<u>Intonation and Information Structure in Wari'</u>

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Ingrid Turner

School of Languages, Linguistics and Cultures

<u>Abbreviations</u>   (many are taken from the EK grammar of Wari')

AN   Arrow Narrative

BN   Basket Narrative

COMP   Complementizer (introduces subordinate clauses, indicates question

              words and moods other than (ir)realis)

DEM   Demonstrative

EK   Everett & Kern – authors of the Wari'grammar

FN   Fishing Narrative

INFL   Inflectional Morpheme (expresses tense and realis/irrealis mood.

        Agrees in gender with any material in the COMP clause)

ISC   Intentional State Constructions

IU   Intonation Unit

LF, HF, RF   Low-Fall, High-Fall, and Rise-Fall nuclear tones

LR, HR, FR   Low-Rise, High-Rise and Fall-Rise nuclear tones

N   Noun

NP   Noun Phrase

NIC   Nominal Inflectional Clitic

NUC   Nucleus (In RRG the syntactic unit of NUC is motivated and underlaid

              by the semantic element of PRED – the core argument)

ON'   Oro Nao' the dialect of Wari' used in this paper

PrCS   Pre Core Slot (the position for English wh-words in RRG and ON')

RRG   Role and Reference Grammar

SFP   Sentence Final Particle

V   Verb

VIC   Verbal Inflectional Clitic

V mod   Verbal Modifier

VP   Verb Phrase

VVLP   Van Valin & LaPolla

Orthography and Corresponding Phonemes

See EK (1997: 395 - 411) for a full description and discussion of the distribution of these segments and their orthography system. In accordance with the wishes of Wari' teachers today, the orthography used here differs slightly from the system used in EK.

Phoneme	Orthography
/p/	p
/t/	t
/k/	k
/k /	kw
/ /	'
/ / & / /	x
/h/	h
/m/	m
/n/	n
/r/	r
/w/	w
/j/	y
/i/	i
/e/	e
/a/	a
/o/	o
/ /	u

<u>Abstract</u>

This dissertation reviews the literature pertaining to intonation and information structure and then applies the relevant themes and findings to a dialect of the Amazonian language Wari'. Phonetic correlates of stress and pitch movements are defined for Wari'. Cues which demarcate intonation unit boundaries are exemplified, such as declination, and a possible grammaticalisation of this (downstep) is discussed. The relevant functions of intonation discussed in other studies are found in Wari', as are intonational universals involving closed falls and open rises. The role of prosody in information structure is examined through topicalisation and focus structure. Other topic marking strategies are shown, such as unaccented pronominals. Questions are analysed in terms of focus marking and, in Wari', this was found to be ambiguous and the position of the focus element was hypothesised to be more important than prosody.

Declaration

No portion of the work referred to in the dissertation has been submitted in support of an application for another degree or qualification of this or any other university or institute of learning.

Copyright Statement

Acknowledgements

Introduction

Intonation and information structure have attracted interest from linguists recently. Most studies have analysed Indo-European languages. This dissertation analyses ON'; a dialect of the Chapukuran language Wari'. A grammar of the language has been published, which describes certain intonational features. Parts of this paper show these features by pitch contour representations in this paper.

The aims of this dissertation are to describe the intonational patterns in ON' based on narrative data and elicitated questions collected this summer in the field. The organisation is as follows – the language will be placed in its cultural context and an overview of ON' will be given. The relevant literature will be reviewed for intonation and information structure. The methodology I used will be outlined and then the literature will be applied to the data. The phonetic correlates of stress will be shown; pitch movements and phonetic markers of intonation unit boundaries will also be described. The grammatical functions of intonation will be described where appropriate. The function of prosody in marking aspects information structure will be shown, as well as the relevant morphosyntactic functions and processes involved. Finally, the limitations of this study will be outlined and used to suggest areas for future research. The appendix includes translations of the data and a small dictionary based on the data collected. It also contains a discussion of an aspect of Wari' culture that, although not related to this linguistic study, was considered noteworthy.

1   <u>Background</u>

1.1   <u>The Wari' People</u>

The Wari'[1] are an indigenous group who reside in villages along tributaries of the Pakaas Novas and Mamore rivers in Western Rondonia, Brazil. Pre-contact, the Wari' lived in villages of about thirty people. Today, there are 1800 Wari' divided into subgroups ranging from 80-400 people. The subgroups are 'Oro 'Eo, 'Oro Nao' 'Oro 'At, 'Oro Jowin, 'Oro Waram, 'Oro Waram Xijein, 'Oro Mon and 'Oro Cao' Orowaji. The groups existed peacefully and collaborated together in warfare and emergencies. Peaceful ties were reinforced by festivals, just as they are today. (Conklin 1995: 78) The term 'Wari'' covers all the people who constitute the subgroups and all the dialects of these groups.

Wari' people have regular contact with Portuguese people, since initial contact occurred between 1956 and 1969. In the 1960s a huge amount of Wari' people died due to illness and murder. This prompted many of them to work as rubber gatherers or labourers in Guajara-Mirim. However, by the 1970s most had moved back and there has been 'little out-migration since'. (Conklin 2001: 47-59)

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[1] Wari' is the 1st person inclusive emphatic pronoun and so literally means 'we!' It was also translated as 'person/people' in the data collected for this study.

Many traditional aspects of the culture have been relinquished in favour of western customs. Wari' now wear clothes, do not use body paint and many have converted to Christianity. The children learn Portuguese in school but Wari' is still spoken at home and in the community, although the younger generation are spending increasing amounts of time in Guajara-Mirim. (Conklin 2001: 60-61) My informants all used bicycles and the girls wore make-up. Wari' is now taught in schools alongside Portuguese and pedagogical books in Wari' have been developed.

The status of Wari' as an endangered language is difficult to ascertain but there were many signs during this project that the Wari' I worked with have a positive view of their language, are proud of their culture and are intent on transmitting both to the following generation. For example, whilst I was collecting data, the informant asked me if I wanted '*minha lingua*' 'my language' i.e. ON'. Before she said this, however, she was going to say '*na giria*' – Portuguese for 'slang' (she said *na gi..*) but she corrected herself.[1]

I worked with Elizeu, a teacher of Wari,' who showed me school books of Wari' texts written in their language with Portuguese translations at the back.[2]There are three in the series which increase with difficulty. There is another book which gives cultural narratives of many of the subgroups, written by many individual people,

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[1] I worked with a Banawa informant in July 2004 who referred to his language as '*a giria*', never '*a lingua*'. Banawa is an endangered language spoken by about 80 people who live in the rainforest in an isolated village north of the city of Labrea.
[2] Elizeu had brought them to sell to me, and I bought them because I felt it was an ethical responsibility as the money went to the school.

with Portuguese translations.[1] It mentions that the Oro Eo and Oro At subgroups speak the same language as the Oro Nao', whilst the Oro Waran, Oro Waran Xijein Kao and Oro Wayem dialects are mutually intelligible with Oro Nao'. The Oro Waran Xijein is also mutually intelligible with Oro Nao, but has more differences than other dialects.

The book itself is an indication of a wealth of cultural, historical and linguistic knowledge and pride. There are many sections in the book which underline this observation. An Oro Mon narrative states 'we do not want to give up the custom of drinking *chichi* at festivals…our children today do not know of this ritual…so we tell them many of our histories. The children want know about this festival. Our children speak well in our language…today we tell many of our histories to all of the children.'

The Portuguese forewords of the books state that the Wari' 'teachers are very proud with the result of their efforts and are very excited and confident of their use by pupils in the schools'. Another significant change has been substituting some of the Portuguese orthography developed by missionaries and used in the EK grammar. *c/qu* has now become *k* and *j* is now *y*, for example. Elizeu was keen to correct me when I had written according to system used in the EK grammar. He explained 'we

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[1] The book also includes narratives from the Jabuti, Macurap and Canoè people. The latter differs from other narratives in the book as it blames SPI and FUNAI for the loss of their culture, language and land. It is not a cultural narrative as such; rather it is a history of a displaced people and the troubles they have encountered and deal with today and thinly disguised attack on the organisations set up to protect their interests and way of life.

don't do it like that now, that's Portuguese.'[1] Therefore I changed the orthography I had been using to conform to the wishes of the Wari' today.

All considered, these observations and the efforts on the part of all the Wari' subgroups to preserve, maintain, codify and transmit their language and culture, coupled with their reasonably large size (for an indigenous Amazonian society) suggest that it would be misguided to say Wari' is highly endangered. An integral part of language preservation is that the people themselves have a positive attitude towards their language and culture. (See appendix for a discussion of an aspect of Wari' culture – mortuary endocannibalism.)

1.2 <u>Overview of the Language</u>

Wari' belongs to the Chapukuran family, which consisted of 8 languages and is the 'chief representative' of the three remaining languages still spoken. The language Wamo and the Chapukuran family 'are very likely genetically related and may form Wamo-Chapukuran stock. (Lyovin 1997: 336) The Ethnologue states Oro Win is part of the 'Chapukura-Wanham' family which has two sub-branches – Guapore and Madeira. The Guapore sub-branch contains Moré and Kabixí which are both extinct. The Madeira sub-branch consists of the nearly extinct Torá, Wari' and Oro Win which, despite the similarity of its name with the Wari' subgroups, is not inherently intelligible with Wari'. Each subgroup has dialectal variations. In EK's grammar the ON' dialect was used so ON' was also used in this dissertation.

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[1] Elizeu did not use Portuguese words at all in the data he recorded with me. Taiana, who recorded the basket narrative, used the Portuguese word *comprar* 'buy'. When I elicited questions with Elizeu using the verb 'to buy', he used the Oro Nao' verb *a'* 'to get'.

1.2.1 **Phonetics**

ON' has a notable vowel inventory because it consists of 6 vowels - /i e a o y/ and the more restricted /ø/. The presence of two front rounded vowels in a 6 way vowel system is surprising as the backness distinction has not been maximised and the vowels are not maximally spaced from each other in the vowel quadrilateral.

The phoneme [tʙ˚] is considered a phonetic rarity by Ladefoged& Everett because it is only known to exist in ON'. It is a 'voiceless apico-dental plosive [followed by a] voiceless labio-labial trill.' (1996: 794) It cannot be analysed as a consonant cluster because they do not occur elsewhere in ON' and a historical explanation cannot account for it. 'Bilabial trills historically developed from sequences such as [mbu] – a pre-nasalised stop followed by a relatively high back rounded vowel.' This does not apply to ON' so the sound is unique. (1996: 798)

1.2.2   **Syntax**[1]

ON' has VOS order and the structure of 'simple sentences' is:

    V   VIC (NPOBJ1) (PP/NPOBJ2) (NPSUBJ) (SFP)   (EK 1997: 8)

The verb occurs clause initially and in TR clauses the object precedes the subject when the sentence contains overt nouns:

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[1] Where possible the examples are from the data collected for this thesis.

062M Max Planck   <u>IU21</u>

ara'	*ak*	*kama*	*karawa*	*narima*
make	travel	3sf	animal	woman

'The woman made food'

The subject VIC precedes the object VIC. ON' VICs 'agree in person, number and gender (for third person) of the subject and 'primary' object'. (1997: 6) Due to the fact that ON' is a predominantly head marking language and nouns are not commonly overtly expressed, the structure of most ON' sentences consists of a simple VP which is given below:

(Sentence) → VP → (V mod) V (V mod) VIC   (EK 1997: 18)

VOS order is also manifested through COMP clauses which are marked by 'an overt expression in their sentence initial position.' which are 'operator words or COMP words' (1997: 43). When they appear INFL is compulsory and VICS cannot be marked for tense or mood. (EK 1997: 8) The structure of a COMP sentence is:

 COMP INFL V VIC (NP OBJ1) (PP/NPOBJ2) (NPSUBJ) (SFP)   (EK 1997: 8)

Their function is mainly of interrogation (see below), negation and contra-expectation (EK 1997: 44):

<u>Set 1</u> Q1:

| *ma*	*wari' ko*	*kao*	*non*	*hwam?*
			na-on	
that:prox:hearer	person INFL:m/frp/p	eat	3srp/p-3sm	fish

'Who ate fish?'

1.2.3   <u>Morphology</u>

ON' has grammatical gender distinctions, which is rare for Amazonian language families; the others being Arawak and Arawakan. The nouns are not marked for gender, case or number because this information is provided on the VIC. (EK 1997: 3)

ON' derivational morphology involves zero-derivation. (EK 1997: 7) Words from one syntactic category are derived from other syntactic categories without affixation. (EK 1997: 355) When the input is more than a single grammatical word, it can be distinguished from the output by prosody. This is because the output will bear primary stress on its rightmost syllable, like any word in ON'. The stress on the rightmost syllable of each individual word of the input will be realized as secondary stress on the output. (EK 1997: 7) Further proof that zero-derivation creates a single word is that a tense VIC follow the derived word. Tense, either by a VIC or INFL, must always be the second constituent in the clause. When the input is a clause, the output is an Intentional State Construction (ISC) i.e. a verb (EK 1997: 7), as shown below. The last syllable of this embedded sentence carries primary stress, just like any other word in the language. Below is an example of what EK term 'Group 1 verbalized sentences' and their function is that of direct speech, purpose or the future tense

construction (EK 1997: 58). The last syllable of *kwiwo* receives primary stress because it is the last syllable of the derived predicate:

IU3   AN

500

Pitch (Hz)

0

24.8294   25.9444

a   r   a   t   a   kw   i   w   o   n   a

Time (s)
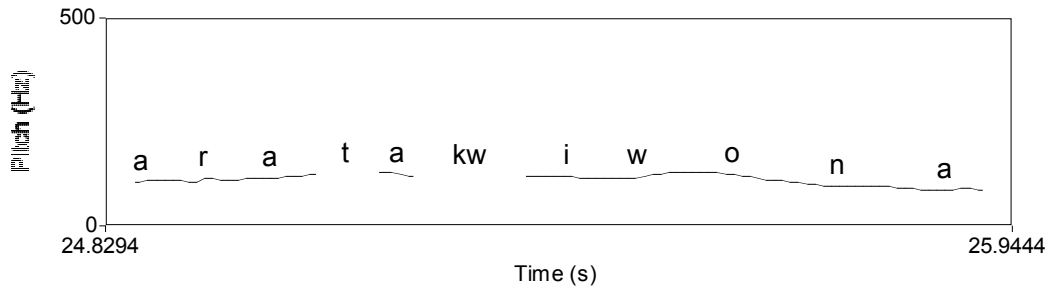
ara'   ta   kwiwo   na
make   1srf   arrow   3srp/p
''I will make an arrow' he (said)'

Everett revised this analysis as ISCs simultaneously exhibit properties of words and phrases and it failed to account for their hybrid nature. In section 1.2.3 above, the verbalized sentence was shown as an example of zero-derivation from a clause to a verb. The previous analysis predicted that the ISCs were verbs and therefore words because they have the external syntax and phonology of a verb, whereas ISCs have phrasal properties too – for example they are well formed clauses in their own right, as *ara' ta kwiwo* shows. (Everett forthcoming: 9)

ISCs are handled via a RRG approach which extends the traditional notion of 'verb' to the RRG notion of NUC. (Everett forthcoming: 19) The NUC indicates the phrase's locus of predication, is exocentric and non X-bar theoretic. It is compulsory for all clauses and it is not obligatory for it to dominate any syntactic category.

Additionally, the NUC is not limited to units at word level. These properties of the NUC actually predict the hybrid nature of ON' ISCs because RRG does not state the embedded sentential PREDs are words. No further elaboration is required because this is expected. The apparent word-like properties of ISCs are just NUC properties. (Everett forthcoming: 18)

ISCs receive stress on the last syllable, like any other verb or word in ON'. RRG handles this because the default stress and, therefore, the default focus, is predicted to be primary stress on the PRED. The new information of a clause is given by the PRED. As a result, it is common cross-linguistically for the NUC of the PRED to carry primary stress. The NUC is a single constituent in RRG, even though the material it governs may be complex, so ISC stress placement is the same pattern independently anticipated by RRG. (Everett forthcoming: 20)

Compounding is a productive process in ON' which derives 'subtypes of verbs.' (EK 1997: 379) The first element of the compound carries the core semantic meaning whilst the other compound elements express the result or effect of the verb on their immediate left:

IU39   AN

juk	*mi*	*ak*	*pain*	*na*
push	give	travel	prep:3n	3srp/p

'He pushed it in (the hole)'

Alternatively, these other compound members can restrict or modify the meaning of the first verbal element. ON' compounds are left headed and left branching. (EK 1997: 380-381)

1.2.4   **Grammatical Constructions In This Paper**

A common construction that arose in the basket and arrow narratives, as well as the Max Planck elicitation, was the 'verbalized sequential sentence'. The derived predicate of these sentences has the following structure:

V + *ak'* (travel)/*moa* (go) + tenseless VIC + optional obj NP + opt post verbal

marker *ma'*

whilst the matrix clause has the following structure:

3s tense VIC + optional obj/subj/adjunct NP/SFP   EK (1997: 72-73)

EK state the use of *ak'* or *mao* is determined by idiolectal preference. All the informants used *ak'*:

IU36   AN

kuruk	*xo*	*ak*	*ka-in*	*na*	*kem*
scrape	correctly	travel	3sm-3n	3srp/p	also

'He also scraped it out correctly' (lit. (then) it (was that) he scraped it out correctly)

EK state this is a usual way to start off narratives and the data suggests it is used continuously throughout narratives, perhaps to sustain the narrative 'tone'. (See appendix)

The conditional construction occurred in the Fishing narrative. See section 4.1.3 for a discussion of conditional clauses. It is marked by *mo* in COMP followed by INFL – either *ta* 'realis future' or *xi* 'irrealis.' The clauses receive separate intonation. (EK 1997: 104) In this data only *ta* was used:

IU5   IU6

mo		*ta*	*pa*	*ta,*	*in*	*ki*		*ak*	*ta*	*tara*
conditional		INFL:rf	kill	1rf	return	coming:this:way	travel	1s	3srf

'If I kill, then I will return who knows?' (lit. (then) it will be (that) I return, who knows?)

