidla]hæramnæahdidæn

urrence[zaheidla]hæramnæahdidæn

urrence[zaheidla]hæramnæahdidæn

urrence[zaheidla]hæramnæahdidæn

urrence[zaheidla]hæramnæahdidæn

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urrence[zaheidla]hæramnæahdidæn

urrence[zaheidla]hæramnæahdidæn

urrence[zaheidla]hæramnæahdidæn

urrence[zaheidla]hæramnæahdidæn

urrence[zaheedl
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 F0 span. In addition, 41 of 42 clause adverbial clauses place the clause adverbial clause-initially. Thus, clause adverbials carry prominences of F0, amplitude and clause-initial pause length in addition to general contrast of F0 and amplitude levels (represented by wide and medium F0 and amplitude spans respectively).
### Table 33. Correlations of clauses with clause adverbials (N=42)

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>CI. Struc cl. adv.</td>
<td>ident. F₀ high</td>
<td>cl. adv.=F₀ high</td>
<td>.975</td>
<td>verb=F₀ high</td>
<td>.320</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pred. nom.=F₀ high</td>
<td>.955</td>
<td>subject=F₀ high</td>
<td>.399</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F₀ span wide</td>
<td>.821</td>
<td>case noun=F₀ high</td>
<td>.489</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>object=F₀ high</td>
<td>.284</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ident. amp. hi</td>
<td></td>
<td>narrow F₀ span</td>
<td>.444</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>subject=amp. high</td>
<td>.044</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pred. nom.=amp. high</td>
<td>.146</td>
</tr>
<tr>
<td></td>
<td></td>
<td>loc. amp. high</td>
<td></td>
<td>case noun=amp. high</td>
<td>.247</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>high</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>post-V</td>
<td>.161</td>
</tr>
<tr>
<td>CI. Struc cl. adv.</td>
<td>topic/post-V</td>
<td></td>
<td>.713</td>
<td>not topic post-V</td>
<td>.471</td>
</tr>
<tr>
<td>CI. Struc cl. adv.</td>
<td>episode junc.</td>
<td>episode juncture</td>
<td>.711</td>
<td>not episode juncture</td>
<td>.394</td>
</tr>
<tr>
<td></td>
<td></td>
<td>orientation</td>
<td>orientation</td>
<td>.704</td>
<td>not orientation</td>
</tr>
</tbody>
</table>

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 F₀ high (pre-V) and a wide F₀ span. The clause is also at an episode juncture:

F₀ high: 187  
F₀ span: 80

(93)  
(0 ms) idžinʔnhar...affleamzaʔme=waž1  
idžinʔnhar amza ʔ-me=waž1  
one-day Tamza 3S:SG:FEM-chase

One day Tamza chased
The next example has the clause adverbial as the F₀ and amplitude high (pre-V, occurs at an episode juncture, and serves as narrative orientation:

```
(94)  (505 ms) mkuranhaer <A ə æsíhæ __ A> (0 ms) mkuranhaer æææ-s i-hæ 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)

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Cl. Struct prec. dep. cl.</td>
<td>loc. amp. high</td>
<td>pre-V=amp. high</td>
<td>.890</td>
<td>post-V=amp. high</td>
<td>.405</td>
<td></td>
</tr>
<tr>
<td>Pros</td>
<td>long final pause focus</td>
<td>pres.foc.: pre-V</td>
<td>.901</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>pres. foc.: post-V</td>
<td>.819</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>contrast. focus</td>
<td>.781</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>prec. dep. cl.</td>
<td>prec. dep. cl.</td>
<td>.774</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>not prec. dep. cl.</td>
<td>.466</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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:

```
(95) urimixasniyuufumzuwnnia/ (H)
  urimi xa-sn i-yauf umzuw-nnia

  When that-ogre came to-them,
```

```
(818 ms) ßawarßamgaß/ (H) (1262 ms)
  ß-ßawar ßamgaß
  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) yeeram ə-əriəd?əy-ga-əə
yeeram ə-əriəd ?əy-ga-əə

After Hammu did-her.

(1053 ms) iθənəstaθəgarəs
i-θənast aθa-garəs
3S:SG:MASC-make.up CORR-choked

he-made.himself.up like-that.choked

θəθəθəθənni (1262 ms)
θəθəθəθ-ənni
woman-DEM:DIST:SG/PL

woman.

4.2.9 Clauses with case nouns

Clauses with case nouns are primarily connected to heightened F0 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 F0 highs, and long clauses. The next strongest correlation is the F0 clause boundary contour: start level 2/end level 1. A very strong inverse correlation is the F0 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 F0 and amplitude prominences.
Table 35. Correlations of clauses with case nouns (N=40)

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Cl. Struc case noun</td>
<td>ident. Fø high</td>
<td>case noun=Fø high</td>
<td>.945</td>
<td>verb=Fø high</td>
<td>.393</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>cl. adv.=Fø high</td>
<td>.699</td>
<td>subject=Fø high</td>
<td>.412</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fø levels</td>
<td>start level 2/end level 1 Fø</td>
<td>.795</td>
<td>start level 3/end level 4 Fø</td>
<td>.026</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>start level /end level 2 Fø</td>
<td>.669</td>
<td>start level 3/end level 3 Fø</td>
<td>.298</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>start level 1/end level 2 Fø</td>
<td>.572</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ident. amp. hi</td>
<td>case noun=amp. high</td>
<td>.961</td>
<td>cl. adv.=amp. high</td>
<td>.404</td>
<td></td>
</tr>
<tr>
<td></td>
<td>morph/clause which narr.?</td>
<td>long clause</td>
<td>.911</td>
<td>subject=amp. high</td>
<td>.498</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>'Hammu the Trickster'narr.</td>
<td>.788</td>
<td>verb=amp. high</td>
<td>.587</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>'Night Fears' narr.</td>
<td>.699</td>
<td>short clause</td>
<td>.459</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cl. case topic</td>
<td>shifted topic: pre-V</td>
<td>.694</td>
<td>The Ogre &amp; His Neighbor' TAMza and the Wolf narr.</td>
<td>.247</td>
<td></td>
</tr>
<tr>
<td></td>
<td>topic</td>
<td>not pre-V topic</td>
<td>.448</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cl. case topic/focus</td>
<td>topic/pre-V</td>
<td>.718</td>
<td>focus/pre-V</td>
<td>.140</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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) ?ntaθæsθgællisæewanyæwærurugyr/ (777 ms) ?ntaθ æsθ æll-i sæewan-yæwærur ugyur

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) izargl-Θ daggižanimal (178 ms)
i-zargl-Θ dagg-ižan-ižæ
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 F₀ and amplitude

<table>
<thead>
<tr>
<th>Category</th>
<th>Fundamental Frequency Correlations</th>
<th>Amplitude Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>clause-initial</td>
<td></td>
<td>high: climax, episode juncture, orientation, lessening tension, denouement, post-V shift topic, post-V presentational focus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>low: orientation</td>
</tr>
<tr>
<td>clause-final</td>
<td>low: orientation</td>
<td>low: cl. adv., orientation, inciting incident, clause with preceding dependent clause</td>
</tr>
<tr>
<td>high</td>
<td>high: climax, not lessening tension</td>
<td>high: SVO, contrastive focus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>low: pred. nom., VS</td>
</tr>
<tr>
<td>ident. high</td>
<td>subjects, verbs, objects, pred. nom.s, case nouns, cl. adv.</td>
<td>subjects, pred. nom.s, verbs</td>
</tr>
<tr>
<td>loc. high</td>
<td></td>
<td>pre-V</td>
</tr>
<tr>
<td>low</td>
<td></td>
<td>level 3: contrastive focus, inciting incident, not orientation, denouement, lessening tension</td>
</tr>
<tr>
<td>span</td>
<td>wide: SVO, cl. adv., VS, SV</td>
<td>wide: pre-V topic, contrastive focus, post-V presentational focus</td>
</tr>
<tr>
<td>contours: clause boundaries</td>
<td>high at topic, object, cl. adv.</td>
<td>high at pre-V continuous topic, post-V shifted topic, V-only, pred. nom.; medium at pre-V shifted topic</td>
</tr>
<tr>
<td>clause-final contour</td>
<td>falling: pred. nom. clauses</td>
<td></td>
</tr>
</tbody>
</table>

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 F0 correlate with many categories of discourse profile, pragmatics, word order, and clause constituency. Strongest correlations indicate that the highest F0 of clauses underline clause constituents, thus affecting the general F0 contour. Also, low F0 accompanies orientation clauses.

4.3.1.1 Clause-initial F0

These results concern whether or not there is a link between levels of clause-initial F0 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 F0).

General results concerning clause-initial F0 are as follows (ranked from strongest to weakest correlations):

Medium clause-initial F0 correlates most strongly with a predicate nominal clause, with a moderate inverse correlation with SVO clauses.

High clause-initial F0 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-F0 high clause-initially).

Low clause-initial F0 correlations are nearly non-existent, with a weak inverse correlation being with inciting incident clauses.
4.3.1.2 F0 at clause terminus

Interconnections between clause-final F0 levels and prosody/clause structure showed stronger links than did clause-initial F0. Orientation and lessening tension clauses were the significant correlations (with low/medium F0 clause-finally).

General results relative to clause-final levels of F0 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 F0 at clause terminus.

In table 37 are enumerated the correlations of low clause-final F0. 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.

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</tr>
</thead>
<tbody>
<tr>
<td>Pros low F0</td>
<td>orientation</td>
<td>inciting incid. word order</td>
<td>orientation</td>
<td>.801</td>
<td>VS clause</td>
<td>.179</td>
</tr>
<tr>
<td>SV clause</td>
<td>.773</td>
<td>inciting incident</td>
<td>pred. nom. clause</td>
<td>.354</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SVO clause</td>
<td>.695</td>
<td>pred. nom. clause</td>
<td>VO clause</td>
<td>.234</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V-only clause</td>
<td>.536</td>
<td></td>
<td></td>
<td>.370</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Example (99) is from the 'Hammu the Trickster' story. It is an SVO orientation clause that has low F0 clause-finally:

(99) (291 ms) abitʔnناس
a-bit-ʔnناس

This-his-house

iggeyasṭwąl̤ahdid\ (H) (782 ms)
i-igge yąš-twäł̤ahdid
3A:SG:MASC-has one-iron door

had an-iron door.

4.3.1.3 Highest F0 in a given clause

There are few noteworthy correlations with the highest F0 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 F0

In general, heightened F0 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 F0. Strong connections are to word orders, climax, and episode juncture. Table 38 lists correlations.

Table 38. Correlations of clause constituents with highest F0: clause adverbials (N=21)

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Pros F0 high: word order</td>
<td>pred. nom. clauses</td>
<td>.914</td>
<td>VS clauses</td>
<td>.735</td>
<td>SV clauses</td>
<td>.266</td>
</tr>
<tr>
<td>Pros F0 high: climax</td>
<td>V-only clauses</td>
<td>.617</td>
<td>VO</td>
<td>.319</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pros F0 high: case noun</td>
<td>episode juncture</td>
<td>.823</td>
<td>case noun</td>
<td>.438</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pros F0 high: case noun</td>
<td>episode juncture</td>
<td>.746</td>
<td>not case noun</td>
<td>.411</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Example (100) is the first clause of 'The Ogre and His Neighbor'. Example (101) is from 'Hamnu the Trickster. Example (100) is a predicate nominal clause with the highest F0 at the clause adverbial; the clause is also found at an episode juncture:

(F0 high: 265)

(100) (0 ms) øywa/ ... øužanmæyyææz / (0 ms)
øywa ø-užan-mæyyææz
well be-one-man

Well, there was-a-man.

The next example also has the F0 high at a clause adverbial and is climax:
(F0 high: 189)
(101) (857 ms) aywađeđan
aywa-e ađ-an
well-PROX IRR-3S:PL:MASC

Well—here they

muđankulši/ (611 ms)
mud-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 F0 of that clause, then it is probably linked to topic. Table 39 shows the correlations of subjects possessing the highest F0 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 F0 of any constituent of that clause, then it is most likely a topic.