Note how both clauses must manifest tense in COMP. Here a realis future VIC appears in both the condition and conditioned clause. *mo ta* can express time but the informant did not translate them as such.

Relative clauses also appeared in the FN. Next is an example of a 'finite nominal argument clause' which is 'formed by the neuter realis past/present INFL morpheme *ka* before the verb and a tenseless VIC (*ka*) after it'. (EK 1997: 83)

mao	ta-in		taparaim	kom
go:s	1srf-3n		small:river	prep:3sm

'I will go… to the small river,

ka		**miya**	**pe**	**ka**	**hwam**	**ma**		**pane**
INFL:nrp/p		many	be:at	3sm	fish	that:prox:hearer		rec:past

where there were many fish before' (lit. where the fish were many before)

2   <u>Literature Review</u>

2.1   <u>Intonation</u>

2.1.1   <u>Phonetic Components of Intonation</u>

The following definitions show the phonetic and phonological nature of intonation, as well as its paralinguistic characteristics. Intonation 'involves the occurrence of recurring pitch patterns, each of which is used with a set of relatively consistent meanings, either on single words or on groups of words of varying length.' (Cruttenden 1997: 7) These recurring pitch patterns 'generally correspond with

constituents of sentences in a somewhat loose way' and are termed 'intonation groups.' (1997: 8)

For Ladd, intonation is 'the use of suprasegmental phonetic features to convey 'post-lexical or sentence-level pragmatic meanings in a linguistically structured way.' (1996: 6) Ladd views intonation as phonological due to this structural aspect. Intonation is the area where the distinction between the linguistic and paralinguistic 'breaks down quite substantially.' (1996: 36)

Gussenhoven asserts intonation is 'the use of phonological tone for non-lexical purposes' or 'the expression of phrasal structure and discourse meaning.' (2004: 12) Additionally 'languages use pitch variation contrastively for expressing discoursal meaning and marking phrases.' (2004: 22)

Hirst & Di Cristo highlight the terms 'intonation' and 'prosody' are often used interchangeably and define each more narrowly. 'Prosody' is composed of lexical systems such as tone, stress, quantity and of one non-lexical system – 'intonation proper', which consists of supra/post/non-lexical factors like the overall pitch pattern form. (1998: 7) Both 'intonation' and 'prosody' are regarded as phonological, abstract and cognitive.

Hence a general definition of intonation states that it is the manipulation of acoustic cues to create patterns of prominent syllables in order to convey discoursal and non-

linguistic meanings. These definitions also show some functions of intonation – to demarcate constituents and mark discourse participants. The perceptual cues of pitch, loudness and length have the respective acoustic correlates of F0 (Hz), intensity (db) and duration (s).

When one, or a combination of, the cues are found on a syllable then the syllable is stressed. 'Pitch is the prosodic feature most centrally involved with intonation.' (Cruttenden 1997: 3) The observation that F0 is the dominant, most efficient, perceptual cue for stress than duration or intensity alone is widespread. Conversely however, intensity and duration have been more systematically correlated with stress than F0. (Hirst & Di Cristo 1998: 5-6) Gussenhoven emphasises it is not true that 'stress amounts to a louder pronunciation of a word or syllable', but rather, stress is comprised of features of F0 and duration. (2004: 13)

Again, there is overlapping terminology because stress for Cruttenden is 'prominence'; however that is achieved (1997: 13). Accent is used to describe prominences created by pitch movements – hence the term 'pitch accent'. In order to describe intonation, the stressed syllables at word level need to be known, as these will be potentially accentable in utterances. Leading on from this, we have to know what syllables are accented in the utterance because the accented syllables form the 'framework for intonation.' (1997: 15) There are 4 pitch accent movements which involve a change in level or direction – a step up, a step down, a movement down from and a movement up from. (1997: 40) Unlike Cruttenden, other authors make

no distinction between the terms 'stress' and 'accent' which are, for example, used interchangeably by Hirst & Di Cristo (1998: 44)

2.1.2 <u>Phonetic Cues to IU Boundaries</u>

Phonetic cues can be used to determine more than the pattern of accents over an utterance. The domain of pitch patterns is the 'intonation group' for Cruttenden (1997: 24). The same concept has variously been described as 'sense groups, breath groups, phonological phrases, intonational phrases' (1997: 29) or as intonation units. In this study the term intonation unit (IU) will be used. The function of IUs is to divide connected speech. The demarcation of phrasing (IUs) can be determined partly by phonetic cues.

For example, Hirst & Di Cristo state that the IU boundary is signalled by a 'terminal pitch movement', 'the presence of a final sentence accent or nucleus', or by pitch reset or final lengthening.' (1998: 35) Gussenhoven asserts that intonational tones appear at the edges of prosodic constituents like the IU.

Declination, where the F0 of an IU falls towards the end, can indicate phrasing. There is a physiological explanation for this, because sub-glottal air pressure naturally falls towards the end of an utterance, but Gussenhoven asserts that many instances of declination are controlled by speakers. Accordingly, he defines 'downstep' as a grammaticalisation of declination, where a drop in pitch occurs in a specific phonological or morphological context. (2004: 97-98) Declination itself has

no communicative purpose but the failure of downstep, i.e. reset, 'has a natural function as an indicator of phrasing.' Gussenhoven shows that downtrends reflect phrasing by having a reset at the start and final lowering at the end. (2004: 121)

Cruttenden offers phonetic criteria for determining phrasing and IU boundaries. Pauses generally occur at constituent boundaries and, where there is a new topic, 'pauses tend to be longer'. Pauses which are internal to the IU are those which are labelled 'hesitation phenomena', where a speaker pauses to 'find' a word of high lexical content (1997: 29-32) Pauses can be ambiguous and should not be considered diagnostic of IU boundaries by themselves. Additionally, the final syllable of an IU will often be lengthened though the reasons for this vary and can often be language – specific. As pitch changes or pitch movements typically occur on accented syllables, they can indicate IU boundaries when they occur on unaccented syllables. For example, low unaccented syllables are higher at the start of the IU than their equivalent at the end of an IU. So pitch change or movement on non-lexically stressed syllables indicate 'boundaries not accents.' (1997: 30-34)

Cruttenden introduces the concept of the 'nucleus' (1997: 42) which is the primary stress of the IU. The contour following the nucleus 'always carries the most important part of the intonational meaning of an IU.' (1997: 49) Secondary stress is simply a non-nuclear stress whereas tertiary stress involves a prominence created predominantly by intensity and/or duration, not pitch. All that remain are unstressed syllables. (1997: 44)

2.1.3 Functions of Intonation

IUs align with syntactic constituents like clauses more than any other grammatical unit, although smaller units, like adverbials, can also form their own IU. Another example, which is related to information structure, is when an NP subject corresponds to its own IU. This is most likely to happen when the NP has undergone a large amount of post-modification and when the subject has been topicalised. (Cruttenden 1997: 68-70) An IU can cover two clauses, such as a conditioned clause followed by the conditional clause, or both clauses can form one IU. (Cruttenden 1997: 72)

Nuclear tones have been associated with grammatical meanings. Declarative, interrogative and imperative syntactic structures have been associated with discoursal meanings of statements, questions and commands respectively. These different structures have typical tones associated with them but almost any nuclear tone can appear with any syntactic type. Therefore, the view there is a one to one correspondence between nuclear tone and syntax to create discoursal meaning is misguided. (1997: 87-89)

Nuclear tones are described as follows. The falls are LF - a step-down from any preceding pre-nuclear syllables, HF is a step-up from any preceding pre-nuclear syllables and R(ise)F is also grouped with these. Falls are most likely to appear on sentence final IUs than on non-final sentence IUs and, when they appear on

declaratives, 'involve a sense of finality, completeness, definiteness and separateness.' (1997: 91) RF has the same effect with declaratives as above but has two further local meanings in English which are 'impressed' and 'gossipy'. (1997: 92)

The rising tones are LR, HR and FR and mid. All are common on non-final sentence IUs, such as NP subjects, adverbials and subordinated or coordinated clauses. Cruttenden (1997: 103) states that the most common tonal sequence involves a rising tone on a non-final group followed by a fall on a final group. Nuclear tones convey different local meanings due to the context in which they are used. For example, in sentence final IUs the meaning construed is dependent on the syntactic type the tone is combined with. (1997: 104)

2.1.4   <u>**Possible Intonational Universals**</u>

As much of the intonational data comes from Indo-European languages, it is difficult to state with certainty areas of intonational universality. All I.E languages have similar grammatical structures and IUs in these languages frequently correspond to clauses. However, they can also tally with structures, like non-pronoun subjects and initial and final adverbials, which are smaller than clauses. Regarding question words (wh-words), some languages use falls whilst others prefer rises. Cruttenden states that other possible universals involve nucleus placement to focus information and the use of key variation to link parts of discourse. Declination, where the

baseline declines slightly and the topline declines steeply to narrow the pitch range, is widely observed cross-linguistically at the end of IUs. (1997: 138-161)

Tonal universals are divided into:

FALLING	RISING
neutral statement	implicational/tentative statement
sentence final	sentence non-final
neutral wh-word question	sympathetic wh-word question
command	request
'assertive, non-continuative'	'non-assertive, continuative'
'CLOSED'	'OPEN'

Therefore closed falls and open rises are a strong tendency across languages. (1997: 163-164)

2.2   **Information Structure**

Information structure is 'that component of sentence grammar in which propositions as conceptual representations of states of affairs are paired with lexico-grammatical structures in accordance with the mental states of interlocutors who use and interpret these structures as units of information in given discourse contexts.' (1994: 5) It is 'formally manifested in aspects of prosody, in specific grammatical markers, in the form of (particularly nominal) constituents, in the position and ordering of such constituents in the sentence'. (1994: 6) Syntax 'is not the only formal level at which information structure is coded. What syntax does not code, prosody does, and what is not coded by prosody may be expressed by morphology or the lexicon.' (1994: 31)

New information is a mixture of old and new information because it adds to what the speaker has presupposed about the hearer's state of knowledge – the old information. It relates the new to something that has already been assumed or presupposed. (1994: 51) Furthermore, what is assumed in languages can vary from culture to culture and therefore should be considered to illuminate a study of information structure.

Chafe's 'activation states' assert that a given mental representation can be in an active, semi-active or inactive state because only a small part of the sum of

knowledge stored can be focussed on or 'active' at a given time. An active mental representation is one that is 'currently lit up' and is in the person's 'focus of consciousness' whilst a semi-active one is in the person's 'peripheral consciousness', in the background, but is not being 'focussed on.' An inactive state involves a mental representation that is in a person's long term memory but that is not active focally or peripherally.

Activation states have 'formal correlates in the structure of sentences.' (1994: 93-94) The 'assumed active status of a referent is formally expressed via lack of pitch prominence and typically… via pronominal coding of the corresponding linguistic expression.' (1994: 96) Conversely, the inactive status of a referent has as its grammatical correlate an accented lexical phrase. (1994: 96-97) The absence of pitch prominence on a constituent shows its active status and, as such, it is marked for the feature of 'discourse-active denotatum' Active referents can be coded via the absence of pitch prominence, by pronominal coding or both and these are all unambiguous. Inactive referents do not have a corresponding unambiguous way of marking via prosody and morphology but syntactic means exist to code this. (1994: 98-99)

There are two types of prosodic contrast that differ functionally – one denotes activation states of referents and the other kinds of differences. These two types correlate with two different types of information structure categories – those denoting the states of the referents (activation and identifiability) and those which show relations between those referents and propositions (the categories of topic and focus). (1994: 112-113)

2.2.1 Topic

2.2.1.1 Definitions and Considerations

The topic of a sentence is what the sentence's proposition is about. (1994: 118) Other terms include background, theme or given information. A referent is a topic of a proposition if it expresses 'information which is relevant to and which increases the addressee's knowledge of this referent.' (1994: 127) The grammatical category of the topic expression is a constituent where 'the proposition expressed by the clause with which it is associated is pragmatically construed as being about the referent of this constituent.' (1994: 131)

Topics are often equated with the grammatical category of subject. But topics are not necessarily subjects and vice versa, because non-subjects can act as topics when they undergo topicalisation and subjects can act like non-topics, as in accent-initial sentences. (1994: 118) There is a strong correlation between topic and subject on a discourse level in English and in other languages. This is because the subject is the most common argument of sentences and topic-comment sentences are by far the most prevalent communicative sentence type. (1994: 132)

Verb initial languages, like ON', provide some evidence against the supposed universality of the 'topic-first principle' because the unmarked order is for a non-topical constituent to occur first. The fact that many of such languages have a

construction which allows an NP to appear pre-verbally shows the markedness, not unmarkedness, of 'topic first'. (1994: 200)

Lambrecht notes there is an absence of unambiguous formal marking of the topic relation in numerous languages because relevance, which qualifies a proposition as a topic, is gradient. There are 'degrees to which elements of propositions qualify as topics.' The topic cannot always be expressed at the syntactic level and therefore can only be identified by taking into account the previous discourse situation. The proposition expressed by syntax can remain the same whilst the information structure can differ. Consequently, the term 'topic-comment sentence' is preferable to 'subject-predicate sentence' and their minimal prosodic characteristic is a focus accent on an element of the VP. (1994: 120)

The purpose of the topic-comment type is to 'pragmatically predicate some property of an already established discourse referent' whilst the identificational type establishes 'a relation between an argument and a previously evoked open proposition.' Languages mark these with prosody or morpho-syntax. (1994: 126) The topic is 'presupposed to play a role in a given proposition…it is in presupposition.' In contrast, focus expressions, which cannot be presupposed to play a role in a given proposition; have an ambiguous role and they are 'in focus'. (1994: 151)
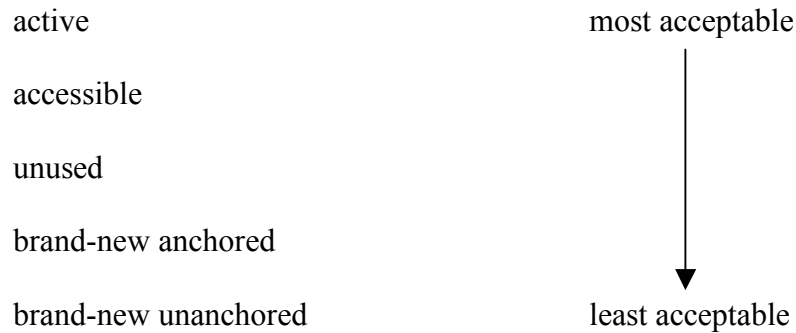
2.2.1.2 <u>Topic Marking Strategies</u>

The referents of topic expressions must be discourse referents which are pragmatically real to the interlocutors. Topicalisation marks the referent of an NP as a type of topic. This happens in the proposition in which the NP referent is an argument and so the proposition is marked as the referent of this topic. This is required because, in sentences with unmarked presuppositional structure, accented object NP's are focus constituents, not topics. (1994: 161)

Anaphoric expressions refer to entities that have recently been activated as topics in the discourse using words such as 'she, it, there, then'. The form could be a pronoun and this would affect the stress it received and its position in the sentence. Expressions which reference the speech act participants involved in the current discourse are usually unaccented pronouns. (1994: 39)

Utterances which contain "old" referents can have either the topic or focus function in a sentence. This demonstrates that 'there can be no one to one correspondence between pragmatic relations and pragmatic properties of referents.' (1994: 164-165) The 'topic acceptability scale' is introduced to measure the 'degree of pragmatic well-formedness of a sentence containing a topic expression by the position of the topic referent' on the scale:

active	most acceptable
accessible	
unused	
brand-new anchored	
brand-new unanchored	least acceptable

Sentences with an active topic are more easily processed and are the most cognitively acceptable utterances. This is because the referent does not have to be retrieved from the hearer's long term memory. The preferred topic expression of active referents is 'an unaccented pronominal (or inflectional or zero) morpheme.' (1994: 165)

'Intersentential pronominalization' is also known as discourse anaphora. It is also linked to the principle that cognitive accessibility is associated with the form of a referent in the discourse. The 'referential distance' of a referring element and the previous mention of its referent is measured in clauses. VVLP (1997: 231) summarise this by saying 'the more clauses intervene between mentions of a referent, the lower down the scale of accessibility the referent will be, and so the more explicit the later representation of the referent must be.' According to this statement, zero anaphora will have a short referential distance and a full pronoun or lexical NP will have a longer referential distance.

2.2.2   Focus

The focus is 'the element of information whereby the presupposition and the assertion DIFFER from each other.' Focus is 'the semantic component of a pragmatically structured proposition whereby the assertion differs from the presupposition' showing the difference between the assumed nature of topic and the unassumed, pragmatically unrecoverable nature of focus. Focus is a 'semantico-pragmatic, not formal, category.' The FOCUS DOMAIN is 'the syntactic domain in a sentence which expresses the focus component of the pragmatically structured proposition.' (1994: 214) New information, contrast, emphasis and wh-question words are all elements of focus.

2.2.2.1 Focus Structure

The information structure categories discussed in section 2.2.3 have a 'complementary' analysis in terms of focus structure. Topic-comment sentences are termed 'predicate-focus', identificational sentences are labelled as 'argument-focus' and event-reporting sentences are called 'sentence-focus' structures. English has topic-comment structure as its least marked focus structure whilst VOS languages like Malagasy and ON' have comment-topic as their unmarked focus structure. (VVLP 1997: 221)

Broad Focus

The whole sentence is in focus in broad focus. Cruttenden states the fact that lexical items have more potential to be accented than grammatical items to explain

differences in nucleus placement. Cruttenden's general rule is that the nucleus accent will fall on the last lexical item of the IU when that IU is in broad focus. In narrow focus, only part of the IU is in focus and, as with broad focus, the last lexical item is generally accented in this group. Usually the nucleus accent will go on the stressed syllable of this lexical item. (1997: 74-80) Lambrecht's criteria for accent placement are different because they are determined by pragmatic relations and activation states. There are two types of broad focus:

1   Predicate Focus

In the languages Lambrecht discusses, predicate-focus is marked prosodically on some part of the predicate, which signals the focus domain is the predicate phrase. Additionally, in English, the absence of such marking on the subject of the sentence shows it is the topic, not the focus. The function of predicate focus is to comment on a given topic of conversation.

2   Sentence Focus

 The function of sentence focus is to report an event or presenting a new discourse referent. (1994: 222) Simultaneously, however, while the placement of accent is motivated by pragmatics, 'the prosodic expression of pragmatic meaning is nevertheless mediated by rules of grammar.' (1994: 246)

Default accentuation is where accent placement on a constituent is motivated neither by pragmatic reasons nor structural reasons (i.e. the constituent occupies the unmarked accent position), but because an accent on any other constituent would

render an unintended pragmatic reading of the proposition. (1994: 248) Topical non-subject constituents with active referents can occur in focal VPs. This shows that it is only possible to match focus structure (prosodic marking) and phrase structure (syntax) under the condition that syntactic focus domains are allowed to contain non-focal elements i.e. there is no one to one mapping relation. Verbs attract less prosodic prominence than nouns due to prominence being assigned more by default than the principle of iconicity. (1994: 266)

The subject is accented in sentence-focus constructions because, if the predicate were accented, predicate-focus would be conveyed, not because the subject is 'newer' or more 'focus-worthy'. The ambiguity between sentence-focus and argument-focus structures arises because both display the pragmatic feature of a non-topical relation between the subject to the proposition; additionally, unaccented verbs can be interpreted as focal or non-focal depending on the construction because predicates are unmarked for the state of activation. (1994: 321)

<u>Narrow Focus</u>

Argument-focus in English is marked prosodically on the subject NP, which is the focus domain, and by absence of accentuation on other constituents. As such, it is a reversal of the predicate focus which only involves accentuation on the predicate. Sentence-focus structures and argument-focus structures are not necessarily different

in many languages. In English the accent placement is the same for both. The crucial formal similarity between all sentence-focus constructions is that they all mark the subject as a non-topic. (1994: 226-234) The function of argument focus is to identify a referent.

2.2.2.2 <u>The Influence of Focus Structure on Morpho-syntax</u>

All languages use intonation in some way to code different focus structures because primary sentence stress falls on the primary focal element; but there are additional means of doing this. Japanese uses postpositions to mark topic and focus as well as using intonation. English uses marked word orders with intonation to express focus structure, such as the it-cleft to express narrow focus.

VVLP (1997: 212) state that languages differ in their 'potential focus domain' – the syntactic domain in which the focal element can occur. Lambrecht's 'focus domain', the actual part of the sentence in focus, is termed the 'actual focal domain.' In the simple sentence, '*Dana sent the package to LESLIE yesterday*', the whole sentence is the potential focus domain, but the actual focus domain can differ each time.

A correlation arises whereby languages with very strict word order have flexible focus placement and languages with freer word order have more constrained focus placement. In the latter, syntax adapts to the more rigid focus structure, in the former the focus structure adapts to the more rigid syntax. (VVLP 1997: 213) As ON' seems to have relatively rigid verb-initial order, it would be expected that focus

placement would be relatively unconstrained. A typology (Van Valin 2005) of the interaction between syntax and focus structure is given:

	RIGID SYNTAX	FLEXIBLE SYNTAX
RIGID FOCUS STRUCTURE	French, Toba Batak	Sesotho, Italian
FLEXIBLE FOCUS STRUCTURE	English, Toura	Brazilian Portuguese, Croatian, Russian, Polish

Some languages group the verb and object together which forms the traditional notion of the VP. VVLP show that the source of this grouping is actually focus structure. 'All languages have predicate-focus structures, which are universally the unmarked focus structure' and the actual focus domain in predicate-focus constructions is 'what would be traditionally considered the VP.' (1997: 217-218) It is argued that that VPs are the grammaticalisation of focus structure; that is, VPs are not 'primitive categories in clause structure.' (2005: 81)

2.2.2.3 <u>Focus and Information Questions</u>

Wh- questions are a type of argument-focus construction, so it would expected that the main sentence accent would fall on the wh-phrase. The accent manifested is actually on the sentence final constituent, which shows it is not a focus accent but an activation accent. This is because they designate the referents about which information is requested so they are topics. However, it is not a topic activating accent; rather it activates the entire presupposition. Therefore, 'the prosodic marking

of activation takes precedence over the prosodic marking of focus.' (Lambrecht 1994: 285)

Van Valin states the information structure concepts of narrow focus and focus domain are relevant in the study of wh-question formation. The focus of wh-questions is a single constituent which is represented by the wh-expression. Therefore the wh-question and its answer are in narrow focus. Van Valin draws a distinction between unmarked and marked narrow focus. All languages have an unmarked focus position in a given clause; in English the position is the last constituent of the core – the RRG term which encompasses the nucleus (which contains the predicate) and its arguments. The sentence '*Dana sent the package to LESLIE yesterday*' exemplifies the unmarked focus construction. If focal stress occurs on any of the other constituents then marked focus is manifested, with the most marked being on the subject *Dana*. In verb final languages the unmarked focus position is the one immediately before the verb. (1998: 9) In VOS languages like ON' it is 'the immediate post-verbal position' i.e. the object position. (Van Valin 2005: 72)

Questions are requests for information and the focus of the question signals the information the speaker requires. Hence, there is no point placing the focus of a question in the presupposed part of a sentence. (Van Valin 1998: 11) Van Valin discusses that additional information which facilitates linking is 'the semantic

content of the wh-expression itself' because it establishes how it is to be linked to the sentence. *what* has the least referential content and *which* has the most:

> *what*   →   compatible with almost any verb in almost any function so
>
> usually interpreted as the semantic role of UNDERGOER.

This is unmarked for animacy, need not be individuated and can be replaced by a count or mass noun in the answer.

> *who*   →   must be interpreted as animate (usually human) therefore
>
> usually interpreted as the semantic role of ACTOR. This must be an

animate, individuated entity and can be replaced by a count noun in the answer.

> *which*   →   extremely specific

3   Methodology

The data collection for this dissertation was undertaken in the town of Guajara-Mirim in Brazil as it is the nearest place to the ON' reserves. I recorded all the data in the hotel room. This is not ideal, as it is always better to collect data in the community, but was unavoidable as I did not have permission or contacts to enter indigenous villages.

First, I recorded responses to three short video clips created by the Max Planck Institute in Njeinmegen. I thought they would be useful elicit how participants are tracked, and how new participants are introduced. They were also a good tool to get an initial 'feel' for the language. I did this with a male speaker (Silas aged 30) and a female speaker (Susanna, his sister, aged 25).

Next I recorded two narratives, one with Silas and one with Taiana (aged 24), on how to make culturally familiar artefacts. Later on in the trip I also recorded a fishing narrative with Elizeu (aged 34). I also elicitated questions with Elizeu to investigate the intonation of ON' questions and focus marking.[1] All the informants could write in ON', although their ability varied. Elizeu taught ON' in the community and was adept at writing and translating. He was very reliable and it was

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[1] I also recorded a conversation between Taiana and Susanna but it did not produce good data. Most of it was whispered, even though I had tried to make them as comfortable as possible with the task in hand and, although, a certain amount of hesitation is to be expected at the start of a conversation, it was very stilted throughout and contained more pauses than conversation. As such it could not be used in this study.

a shame I was not able to work with him from the start. He took a lively interest in my work and provided educational material. Our discussions on the importance of retaining indigenous languages, and therefore preserving their culture, provided the evidence on which I based the (albeit speculative) observations in section 1.1.

I used a professional Tascam DAT recorder to record speech and a headset microphone because they produced a high quality recording. All of the recording sessions were filmed on a mini digital video recorder to record any paralinguistic information. I transferred the recordings to a laptop, and converted them to WAV files with Sound Forge software. I analysed the pitch and intensity contours of the recordings using the acoustic software Praat. I chose a contour representation as it makes it clear which word and syllable the pitch movements occur on and for this reason seems preferable to an iconic representation.

4   **Results and Analysis**

4.1   **ON' Intonation**

4.1.1   **Phonetic Correlates of Stress and Pitch Profiles In ON'**

Refer to section 2.1.1. EK (1997: 417) state the phonetic correlates of stress are intensity and elevated pitch. The data collected in this study confirms this. Sometimes intensity is more central in creating prominence than pitch and, more usually, there is an interaction between the two. In the following diagrams, intensity is marked by the dashed line and pitch by the black line[1]. The measurements given are for the stressed syllable (the last syllable in ON') as this is the locus for pitch movements:
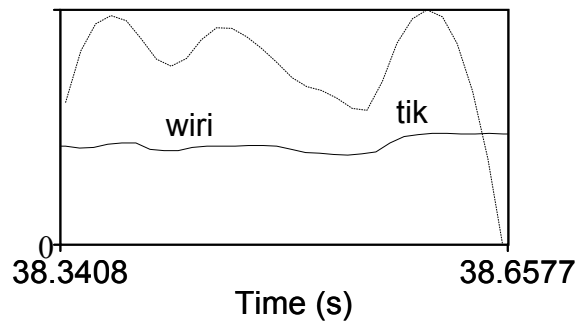
IU1   BN

Intensity rises from 55db to 73db. There is a rise in pitch from 210Hz, peaking at 241Hz and falling to 197Hz:

---
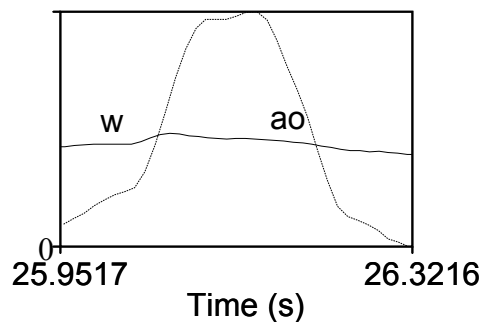
[1] The numbers on the vertical axis refer to pitch and not intensity.
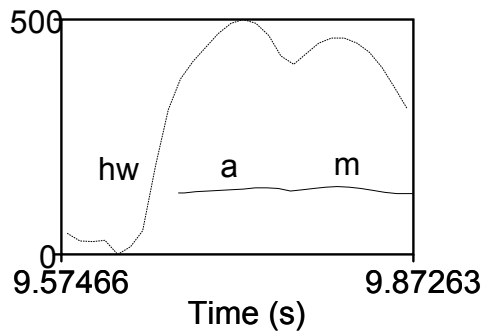
<u>IU6</u>   BN

The pitch movement on the stressed (last) syllable of *wiritik* rises from 192Hz to 236Hz. Intensity also contributes to prominence:
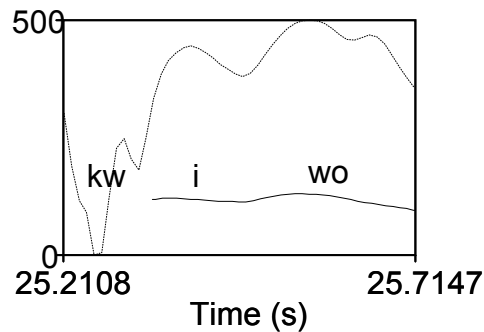

<u>IU1</u>   FN

The pitch rose slightly from 137Hz to 144Hz and intensity rose to a peak of 73db:

<u>IU2</u>   AN

The pitch rose from 114Hz to 130Hz and intensity peaked at 83db:

Hirst & Di Cristo state that intensity is more correlated with stress. This is partially supported by the ON' data. Although pitch is also correlated with stress it is more often the interaction of the two that create auditory prominence. Gussenhoven states that intensity does not play a part in creating stress, rather it is duration and F0. The ON' data does not appear to confirm this. There were two cases where duration appeared to play a role in prominence but this could not be checked (see limitations section 5) so it cannot be ascertained for sure.

Pitch Movements (Profiles) in ON'

Pitch accents appear on stressed syllables so it is necessary to define the stress rules for ON'. Stress appears on the last syllable of major lexical categories, which are nouns and verbs in ON'. Primary sentence stress normally falls on the last syllable of the verb unless another constituent is emphasised. Secondary stress falls on the

final syllable of other lexical categories. VICs and prepositions carry tertiary or quartiary stress. (EK 1997: 416)

Profile 1

The most common pitch movement is for an accented syllable to start high and then downglide. This matches Cruttenden's classification of 'movement down from' the accented syllable and corresponds to Bolinger's profile A (1986: 142) which indicates finality and completion. This profile is preceded by an upglide or upskip:
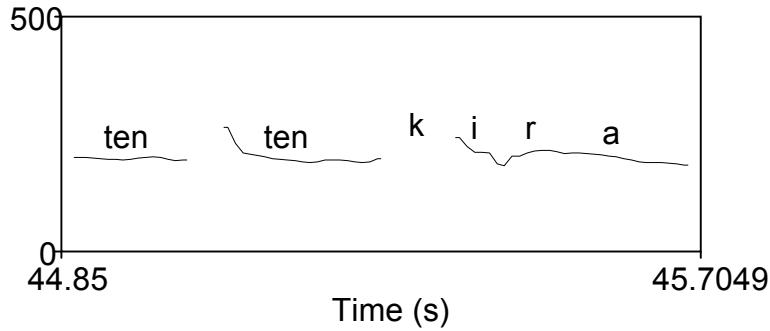
IU13   BN

The profile appears on the last syllable of the verb *miya.* As expected, the pitch falls on the VIC – *na.*
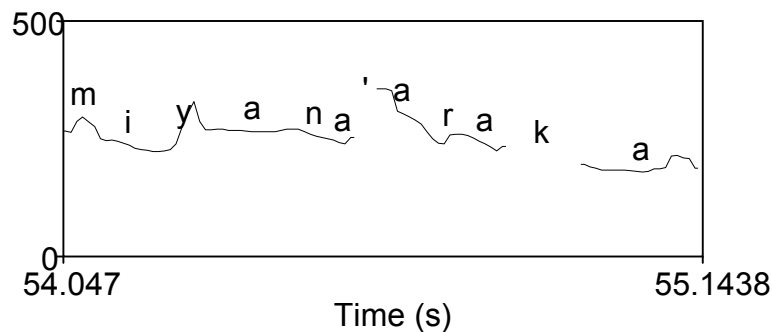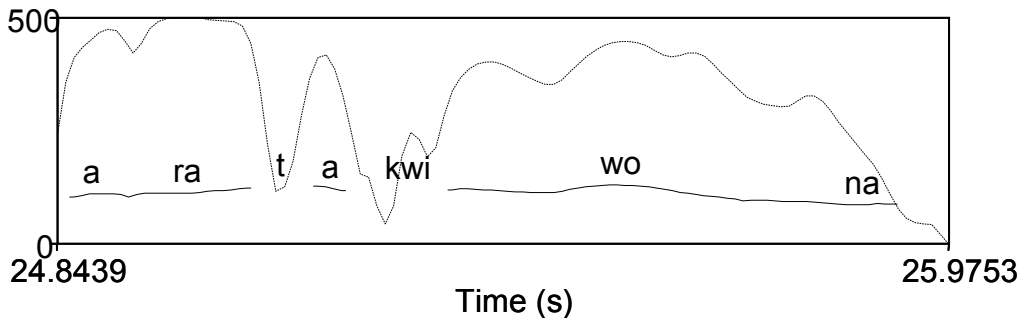

IU9   BN

Here there were three verbs compounded together – *ten, ten* (weave) and *kira* (dry out). As EK (1997: 382) state, primary stress is placed in the final verb in the string – *kira.*


```
500

            ten      \ ten       k  . i   r    a

  0
  44.85                              45.7049
              Time (s)
```

IU3   AN


```
500

      a    ra    t/ a \ kwi         wo
                                              na
  0
  24.8439                             25.9753
              Time (s)
```

ara'   *ta*   *kwiwo'*   *na*

make   1srf   arrow   3srp/p

'I will make an arrow' he (said)

Here the stressed syllable of *ara'* has an upglide from 104Hz to 122Hz which downglides on the VIC. The stressed syllable of *quiwo* has an upglide from 113Hz to 130Hz and then manifests a downglide. Note the interaction between intensity and pitch here too; the last syllable of *ara'* increases in intensity along with profile 1.