Table 39. Correlations of clause constituents with highest F0: subjects (N=24)

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Pros</td>
<td>F0 high: topic</td>
<td>shift topic/post-V continuous topic/post-V</td>
<td>.980</td>
<td>not topic</td>
<td>.205</td>
<td></td>
</tr>
<tr>
<td>subj.</td>
<td></td>
<td>shift topic/pre-V continuous topic/pre-V</td>
<td>.936</td>
<td></td>
<td>.829</td>
<td></td>
</tr>
</tbody>
</table>

Subjects in presentational focus (post-V), orientation and predicate nominal clauses never have the F0 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 F0:
Well sir. that-wolf

would-run [from Tamza].

The next example has a pre-V continuing topic with the subject having the highest F₀:

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 F₀ in the clause. Table 40 indicates the strong correlation of case nouns with the highest F₀ in a given clause: clauses with case nouns. In addition, there is never a case noun as the F₀ high in VS, VSO and predicate nominal clauses. No denouement, post-V topic and post-V focus clause has a case noun with the F₀ high, presumably because the topic and focus would take those F₀ 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 F₀: case nouns (N=20)

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros F₀ high: case noun cl.</td>
<td>case noun in clause</td>
<td>.899</td>
<td>not case noun</td>
<td>.375</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example (104) is found in 'Tamza and the Wolf'. It has a case noun which is the point of the highest F₀:

(104) (752 ms) ?ntεtiyułfεərəŋəgweəfur (1937 ms)  
?ntεt i-yuł fəələŋ-wəəfur  
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 F₀ 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 F₀ 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 F₀ 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 F0: verbs (N=84)

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Pros F0</td>
<td>word order</td>
<td>V-only clauses</td>
<td>.776</td>
<td>VS clauses</td>
<td>.208</td>
<td></td>
</tr>
<tr>
<td></td>
<td>high:</td>
<td></td>
<td></td>
<td>SVO clauses</td>
<td>.248</td>
<td></td>
</tr>
<tr>
<td></td>
<td>verb</td>
<td></td>
<td></td>
<td>VO clauses</td>
<td>.265</td>
<td></td>
</tr>
<tr>
<td></td>
<td>case noun cl.</td>
<td>not case noun</td>
<td>.571</td>
<td>case noun in clause</td>
<td>.227</td>
<td></td>
</tr>
<tr>
<td></td>
<td>cl. adv. cl.</td>
<td>not adv. cl.</td>
<td>.227</td>
<td>cl. adv.</td>
<td>.175</td>
<td></td>
</tr>
</tbody>
</table>

Example (105) is from 'Night Fears'. The verb is at the point of highest F0:

(F0 high: 279)

105) (0 ms) @ shtaz-sagou gzhin / @> %%% (H) (1490 ms)

Then [I] started [to] shout loudly.

4.3.1.4.5 Objects

The only significant link of clauses with objects (that have the highest F0 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 F0 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 F0: objects (N=29)

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros F0</td>
<td>word order</td>
<td>VO clauses</td>
<td>.948</td>
<td>V-only clauses</td>
<td>.162</td>
<td></td>
</tr>
<tr>
<td></td>
<td>high:</td>
<td>SVO clauses</td>
<td>.546</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>obj.</td>
<td>VS clauses</td>
<td>.612</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Example (106) is a VO clause from 'The Ogre and His Neighbor'. The F₀ high is on the object (underlined):

(F₀ high: 258)

(106) (740 ms) ittafaazifigaranni/ (0 ms)
i-ittafa figar-anni

He-grabbed that-snake.

4.3.1.5 Location of F₀ high relative to the verb

A clause constituent before or after the verb is sometimes underlined by heightened F₀. 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 F₀ in a given clause. Secondly, topic shift is can be underlined in like fashion.

Table 43 shows correlations of a pre-V location for the F₀ 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 F₀ high: pre-V (N=27)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Pros Loc.</td>
<td>cl. adv. cl.</td>
<td>cl. adv.in clause</td>
<td>.903</td>
<td>lessening tension</td>
<td>.141</td>
<td></td>
</tr>
<tr>
<td>F₀ topic</td>
<td></td>
<td>shift topic/pre-V</td>
<td>.862</td>
<td>shift topic/post-V</td>
<td>.287</td>
<td></td>
</tr>
<tr>
<td>high:</td>
<td></td>
<td>continuous</td>
<td>.566</td>
<td>cont. topic:post-V</td>
<td>.475</td>
<td></td>
</tr>
<tr>
<td>PreV</td>
<td></td>
<td>topic/pre-V</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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 F0 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:

(F0 high: 207)
(107) (0 ms) ḥaṣul-d ʾgwolāaggi di-səref
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 F0 on the pre-V subject:

(F0 high: 215)
(108) (633 ms) <LO št bağlıLO> (119 ms)
št bağlı
PRO:IS:SG:MASC/FEM ITER-move
I moved [it again].

4.3.1.5.2 Post-V position

If the location of the F0 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 F0 high.
Table 44. Position of Fø high: post-V (N=66)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Pros</td>
<td>Fø word order</td>
<td>VO clauses</td>
<td>.848</td>
<td></td>
<td>SV clauses</td>
<td>.211</td>
</tr>
<tr>
<td>high:</td>
<td></td>
<td>VS clauses</td>
<td>.821</td>
<td></td>
<td>V-only clauses</td>
<td>.302</td>
</tr>
<tr>
<td>Post-V</td>
<td>case noun cl.</td>
<td>SVO clauses</td>
<td>.645</td>
<td></td>
<td>pred. nom. clauses</td>
<td>.346</td>
</tr>
<tr>
<td></td>
<td></td>
<td>case noun in clause</td>
<td>.770</td>
<td></td>
<td>not case noun</td>
<td>.430</td>
</tr>
</tbody>
</table>

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) talægastætf
t-alaæs t-ætf
She-thought she-grabbed

Fø high: 177
azwarandzuggwaerθ/(807 ms)
azwar an-dzugwaerθ
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) ižanheuyuzdagas
iža-nhe y-uz-d ga-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 F₀ low point of clause

Links to low levels of F₀ are weak, except to pre-verbal continuous topics.

Findings for correlations of F₀ lows are mostly weak to non-existent. The only significant (or strong) correlation is level 2 F₀ 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 F₀ prominence.

Table 45. Correlations of lowest F₀ in a given clause: 120-139 Hz (level 2) (N=54)

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</thead>
<tbody>
<tr>
<td>Pros low</td>
<td>topic</td>
<td>continuous</td>
<td></td>
<td>.843</td>
<td>continuous</td>
<td>.499</td>
</tr>
<tr>
<td>F₀</td>
<td></td>
<td>topic/pre-V</td>
<td></td>
<td>.659</td>
<td>topic/post-V</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>shift topic/pre-V</td>
<td></td>
<td>.546</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>shift topic/post-V</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>continuous</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>mount. tens.</td>
<td></td>
<td></td>
<td>not mounting tens.</td>
<td>.346</td>
</tr>
<tr>
<td></td>
<td></td>
<td>storyline</td>
<td></td>
<td></td>
<td>storyline</td>
<td>.398</td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Example (111), from 'Tamza and the Wolf,' has continuous topic pre-V (underlined), and is a mounting tension clause with level 2 F₀ low:

(111) (752 ms) ?ntæt iyuf icodeggwæfəɾ \ (1937 ms) ?ntæt i-yeuf icodegg-æfəɾ
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 F₀ low, mounting tension and shifts the topic pre-V:
4.3.1.7 Span between lowest and highest F0 in a clause

This is a measure of F0 contrast and is for the determination of possible correlations with other prosodic, grammatical, and pragmatic phenomena. In general, wide F0 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 F0 span

Wide F0 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 F0 span.

Thus, clause types such as SVO, SV and VS have high F0 contrast, along with clauses that have a clause adverbial. Also, high F0 contrast is averse to V-only clauses, shifted topic, orientation clauses, and denouement clauses.
Table 46. Correlations of span between lowest and highest F₀ in a given clause: wide (N=27)

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Pros wide</td>
<td>word order</td>
<td>SVO clauses</td>
<td>.972</td>
<td>V-only clauses</td>
<td>.143</td>
</tr>
<tr>
<td>F₀ span</td>
<td>VS clauses</td>
<td>.941</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>VS clauses</td>
<td>.870</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>cl. adv. cl.</td>
<td>cl. adv.in clause</td>
<td>.951</td>
<td>not cl. adv.</td>
<td>.323</td>
</tr>
<tr>
<td></td>
<td>orientation</td>
<td>not orientation</td>
<td>.634</td>
<td>orientation</td>
<td>.031</td>
</tr>
<tr>
<td></td>
<td>storyline</td>
<td>not storyline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>topic</td>
<td>not topic</td>
<td>.754</td>
<td>shift topic/post-V</td>
<td>.030</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>shift topic/pre-V</td>
<td>.076</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>continuous</td>
<td>.425</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>topic/pre-V</td>
<td></td>
</tr>
</tbody>
</table>

The clause below, from 'Night Fears,' has a wide F₀ span (level 4), is SVO, does not have a shifted topic, and is non-orientation and non-storyline:

(113) (646 ms) <@ nittæy-gyix qæde qædæe
nittæ y-q-iy-guq-e awæ
PRO:3A:SG:MASC IRR-3A:SG:MASC then

Then he-was.afraid

gæyssigamtafot
gæ-y-q-ysigam tafot
IRR-3A:SG:MASC-turn.on light
to-turn.on [the] light

ææixobaradoqæma\ @> (H) (277 ms)
ææ-æ-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 F₀ span (level 5), is SV, and is non-topic shift, non-orientation, but is storyline:
(114) (0 ms) \text{idžun?nhar...<\social {?amzaθ=ezil}
\text{idžun-?nhar θamza θ-æezil}
\text{one-day Tamza 3S:SG:FEM-chase}

One day Tamza chased

\text{xa-l?mqits...æ=xo=xušiθ...}
\text{xa-l?mqits øxo=xušiθ}
\text{LOC-cat LOC-wolf}

\text{after-[the]cat--after-[the]wolf--}

\text{xušiθ} \text{ (1424 ms)}
\text{xušiθ}
\text{wolf}

[the]wolf.

4.3.1.7.2 Narrow Fθ span

Clauses with narrow Fθ 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 Fθ span. Thus, orientation, denouement and post-V continuous topic clauses are characterized by little Fθ contrast. Conversely, SVO clauses and clauses with clause adverbials are averse to little Fθ contrast.

Table 47. Correlations of span between lowest and highest Fθ in a given clause: narrow (N=184)

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros nar- row</td>
<td>word order</td>
<td>V-only clauses</td>
<td>.665</td>
<td>SVO clauses</td>
<td>.083</td>
<td></td>
</tr>
<tr>
<td>Fθ span</td>
<td>pred. nom. clauses</td>
<td>.649</td>
<td>VO clauses</td>
<td>.453</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cl. adv. cl. orientation</td>
<td>not cl. adv.</td>
<td>.636</td>
<td>SV clauses</td>
<td>.456</td>
<td></td>
<td></td>
</tr>
<tr>
<td>storyline</td>
<td>orientation</td>
<td>.887</td>
<td>VS clauses</td>
<td>.467</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>storyline</td>
<td>.636</td>
<td>cl. adv.</td>
<td>.095</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>not storyline</td>
<td>.419</td>
<td>not storyline</td>
<td>.096</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Example (115), from 'The Ogre and His Neighbor,' illustrates a narrow F0 span (level 1), is a predicate nominal orientation clause, but is non-storyline:

(115) (807 ms) Ḟaniya\ (100 ms)

Ḟaniya

second.time

[It was the] second.time.

The next example, from 'Night Fears,' also has a narrow F0 span (level 1), is a V-only orientation clause, and is storyline:

(116) (751 ms) tługtn— (0 ms)

t-ługt-n

ITER-do-3A:PL:MASC

They-were-doing [something].