Primary stress is on the final syllable of *kwiwo* because this is an ISC (see section 1.2.3) - note again that intensity plays a part.

Sometimes the accented syllable is preceded by a jump up rather than an upmotion, for example on *wiyam* below. (Also see section 4.2.2 on focus marking):

IU21   BN
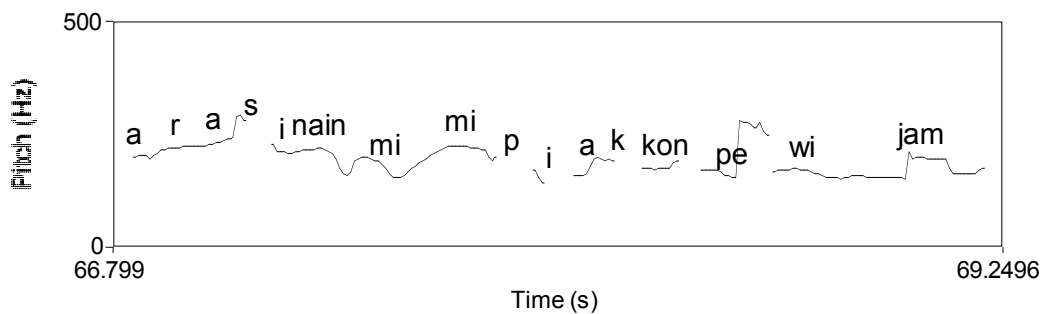
'ara'si   na-in   mi'   mi'   pi'   'ak   kon   pe   wiyam
make   3rp/p-3n   give give finish travel prep:3sm ?   outsider
'(When) they (have) made them, they sell (give) them to outsiders'

In questions, there was a small jump up in pitch on the last lexical constituent and this corresponds to Bolinger's Profile B. (See section 4.1.4)

The basic intonation pattern of a simple ON' sentence is 'rising pitch throughout the verb, reaching high on the last syllable of the verb and falling sharply on the next syllable' - the VIC or stressless post-verbal modifier – and 'it then holds through any optional arguments until the end of the sentence. If a demonstrative or sentence final particle occurs then the intonation rises on the argument which precedes it and falls sharply on the DEM or SFP. This second rise in pitch is lower than the first rise on the

verb.' (EK 1997: 418) An example of the definition given by EK is exemplified next:

BN
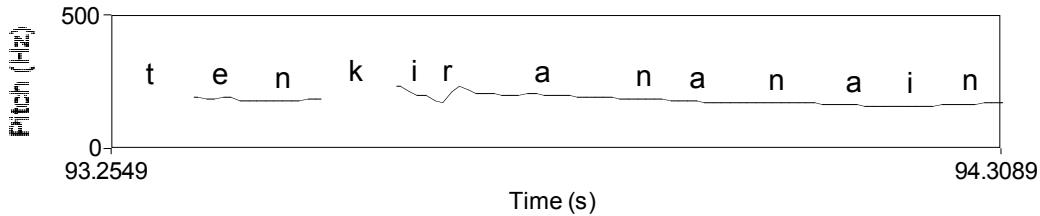
ten	kira	nana-in
weave	*put:in:sun*	*3prp/p-3n*

'They wove and dried it out in the sun'

Here is a very common ON' sentence with the verb plus the VIC and no additional optional arguments. Profile 1 appears on the last syllable of the second verb.


EKs' definition and the data support Cruttenden's statement that the most common tonal sequence involves a rising tone on a non-final group and a falling tone on a final group. This also supports Cruttenden's assertion that grammatical particles (like VICS) will usually be unaccented because lexical items like verbs are more accentable. (See section 2.1.3) However, he also states that what follows the NUC, or most prominent pitch movement in the IU (usually the verb), is the most important information. This is often the VIC. It is difficult to state whether ON' supports this, as the verb is the most important item lexically, but the VIC is also important as it indicates grammatical relations.

4.1.2   Phonetic Cues of IU Boundaries In ON'

The following acoustic cues were used to demarcate the IUs in the data collected, in conjunction with the fact that IUs tend to correspond with clauses. Declination is the most prevalent acoustic cue of an IU boundary in the data (refer to section 2.1.2.), which is expected as declination at the end of clause final IUs seems to be a cross-linguistics intonational universal. As it is often a by-product of declination, creaky voice frequently occurred at the end of IUs. As a result, spurious pitch movements were commonly tracked when this happened. These factors, combined with pitch reset at the start of the following IU, were good indicators of IU boundaries. Examples of this are given below:

IU21   BN
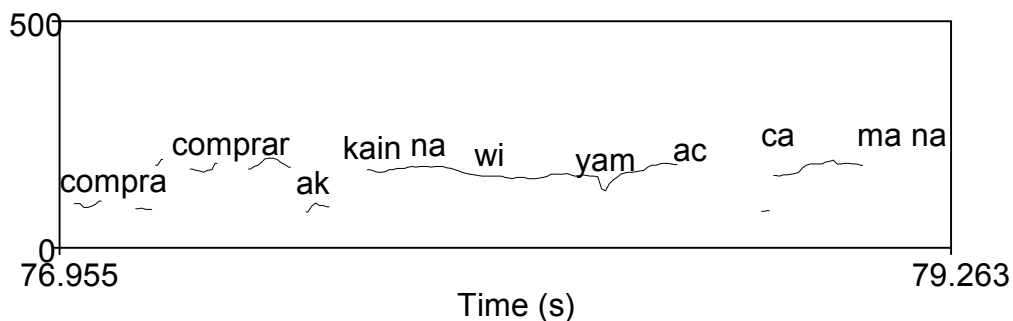
comprar   comprar   'ak   ka-in   na   wiyam   'ak   kama   na

| buy | buy | travel | 3sm-3sn | 3srp/p | outsider | travel | 3sf | 3srp/p |

'Then the outsiders buy them' (lit. (then) it (is that) the outsider buys them)

The verb in this sentence is a Portuguese word – *comprar* 'to buy'. Note this loanword follows the regular morphosyntactical and intonational pattern for verbs in the ON' - firstly, it is repeated to show the plurality of its object (because it is a TR verb) and, secondly, it has rising pitch on the second verb in the sequence, dropping down on the next word *'ak.* The influence of declination meant that the sentence final particles *ma* and *na* did not have an F0 value i.e. they were whispered. The next utterance shows pitch reset because the first verb *mi* has an F0 of 233Hz:
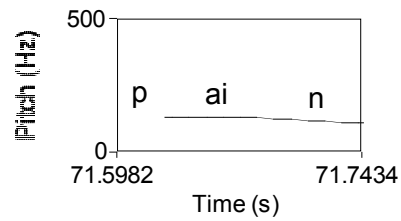
IU22   BN
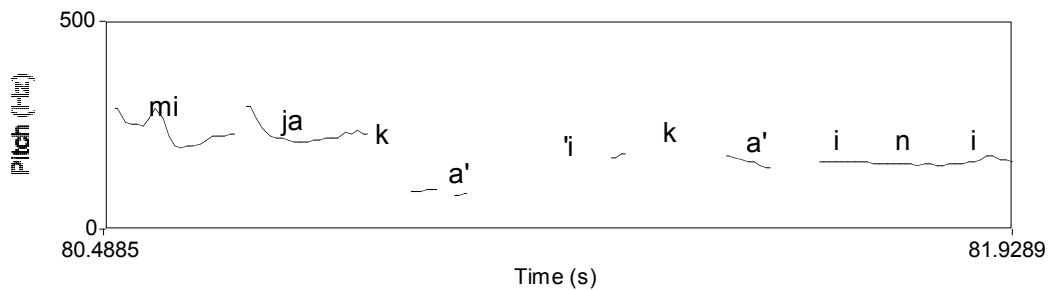
As mentioned in section 2.1.1, Hirst & Di Cristo state that final lengthening can help determine the boundary of an IU. This occurred in the FN with the preposition *pain*, which was nearly twice as long compared with other instances of the same word in other parts of the narrative:

	500				500		
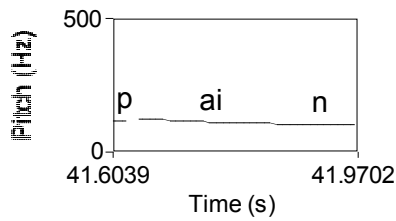
=   0.36 secs long (IU13)   =   0.14 secs long (IU20)

Declination involves an overall downward terminal pitch movement which is a common indicator of an IU boundary and, in ON', this often interacts or coincides with the morphological context. As mentioned in section 2.1.2, Gussenhoven states this is actually a grammaticalisation of declination and labels it 'downstep', which is also a cue to IU boundaries.

Many of the IUs in the data correspond to clauses and many of these clauses end with a VIC or the sentence final referential particle *kem.* (See section 4.2.1 for a discussion of *kem*). Therefore these grammatical items and their terminal pitch movement denote the end of an IU and fit in with Gussenhoven's definition of 'downstep'. Sometimes the terminal pitch movement was a jump, more often it was a general downmotion to the point of the morphological item being whispered. This was a common occurrence throughout the data:

IU28   MPI 062M – The VIC displays the same jump down in pitch:

500

p a n a k k a m a
i n na

0
63.6547   Time (s)   64.2797
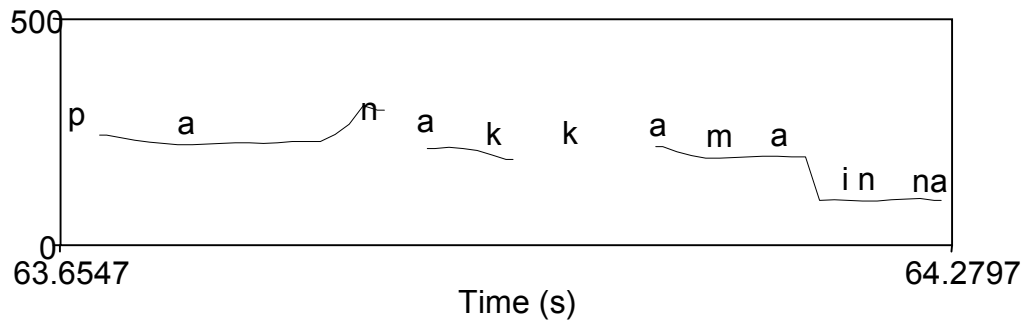
pan	*'ak*	*kama-in*	*na*
stir	travel	3sf-3n	3srp/p

'She stirred it'

IU29   AN   -   *kem* shows a downmotion in pitch:

Pitch (Hz)

500

k u t a k k a i n a k e m

0
81.7992   Time (s)   82.6631
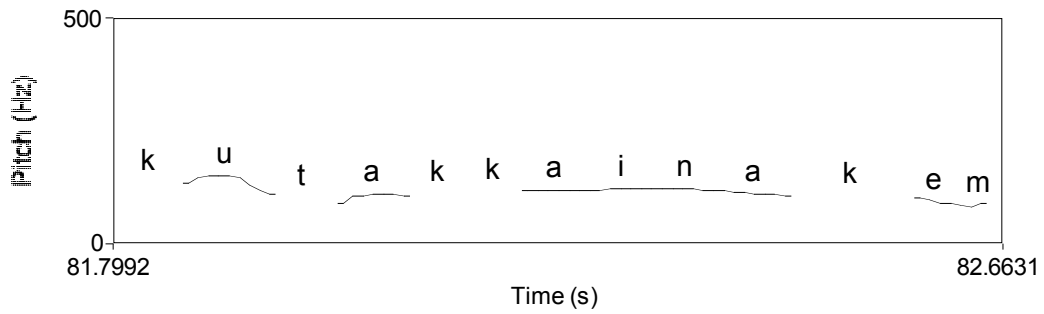
kut	*ak*	*ka-in*	*na*	*kem*
take	travel	3sm-3n	3srp/p	also

'He takes it (the arrow) too'

Pauses can also help demarcate IU boundaries and can be filled or silent in ON'. Both the men used *i ka* as a filled pause. *i ka* is a demonstrative pronoun and a common use of demonstrative pronouns is anaphoric 'as a vocal pause when stumbling in speech' (EK 1997: 184). The women's narratives only had silent pauses. The below example is from the FN, IU4 where there was a pause of 0.95 seconds after *i ka*:
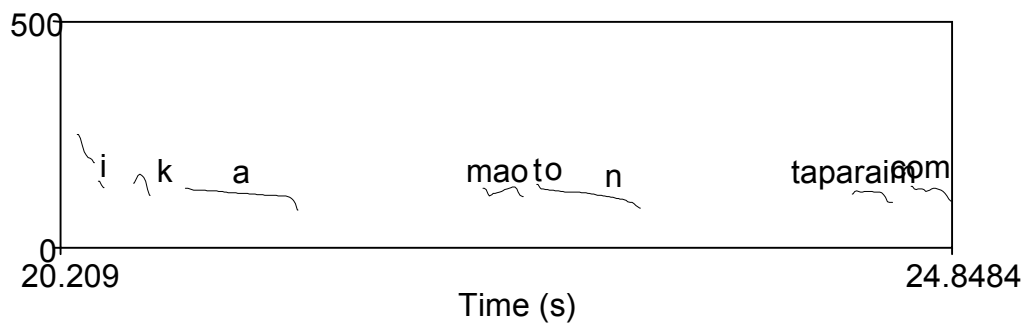
i ka….		*mao*	*ton*	*taparaim*	*kom*
n.that:prox:speaker		go:s	1srf-3m	small:river	prep:3sm

'Errm….I will go… to the small river,'

This excerpt also seems to exhibit what Cruttenden termed 'hesitation phenomena' or 'word finding difficulty' (see section 2.1.2) as there is a pause of 0.91 seconds before *taparaim*, which could be argued to have a high lexical content. As such it was not considered to be an IU boundary marker and was classed as an IU internal pause. Additionally, the VIC *ton* marks a previously unmentioned masculine object, *taparaim*, which means the clause would not be complete without the preposition phrase that follows it.

4.1.3   <u>Functions of Intonation In ON'</u>

Refer to section 2.1.3. As shown in the section above, IUs demarcate clauses and there are phonetic cues to help determine this. Some IUs do not correspond to full clauses however. Adverbials are oft cited as forming their own IU, whether they appear clause initially or finally. For example, J. Reinbold (2004) found that only clause initial adverbials formed a separate IU in Banawa, an Amazonian language, whilst clause final adverbials did not. In ON', 'the notion of simple adverbial modification is expressed by verb compounding' which can precede or follow the verb root (EK 1997: 139) This immediately suggests that ON' adverbials would not form their own IU because they are actually part of a compound verb:

<u>IU36</u>   AN
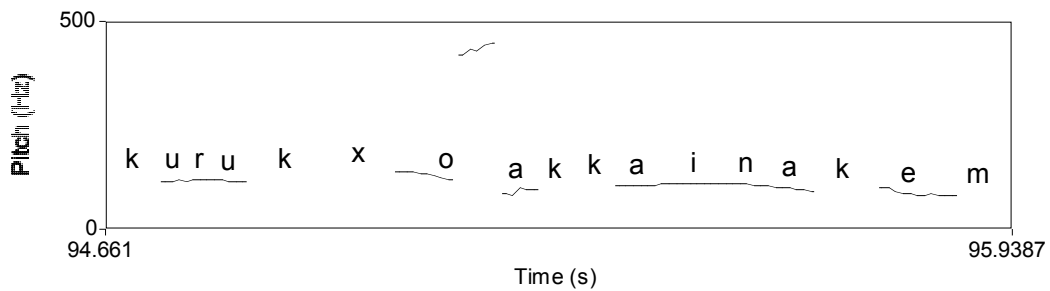
kuruk	*xo*	*ak*	*ka-in*	*na*	*kem*
scrape	correctly	travel	3sm-3n	3srp/p	also

'He scrapes it out correctly (well)'

The post-verbal modifier does not form its own IU. This is predicted by the fact it is actually a compounded verb and the fact they are stress avoiding. The adverbials exemplified here do not form a separate IU as there are no phonetic IU boundary markers, or pause between the adverbial and the next clause, or final syllable lengthening on the adverbial.

There was an instance where the speaker used *kem* to mean 'again' but this did not form its own IU either. This would be predicted by the hypothesis that clause final morphological particles like *kem* and VICs are actually an instance of downstep (see section 4.1.2 above). It is also explained by the fact that it modifies the meaning of the whole sentence, not the verb, because it does not appear as part of a verbal compound. In the same clause, the post verbal modifier *ma* appeared and again, the pitch rose to a peak on it and then fell on *ak*:

<u>IU40</u>   AN
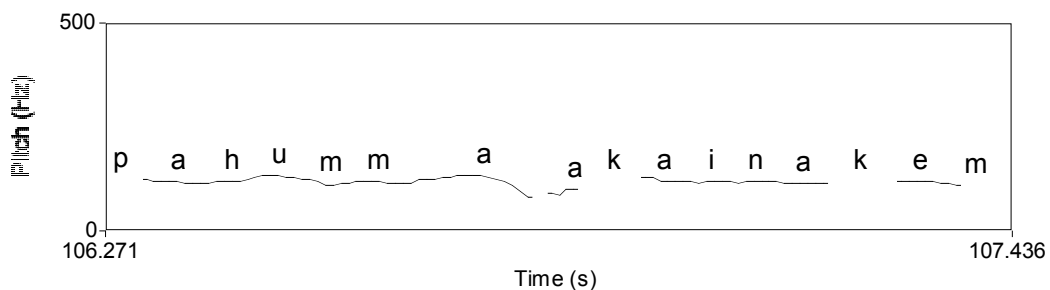
pahum	*ma*	*ak*	*ka-in*		*na*	*kem*
straighten	again	travel	3sm-3n		3srp/p	again

'He straightens it all out again'

There was an instance where there were seven members of the verbal compound. The verb *kuruk* was reduplicated four times and was followed by the verbs *pi'* and *pin*[1] and then was followed by two post verbal modifiers:

<u>IU37</u>   AN
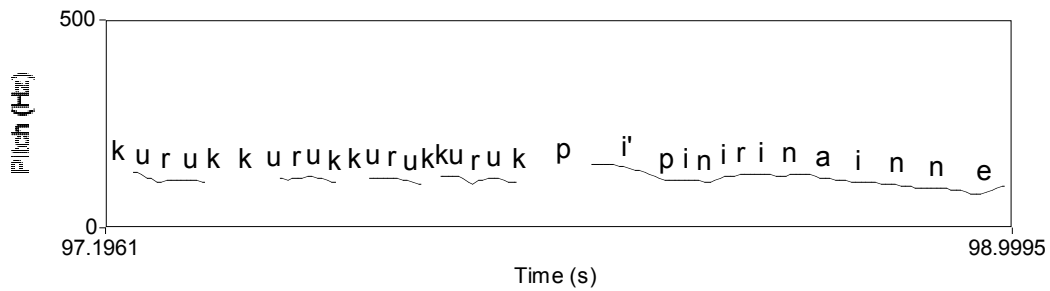
kuruk	*kuruk*	*kuruk*	*kuruk*	*pi'*	*pin*	*iri*
scrape	scrape	scrape	scrape	finish	completely	already

na-in	*ne*
3srp/p-3n	rec:past

'He scraped and scraped till it was all completely finished'

EK (1997: 141) state that it is common for monosyllabic post verbal modifiers in compound final position to avoid stress. This is shown above because the pitch falls from the verb *pi'* down to the first post-verbal modifier *pin*. The reduplicated verb *kuruk* did not show any phonetic cues that would suggest it forms a separate IU,

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[1] See EK (1997:144) for their discussion on why *pin* is a verb.

such as a pause, so this was the largest case of verbal and post verbal modification compounding in the data.

Toplicalised subjects and objects can also form their own IU. There was only one example of a topicalised subject in the data. The informant was asked to give a narrative on how to make a basket. She began by saying that baskets are made by people and the most prominent constituent auditorily is *wao* – a type of basket. The translation 'people' was given as the VIC *nana* only indicates number, person and tense, not gender, which is a characteristic of third person VICs in ON'.

IU2 BN – This has the left dislocated NP *oro' narima kwa:*
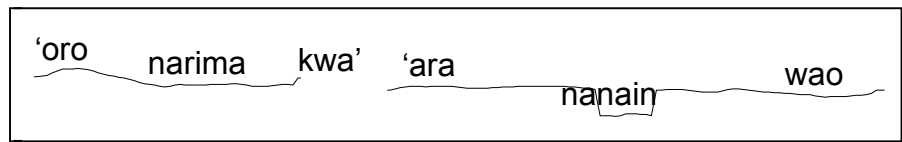
'oro	*narima*	*kwa'*	*'ara*	*nana-in*	*wao*
COLL	woman	this:m/f	make	3prp/p-p-3n	basket

'The women, they make baskets.'

This syntactic device is used to indicate the topic and the main event line of the text. (EK 1997: 212) Although the pitch rises on the verb and falls sharply on the VIC as usual, the primary sentence stress (profile 1) is on the topicalised NP.

There were some examples of conditional clauses in the data. EK (1997: 104-105) state that the *mo* condition clause precedes the clause it modifies and each receive separate intonation and are separated by pause:

<u>IU6 & IU7</u>   FN
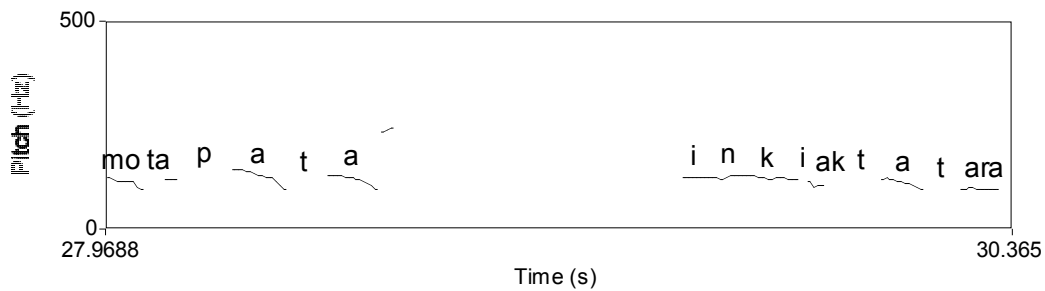
mo	*ta*	*pa*	*ta,*	*in*	*ki*	*ak*	*ta*	*tara*
conditional	INFL:rf	kill	1rf	return	coming:this:way	travel	1s	3srf

'If I kill, then I will return.' (lit. (then) it will be (that) I return)

The clauses are separated by a pause of 0.239 secs. The first IU has pitch prominence and a rise in intensity on the verb *pa* which is more prominent than the verb in the modified clause. It reached a peak of 144Hz compared with 130Hz on *ki*. Both clauses started at nearly the same pitch (123Hz compared with 122Hz) so there was no pitch reset on the start of the modified clause. The clauses are syntactically related as both manifest the same tense – realis future. (EK 1997: 104)

pa	*parik*	*e*	*ton*
			ta-on
kill	a:little	?	1srf-3m

'I could kill a few,

mo	*ta*	*miya*	*ka*	*tara*
conditional	INFL:rf	many	3n	3s:rf

'I could (kill) a lot, who knows?

mo	*ta*	*om*	*ma*	*tara*
conditional	INFL:rf	not:exist	that:prox:hearer	3s:rf

'or I could (kill) nothing, who knows?'

The same pattern is not observed here, however. There are no pauses (except what was classed as a hesitation pause at the start). This seems to be due to the fact that there are no overt modified clauses, just the condition clause. EK (1997: 105-106) state this can happen and gloss *tara* as 'who knows' accordingly. EK do not mention what happens prosodically when there is no overt modified clause but from this data it seems that the verb manifests its usual profile. There is no pitch reset at the start of each new condition clause, rather, the declination on the VICs *ton* and *tara* continues over *mo* and then starts to rise on the INFL morpheme *ta*, continuing up to the verb. As such, it is very difficult to separate these clauses. If there were prosodic cues to

separate these clauses, it would be expected that, even if there were no pause, there would at least be a clue such as pitch reset on *mo* to signal the new condition clause. As declination was lowest at the end of the whole string - 99Hz - it was classed as a single IU.

See section 2.1.3. Another function of intonation is to demarcate sentence final IUs from non-sentence final IUs - initial or medial clauses. As a result falls are found more on sentence final IUs and, when found on declarative grammatical structures, indicate completeness or finality. Rises are found more on initial or medial clauses. The ON' data show these tendencies:

IU5 & IU6   BN

```
500┐
   │  k i  k
   │  k i   n                        w i r i   i  k           i  n
   │        n a n a  i  n            r   t   pihana  p a
   │                                                    i x i  n e i  n
   │                                               r  a
  0┴─────────────────────────────────────────────────────────────────
   36.646                                                        40.3813
                              Time (s)
```
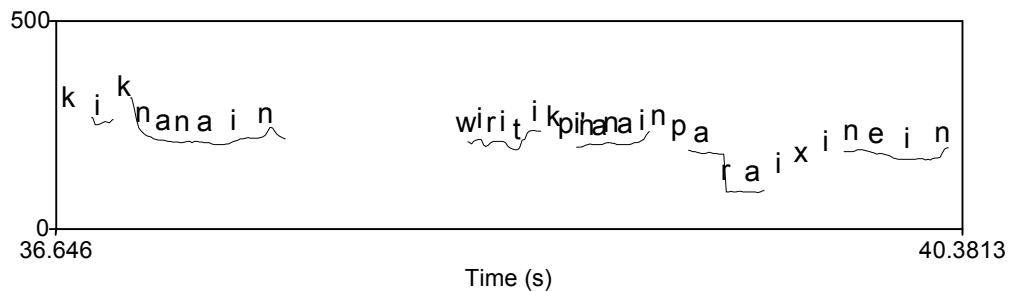
kik	*nana-in,*	*wiritik*	*pin*	*nana-in*	*paraixi*	*nein*
pull	3prp/p-3n	pull:out	completely	3prp/p-3n	spines.n	NIC:3sn

'They pulled it, they pulled its spines completely out' (it = the *wao* palm)

The sentence initial IU has profile 1 on the verb. The VIC, unusually, also rises in pitch to 217Hz. Thus, there seems some correlation here with Cruttenden's statement (see section 2.1.2) that, when usually unaccented items receive a pitch

60

accent, it is a phonetic indication of an IU boundary. This shows the demarcation of a sentence initial IU. The VIC in the sentence final IU finishes on a lower pitch of 171Hz. The sentence final IU starts at a lower pitch (210Hz) than the start of the sentence initial IU (267Hz) and declines in pitch overall.

There are many examples of falls on declarative sentences which correlate with the notion of finality and completeness. For example:

IU21   MPI 062M[1]
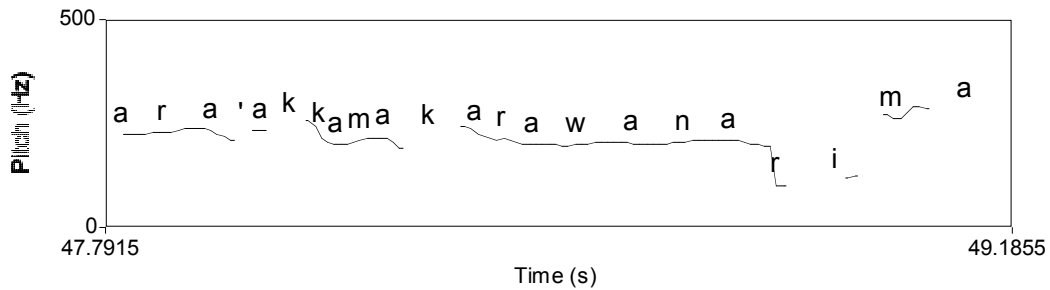
ara'		ak	kama	karawa	narima
make		travel	3sf	animal	woman

'The woman made the food'

IU29   AN

[1] The spurious pitch movements on the last syllable of *narima* are due to the effects of creaky voice. See Gussenhoven (2004: 6)
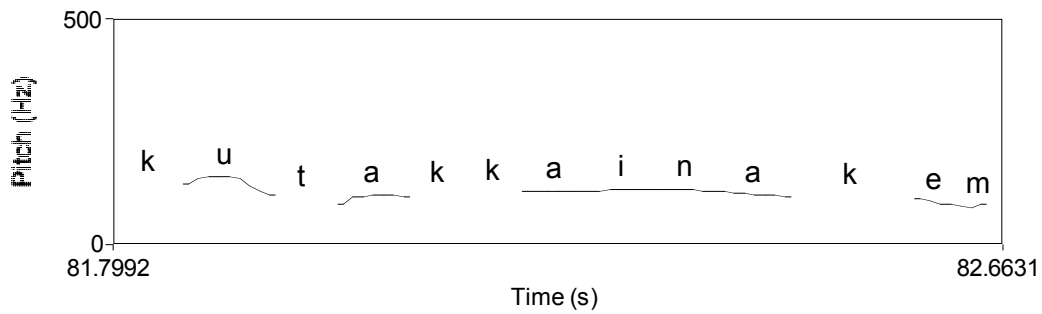
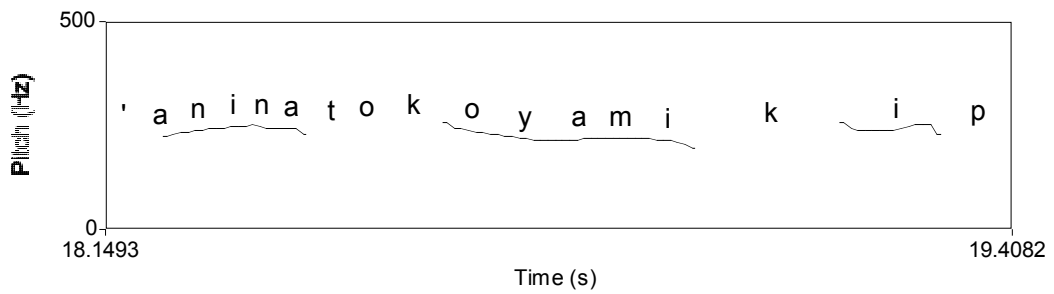| *kut*		*ak*	*ka-in*		*na*		*kem*
take		travel	3sm-3n		3srp/p		also

'He took (the arrow) too'

There were instances in the data where IUs were clearly separated by a pause and corresponded to clauses. It would be expected they would have received falling tones on the VICs or the sentence final NPs. Indeed, what made them conspicuous in relation to the rest of the data was that this did not occur. The opposite was true because there was a complete lack of declination. This seemed to be partly demarcating non-sentence final IUs but it also seemed to arise from the speaker watching a clip and describing the action as it happened; therefore, she was waiting or expecting more action to occur. This correlates with the notion that high or non-falling intonation is continuative. Each IU is a grammatically complete utterance, but at the time of speaking, she was not sure if the actions denoted by the utterance had been completed yet:

IU7   MPI 062M

'a n i a   k k a   s i y e n a
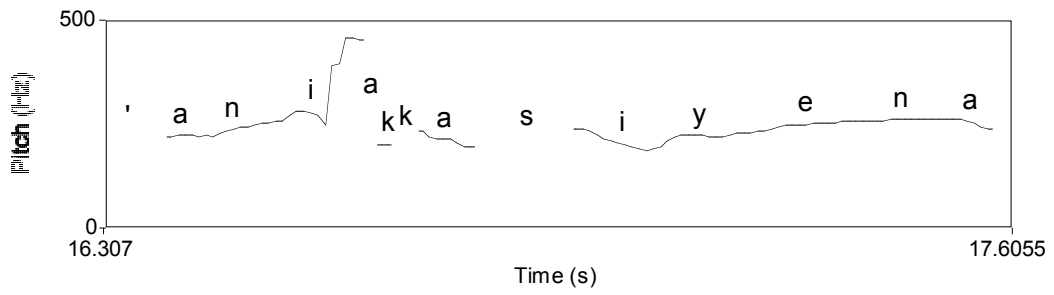
ani'	'ak	ka	kasije	na
get	travel	3sm	other	3s:rp/p

'He got another…'

IU8   MPI 062M

'a n i n a t o k o y a m i   k   i   p

ani'	na	tokoya mikip
get	3s:rp/p	knife/machete

'he got the machete…..'

IU9   MPI 062M
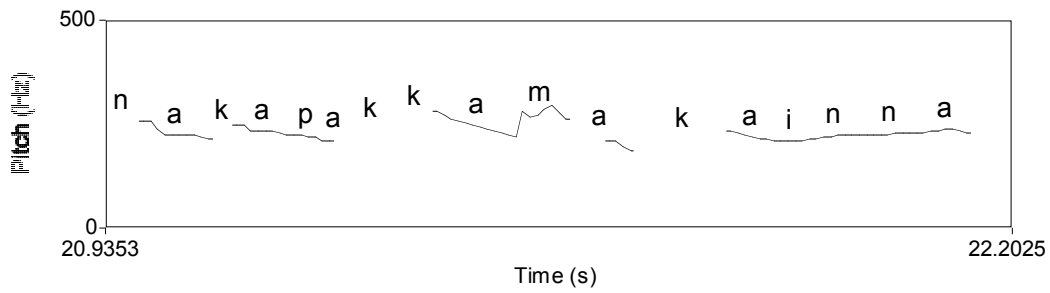
nakap	*'ak*	*ka*	*ma*	*ka-in*	*na*
chop	travel	3m	that:prox:hearer	3sm-3sn	3s:rp/p

'He chopped it….'