4.3.1.8 F0 contours at clause boundaries

F0 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 F0 contour direction at clause boundaries: start/end falling (N=28)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Pros start/ end fall</td>
<td>inciting incid.</td>
<td>inciting incident</td>
<td>.660</td>
<td>not inciting incid.</td>
<td>.449</td>
<td></td>
</tr>
</tbody>
</table>
Example (117), from 'Hammu the Trickster,' is an inciting incident clause that starts and ends falling:

(117) (37 ms) \tasigars\ (0 ms)

\textit{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 $F_0$ 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 $F_0$ contour at clause boundaries: start falling/end rising ($N=20$)

<table>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros</td>
<td>start</td>
<td>word order</td>
<td>VO clauses</td>
<td>.844</td>
<td>SV clauses</td>
<td>.211</td>
</tr>
<tr>
<td></td>
<td>fall/</td>
<td></td>
<td>VS</td>
<td>.729</td>
<td>SVO clauses</td>
<td>.389</td>
</tr>
<tr>
<td></td>
<td>end</td>
<td></td>
<td></td>
<td></td>
<td>V-only clauses</td>
<td>.406</td>
</tr>
<tr>
<td></td>
<td>rise</td>
<td>case noun cl.</td>
<td>presence of case n.</td>
<td>.773</td>
<td>not case noun</td>
<td>.429</td>
</tr>
</tbody>
</table>

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) \( (414 \text{ ms}) \) \( \text{\text{oreignlanguage{ar}{شانه}} .ikkk\text{\text{ه‌سن}}} / (73 \text{ ms}) \)
\( \text{\text{oreignlanguage{ar}{شانه}} i-kkk\text{\text{ه‌سن}}} \)
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 (F0) 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 F0 contour at clause boundaries: start/end rising (N=12)

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros start/ end rise</td>
<td>word order</td>
<td>VS clauses</td>
<td>.811</td>
<td>VO clauses</td>
<td>.223</td>
<td></td>
</tr>
</tbody>
</table>

The example, from 'Hammu the Trickster,' starts and ends rising and is VS:

(120) \( (585 \text{ ms}) /\text{\text{oreignlanguage{ar}{کوما}}\text{\text{oreignlanguage{ar}{یگو}}\text{\text{oreignlanguage{ar}{لو}}\text{\text{oreignlanguage{ar}{نی}}\text{\text{oreignlanguage{ar}{دی}}}}}} / (397 \text{ ms}) \)
\( \text{\text{oreignlanguage{ar}{کوما}}\text{\text{oreignlanguage{ar}{یگو}}\text{\text{oreignlanguage{ar}{لو}}\text{\text{oreignlanguage{ar}{نی}}\text{\text{oreignlanguage{ar}{دی}}}}} \)
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:
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)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Pros start rise/end fall</td>
<td>focus cl. adv. cl. case noun cl.</td>
<td>contrastive focus cl. adv. in clause case noun in clause</td>
<td>.943 .723 .689</td>
</tr>
</tbody>
</table>

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) /æywántæt-t-affag Æywántæt t-affag well PRO:3S:SG:FEM 3S:SG:FEM-come.out

Well, she came out

...žašalmgraf\(H) (1022 ms) ža-šalmgraf 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) /niššədžıtəltəmti
nišš adžit takəmt
PRO:IS:SG:MASC/FEM night whole

[The] whole night

nšəqqɨmə\ (H) (175 ms)
nš əqqim-o
PRO:IS: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 F₀ levels at clause boundaries (non-directional)

This section of results is for determining the link, if any, between F₀ 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 F₀ levels (in contrast to F₀ contour directions) at clause boundaries. There are four levels; 1 is the lowest F₀; 4 is the highest. In general, F₀ 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 F₀.
- **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 **F₀ contours at clause terminus (rising, falling or level)**

F₀ 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 F₀ 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 F₀.

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)

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<tbody>
<tr>
<td>Pros init. amp. low</td>
<td>inciting incid. climax</td>
<td>inciting incident not climax</td>
<td>.774</td>
<td>.580</td>
<td>not inciting incid. climax</td>
<td>.406</td>
</tr>
<tr>
<td></td>
<td></td>
<td>not episode junct.</td>
<td>.608</td>
<td>episode juncture</td>
<td>.285</td>
<td></td>
</tr>
</tbody>
</table>

The example below, from 'Hammu the Trickster,' is an inciting incident clause that is non-climax and non-episode juncture:

(124) (0 ms) ḫanār ṛ̣ay yun.xi sin.x-ycū 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 tiggagaës
       t-iga-äge
ITER-move-IS:SG:MasculineFeminine-3PL:SG:MasculineFeminine

[i-procended-to.move

iqaem\ A> (343 ms)
i-qaem\ 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)

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Pros init.</td>
<td>climax</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>amp. inciting incid.</td>
<td>not inciting incid.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>high episode junct.</td>
<td>episode juncture cl.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The climax clause (126), from 'Hammu the Trickster,' has high initial amplitude and is non-episode juncture:
The next example, from 'Night Fears,' has high initial amplitude, and is a climax and episode juncture clause:

(127) (1370 ms) <SM ?ntaxatrankindas/ SM> (637 ms) ?ntaxatrankindas
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)**

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</tr>
</thead>
<tbody>
<tr>
<td>Pros</td>
<td>highest word order</td>
<td>pred. nom. clauses</td>
<td>.852</td>
<td>SVO clauses</td>
<td>.068</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VS clauses</td>
<td>.803</td>
<td>VO clauses</td>
<td>.347</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>V-only clauses</td>
<td>.634</td>
<td>SV clauses</td>
<td>.382</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>not cl. adv.</td>
<td>cl. adv.in clause</td>
<td>.164</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>not cl. adv.</td>
<td>pres. focus/post-V</td>
<td>.300</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>focus</td>
<td>contrastive focus</td>
<td>.101</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>not focus</td>
<td>not inciting incid.</td>
<td>.405</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>inciting incident</td>
<td>not climax</td>
<td>.547</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>inciting incident cl.</td>
<td>climax clauses</td>
<td>.207</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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)

*ggwaran-
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:
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)

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</tr>
</thead>
<tbody>
<tr>
<td>Pros</td>
<td>highest</td>
<td>word order</td>
<td>SVO clauses</td>
<td>.932</td>
<td>pred. nom. clauses</td>
<td>.148</td>
</tr>
<tr>
<td></td>
<td>high</td>
<td>cl. adv. cl. climax</td>
<td>VO clauses</td>
<td>.653</td>
<td>VS clauses</td>
<td>.197</td>
</tr>
<tr>
<td></td>
<td></td>
<td>inciting incid. focus</td>
<td>SV clauses</td>
<td>.618</td>
<td>V-only clauses</td>
<td>.366</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>cl. adv.in clause</td>
<td>.600</td>
<td>not cl. adv.</td>
<td>.164</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>climax clauses</td>
<td>.547</td>
<td>not climax</td>
<td>.207</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>not inciting incid.</td>
<td>.776</td>
<td>inciting incident cl.</td>
<td>.405</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>contrastive focus/pre-V</td>
<td>.899</td>
<td>not focus</td>
<td>.456</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>present. focus</td>
<td>.700</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The example below, from 'The Ogre and His Neighbor,' is an SVO inciting incident and mounting tension clause:

(130) (1364 ms) ?ntteygar-wqabušann (0 ms)  
?nttey-gar-wqabuš-ann  
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) 8Tamza 8alaga8bas8e8h 8/ (1865 ms)
8kmza 8-a8lagas 8basa8h
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)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Pros</td>
<td>highest</td>
<td>topic</td>
<td>shift topic/pre-V</td>
<td>.967</td>
<td>not topic</td>
<td>.172</td>
</tr>
<tr>
<td>amp:</td>
<td></td>
<td></td>
<td>cont. topic/pre-V</td>
<td>.963</td>
<td></td>
<td></td>
</tr>
<tr>
<td>subj.</td>
<td></td>
<td></td>
<td>shift topic/post-V</td>
<td>.955</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>cont. topic/post-V</td>
<td>.951</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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) ?ntëəmqiṭḥə̀yəbə̀rə̀k___ (0 ms)
?ntëə amqits hæ y-əbərə̀k
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) ?ntë?əd--?ntə
?ntë? əd-- ?ntə
PRO:3S:SG:FEM IRR-- PRO:3S:SG:FEM

She would--. she

əərə̀zun/ (0 ms)
ə-ərə̀zun
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) bǣ mutatingə̀ni___ (0 ms)
bǣ-n mutating-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:
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)

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</tr>
</thead>
<tbody>
<tr>
<td>Pros amp:</td>
<td>word order</td>
<td>V-only clauses</td>
<td>.774</td>
<td>SV clauses</td>
<td>.190</td>
<td></td>
</tr>
<tr>
<td>Pros word order</td>
<td>VO clauses</td>
<td>.504</td>
<td>VS clauses</td>
<td>.207</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pros storyline</td>
<td>storyline clauses</td>
<td>.550</td>
<td>SVO clauses</td>
<td>.265</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pros cl. adv. cl.</td>
<td>not cl. adv.</td>
<td>.630</td>
<td>cl. adv.in clause</td>
<td>.105</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pros not storyline</td>
<td>not storyline</td>
<td>.308</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
This is illustrated by example (136), from 'Night Fears,' which is a V-only storyline clause, with the verb having the highest amplitude:

(136) (0 ms) ggwaran\ (H) (357 ms) ggwaran-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) ß스서 — (0 ms) ß서-서-s give-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)

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros</td>
<td>highest</td>
<td>word order focus</td>
<td>pred. nom. clauses</td>
<td>.993</td>
<td>SV clauses</td>
<td>.452</td>
</tr>
<tr>
<td>amp: pred.</td>
<td>orientation storyline</td>
<td>present. focus</td>
<td>contrastive focus</td>
<td>.961</td>
<td>not focus</td>
<td>.438</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>orientation clauses</td>
<td>.899</td>
<td>not orientation</td>
<td>.423</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>not storyline</td>
<td>.875</td>
<td>storyline clauses</td>
<td>.340</td>
</tr>
</tbody>
</table>

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:

\[(138) \quad (0 \text{ ms}) \quad \text{eeywa/} \quad \text{...} \quad \text{euzanmeyyez/} \quad (0 \text{ ms}) \]
\[\text{eeywa e-u\dou{\text{u}}-\dou{\text{n}}-m\dou{\text{a}}-\dou{\text{y}}-\text{yez}} \]
\[\text{well be-one-man} \]
\[\text{Well, there was-a-man.} \]

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.
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 šanšt
ša nš t-
then PRO:1A:SG:MASC/FEM:ITER-

Then I-proceeded-

igga-gëss \ LO> (290 ms)
igga-gëss
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) a=ʔntešëšalgwulaënni— (800 ms)
a=ʔntešëšalgwulaë-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)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Pros</td>
<td>high-focus</td>
<td>present focus/post-V</td>
<td>.960</td>
<td>contrastive focus/pre-V</td>
<td>.318</td>
<td></td>
</tr>
<tr>
<td>est word order</td>
<td>VS clauses</td>
<td>.830</td>
<td>pred. nom. clauses</td>
<td>.239</td>
<td></td>
<td></td>
</tr>
<tr>
<td>amp post-verb</td>
<td>V-only clauses</td>
<td>.769</td>
<td>V-only clauses</td>
<td>.256</td>
<td></td>
<td></td>
</tr>
<tr>
<td>post-verb cl. adv. cl.</td>
<td>SVO clauses</td>
<td>.719</td>
<td>SV clauses</td>
<td>.470</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lessening tens.</td>
<td>not cl. adv.</td>
<td>.568</td>
<td>cl. adv.in clause</td>
<td>.249</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lessening tension cl</td>
<td>not lessening tens.</td>
<td>.793</td>
<td>not lessening tens.</td>
<td>.463</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>not focus</td>
<td></td>
<td></td>
<td>.488</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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) bææen瀚ææenëi__ (0 ms)
     bææen瀚ææenëi
     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) qæːdɪfæːɡ
q-æːd-i-fæːɡ
[IMM-IRR-3S:SG:MASC-come.out

Then he came out,

(ampl. high: 3678)
(Fø high: 172)

ahadiddænæwldlaharrab (0 ms)
ahadiddæn æwld 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) tælægastæt̪tf
 t-ælægas t-æt̪tf

She-thought she-grabbed

azwarændzuggwærθ/(807 ms)
azwar an-dzuggwærθ
root GEN-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)

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Pros</td>
<td>low-</td>
<td>lessening tens.</td>
<td>lessening tension</td>
<td>.822</td>
</tr>
<tr>
<td></td>
<td>est</td>
<td>case noun cl.</td>
<td>clauses</td>
<td>.744</td>
</tr>
<tr>
<td></td>
<td>amp:</td>
<td>storyline</td>
<td>not case noun</td>
<td>.438</td>
</tr>
<tr>
<td></td>
<td>lev.1</td>
<td></td>
<td>not storyline</td>
<td>.682</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>storyline clauses</td>
<td>.453</td>
</tr>
</tbody>
</table>

Example (144), from 'Night Fears,' illustrates a lessening tension clause having low amplitude, with a case noun (underlined), and non-storyline:

(144) (58 ms) tugagalxarif \ (297 ms)
tuga ea-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) izargi8daggizanize\ (178 ms)
i-zargi-θ dagg-iżan-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)

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Pros</td>
<td>lowest</td>
<td>storyline lessening tens.</td>
<td>storyline clauses</td>
<td>.539</td>
<td>not storyline lessening tension clauses</td>
<td>.348</td>
</tr>
<tr>
<td></td>
<td>lev.2</td>
<td>case noun cl.</td>
<td>not case noun</td>
<td>.543</td>
<td>clauses with case nouns</td>
<td>.323</td>
</tr>
</tbody>
</table>

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) ttšāššmāqē (748 ms) ttš əššmāqē
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:
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)**

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</thead>
<tbody>
<tr>
<td>Pros</td>
<td>low-</td>
<td>contrastive focus clauses</td>
<td>.926</td>
<td>not contrast. foc.</td>
<td>.459</td>
<td></td>
</tr>
<tr>
<td>est</td>
<td>episode juncture</td>
<td>episode juncture clauses</td>
<td>.680</td>
<td>not epis. junct.</td>
<td>.411</td>
<td></td>
</tr>
<tr>
<td>amp: lev3</td>
<td>storyline clauses</td>
<td>storyline clauses</td>
<td>.592</td>
<td>not storyincidence</td>
<td>.182</td>
<td></td>
</tr>
<tr>
<td></td>
<td>not incit. incid.</td>
<td>not incit. incid.</td>
<td>.606</td>
<td>inciting incident</td>
<td>.200</td>
<td></td>
</tr>
</tbody>
</table>

The example below, from 'Night Fears,' has level 3 amplitude, contrastive focus (underlined), non-episode juncture, and is storyline:

(148) (282 ms) <@ ?ntae ?æe-- ?nta
?ntæ? ææ-- ?nta
PRO:3S:SG:FEM IRR-- PRO:3S:SG:FEM

She would--. she

ą@arzun/ (0 ms)
ą-ə-ąrzun
IMM-3S:SG:FEM-release

then let.go [of the wolf's tail].

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:

\[(149) \quad \text{mmmed} \text{ya} \text{ggaga} \text{ga} \text{ga} \text{ga} \text{ga} \text{ga}\] \[\text{@@@@} (H) (1370 \text{ ms})
\[\text{mmmed} \text{ ya} \text{ ggaga} \text{ ga} \text{ga} \text{ ga} \text{ ga} \text{ga}
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)

<table>
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</thead>
<tbody>
<tr>
<td>Pros fractional inciting incident clauses</td>
<td>VS clauses</td>
<td>.755</td>
<td>SVO clauses</td>
<td>.057</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V-only clauses</td>
<td>.715</td>
<td>SV clauses</td>
<td>.232</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pred. nom. clauses</td>
<td>.628</td>
<td>VO clauses</td>
<td>.122</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>not cl. adv.</td>
<td>.620</td>
<td>clauses with cl. adv.</td>
<td>.232</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>climax clauses</td>
<td>.542</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The example following, from 'Hammu the Trickster,' is an inciting incident clause with narrow amplitude span, and V-only:
(150) \( (37 \text{ ms}) \) \( \text{tasi\-gars} \) \( (0 \text{ ms}) \)
\[ \text{t-a-s-i-\-gars} \]
\[ \text{ITER-IRR-3IO:SG:MASC/FEM-3S:SG:MASC-choke} \]

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) \( (788 \text{ ms}) \) \( \text{i\-kke\-nttæ\-m} \) \( (493 \text{ ms}) \)
\[ \text{i-kkænttæ\-m} \]
\[ \text{3S:SG:MASC-get.up PRO:3S:SG:MASC-RECIP} \]

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)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Pros amp. span: mid</td>
<td>word order</td>
<td>SVO clauses</td>
<td>.930</td>
<td>VS clauses</td>
<td>.196</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SV clauses</td>
<td>.718</td>
<td>V-only clauses</td>
<td>.340</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>VO clauses</td>
<td>.513</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>cl. adv. cl.</td>
<td>clauses with cl. adv.</td>
<td>.887</td>
<td>not cl. adv.</td>
<td>.374</td>
<td></td>
</tr>
<tr>
<td></td>
<td>storyline</td>
<td>storyline clauses</td>
<td>.587</td>
<td>not storyline</td>
<td>.195</td>
<td></td>
</tr>
</tbody>
</table>

The example following, from 'Night Fears,' is medium amplitude span, a SV clause, and is storyline:
The next example, from 'Hammu the Trickster,' is SVO, medium amplitude span. and is storyline:

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)

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros amp. focus</td>
<td></td>
<td>present. focus cl./post-V</td>
<td>.878</td>
<td>not focus</td>
<td>.402</td>
</tr>
<tr>
<td>span: wide topic</td>
<td></td>
<td>contrastive focus cl./pre-V</td>
<td>.873</td>
<td>not pre-V topic</td>
<td>.452</td>
</tr>
</tbody>
</table>

I went to-guard [the house by myself].

Then he put.on her-clothes.
All examples below have wide amplitude span. The first example, from 'The Ogre and His Neighbor,' has post-V presentational focus:

(154) (0 ms) əəywə/ ... əuʒənmməɨyəəz/ (0 ms)
well be-one-man
Well, there was-a-man.

The next, from 'Hammu the Trickster,' has pre-V shifted topic:

(155) (1568 ms) ərənənəyəʒənhartədisižwəə=
then one-day beggar 3S:SG:MASC-be.poor

Then one-day [a] poor beggar

iʒumənəəbru\ (158 ms)
3S:SG:MASC-come
came.

The next, from 'Tamza and the Wolf,' has pre-V continuous topic:

(156) (752 ms) ?ntətɪyuefdaɛrɛŋgwaɛfəɾ\ (1937 ms)
PRO:3S:SG:MASC:ILL-hole

He went into-[a]hole.

The next, from 'Night Fears,' has contrastive focus:

(157) (455 ms) iʃtɪɡ <X səʊəg X> təɛɛsɛnəəg
iʃ tu-g səʊəg t-əɛɛsə-g
PRO:3S:SG:MASC/FEM ITER-make.fun-3S:SG:MASC/FEM

I was-making.fun [of him]

<X abəɡəras 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)

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros mor-</td>
<td>topic</td>
<td>topic shift cl./post-V</td>
<td>.972</td>
<td></td>
<td>topic shift cl./pre-V</td>
<td>.160</td>
</tr>
<tr>
<td>ph/cl</td>
<td>contin. topic cl./post-V</td>
<td>.934</td>
<td>contin. topic/pre-V clauses</td>
<td>.345</td>
<td></td>
<td></td>
</tr>
<tr>
<td>short</td>
<td>V-only clauses pred. nom. clauses SV clauses</td>
<td>.834</td>
<td>VS clauses</td>
<td>.031</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lev.1</td>
<td>not case n. cases with case nouns clauses with a cl. adv. not topic</td>
<td>.613</td>
<td>.123</td>
<td>.187</td>
<td></td>
<td></td>
</tr>
<tr>
<td>case noun cl.</td>
<td>not cl. adv.</td>
<td>.590</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cl. adv. cl.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Clause (158), from 'The Ogre and His Neighbor,' is VS, and is short (level 1: 1-3 morphemes):

(158) (1016 ms) θaqqimttæθ\ (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) komaṣalğwal\--(0 ms)
komaṣalğwal
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)
ggwaran-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)

<table>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros</td>
<td>morph/cl</td>
<td>word order</td>
<td>SVO clauses</td>
<td>.868</td>
<td>V-only clauses</td>
<td>.272</td>
</tr>
<tr>
<td></td>
<td>short</td>
<td></td>
<td>VO clauses</td>
<td>.743</td>
<td>SV clauses</td>
<td>.394</td>
</tr>
<tr>
<td></td>
<td>lev.3</td>
<td></td>
<td>VS clauses</td>
<td>.646</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>cl. adv. cl.</td>
<td></td>
<td>pred. nom. clauses</td>
<td>.583</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>clauses with cl. adv.</td>
<td>.730</td>
<td>not cl. adv.</td>
<td>.439</td>
</tr>
</tbody>
</table>

Clause (161), from 'Tamza and the Wolf,' has level 3 length, is a VS clause, and has a clause adverbial:

(161) (1424 ms) ṣəywəsidiruhə
    ṣəywə sid i-ruhə
    well sir.3S:SG:MASC-go

Well sir, that-wolf

yttæzzalwuşšanni/ (752 ms)
y-tt-æzzal wuššan-ni

would-run [from Tamza].

The next example, from 'Hammu the Trickster,' is a level 3 clause and is SVO:
The next example, from 'Night Fears,' is a level 3 clause, has a clause adverbial and is VO:

\[(163) \quad (554 \text{ ms}) \quad \text{λ} \text{ο} \text{γω} \text{ω} \text{α} \text{κ} \text{ι} \text{k} \text{ι} \text{l} \text{i} \text{s} \text{i} \text{k} \text{s} \text{u} \_ \_ \_ (0 \text{ ms}) \]
\[
\text{dog-\omega \alpha \kappa \iota \lambda i \iota s i k s u} \\
\text{ILL-clothing} \quad \text{daughter clothes}
\]

up [her] daughter['s] clothes.

**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)

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros</td>
<td>morph/cl</td>
<td>word order</td>
<td>SVO clauses</td>
<td>.804</td>
<td>V-only clauses</td>
<td>.183</td>
</tr>
<tr>
<td></td>
<td>long</td>
<td></td>
<td>VS clauses</td>
<td>.756</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SV clauses</td>
<td>.740</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VO</td>
<td>.698</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>case noun cl.</td>
<td>clauses with case nouns</td>
<td>.783</td>
<td>not case n.</td>
<td>.426</td>
</tr>
</tbody>
</table>

The example below, from 'The Ogre and His Neighbor,' is a long clause, has a case noun, and is SV:

(164) (99 ms) ᴺᵘʷᵃ ᵃᵈⁱ ᵃʰ⁻ᵒʰᵃⁿᶻᵉขณะ
   ᵺᵘʷᵃ ᵃᵈⁱ ᵃʰ⁻ᵒʰᵃⁿᶻᵉ-θ
   REL.PRO:3A:SG:MASC IRR-live CORR-child-PROX

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

ʰᵉᵉʸᵉⁿᵇⁱⁿᵈⁱʳᵃᵇʰᵉ (0 ms)
ʰᵉᵉ ᵃᵉⁿᵇⁱⁿᵈⁱʳᵃᵇʰᵉ
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) ᵃʳᵗʰᵉⁿᵗʰᵉⁿᵉʷ-ʷⁱʰⁱʳᵉˢ
   ᵃʳᵗʰᵉⁿᵗʰᵉⁿᵉʷ-ʷⁱʰⁱʳᵉˢ

That-wolf then-felt

ᵇᵃˡⁱᵇᵗᵃᵈᶻⁱᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻ᵗᵃ⁻⁻tau
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)

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Pros word order</td>
<td>morph/ph/sc</td>
<td>pred. nom. clauses</td>
<td>.752</td>
<td>V-only clauses</td>
<td>.347</td>
<td></td>
</tr>
<tr>
<td>slow lev.1</td>
<td>slow</td>
<td>SVO clauses</td>
<td>.711</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cl. adv. cl.</td>
<td>cl. adv. cl.</td>
<td>VO clauses</td>
<td>.631</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SV clauses</td>
<td>.581</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>clauses with cl. adv.</td>
<td>.732</td>
<td>not cl. adv.</td>
<td>.438</td>
<td></td>
</tr>
</tbody>
</table>

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) arannezahe widaharamnæhdidænni ...
aranne zahe widaharam n-æhdidænni
then Jeha son illegitimate GEN-Haddami

Then Jeha, the illegitimate son of Haddami,
The next example, from 'The Ogre and His Neighbor,' is slow, a predicate nominal clause, and has a clause adverbial:

\[(167)\quad (896 \text{ ms})\quad \text{walu } (H) \text{ eeywayamnyamni} \quad (501 \text{ ms})\]
\text{walu eeywa 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>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros mor-</td>
<td>cl. adv. cl.</td>
<td>not cl. adv.</td>
<td>.542</td>
<td>clauses with cl. adv.</td>
<td>.339</td>
<td></td>
</tr>
<tr>
<td>ph/sc</td>
<td>slow</td>
<td>lev.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example (168), from 'Night Fears,' is of medium speed (4-6 morphemes per second) and has no clause adverbial:
I went to Mohammed.