IU10   MPI 062M
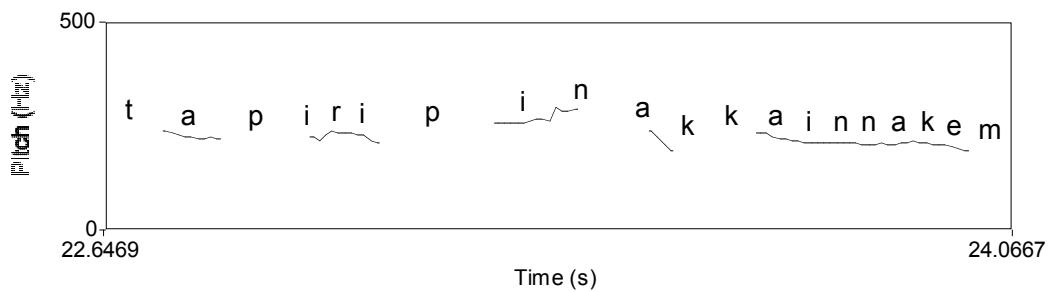
tapiri	*pin*	*'ak*	*ka-in*	*na*	*kem*
chop	completely	travel	3sm-3sn	3s:rp/p	ref

'He chopped it all up (wood).'

IU10 is the final IU with the characteristic declination on *kem*, signalling the completion of this particular bit of action on the screen and conveying the notion of 'completeness' sentence finally.

4.1.4   Question Intonation In ON'

EK (1997: 12-13) state that 'interrogative and declarative intonation patterns in ON'
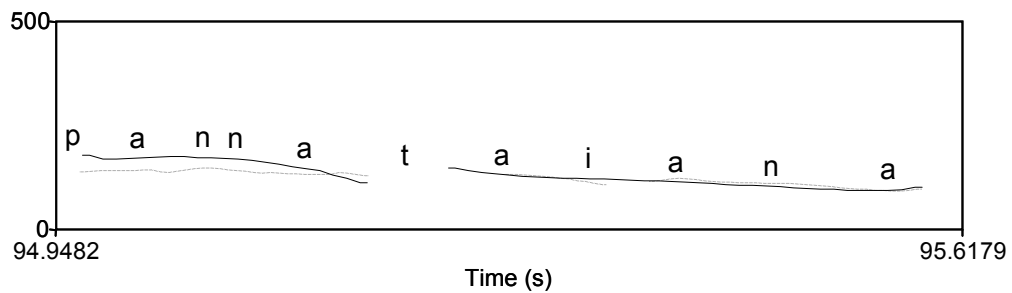are basically the same'. The difference is that interrogative intonation is higher
pitched than declarative intonation. An example of this is below (see 'Questions'
appendix):

Set 2   y/nQ

| Time (s) |
|

pan   na   Taiana
fall   3srp/p f:name
'Did Taiana fall?'

The pitch of the yes/no question is shown by the black line whilst the dotted line
shows the pitch of the syntactically identical statement *pan na Susanna* − 'Susanna
fell'. The proper noun has nearly identical pitch; it is the verb and VIC which are
uttered at a higher pitch. Rises have been widely correlated with yes/no questions.
This example above does not show a rise apart from the usual rise on the verb. The
contours for pitch movements in ON' yes/no questions are exemplified as follows:

Set1   y/n-Q
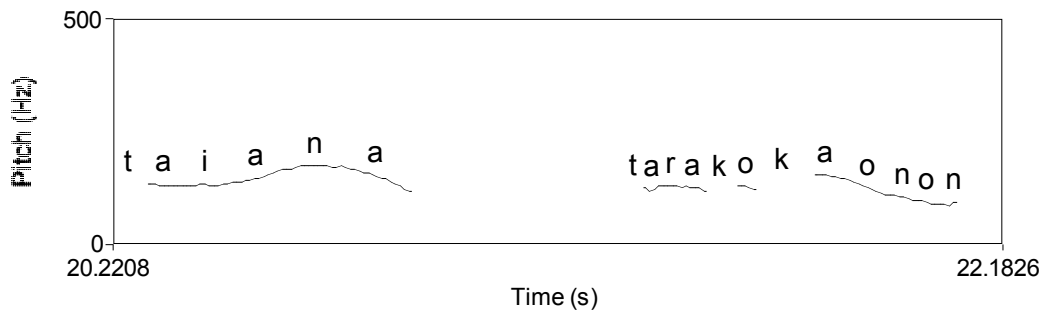
taiana	*tara*	*ko*	*kao*	*non?*
				na-on
f:name	3s:rf	INFL:m/frp/p	eat	3srp/p-3sm

'Did/will Taiana eat fish?'

Here both the NP *Taiana* and the verb receive profile 1. This is a puzzling example as there are no examples in EK that show an NP in sentence initial position for yes/no questions. Usually, yes/no questions have the grammatical structure of declaratives, with the verb in initial position. Also the presence of the future VIC is unexpected as it does not agree with the VICs which follow.

Set 4 Q4:
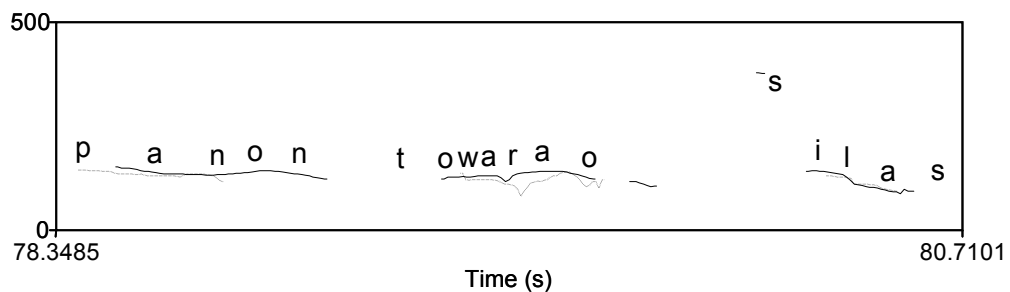
pa'	*non*	*towarao*	*Silas*

na-on

kill   3srp/p-3sm   parrot   Silas

'Did Silas kill the parrot?'

The black line shows the pitch of the question and the dotted line shows the pitch of the syntactically identical statement. The question is uttered at a slightly higher pitch overall whilst following the same tune as the declarative. Again, there is no final rise in the question.

Wh-questions typologically tend to follow the tune of declarative utterances, although they have also been associated with rising tones. Below are examples of ON' wh-questions. The question phrase is sentence initial (or the PrCS in RRG) which is typologically the most common position. The question phrase *ma* + N + INFL follows the same tune as the V + VIC in declarative utterances with the pitch rising on *ma*, reaching a peak on the last syllable of the N and falling sharply on INFL. This first tune is sometimes higher than the following tune on the verb and VIC:

Set 1 Q2:
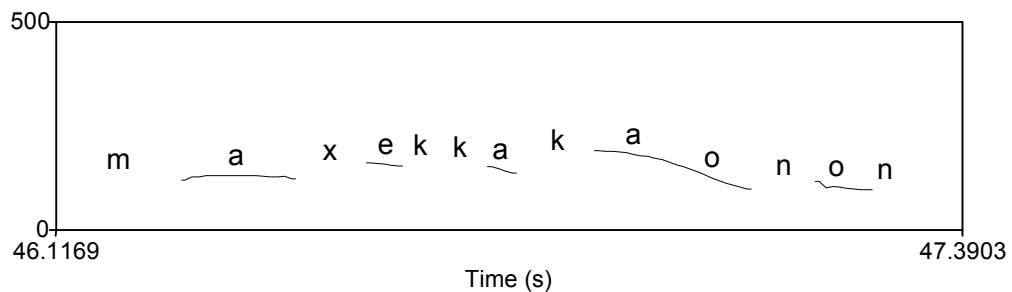
ma   *xek*   *ka*   *kao*   *non?*

                                                  na-on

that:prox:hearer	day	INFL:nrp/p	eat	3srp/p-3sm

'When did he eat?'

The question phrase *ma xek* has profile 1, like the verb *kao*. The pitch drops from *xek* to INFL - *ka*, just like the drop in pitch from *kao* to the VIC *non*. Here the pitch on *kao* is higher than the pitch on *xek*.

Set 2 Q1:
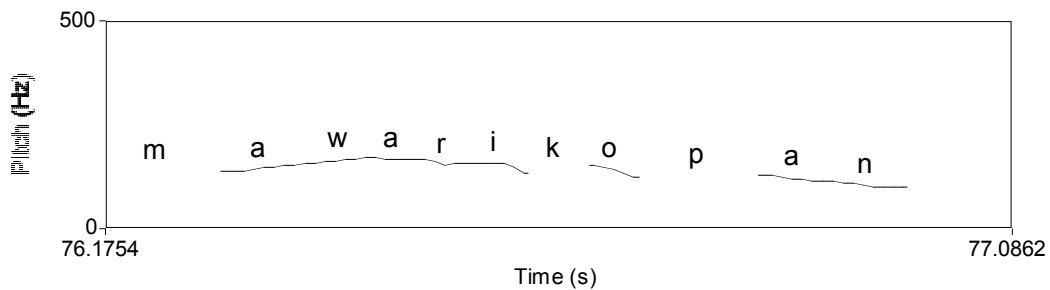
ma	*wari'*	*ko*	*pan*
that:prox:hearer	person	INFL:m/frp/p	fall

'Who fell?

Again the question phrase *ma wari* has rising intonation as profile 1 appears on the last syllable of *wari'*. It drops sharply on the INFL morpheme *ko*, again like the pattern on the verb and VIC in declarative sentences. Below are transitive examples which have an overt NP question finally. This always exhibits rising intonation:

Set1 Q1:

```
500 ─┐
         m   a  w  a  r  i   k  o    k   a   o  n  o  n      a       m
Pitch                                                   hw
    0 ─┘
  13.6083                                                          14.9343
                              Time (s)
```

ma	wari'	ko	kao	non	hwam
				na-on	
that:prox:hearer	person	INFL:m/frp/p	eat	3srp/p-3sm	fish

'Who ate fish?'

The pitch movement on *hwam* corresponds to Bolinger's Profile B. The final intonation rises on *hwam* rather than falling. Therefore this example shows the wh-question phrase following the same tune as a declarative whilst the whole question simultaneously exhibits a final rise.

Set 3 Q2[1]:

---

[1] This is an example of how pitch trackers can mistake voiceless friction for voicing and give irregular pitch measurements. In this case it was both /s/ phonemes in *Silas* that showed an irregularly high pitch. (Gussenhoven 2004: 5)

Time (s)

ma		karawa	ko		pa'	ka	Silas

that:prox:hearer   thing   INFL:m/frp/p   kill   3n   m:name
'What thing did Silas kill?'

This example did not have a rise on the usual syllable of the question phrase which would be the last syllable of *karawa*. Instead the pitch rose from *ma* to the first syllable of *karawa* and fell over the rest of the word. There was the usual fall on INFL, however and the overall pitch of the question phrase was higher than the same tune on the verb *pa'* and VIC *ka*. Although the pitch is not as clear on this diagram as others (see footnote), *Silas* showed rising pitch.

Set 4 Q2:

ma		wari	co	pa'	non	taramin
					na-on	
that:prox:hearer		person	INFL:m/frp/p	kill	3srp/p-3sm	macaw

'Who killed the macaw?'

Though the tune of the wh-phrase followed the same pattern of *pa' non* here, it was not uttered at a higher overall pitch in this example, although the difference was slight. *taramin* shows a final rise.

4.1.5   ON' and Tonal Universals

Refer to section 2.1.4. The examples from the previous sections show that the ON' data corresponds with many of the tonal universals. There are falling tones on sentence final IUs, especially declaratives or neutral statements, which often co-occur with a specific morphological context such as VICs or sentence final particles. All this corresponds with the notions of 'non-continuative' or 'closed'. As shown above, rising tones corresponded with continuative meanings and sentence initial IUs.

The ON' yes/no questions in the data do not exhibit final rises and are identical syntactically and intonationally to declarative sentences. There are no morphological markers of yes/no questions. The difference is that the interrogative tune is uttered at a higher pitch than the declarative tune so prosody alone marks these questions. This clearly shows that intonation changes the grammatical meaning of an utterance, which shows that intonation is not purely iconic.

The wh-phrase exhibits the same tune as declaratives but this is often at a higher pitch. The verb and VIC in the wh-question show their normal tune which confirms that wh-questions follow the same tune as declaratives. When a wh-question contained a transitive verb, the final NP had rising intonation. This is what Lambrecht predicts, as sentence final constituents in wh-questions have an activation accent. This is because they designate the referents about which information is required and activates the whole presupposition. As VICs are unaccentable, the intransitive examples that had a VIC question finally could not manifest this activation accent.

4.2   Information Structure in ON'

As outlined in section 1.2 the unmarked constituent order in ON' is VOS, although it is rare in normal discourse that both subject and object are expressed because full NPs as they can be indicated on the VIC. When just one argument is expressed on the VIC (the subject; as subject agreement is obligatory and object agreement cannot occur without subject agreement (EK 1997: 329-335)) and the other argument is expressed as a lexical NP, then that NP occurs in the post-verbal position, after the VIC.

4.2.1   Topic

Information structure affects the form of nominal constituents. The inactive status of referents is marked by an accented lexical phrase. A clear example of this is the topicalised NP *oro narima*, which is additionally morpho-syntactically marked by left dislocation and the demonstrative *kwa'*:

IU2 BN
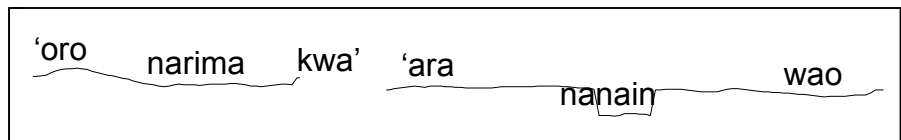
'oro	*narima*	*kwa'*	*'ara*	*nana-in*	*wao*
COLL	woman	this:m/f	make	3prp/p-p-3n	basket

'The women, they make baskets.'

This is a highly marked construction as ON' is usually verb initial and provides evidence that the 'topic first principle' is not as universal as supposed. Initially, I thought the speaker was stressing that <u>all</u> the women make baskets but *'oro* can only render a meaning of 'all' when it appears with a semantically plural noun. (EK 1997: 290-291) *Narima* is singular and as such the pitch movement seems to mark the whole dislocated NP. From this one example (and EKs' observations) topicalisation is achieved through a mixture of morpho-syntax and prosody. After 'the women' have been activated like this they remain the topic of the narrative and are expressed throughout on the VICs only.

The clause before this topicalised NP introduced baskets as the topic. The NP *wao* received pitch prominence via profile 1 and was more prominent than the verb:

<u>IU1</u> BN[1]
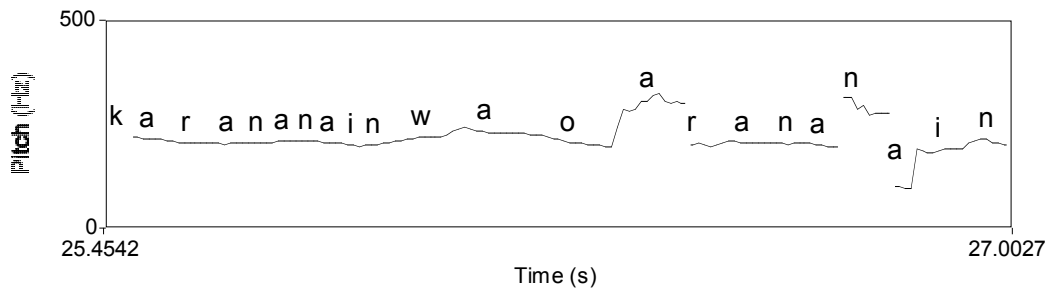
	kara	*nana-in*	*wao*	*'ara*	*nana-in*
	begin:to:make	3prp/p-3n	basket	make	3prp/p-3n

---

[1] The irregular pitch markings *ara' nanain* seemed to be due to a creaky voice quality. Gussenhoven refers to such anomalies as 'doubling errors' (2004: 6)

'They begin to make baskets, they make baskets'

Therefore, the first two IUs of the narrative seemed to establish two topics and, for most of the narrative, the women and the baskets are referred to on the unaccented VICs, which is the normal way of expressing activated and presupposed referents:

IU26   BN

ten   *kira*   *nana-in*
dry:out   put:in:sun   3prp/p-3n
'They (the women) dry them (the *wao* spines) out in the sun'

This seems comparable with a discussion by Lambrecht. He states that when both referents in a sentence are presupposed to be topics the referents 'stand in a certain relation to each other' and a sentence containing two topics, in addition to conveying information about the topic referents, 'conveys information about the relation that holds between them as arguments of a proposition.' (1994: 147-148) This is because the relation between the two has already been established – in this case by profile 1 on *wao* which is not on the verb in IU1 and by left dislocation and prosodic marking on *oro narima*.