The next example, from 'Hamnu the Trickster,' is also of medium speed and has no clause adverbial:

(169) (680 ms) tæugasioogwalillas/ (0 ms)
    tæga-æ-si-ogwalillas
    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)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros init.</td>
<td>cl. adv. cl.</td>
<td>not cl. adv.</td>
<td>.552</td>
<td>clauses containing a cl. adv.</td>
<td>.302</td>
<td></td>
</tr>
<tr>
<td>paus: episode junct.</td>
<td>not epis. junct.</td>
<td>.586</td>
<td>episode juncture clauses</td>
<td>.325</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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) ədəraʒəɡəyuz\ (0 ms)
æːə-raː-ɡ əyuz
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) zulyaɾəməyərbaʃəy (H) (896 ms)
zul-ʃə-ɾəməy rbaʃəy
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)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros init. paus med.</td>
<td>episode junct.</td>
<td>episode juncture cl.</td>
<td>.631</td>
<td>not epis. junct.</td>
<td>.437</td>
<td></td>
</tr>
</tbody>
</table>

Example (172), from 'Hammu the Trickster,' has medium initial pause length and is an episode juncture clause:

(172) (611 ms) Brhāgas (95 ms)
Br-rh eselect
3S:SG:FEM-go LOC-310: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 śanšt
śanš t-
then PRO:1A:SG:MASC/FEM ITER-
Then I-procceeded-
igga-gaes \ LO> (290 ms)
igga-gaes
move-1A:SG:MASC/FEM-310: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.
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) əwyəyəroh\ (H) (674 ms) əwyəy roh
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) aʔnteəteəsələwulənni (800 ms) aʔnteəteəsələwulənni
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>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros final topic paus: med.</td>
<td></td>
<td>contin. topic cl./post-V contin. topic/pre-V clauses not topic</td>
<td>.645</td>
<td></td>
<td>topic shift cl./pre-V topic shift cl./post-V</td>
<td>.174 .338</td>
</tr>
</tbody>
</table>

Table 75. Correlations of clause-final pause duration: medium (500-999 ms) (N=61)

The clause following, from 'Hammu the Trickster,' has medium-length end pause and post-V continuous topic (underlined):

(176) (1262 ms) komase?algulatwosit (800 ms) komase?algula 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)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros</td>
<td>final focus</td>
<td>present. focus cl./pre-V</td>
<td>.901</td>
<td>not focus</td>
<td>.461</td>
<td></td>
</tr>
<tr>
<td>paus:</td>
<td>present. focus cl./post-V</td>
<td>.819</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>long</td>
<td>contrastive focus clauses with a prec. dep. cl.</td>
<td>.781</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>not prec. dep. cl.</td>
<td>.774</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example (177), from 'Tamza and the Wolf,' has long final pause length and contrastive focus:

(177) (1807 ms) 8amza8alagasbasæh/ (1865 ms)
8kmza 8-alagas basæh
Tamza3A: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) džammasahammulHaraymi/ (1110 ms)
d-žamma-s ahammu 1Haraymi
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) raemi8antarqa-e/
raemi 8-antarqa-e
after3S:SG:FEM-gather-PROX
After she-gathered.together [the snake's bones],
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)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros IU</td>
<td>cl. adv. cl.</td>
<td>clauses with a cl. adv. not cl. adv.</td>
<td>.693 not cl. adv.</td>
<td>.450</td>
</tr>
<tr>
<td></td>
<td>inciting incid.</td>
<td>not incit. incid.</td>
<td>.557 inciting incident clauses storyline clauses</td>
<td>.324</td>
</tr>
<tr>
<td></td>
<td>storyline</td>
<td>not storyline</td>
<td>.741 storyline clauses</td>
<td>.435</td>
</tr>
</tbody>
</table>

Example (180), from 'Night Fears,' is an intonation unit with clause adverbial and is non-inciting incident and non-storyline.

(180) (147) (554 ms) iżuwalla\... (H) iżumara
iż-uw-alla iż-umara
one-ABL-God one-time

One time, by God, one time

tugagddirdaga=\...kuzina\ (158 ms)
tugagddirda-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) ʕəywasiɗiruŋə
          ʕəywə siɗ i-ruŋə
    well sir 3S:SG:MASC-go

    Well sir, that-wolf

    yttæzləwuʃənni/ (752 ms)
          y-tt-æzzəl wuʃənn-i

    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, F₀, 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 F₀ 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):
That-wolf then-felt

that Tamza had grabbed-[him]here [by the tail].

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 F0 drop. Clause 6 is a mounting tension, storyline, clause-final falling F0, IU clause, whereas clause 11 is a denouement, episode juncture, storyline, shifted topic, clause-final falling F0, 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)).
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'

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>what</td>
<td>Ham</td>
<td>focus</td>
<td>present. focus/post-V</td>
<td>.921</td>
<td>contrastive focus/pre-V</td>
<td>.134</td>
</tr>
<tr>
<td>narr?</td>
<td>narr.</td>
<td>word order</td>
<td>SVO clauses</td>
<td>.884</td>
<td>pred. nom. clauses</td>
<td>.109</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SV clauses</td>
<td>.665</td>
<td>VO clauses</td>
<td>.268</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VS clauses</td>
<td>.597</td>
<td>V-only clauses</td>
<td>.466</td>
</tr>
<tr>
<td>prec. dep. cl.</td>
<td></td>
<td></td>
<td>present. focus</td>
<td>.537</td>
<td>clauses with a</td>
<td>.241</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>cl./pre-V</td>
<td></td>
<td>prec. dep. cl.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>not prec. cl.</td>
<td>.532</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>not focus</td>
<td>.512</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Example (186) illustrates presentational focus in 'Hammu the Trickster':

(186) (0 ms) džammasahammulheraymi
  d-żamma-s ahammu ilteraymi
  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) ?ntaΘasΘgellǐšeewany˘wu˘rurugyu˘r/ (777 ms)
  ?ntaΘ asΘ gell-i šeewan-ywu˘r uyu˘r

She put these-brains onto-[the]back [of the] donkey.

The next is an SV clause from 'Hammu the Trickster':

(188) (918 ms) <LO anannte@æettgəqab/ LO> (0)
  anannte@ æett-gəqab
  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) komase?algulatwosit (800 ms)
  komase?algula 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'.

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 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 \( \frac{2}{12} \) 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'

<p>| Profile/Prag- | Number of | Crescents on | Troughs on | Between |</p>
<table>
<thead>
<tr>
<th>Pragmatics Type</th>
<th>Occurrences</th>
<th>12 Clauses</th>
<th>8 Clauses</th>
<th>Crescents &amp; Troughs on 45 Clauses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>7</td>
<td>(2)</td>
<td>17%</td>
<td>(5)</td>
</tr>
<tr>
<td>Inciting Incident</td>
<td>11</td>
<td>(2)</td>
<td>17%</td>
<td>(1)</td>
</tr>
<tr>
<td>Mounting Tension</td>
<td>24</td>
<td>(3)</td>
<td>25%</td>
<td>(6)</td>
</tr>
<tr>
<td>Climax</td>
<td>5</td>
<td>(1)</td>
<td>8%</td>
<td>(4)</td>
</tr>
<tr>
<td>Lessening Tension</td>
<td>7</td>
<td>(2)</td>
<td>17%</td>
<td>(1)</td>
</tr>
<tr>
<td>Denouement</td>
<td>2</td>
<td></td>
<td></td>
<td>(2)</td>
</tr>
<tr>
<td>Episode Juncture</td>
<td>25</td>
<td>(8)</td>
<td>67%</td>
<td>(17)</td>
</tr>
<tr>
<td>Continuous Topic</td>
<td>10</td>
<td>(3)</td>
<td>25%</td>
<td>(7)</td>
</tr>
<tr>
<td>Topic Shift</td>
<td>18</td>
<td>(6)</td>
<td>50%</td>
<td>(2)</td>
</tr>
<tr>
<td>Present Focus</td>
<td>4</td>
<td>(1)</td>
<td>8%</td>
<td>(3)</td>
</tr>
<tr>
<td>Contrastive Focus</td>
<td>3</td>
<td>(1)</td>
<td>8%</td>
<td>(2)</td>
</tr>
</tbody>
</table>

These data suggest that when high degrees of word order, clause length, speed, F0 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) οἰς γυλαμαραθηαταγιμ/  
οἰς γυλα μαρ α-τ-η α-τ-αγιμ  
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) κομασακτμεββαζην_ (0 ms)  
κομασακ κε-μεββαζ-η  
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) ?νταταεισaqq_ (804 ms)  
?ντατ αε-ι-σaqq  
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'

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>what</td>
<td>N. focus</td>
<td>contrast. focus cl./pre-V</td>
<td>.883</td>
<td></td>
<td>present. focus cl./post-V</td>
<td>.259</td>
</tr>
<tr>
<td>narr? Fear</td>
<td>episode junct.</td>
<td>not epis. junct.</td>
<td>.607</td>
<td></td>
<td>episode juncture clauses storyline clauses</td>
<td>.286</td>
</tr>
<tr>
<td>storyline</td>
<td>not storyline</td>
<td></td>
<td>.783</td>
<td></td>
<td>not focus storyline clauses</td>
<td>.421</td>
</tr>
</tbody>
</table>

Clause (193) illustrates contrastive focus, storyline and non-episode juncture in the 'Night Fears' narrative:

(193) (282 ms) <@ ?nšaŋkaŋęssę@ (H) (292 ms) ?nš aŋ-ka ng-ęssę
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) <@ nittaŋyįyįγγuąwą (H) (277 ms) nittaŋ yį-yi-gγuą awę
PRO:3A:SG:MASC IRR-3A:SG:MASC then

Then he-was.afraid

γęyssigąmtafot
γę-y-sśigam tafot
IRR-3A:SG:MASC-turn.on light
to-turn.on [the] light

ædiixoβaradəqæma@ (H) (277 ms)
ædi-i-xobar adő-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.

![Excel chart for 'Night Fears'](image)

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.
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'

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>what narr?</td>
<td>Ogre word order</td>
<td>pred. nom. clauses</td>
<td>.988</td>
<td>SVO clauses</td>
<td>.186</td>
<td></td>
</tr>
<tr>
<td>topic</td>
<td>VO clauses</td>
<td>.600</td>
<td>VS clauses</td>
<td>.229</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>V-only clauses</td>
<td>.572</td>
<td>SV clauses</td>
<td>.340</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>topic shift cl./post-V</td>
<td>.833</td>
<td>contin. topic/pre-V clauses</td>
<td>.266</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>not topic</td>
<td>.509</td>
<td>topic shift cl./pre-V</td>
<td>.339</td>
<td></td>
<td></td>
</tr>
<tr>
<td>focus</td>
<td>not focus</td>
<td>.553</td>
<td>present. focus cl./post-V</td>
<td>.059</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>inciting incident clauses</td>
<td>.679</td>
<td>contrast. focus cl./pre-V</td>
<td>.130</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>storyline clauses</td>
<td>.587</td>
<td>not incit. incid.</td>
<td>.442</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Examples (195)-(199) illustrate the strongest correlations:
predicate nominal clause:

(195) (511 ms) kurənharə kurənharə kurənharə yəmnə/
(876 ms)
 kur-anhar kur-anhar kur-anhar yamni
 each-day each-day each-day like.

Each day [was] like.

VS clause with pre-V topic shift:

(196) (1016 ms) 8aqqimttəeə/ (235 ms)
 8-aaqrim t-təeə
 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 ižənhar A> ... æywuʃə
 ižə-nhar æyw uʃə
 one-day well then

Well. then, one-day

mæ ... yʊəafxəsn
mæ y-ʊəaf xa-sn
later.3S:SG:MASC-come LOC-3:PL:MASC

later that-ogre came to-them.

(Fø high: 178)
 uwaṃzuwənnia\ (H) (793 ms)
 uwaṃzuw-anənə
 ogre-DEM:DIST:SG/PL

A VO clause that is inciting incident and storyline:

(198) (740 ms) i-təfaʃəʃfigəranənə/ (0 ms)
 i-təfa figar-anni

He-grabbed that-snake.
A V-only clause which is storyline:

(199) (807 ms) ḫmнолог (H) (815 ms)
 ḫm EL
 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.
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'

<table>
<thead>
<tr>
<th>Profile/Pragmatics Type</th>
<th>Number Occurrences of Each Type</th>
<th>Crests on 9 Clauses - N %</th>
<th>Troughs on 8-Clauses - N %</th>
<th>Between Crests &amp; Troughs on 79 Clauses - N %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>12</td>
<td>(2) 25%</td>
<td>(10) 13%</td>
<td></td>
</tr>
<tr>
<td>Inciting Incident</td>
<td>29</td>
<td>(4) 44%</td>
<td>(5) 63%</td>
<td>(20) 25%</td>
</tr>
<tr>
<td>Mounting Tension</td>
<td>48</td>
<td>(1) 11%</td>
<td>(2) 25%</td>
<td>(45) 57%</td>
</tr>
<tr>
<td>Climax</td>
<td>11</td>
<td>(2) 22%</td>
<td></td>
<td>(9) 11%</td>
</tr>
<tr>
<td>Lessening Tension</td>
<td>6</td>
<td>(1) 13%</td>
<td>(5) 6%</td>
<td></td>
</tr>
<tr>
<td>Denouement</td>
<td>3</td>
<td></td>
<td></td>
<td>(3) 4%</td>
</tr>
<tr>
<td>Episode Juncture</td>
<td>34</td>
<td>(6) 67%</td>
<td>(5) 63%</td>
<td>(23) 29%</td>
</tr>
<tr>
<td>Continuous Topic</td>
<td>2</td>
<td>(2) 22%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topic Shift</td>
<td>16</td>
<td>(3) 33%</td>
<td></td>
<td>(13) 16%</td>
</tr>
<tr>
<td>Presentation. Focus</td>
<td>1</td>
<td></td>
<td></td>
<td>(1) 1%</td>
</tr>
<tr>
<td>Contrastive Focus</td>
<td>1</td>
<td></td>
<td></td>
<td>(1) 1%</td>
</tr>
</tbody>
</table>
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, F0, and/or amplitude.

Table 84. Totals for stories together

<table>
<thead>
<tr>
<th>Profile/Pragmatics Type</th>
<th>Number of Occurrences of Each Type</th>
<th>Crests on 26 Clauses</th>
<th>Troughs on 20 Clauses</th>
<th>Between Crests &amp; Troughs on 154 Clauses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N)</td>
<td>%</td>
<td>(N)</td>
<td>%</td>
</tr>
<tr>
<td>Orientation</td>
<td>29</td>
<td>(2)</td>
<td>8%</td>
<td>(3)</td>
</tr>
<tr>
<td>Inciting Incident</td>
<td>58</td>
<td>(7)</td>
<td>27%</td>
<td>(6)</td>
</tr>
<tr>
<td>Mounting Tension</td>
<td>91</td>
<td>(6)</td>
<td>23%</td>
<td>(9)</td>
</tr>
<tr>
<td>Climax</td>
<td>25</td>
<td>(5)</td>
<td>19%</td>
<td>(1)</td>
</tr>
<tr>
<td>Lessening Tension</td>
<td>21</td>
<td>(3)</td>
<td>12%</td>
<td>(4)</td>
</tr>
<tr>
<td>Denouement</td>
<td>7</td>
<td>(1)</td>
<td>5%</td>
<td>(6)</td>
</tr>
<tr>
<td>Episode Juncture</td>
<td>66</td>
<td>(16)</td>
<td>62%</td>
<td>(6)</td>
</tr>
<tr>
<td>Continuous Topic</td>
<td>17</td>
<td>(7)</td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td>Topic Shift</td>
<td>44</td>
<td>(12)</td>
<td>46%</td>
<td>(2)</td>
</tr>
<tr>
<td>Present. Focus</td>
<td>6</td>
<td>(1)</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Contrastive Focus</td>
<td>13</td>
<td>(5)</td>
<td>19%</td>
<td></td>
</tr>
</tbody>
</table>

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 $F_0$ 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 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.

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**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

<table>
<thead>
<tr>
<th></th>
<th>Loudness</th>
<th>Pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>high</td>
<td>climax (very strong correl.)</td>
<td>climax (moderate correl.)</td>
</tr>
<tr>
<td></td>
<td>episode juncture</td>
<td>SVO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>contrastive focus</td>
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<td>pre-V high</td>
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<td>storyline</td>
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<td>low (clause final)</td>
<td>clause adverbial</td>
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<td>inciting incident</td>
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<td>low</td>
<td>contrastive focus</td>
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<td>inciting incident</td>
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<td>pre-V topic</td>
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<td>wide span</td>
<td>pre-V continuous topic</td>
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<td>post-V shifted topic</td>
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<td>verb-only</td>
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<td>predicate nominal</td>
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<td>pre-V focus</td>
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<td>clause adverbial</td>
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<td>highest in given clause</td>
<td>subjects</td>
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<td>predicate nominal</td>
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<td>case noun</td>
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<td>objects</td>
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<td>clause adverbial</td>
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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 I 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 Taritit 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 Taritit 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

(1) (0 ms) əyxə/...əuzzəməyyəz/ (0 ms) əyxə ə-uzzən-meyeyəz
well COMP-one-man
Well, there was a man.

(2) (0 ms) izəgəkiżantaţəzəB/ (1580 ms) izəgə ak -iţən-taţəzəB
3S:SG:MASC-live ASSOC-a -neighbor
He-lived with a lady. [who was his neighbor.]

(3) (1580 ms) bɛtaţəzəh...nbɛtəezəBənənia/... bɛtaţəzəh nbɛ təezəB-ənənia
later neighbor later neighbor-DEM:DIST:SG:PL
Later, [the] neighbor-- later, that-neighbor--
əyxwaśidəia/...əywakuranhar
əyxwa sidiə əyxwa kur-anhar
well sir well each-day
well, sir, well, each-day
iyəyfəmmis\ (H) (1019 ms)
3S:SG:MASC-enter son-POSS:3:SG:MASC/FEM
[that neighbor]'s son came into [her house].

(4Q) (1019 ms) əəsinnia.... əə -s -i -nni=a
IRR-3I:SG:MASC/FEM-3A:SG:MASC-say
He-told-her,
minxəsəttatə\ (766 ms)
"For what reason do you love him?"

(5) (766 ms) mkunhæyiitti=t\ (H) (821 ms) mku -nhae yi-tti-t
each-day 3A:SG:MASC-eat-3DO:SG:FEM

Each-day he bothered her [like that].

(6) (821 ms) øywas\øzar\øgars
øywa-s -ø -øgar-s
well-3IO:SG:MASC/FEM-PROX just-
3IO:SG:MASC/FEM

Well, only to her [house]

yæys (0 ms)
y -yæys
3s:SG:MASC-enter

he went.

(7Q) (0 ms) asinnæ
ess -i -nnæ
3IO:SG:MASC/FEM-3A:SG:MASC-say

He said to her,

qleh\væ\øadamziw
qleh væ-ø-ø amziw
hey PRO:NH-PROX-COMP ogre

"Hey that thing here is an ogre,

mæi anædum\ (H)
mæi anædum
NEG man

not a person."

(8Q) søinni
s -ø -inni
3IO:SG:MASC/FEM-3A:SG:FEM-say

She replied to her son,
NEG COMP-man Muslim

"No, he is a Muslim man.

He is a man.

He is a good man.

She said to him,

"No, my son, you are mistaken."

Each day, he went.
(11) (0 ms)  
*ygessazannikuranhærkuranhær_ (H)(0 ms)  orient.
y -gæss-azænni-kur -anær-kur -anær  in.incid.
3S:SG:MASC-come-like.that-each-day -each-day  ep.junct  

[and] come.back like.that each-day.

(12) (0 ms)  
<iżænhær A> ...ëywusæ  in.incid.
iža-nær ëyw ûsæ  ep.junct.
one-day well then  storyline  

Well, then, one-day

mæ ... yuďatfxæsn  
mæ  y-udaf xå-sn  
later 3S:SG:MASC-come LOC-3:PL:MASC  
later that-ogre came to-them.

uwamzuwannia\ (H)(793 ms)  
uwamzuw-annie  
ogre-DEM:DIST:SG/PL

(13) (793 ms)  
trimi xa-sn i-yuď fumzuw-nnia  storyline  
trimi xa-sn i-yuď fumzuw-nnia  
when LOC-3IO:PL:MASC 3S:SG:MASC-enter ogre-
DEM:DIST:SG/PL  

When that-ogre came to-them.

(818 ms)  
θəewarθəmgəθ/ (H) (1262 ms)  
θ-æewar θamgαθ  
3S:SG:FEM-leave woman  

[the]woman left.

(14Q) (1262 ms)  
θænas  
θ -anna-s  
3A:SG:FEM-say -3IO:SG:MASC/FEM  

She-said-to.her.son,
"I will go"

PRO:1S:SG:MASC/FEM-? IRR-go-1S:SG:MASC/FEM

Later, that-snake ran to-[the]snake's house."

Later that-snake ran to-[the]snake's house.

She stayed [there].

She-lived with-the-snake like that.

She-birthed a-boy with-him.
(19) (807 ms)
\[ \text{amgarahanžæann\textsuperscript{j}ia} / (807 ms) \]
\[ \text{amgar ahanžæ-annia} \]
\[ \text{grow -boy -DEM:DIST:SG/PL} \]

That-boy grew.

(20) (807 ms)
\[ \text{ro\textsuperscript{\text{\textbackslash}}n} \ (H) (815 ms) \]
\[ \text{ro\textsuperscript{\text{\textbackslash}}n-n} \]
\[ \text{go-3S:PL:MASC} \]

They [were about to] go.

(21) (815 ms)
\[ \text{rimi-\text{\textbackslash}gæ -ro\text{\textbackslash}n-n} \]
\[ \text{when IRR-go -3S:PLUR:MASC} \]

When they [were] about [to] leave,

\[ \text{θ\textsuperscript{\text{\textbackslash}sadgidi\text{\textbackslash}riyazæ} / (0 ms)} \]
\[ \text{θ -\text{\textbackslash}sadgdi di-riyazæ} \]
\[ \text{3A:SG:FEM-wrap [LL]-dress} \]

she-wrapped [her baby son] in-[a]-dress,

(22) (0 ms)
\[ \text{θ\textsuperscript{s\text{\textbackslash}as} / (0 ms)} \]
\[ \text{θ-s\text{\textbackslash}a-s} \]
\[ \text{3S:SG:FEM-give-3IO:SG:MASC/FEM} \]

She-gave [it]-to him.