Following Lambrecht's terminology, the women are the primary topics because the whole discourse conveys information about their actions. The baskets are secondary topics because the addressee learns facts about them in relation to the women's actions. It could perhaps be further argued that the women are the primary topic because they were activated in a much more marked way (combining a highly marked morphosyntactic construction with additional prosodic marking) than the baskets (prosodic only), although this is a tentative suggestion because of the lack of data.

Anaphoric expressions refer to entities that have recently been activated in the discourse and therefore have an assumed active status. A common form is unaccented pronominals. EK state demonstrative pronouns are frequently used anaphorically for third person referents but there were no examples of this here. This is probably because they are used 'when the identity of the main characters are well known to the interlocutors' (EK 1997: 184) The data collected here were monologues for a 'non-ON'' audience (me).

The most common form of anaphora was expressing the nominals on the VICs, which are not pronouns themselves, but indicators of grammatical relations. Normally, the verb receives primary stress and other lexical constituents bear secondary stress when they appear as full lexical NPs, with VICs receiving tertiary or perhaps quartiary stress. (EK 1997: 416) Expression of the participants via

unaccented VICs was the preferred way of referring to the participants after they had been activated by NPs. For example:

IU9 BN
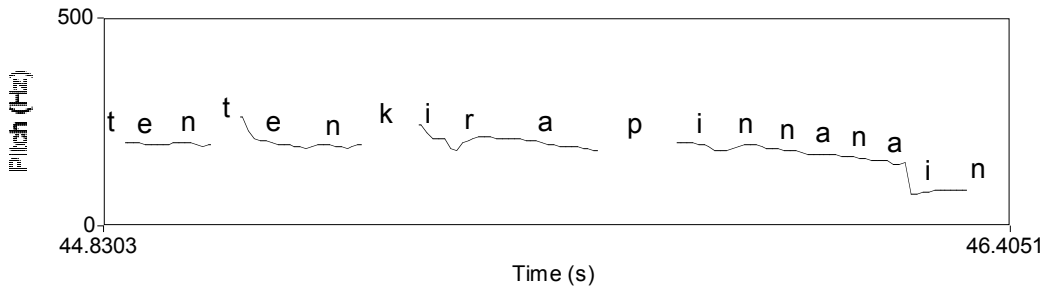
ten	ten	kira	pin	nana-in
weave	weave	dry:in sun	completely	3prp/p-3n

'They (the women) weaved and dried them (the *wao* spines) out completely'

Here, both the women who make the baskets and the spines with which they make them, are expressed by an unaccented VIC. The women have been activated earlier on in IU2 by the topicalised NP *oro narima*. The *wao* spines have been activated as a lexical NP earlier on in the discourse (IU6). *kira,* as the last verb in the compound receives primary stress via profile 1 and *pin* is auditorily more prominent than the VIC because it has a higher intensity. Therefore the VIC is the least prosodically prominent of all the constituents.

IU9 AN:

500

x ⌣u⌣ t a k k a⌣n⌣a x u⌣ t x u⌣ t

0
36.7481   37.8902

Time (s)
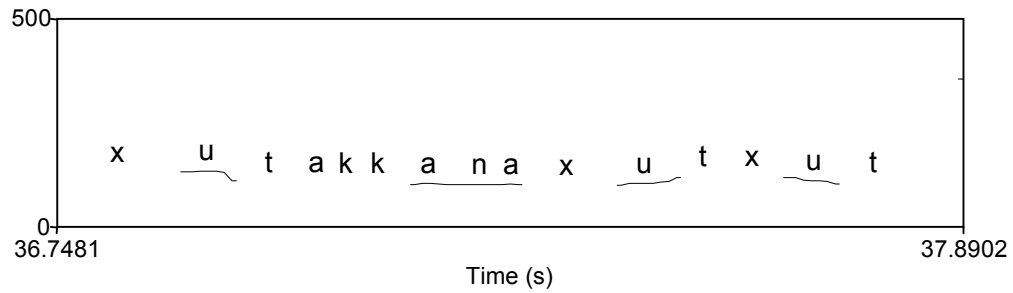
xut	*ak*	*ka*	*na*	*xut*	*xut*
walk:s	travel	3sm	3srp/p	walk:s	walk:s

'Then it was that he walked, he walked and walked'

Again, the topic is expressed by the unaccented VIC *ka*. *ak ka na* is rapidly spoken and very difficult to separate into the component morphemes. *xut* receives primary stress via profile 1. *xut* is repeated following the verbalised sequential clause and separated from the next IU (IU10) by a pause of 0.9 seconds. This showed the verb can be repeated without a following VIC, presumably because the actor of the verb has just been established. EK (1997: 217) state sentence final verb repetition is used to 'indicate material central to the main event line.' In this case it is the man's actions.

Additionally, the AN clearly exemplified the observation that what is implicitly assumed in cultures can illuminate the study of information structure. The first clause of the narrative expresses the male actor of the whole narrative as a VIC – *ka* '3sm' – not as a lexical NP such as *tarama* – 'man'. He is not activated presumably because there is an implicit assumption that only men make bows and arrows in ON'

culture. Throughout the narrative the man is only ever expressed via the appropriate VIC, never as a full lexical phrase.

There were cases of anaphora within the clause, as discussed by EK (1997: 187), where the VIC had nominal antecedents. In other words, even when a lexical NP occurs it can be referenced on the VIC – the subject is obligatory whilst the object is optional. In the example below note that the object is not expressed on the VIC:
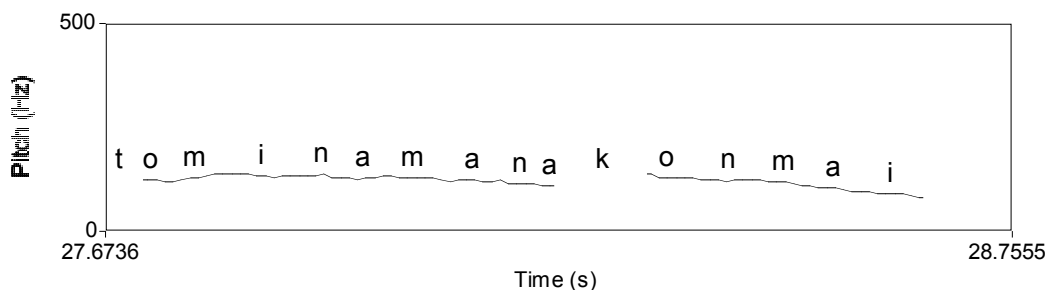
IU21   MPI 062M

    ara'   *na*   *karawa*   *narima*

    make   3srp/p   animal   woman

    'The woman made food'

At the clausal level, 'third person possessors of possessed NPs can be deleted' (EK 1997: 183):

IU5   AN

    tomi   *na*   *mana-kon*   *mai*

    speak   3srp/p wife-3sm   ?

    'He spoke to his wife…'

Note here the possessive suffix *kon* receives stress, not the noun *mana* as per EK (1997: 329).

Another common anaphoric expression was the SFP *kem*. (EK 1997: 186-187) *kem* was translated throughout the AN as 'also' and 'again' but never as a referential particle. Conversely, in the MPI narrative it was only ever glossed as a referential particle, never as 'also'. As discussed in section 4.1.2, *kem* is always unaccented which correlates with the observation that active referents have a typically prosodically unmarked form. EK (1997: 186) state *kem* can refer to something already mentioned in the discourse and an example of this is below:

MPI 062M

    IU42

    xam peho   *'ak*   *kama-in*   *na*   *xe*   *ma*
    sit   travel   3sf-3n   3srp/p   fire   that:prox:hearer
    'She sat (by) the fire' (lit. (then) it (was that) she sat (by) the fire)

    IU43

    xam peho   *'ak*   *kama*   *na*   *kem*
    sit   travel   3sf   3srp/p   ref
    'She sat (by the fire)' (lit. (then) it was (that) she sat (by the fire))

In the preceding example the antecedent of *kem* is *xe*. Both referents are marked on the VIC in IU42 but only the subject is marked in IU43. As the referential distance (see section 2.2.1.2) between the antecedent and the referring expression *kem* is 1

clause, the antecedent is cognitively accessible and explains why it is not expressed as a full lexical NP again.

Similarly, from the MPI narrative:

IU14

kut	*'ak*	*ka-in*		*na*	*urimai*
take	travel	3sm-3sn		3s:rp/p	pieces (of wood)

'He took the pieces'

IU15

kut	*mami*	*'ak*	*ka-in*	*na*	*kem*
take	again	travel	3sm-3sn	3s:rp/p	ref

'He took <u>them</u> again'

The antecedent of *kem* is *urimai* and this example differs from the one above in that both subject and object are marked on the VIC in both the antecedent clause and the anaphoric clause. Again, the occurrence of *kem* is due to the referential distance of 1 clause between it and its antecedent.

EK (1997: 186) state *kem* can refer to something implied in the discourse and the clauses below were classed as such. The basket in which the other baskets are placed when they have been finished had not been previously mentioned in the narrative, but the informant explained *kem* was the referent of this 'other basket':

IU11

ten   *'ak*   *kakama-in*   *na*

weave   travel   3pf-3n   3srp/p

'They weaved them,'

IU12

xu   *'ak*   *kakama-in*   *na*   <u>*kem*</u>

put   travel   3pf-3n   3srp/p   ref

'They put them (all) in (another bigger <u>basket</u>)'

This was puzzling as both subject and object are marked on the VIC but there is no indication of the prepositional phrase 'in the basket'. It seemed to be assumed or implied.

4.2.2 Focus

Broad Focus

See section 2.2.2.1. The information structure category of topic-comment was analysed as predicate focus; itself a type of broad focus. As ON' is a VOS language,

it has comment-topic or predicate focus as the unmarked focus structure and its function is to comment on a given topic of conversation. RRG predicts that default stress and hence default focus is primary stress on the PRED. This is due to information structure – the new information of a clause is given by the PRED. ON' supports the observation that it is cross-linguistically common for the NUC of the PRED to carry primary stress. (See section 1.2.4) The predicate is the focussed constituent in broad focus:

<u>IU28</u> MPI 062M
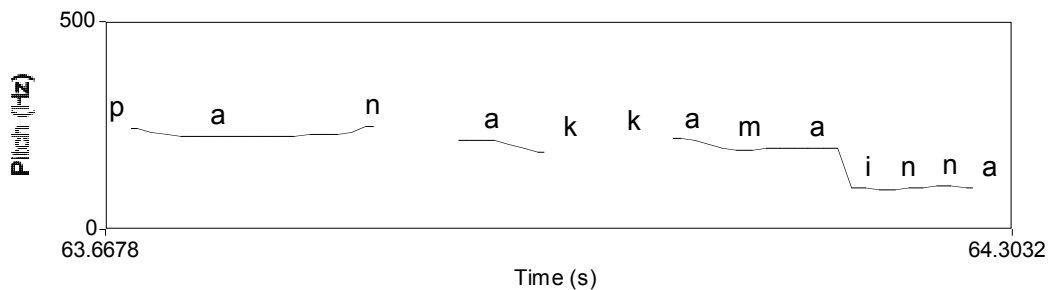
| *pan* | *ak* | *kama-in* | *na* |
| stir | travel | 3sf-3n | 3srp/p |

'She stirred it'

The predicate is accented by profile 1 and *ak*, here the grammatical signifier of the verbalised sequential construction, is unaccented because it is part of the downglide from profile 1. The predicate is therefore focussed which signals the actual focus domain in this case is the predicate phrase. We can see the function of the sentence is to comment on a topic of conversation, in this case it is the woman. Indeed, many ON' sentences in the data (and normal ON' discourse) follow this pattern of V +

VIC, with the predicate as the focus domain, which clearly shows it is the unmarked focus structure.

Examples such as these also correspond with Cruttenden's observations that lexical items have more potential to be accented than grammatical items. As the verb is the last (and first) lexical item in examples like this, with participants expressed on the VIC, it also corresponds to his statement that the stressed syllable of the last lexical item will have primary stress.

Narrow Focus

The data shows that preverbal NP's are prohibited unless they have been topicalised so focal NP's would not be expected to appear pre-verbally. As ON' wh-phrases occur pre-verbally this shows the 'constraint is in the core, not the whole clause'. (Van Valin 2005: 75) The core in RRG is the predicate plus its compulsory arguments. Therefore the potential focus domain in ON' will never be a pre-verbal slot – it will be the subject or object position or the verb. This is supported by examples in EK (1997: 205 & 417) The unmarked type of focus expression is a lexical NP. When this occurs in the data, and the other argument is expressed on the VIC, it is usually in the immediate post-verbal position – the object position. This corresponds to Van Valin's assertion that this is the unmarked focus position in VOS languages.

The data shows that often the verb still receives primary stress through profile 1, whilst the focussed constituents often do not receive focal stress, or receive it to a lesser extent via profile 1. Thus, prosody is not a sufficient indicator alone to indicate focus. It appears that the position of the focussed constituent is a more reliable indicator. Additionally, as the unfocussed argument/s are often expressed on the VIC, this shows their non-focal status because they are not expressed as lexical NPs:

Set1 Q1:
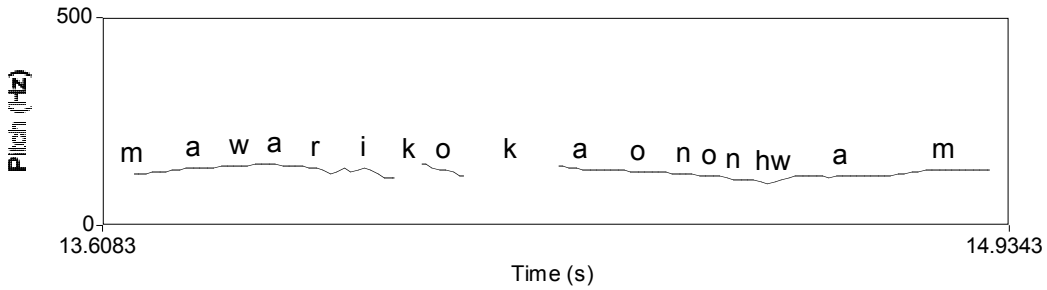
ma	*wari' ko*	*kao*	*non* *na-on*	*hwam?*
that:prox:hearer	person INFL:m/frp/p	eat	3srp/p-3sm	fish
'Who ate fish?'				

Set 1 A1:

500 ─

Pitch (Hz)

k   a   o   n   o   n   e   l   i   z   e   u

0 ─
16.3467   17.3534

Time (s)
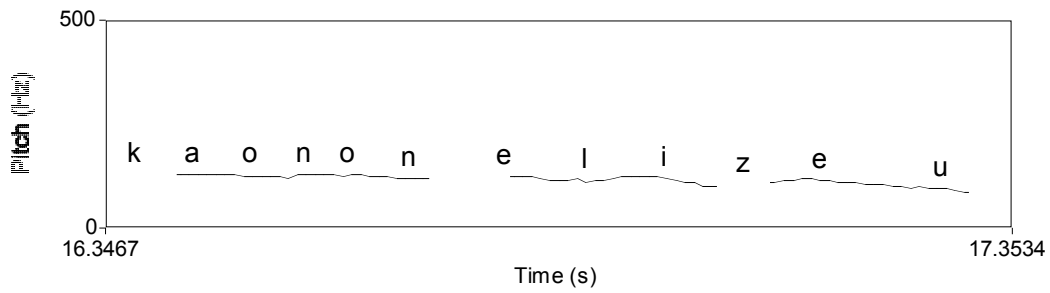
kao   non   Elizeu

      na-on

eat   3srp/p-3sm   m:name

'Elizeu ate it'

Elizeu is the focussed constituent because the identity of its referent is the information the wh-expression is requesting. The last syllable has profile 1 (the rise in pitch on the syllable *li* could be due to the intrinsic high pitch of the vowel /i/). *hwam* cannot be the focus because of the semantics of the wh-expression *ma wari'* and because it is expressed on the VIC in the answer.
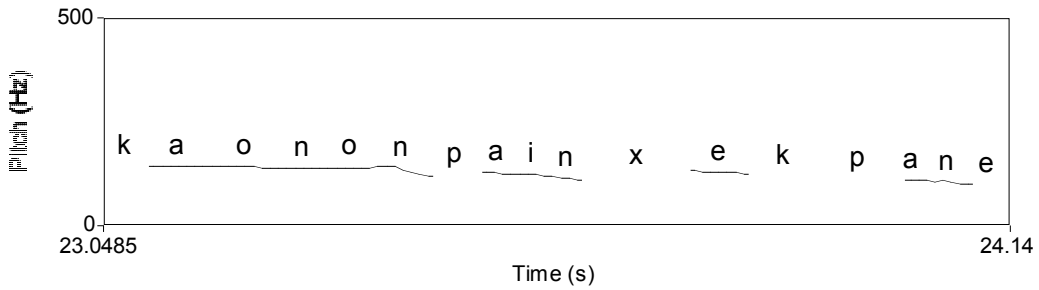
Set 1 Q2:

500 ─

m   a   x   e   k   k   a   k   a
                                            o   n   o   n

0 ─
46.1169   47.3903

Time (s)
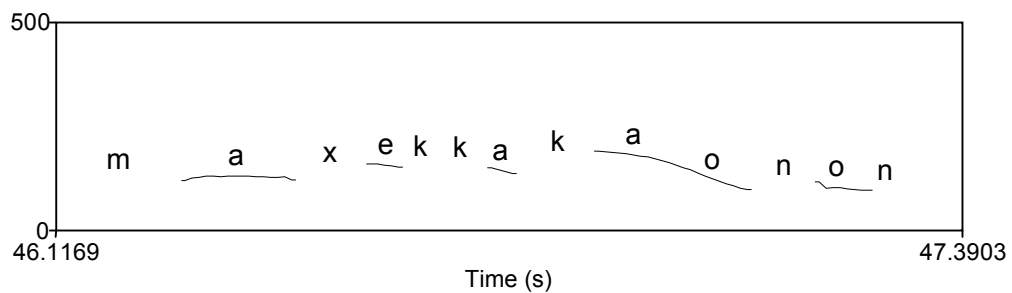
ma   xek   ka   kao   non?

                                                      na-on

that:prox:hearer   day   INFL:nrp/p   eat   3srp/p-3sm

'When did he eat it?'

Set 1 A2:

| kao	non	pain	xek	pane
	na-on			
eat	3srp/p-3sm	prep:3n	day	rec:past

'He ate it yesterday'

kao exhibits profile 1 but this is less 'exaggerated' than profile 1 in the question. It is more difficult to see the profile of *xek pane* as the pitch tracker did not pick up pitch due to the obstruents, but it does exhibit the rise on *xek* and fall on *pane*. *kao* has a pitch peak of 145Hz whilst *xek pane* has a peak of 131Hz. The temporal phrase *pain xek pane* is the focus of the wh-expression and appears post-verbally. Again, the non-focus status of the subject and object is shown because they are expressed on the VIC.

Set 4 Q2:
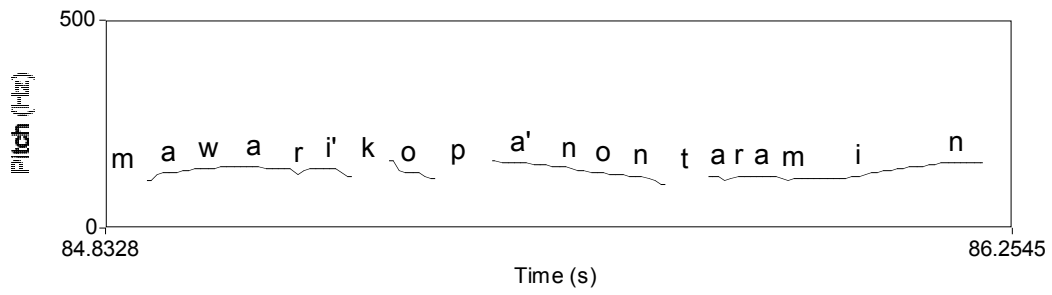
ma		*wari*	*ko*		*pa'*	*non*		*taramin*
						na-on		

that:prox:hearer   person INFL:m/frp/p   kill   3srp/p-3sm   macaw

'Who killed the macaw?'

Set 4 A2:
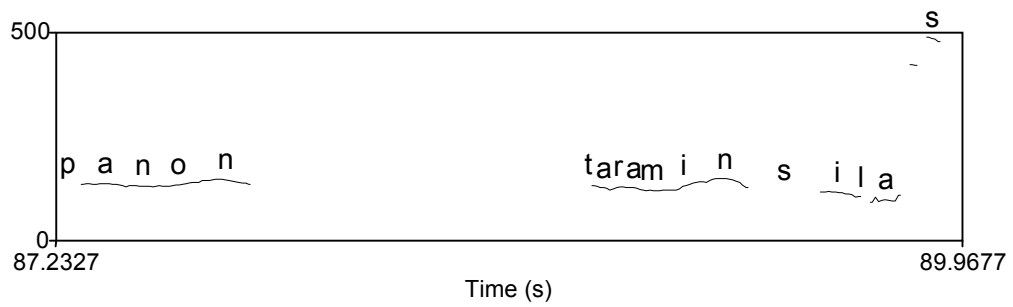
| *pa*	*non*		*taramin*	*Silas*
	na-on			

kill   3srp/p-3sm   macaw   m:name

'Silas killed the macaw.'

Here, the arguments are expressed on the VIC and by lexical NPs. In the question the sentence final constituent has rising intonation that, according to Lambrecht, activates the whole presupposition. The wh-expression is requesting information regarding the subject. *taramin*, as the 'presupposed' element, occupies the unmarked focus position in the answer so *Silas* therefore occupies the marked focus position. As Van Valin states 'narrow focus on an object is a case of unmarked narrow focus, while narrow focus on a subject is a case of marked narrow focus.' (2005: 72) However, *Silas* does not exhibit focus marking, rather; it is *taramin* which manifests primary stress.

The examples below were from the narratives. Much of the time the verb receives primary stress, even when there is a likely focus constituent:

IU21   BN
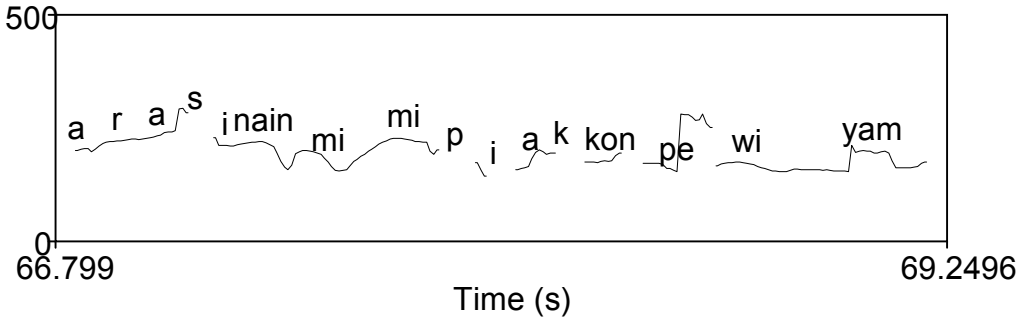
'ara'si   na-in   mi'   mi'   pi'   'ak   kon   pe   wiyam
make   3rp/p-3n   give give   finish travel prep:3sm ?   outsider
'(When) they (have) made them, they sell (give) them to outsiders'

The last syllable of *wiyam* exhibits profile 1, although it is a step-up rather than a upglide. Therefore, *wiyam* is the most plausible choice for the focussed constituent, both prosodically and because it is a post-verbal, previously unmentioned lexical NP. The verbs, however, are more prominent via the same profile. The next two examples were interesting as duration seemed to perceptually create prominence:

IU42   Max Planck 062M
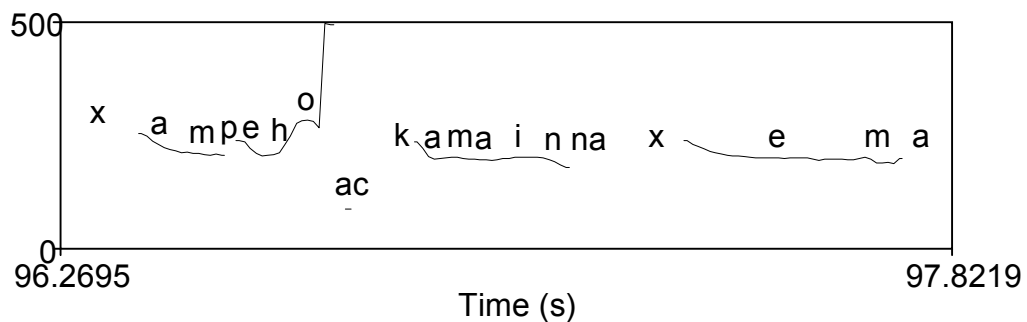
xam peho   'ak   kama-in   na   xe   ma
sit   travel 3sf-3n   3srp/p fire   that:prox:hearer

'She sat near the fire' (lit. (then) it (was that) she sat near the fire)

Again, the lexical NP *xe* exhibited profile 1 and, auditorily, duration seemed to contribute to prominence here. Again, the verb was more prominent via the same profile. The subject is expressed on the VIC *kama* which shows its non-focal status.

IU3   BN
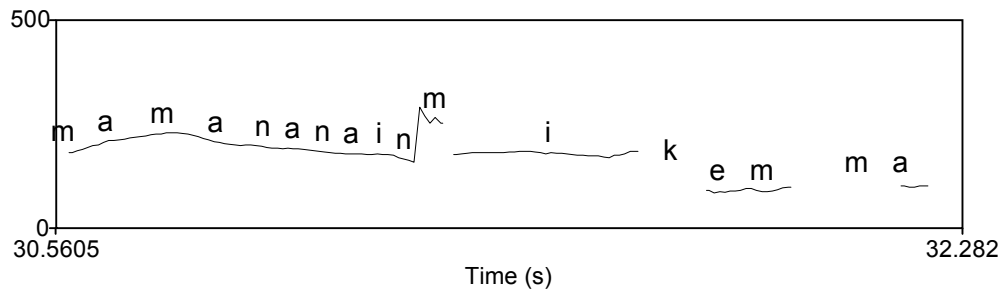
mama	*nanain*		*mi*	*kem*	*ma*
go:p	3prp/p-3n		jungle	ref	that:prox:hearer

'They went to the jungle'

Here *mi* is the plausible choice for the focussed constituent but again the verb carried primary stress via profile 1. *mi* auditorily is more prominent however, but this was not due to intensity. Perceptually, again, it seemed to be due to duration.[1]

In section 2.2.2.3 the semantic content of the wh-expression was considered in terms of referential content and how that facilitates linking the questioned element with the answer. English wh-expressions consist of one morpheme. The ON' question words

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[1] See 'Limitations'. This is a tentative remark as I could not get the informants back to repeat the words.

in the data were phrases as they could be separated into component morphemes. Below the question word *ma* is in COMP, is followed by the INFL morpheme *ko* and then the verb, VIC and other NP arguments:

ma'	*ko*	*mao*	*na*
that:prox:hearer	INFL:m/fnrp/p	go:s	3srp/p

'Who went?' (EK 1997: 48)

In the data for this study the structure for 'who' questions always had the noun *wari'* 'person' after COMP and before INFL:

ma	*wari'*	*ko*	*kao*	*non*	*hwam*
				na-on	
that:prox:hearer	person	INFL:m/frp/p	eat	3srp/p-3sm	fish

'Who ate fish?'

EK state this is specifically asking 'what person went?', even though I elicitated 'who ate fish' not 'what person ate fish'. Van Valin states the referent of *who* in the answer must be interpreted as human, animate and is associated with the semantic role of actor. The optional addition of *wari'* in the question phrase further contributes to these semantic attributes of the wh-expression because its referent can only be human and animate.

In questions such as the one elicited below, the direct object is missing from its normal position. The string *ma karawa* and the tenseless VIC show that the direct object is being questioned and show the referent is an undergoer:

ma		*karawa*	*ko*		*pa'*	*ka*	*Silas*
that:prox:hearer		thing	INFL:m/frp/p		kill	3sm	m:name

'What thing did Silas kill?'

This corresponds to Van Valin's statement that referents of *what* are usually associated with the semantic role of undergoer. Therefore it seems, in ON', not only does the semantic content of the wh-expression itself facilitate the linking of the referent, but there are additional morphosyntactic means of showing the status of the referent – *karawa* in the wh-phrase and a tenseless VIC after the verb.

5   <u>Limitations</u>

Time, as is common in fieldwork, quickly became an issue as I was stood up more times than I was able to carry out recording sessions. During the first couple of weeks in Guajara-Mirim I still had no data. I had gone to FUNAI and there the staff set us up with Susanna and Taiana initially. They didn't arrive, so we returned to FUNAI and they said they would get them to return. Again, they didn't come so I returned and eventually got Silas' phone number although this did not solve the

problem of unreliability. Presumably, due to his job with FUNASA he rarely turned up to scheduled sessions. These obstacles were unavoidable. I had to go through FUNAI or there could have been problems (I was repeatedly asked if I was a missionary as it was) and FUNAI chose the informants for me.

Even though I recorded all three of the Max Planck clips with Silas and Susanna I could not use any of Silas'. I could only check (and therefore analyse) Silas' arrow narrative with him, which was probably a more useful source of data anyway, but it would have been more illuminating to compare the Max Planck clips across two speakers of each gender. Similarly, although I recorded all three clips with Susanna, I was only able to check one with her. I also wanted to record a narrative with Susanna and elicit questions with her because females tend to have more exaggerated intonation but time did not allow this because she did not come to more sessions. The data on questions would have especially benefited from a female speaker as it all came from Elizeu, so all conclusions were tentative due to this factor. Additionally, the questions did not appear in natural speech – they were all elicitated.

Susanna was more skilled at both writing in ON' and giving Portuguese translations. Taiana, when asked to write in her language, wrote ON' words but this was sometimes with SVO Portuguese syntax. They always brought their cousin, a toddler who usually started to cry and made sessions distracting and difficult. Both Taiana and Susanna each had one focussed constituent in their data that seemed to be

auditorily prominent due to duration (see section 4.2.2) However, as they did not turn up to sessions I was unable to get them to repeat it in a similar sentence context, which would have helped determine if duration were a factor.

Another limitation due to informants not returning was gaps in the translations. I asked Elizeu for help but he was often unsure what they had said even when I played it back to him so unfortunately some gaps do remain.

6   Suggestions For Further Research

This study is not a complete account of ON' intonation; rather, it is meant as a starting point for future research. A more complete study of ON' intonation would have to include the researcher aiming to learn the language. This is particularly relevant for analysing attitudinal and emotional meanings that have been described

for languages like English, which, for Bolinger, constitute the primary function of intonation. Indeed, Hirst & Di Cristo state it is near impossible to describe a language's intonation without being a native or near native speaker which explains to some extent the preponderance of literature on Indo-European languages.

The data should be expanded to include same-sex conversations and mixed sex conversations as intonational differences have been recorded between men and women in other languages. ON' has sex differences at the lexical level (e.g. answers to imperatives EK 1997: 38-39) and when addressing same and mixed sex audiences so it would be interesting to see whether these are complemented by intonational differences too. The data for questions was all from one speaker and so should be vastly expanded, especially with female speakers, to test the comments made here. Additionally, they did not include the focus domain in complex questions which should also be investigated. The two instances in the data where duration seemed to play a role in focus marking should also be studied further.

7   Conclusion

In this study, the prosodic features of ON' have been analysed, mainly through a pitch contour representation but also by considering intensity which also creates stress in ON'. Intonational characteristics discussed in the literature for I.E languages were found in ON'. The most common pitch movement corresponded to

Bolinger's Profile A and the research here implies it corresponds to finality, completeness and assertion. Other phonetic factors that demarcate IU boundaries found in I.E languages were also found in ON' such as pauses and falling tones. The prevalence of declination was hypothesised to be partly due to 'downstep' as it occurred in specific morphological contexts.

Intonation was found to have a grammatical function because yes/no questions in ON' can only be distinguished by a higher overall pitch than the syntactically identical statement. There are no morphosyntactic means of marking yes/no questions in ON' – a statement can only be interpreted as a yes/no question by prosody. Therefore intonation cannot be considered purely iconic, as Bolinger argues. In ON', yes/no questions do not have a rising tone, as has been found in other languages, rather the starting pitch is higher overall than statements. Wh-questions are morphosyntactically marked with the wh-phrase in sentence initial position, or the PrCS in RRG terms. Prosody also marks these, as the wh-phrase has higher intonation and lexical question final constituents show a rising tone, which activates the entire question.

Another function of intonation was in information structure. Along with morphosyntax, prosody activates topic referents. The expression of these topic referents after this activation was found to correlate with observations from other languages and the SPF *kem* was considered as an additional way of expressing recently mentioned referents. Comment-topic sentences, or predicate focus

sentences, were the most common sentences in the data, which corresponds to the observation that these are the least marked focus structure type. The potential focus domain is post-verbal in ON', never pre-verbal, and the unmarked focus position for a previously unmentioned lexical NP is the object position. This position and the expression of the referent as an overt lexical NP often seemed more important for indicating argument focus than prosody alone. This was because the verb was always accented; the focussed constituent was not as prominent as the verb. It was also hypothesised that the semantic content of the wh-expression facilitates the linking of the questioned referent with the constituent in the answer.

The question of whether intonation is universal cannot be answered by this study but there were many formal and functional similarities between ON' and well studied languages. This contributes somewhat to the universalist view. The study also showed that intonation in ON' is not purely iconic, although more work is needed before any definite assertions can be made with confidence.

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