(23) (0 ms)
\[ \text{a\textsuperscript{\text{\textbackslash}ha} / (0 ms)} \]
\[ \text{a -ha} \]
\[ \text{1MM-go} \]

[and said], "Go-now.

\[ \text{tanagab\textbackslash} \]
\[ \text{t -\text{\textbackslash}anaga-b} \]
\[ \text{2A:SG:MASC/FEM-kill -?} \]

Kill [him]."

(24) (0 ms)
\[ \text{ann\text{\textbackslash}as} \]
\[ \text{anna-s} \]
\[ \text{say -3IO:SG:MASC/FEM} \]

She said to him.
"[Here], take-that."

Kill [him]."

(25)  (829 ms)  ikkærøammiθ (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?nəa\ (H) (992 ms)  mount.ten.  
   i-t-sar i-n?nə  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)  namitsarinndəa/...  in.incid.  
   nam i-t sari-ñntəa  mount.ten.  
   after 3S:SG:MASC-ITER-hear DAT-dew

   After thinking for a while,

   iroňe_ (740 ms) (H)  
   i-roňe  3S:SG:MASC-go

   He-went

(28)  (740 ms)  i ttkafəfigaranni/ (0 ms)  in.incid.  
   i -ttaf afigar-anni  mount.ten.  

   [and] grabbed that-snake [instead of his younger brother],
(29) (0 ms) izarglθaggįżanizæ/ (178 ms) in.incid.
   i-zarglθ aggįżan-izæ  
   3A:SG:MASC-3O:SG:FEM ILL-one-dress  
   storyline

He-twisted-it in-a-dress.

(30) (178 ms) iṭṭafasaddgaddg/ (0 ms) in.incid.
   i-ṭṭa-fa-s addgaddg  
   3A:SG:MASC-grab-3I:SG:MASC/FEM hittingstoryline

He-struck-him repeatedly.

(31) (0 ms) i-na?__ (91 ms) in.incid.
   i-na?  
   3A:SG:MASC-kill  

[until] he-killed [him].

(32) (91 ms) inağiθ/ (0 ms) in.incid.
   i-nağiθ  
   3A:SG:MASC-kill-3DO:SG:MASC  

He killed him.

(33) (0 ms) izazig/ (0 ms) in.incid.
   i-zażig  
   3S:SG:MASC-twist  

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

(34) (0 ms) ndari-ε\ (179 ms) in.incid.
   i-ndari-ε  
   3S:SG:MASC-throw.down-PROX  

He-throw.down [the snake].

(35) (179 ms) yust\ (H) (1165 ms) less.tens.
   y-ust-d  
   3S:SG:MASC-come-PROX  

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

(36Q) (1165 ms) rimidiyusæ/  
   rimi-d ly-usæ  
   when-PROX 3S:SG:MASC-come

After he-returned,
Where is your-father?

He-told-her,

I-don't-know where our-father is.

She-went-to-the river.

There she-found only his-bones.

She-gathered.together [all of] those-bones.

After she-gathered.together [the snake's bones],
(0 ms) थॉग्समीदा हैबिद/(1290 ms)

-थॉग्समीदा हैबिद
3S:SG:FEM-make wheat noodles

she-made [them into] wheat noodles.

(42) (1290 ms) थॉससेस्निस्न्सैंग्र/ (243 ms) mount.ten.

-थॉससेस-सैंग्र-थॉसैंग्र

She-placed-them near-her.

(43Q) (243 ms) इन्नेस

िन्नेस-स
say-3IO:SG:MASC/FEM

She-told-him,

एड्सस्नित्नित्रि...ह दिनाग्द__
एड्सस-सैंग्र-ए-दिनाग्द
drr-2DO:SG:MASC-say-1A:SG:MASC/FEM ILL-
1DO:PL:MASC/FEM-PROX

"I'm-telling-you

गाट्ससेसनतिरिष्मार्तह__
गाट्स-थॉसे-सैंग्र-स अनम्त-थॉसैंग्र-सम्बह अनम्त-सम्बह
drr-2A:SG:MASC/FEM-put.before-3IO:SG:MASC/FEM-brother-GEN some-food
to-put.[this food]in.front.of your-[younger] brother.

रोह/ (H)
roh
go

Go!"

(44Q) गारुब/...अङबुश/...अवामै/...
गारुब अङबुश अवामै
overturn jar water

[Then the older brother said to the younger], "Overturn [the]
water jar,
We-[will then]say-to her,

'Run, oh-mother!

He hit that-jar.

He-overturned-it.

[Then] he-started [to] yell.
His-mother left.

[And the older son] turned [the] plate.

He-placed the bone.noodles at-his-mother's place.

[When she returned, she] ate the whole platefull.

[Then] she-died.

Then [the older brother] said-to.the.younger.

"Oh-brother, let's.go."
(54) (871 ms)  

\[ \text{sabhärehær/} \] (322 ms)  
sabhärehær  
become morning  

[It] became morning.

(55) (322 ms)  

\[ užuæ \] (756 ms)  
užuæ  
go  

[They] left [carrying their dead mother].

(56) (756 ms)  

\[ zidyalla_\_] (0 ms)  
zid yalla  
continue let's go  

They traveled.

(57) (0 ms)  

\[ zidyalla/ \] (H) (704 ms)  
zid yalla  
continue let's go  

They traveled a long way.

(58) (704 ms)  

\[ qäänëywudθæ?ofìθ \_\_] (0 ms)  
qäänëywudθæ?ofìθ  
anew arrive fork  

Then [a] fork [in the road] appeared.

(59) (0 ms)  

\[ qäänë<\text{SING} qäänënyburæd \text{SING}>\text{(H)}\text{in.inced.} \]  
qäänë -n -e qäänënyburæd  
1IMM-meet two roads  

[They] met two roads.

(60Q) (1065 ms)  

\[ niniburaed/ \]  
nin iburaed  
two roads  

[When they met the] two roads,

\[ yînnaas \]  
y -inna-s  
3A:SG:MASC-say -3IO:SG:MASC/FEM  

[The older brother] said to [the younger one],
It is necessary to pass here.

You take one [road].

I will take the other.

[Since the] roads separate themselves,

we [ought] also to separate."

[The older brother] said to him.

"Don't shepherd for-[the] bald man.
warttasaerazær
wa -rttas  gær -azær
NEG-shepherd-ABL-blond.man

Don't-shepherd for-[the] blond.man.

warttasægæææ?mhærišnaæfa (H)
wa -rttas -æ gæ-?mhæri šnaæfa
NEG-shepherd-PROX LOC-Mhari Shnafa

Don't-be.a.shepherd at-Mhari Shnafa."

(62)  (535 ms)
(Hx) <@@@@> (H) <@@@@> (snort)
æywæsiëriæywæsiëriæywæraëmiyæ/  
æywæ siëri æywæ siëri æywæ ræmi y-anæ
well lord well lord well after 3A:SG:MASC-say

Well, sir, after saying [this],

climax
ep.junct.

storyline

(63)  (788 ms)

assabæææn\ (788 ms)
ass -abeææ-n
CAUS-start-3S:PL:MASC

they-forced-[themselves.to].go[away from each other].

(64)  (493 ms)
i kkænttææ/ (493 ms)
i-kænttææ-m
3S:SG:MASC-get.up PRO:3S:SG:MASC-RECIP

[The younger brother].himself got.up [carrying the corpse].

(65)  (493 ms)
yufæ=
3A:SG:MASC-find

He-found [that]

orient.
ep.junct.

storyline

æbæysmæyk
æbæys mæ y -k
no.matter where 3S:SG:MASC-go

no.matter where he-went,
he-met the-bald.man and.the blond.man.

[He said to himself], "I will work for-the-blond man."

He-left.

he-started shepherding [for the blond man].

He-told-him.
"You need to carry this corpse [which is] on my back.

[And] I need you [to] get small birds

[for food]."

One-day his-brother

He said to him.
"Where have you been?"

He-continued,

"Brother, I've suffered as I've looked for you."

[Finally, the older brother] said to him,

"Let's go.

No matter what, I'll go with you."

Let's go."
The older brother took [the] old woman he'd killed.

He gathered [her up] here.

He said to his younger brother,

Until they came to the older brother's house,

These children started.

They dragged [the coffin] to the house.
While-dragging it.

[in. incid.]

[she] bit one of them.

[climax]

[but] the other saved [him].

[ep. junct.]

The older brother took [the] woman whom he had killed.

[mount. ten.]

[and] put her in a corner of a room in his house.

"Get going!"
(83Q) yannas_
y -anna-s
3A:SG:MASC-say -3IO:SG:MASC/FEM
He-said-to.her.

binagazmi8owansia\ (H)
bi -neg azmi8 _ owansia
make- 1O:PL:MASC/FEM flour.cooked.in.oil dinner
"Make-us [some| flour.cooked.in.oil [for] dinner."

(84D) umi8iguntazammihannia/ (H) (728 ms)
umi -8 i -gg1-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)
yigg1s8bbuzaqumum/ (0 ms)
y1-gg1-s 8bbuz aqumum
3A:SG:MASC-do -3IO:SG:MASC/FEM ball mouth
he-made [some of it into a] mouth.sized ball.

(85Q) (0 ms)
yibaeysagoyu\
y -ibae-y -sagoyu
3S:SG:MASC-start3A:SG:MASC-yell
He-[then]began [to] call.out.

(903 ms)
"Run, old.dead.woman. Run, old.dead.woman!"

(86) (903 ms)
eeywaesidir?qqaerea/ (0 ms)
eeywaesidir ?i-qqaerea
well/sir 3S:SG:MASC-get.up
Well, sir, [then] he-got.up
The two brothers ran to the logre.

"Come with me to a holy man's tomb.

We were just getting started."
You-need [to] make.a.pilgrimage [with us].

They-said to.him,
"[A] lion goes-regularly [to that] place.

ixs̱adši/  
i-xS -ad ši  
He-needs us.

æta/... (H) itsæmmæðanši` (0 ms)  
æta i-t -sammmæ-Ba nši  
PRO:1A:SG:MASC he-ITER-call -3O:SG:FEM  
PRO:1O:PL:MASC/FEM
He calls us."

(94)  (0 ms)  
iqqæer (0 ms)  
i -qqæer  
3S:SG:MASC-get.up  
in.incid.  
ep.junct.  
storyline
[At Simanda while sleeping, the ogre-got.up.

(95)  (0 ms)  
ttætsæbošænonammis/ (0 ms)  
ttæ ts ibošæno n-ammi-s  
PRO:3S:SG:MASC sleep place GEN-son-GEN:3:SG:MASC  
in.incid.  
mount.ten.  
storyline
He slept [in]place of-his-son.

(96)  (0 ms)  
iggummisisagušænnuBs/ (0 ms)  
i-gg. mmis ag-ušæn -nBuSs  
3A:SG:MASC-put son-GEN ILL-place-GENstoryline  
in.incid.  
mount.ten.  
storyline
[Before sleeping,] he-placed his-son [i.e., the younger brother] in-his-place.

(97)  (0 ms)  
uzuwwænd/ (0 ms)  
uzuwwæ-n -d  
run -3S:PL:MASC-PROX  
mount.ten.  
storyline
[During the night,] the.older.brother.and.someone.else-ran.off.
They carried [with them what they thought was] the younger brother.

They went somewhere else.

After traveling [a while],

They reached some place.

"Alas, we left Simanda"

[and the] lion will eat [the] ogre [there]!"
(102Q) ina_
 i -na
 3A:SG:MASC-say

[The] ogre-said,

sedæyi-
 s  -dææ  -yl
cause-come.down-1O:SG:MASC/FEM

"Let-me-down.

niśqæggwæbææś
niś qæ- y g  -qwæ  bæææ  -$ 
PRO:IS:SG:MASC/FEM be-1O:SG:MASC/FEM LOC-
back father-GEN

I, your-father, am on-[your]back.

liæydi\ (H) (616 ms)
liæ- y -di
be-1O:SG:MASC/FEM -PROX

I-am-here.!!

(103) (616 ms) yisæari8it/ (H) (955 ms) mount.ten.
y -ls  -dari  -θ  -it
3A:SG:MASC/FEM-CAUS-come.down-
3O:SG:MASC-PROX

He [then] got-him-down [off his back].

(104D) (955 ms) mibinissæafimnimee__ (0 ms) storyline
mi -sin  -i-ss  -æaf  imnimee
after-him.there 3A:SG:MASC-CAUS-come.down
like.that

After he-got-him-down,

(104) (0 ms) gaæhal___ (0 ms) mount.ten.
  gaæ  -ha-1
IRR-go-3S:PL:MASC

they went back to Simanda.
(105) (0 ms)  

उसने बहनकी स्नातकी मिली/...अंग्रेज़ी
उसे न अनजान न मौके-मौके अंग्रेज़ी

3A:SG:MASC-eat-3O:SG:MASC lionclimax

[and] found [that the] lion had eaten the child.

(106) (748 ms)  

हावसिंह/ (H) (865 ms)
हावसिंह

ep.junct.

They went to another place.

(107) (807 ms)  

रिमियूसिन/ (H) (807 ms)
रिमियूसिन

when-PROX? = come-3S:PL:MASC

When they arrived [there].

(108Q) (100 ms)  

इनास

i -nna-s
3A:SG:MASC-say-3IO:SG:MASC/FEM

The older brother said to the ogre,

ॐकृम्यनागःकृम्यहै/ (H) गृहःकृम्यहै
ॐकृम्य-नागःकृम्य-है गृहःकृम्यहै
ASSOC-1O:PL:MASC/FEM 2S:SG:MASC/FEM-go-
2S:SG:MASC/FEM LOC-sea

"Come with us to-[the] sea.

क्षणिनासेसेहःक्षण
kṣa -1g-unin kṣa-ha

make-IO:PL/MASC/FEM-DIST sacrifice

Make for us there [a] sacrifice.
Go to the sea."

The ogre told him,

"Okay, I'll go."

Then he left with them.

He met a shepherd.

"[Are you not going to] the sea?"
He replied to him, "No."

The older brother told him, "Get people together."

He said the same thing [to someone else].

The ogre said to the shepherd [privately], "[Oh! brother, protect me!"

He left
They arrived [including the ogre] whom they had pushed into [the] sea.

Well, they were about to push him [in again].

[It was the] second time [they pushed him into the sea].

The ogre came [to them].

He brought them coals of fire.

"Open [the] door for me, by God!"
Oh my-son, open [ the ] door!

[They opened the door and] he-came.in.

[The older brother asked,] "Where did-you-find the.coals?"

"If you-let-me inside.

I'll-bring you more."

[They replied,] "When [ we are ] at [ the ] sea.shore,
then-we [will allow you to stay]."

Well, they went on.

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

pushed him into the sea!

He-was heavy. (lit. 'he-carried cattle').

[Then he was] gone [just] like that.

That's the end.
Night Fears

(1) (0 ms) izumar/ ...(H) sidžiri8/ ... nattas_ (525 ms) orient.
iz-umar si-džiri8 n-attas ep.junct.
one-time TEMP-night 3S:PLUR:MASC/FEM-sleep

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

(2) (525 ms) nattas/ (68 ms) orient.
n -attas
1S:PL:MASC/FEM-sleep

We-were.sleeping.

(3) (68 ms) qæIME/ (H) (530 ms) orient.
qæ -ra-IMM-go-1S:SG:MASC/FEM

Then-i-went.

(4) (530 ms) żʑiaqabinæ=ŋpatyu=— orient.
anwumŋænitéææææwæzum/ (H) (650 ms)
żʑi -g abintææ n -patyu-anwum ŋæni-
tææææwæzum
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) ?nškærag/ (374 ms) storyline
?nš kæra-PRO:1S:SG:MASC/FEM get.up-1S:SG:MASC/FEM

I got.up [out of bed].

(6) (374 ms) naštwærīgææbiri— (58 ms) storyline
naš twæri-ææbiri
PRO:1A:SG:MASC/FEM see-1A:SG:MASC/FEM shadow

I-saw [a] shadow.
It was in the summer.

I saw a shadow.

\[\text{masnu-ba\text{\textae}d} \] (H) (1140 ms)

like-a person.

\[\text{masnu-ba\text{\textae}d} \]

 \[\text{CORR-person} \]

[However] he was not a person.

I went to Mohammed.

"Mohammed, Mohammed, there is"

A thief at the door!"
He-said-to.me. "Yes?"

I-told-him, "Well..."

I-said-to.him.

"Get-up quickly!"

Then-he-said [to me],

"Well, wait [until] I-go [to the] bathroom [when the] trouble starts.

Then I-will-go to-[the] thief."
"But if then you-go to-[the]bathroom

the.thief-could-come in!"

He-said-to.me,

"Okay, no problem

Leave-[him]there."
(19) (414 ms)  

\[
\text{\textit{şana\textellipsis ikkähessin} (73 ms)} \\
\text{\textit{şana\textellipsis ikkähessin}} \\
\text{then 3S:SG:MA SC\textendash come Hassan}
\]

Then Hassan came.

(20) (73 ms)  

\[
\text{\textit{iṣaqaqad\textellipsis} (0 ms)} \\
\text{iṣaqaqad} \\
3S:SG:MA SC\textendash knock.on.door
\]

He knocked on the door.

(21) (0 ms)  

\[
\text{\textit{yod\textellipsis} (0 ms)} \\
yod \\
3S:SG:MA SC\textendash come.in
\]

Then he came in.

(22Q) (0 ms)  

\[
\text{\textit{šidžnugāš\textellipsis} (1490 ms) \textendash less.ten.} \\
\text{\textit{šidž nī \textendash g-aš} \textendash ep.junct.} \\
\text{\textit{PRO:1A:SG:MA SC/FEM say\textendash 1A:SG:MA SC/FEM\textendash 3I O:SG:MA SC/FEM}}
\]

I said\textendash to.Mohammed,

\[
\text{\textit{ṣafaqšul\textellipsis} (0 ms)} \\
\text{ṣaf aqšul} \\
enough stick
\]

"[That's him! Get the| stick!"

(23) (0 ms)  

\[
\text{\textit{<@ šabtażsəəgəy\textellipsis n\textellipsis H> \textendash (1490 ms) less.ten.}} \\
\text{\textit{š} \textellipsis \textit{abtaż səəgəy gəzīn} \textellipsis ep.junct.} \\
\text{then start yell loud}
\]

Then [I] started [to] shout loudly.

(24) (1490 ms)  

\[
\text{\textit{çəqərəžəmtaḥā\textellipsis (554 ms) \textendash less.ten.}} \\
\text{\textit{çəqərə žəm taḥāz} \textellipsis ep.junct.} \\
\text{still remember how.much laugh}
\]

One time, by God, one time

I was repairing [the] kitchen.

I had taken off [the] roof.

I could hear cats nearby.

They were doing [something].

They were walking.

Then I said to my husband.
"Oh, Mohammed, oh, my-Mohammed,

I don't-know who-wants to-come.in!"

I-grabbed [an] axe.

Mohammed-asked-me,

"Where-[is]he?"

[I] said [to him],

"He-passed-nearby!"
I said to him.

"Well...

I said to him,

"[He's] over here!"

[Then] he said to me.

"Stay here,

[and] keep watch.
Guard [the house].

I am going to sleep."

[The] whole night

I stayed up.

I-grabbed [an] axe.

I-grabbed [an] axe.

First, I-waited [to see]
mæræiyahuwad__
mæræ iy-ahuwad
if 3S:SG:MASC/FEM-come.down

if he-would-come.down [from the roof]

wunne∅@@tugammo\ SM> (H) (263 ms)
wunn æ -∅atu-∅ ammo
so.that IMM-hit 1A:SG:MASC/FEM person

so.that I-could-hit [the] person.

(41Q) (263 ms)
nutteynnæy_
nutte y -nnæ-y
PRO:3A:SG:MASC 3A:SG:MASC-say-
10:SG:MASC/FEM

He said-to.me.

næ∅æha@gttæso\
næ æ æ -æha⁻æ tta-s o
PRO:1S:SG:MASC/FEM IRR-go 1S:SG:MASC/FEM
sleep 1S:SG:MASC/FEM

"I am going to sleep.

šʊmqa@essæs (282 ms)
šʊm qa n -essæs
PRO:1S:SG:FEM stay CORR-guard

You stay [there and] guard [the house]."

(42) (282 ms)
<@ ?næ∅kæææsæs\ @> (H) (292 ms) mount.ten.
?næ æ-ka æ-essæ
PRO:3S:SG:MASC/FEM IRR-go IRR-guardstoryline

I went to-guard [the house by myself].

(43) (292 ms)
é∅eën̂ezæ.querySelectorAll (0 ms)
æ∅-eën̂ezæ æyz
IRR-wait 1S:SG:MASC/FEM husband

I-waited [for my] husband.
To me, Mohammed [was an] irrational. being [like a turkey].

How calmly he was.sleeping!

[Was he] like.this-all.the.time? No.

Once at-night when we-were.asleep in.bed,

[to]move-it.
iqaena\ A> (343 ms) (KNOCKING SOUND)
i-qæna
LOC-bed

[the] bed.

\( 49 \) (633 ms)

\(<LO \, st \theta \, aggί\, \LO> (119 ms)\)
\( st \, \theta \, aggί\)
PRO:1S:SG:MASC/FEM:ITER-move

I moved [it again].

\( 50Q \) (119 ms)

\(<WH \, xadiža\, xadiža\_ WH>\)
\( xadiža\, xadiža\)
Khadija-Khadija

[He said to me (whispering),] "Khadija! Khadija!"

\( 51Q \)

\( qaš\_\)
\( qa\, -š\)
call-3IO:SG:MASC/FEM

[I] said-to.him,

\( iwa\)
\( iwa\)
well

"Well?"

\( 52Q \)

\( aqqæyræ\_\)
\( aqqæ\,-y\, -ræ\)
call-1IO:SG:MASC/FEM-?

[He] called.out to.me,

\( wassuwiθhætuqqamæ\_\)
\( w\, \neg\, ass\, uwiθ\, hætu\, -qqamæ\)
NEG-know who LOC-bed

"[I do] not-know who [is] under-[the] bed!"

\( 53Q \)

\( ?nægæ\_\)
\( ?n\, -g\,-æ\)
say-1A:SG:MASC/FEM-3IO:SG:MASC/FEM

I-said-to.him,
"Listen to me! Leave me alone! Let me sleep peacefully!"

[He said to me again.] "Khadija, Khadija! [I] don't know who [is] under [the] bed!"

"Let me be. Let me sleep."

Leave me alone."

[It went like this] until [he was] nearly nothing,

until he was about to die.

Then he was afraid
I was making fun of him.

"Khadija, Khadija!"

I was not going to be the one to turn on the light.
(63) (1395 ms)<HI źżitakämtr/ HI> (H) (433 ms) climax
źżit -akämtr
night-whole

[It went on like this] all night.

(64) (433 ms) ?ntee/=...<LO immu=θ L0>\ (313 ms) climax ep.junct.
?ntee i-mmuθ
1PRO:3S:SG:MASC 3S:SG:MASC-die

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

(65Q) (313 ms)<A raemisanæ__ A>
raemis -anæ
when CAUS-say

When [he] made.himself-say,

asigθfam\
a -sig  θfam
IMM-turn.on light

"Now, turn.on [the] light!

sigθfam
sig  θfam\
turn.on light

Turn.on [the] light."

gannæżɛ\
gan næž-ɛ
it.is-PRO:1S:SG:MASC/FEM -?

[Then I said,] "It's me!

akubarəimagtag__...šaʔəntəži\akubarədι mag  t -ag -šaʔəntəži
coward because 2S:SG:MASC/FEM-fear-?

[You are a] coward since you're-[so]afraid!"
BIBLIOGRAPHY


