Intonational marking of focus in Torau

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This paper presents initial findings from first research into the prosodic system of Torau, an Oceanic language of Papua New Guinea. Intonation, the use of pitch over grammatical units larger than the word, may convey distinctions at a number of levels in the grammar of a language. This paper looks at it in relation to the pragmatic categories of focus and topic, using data collected in 2010 and 2012.

Taking an Autosegmental-metrical approach, it is argued that intonational prominence in the form of a H* pitch accent is a correlate of focus – pragmatically new or inaccessible information. While prosodic and pragmatic prominence frequently align in Torau, there are some instances where the focus entity is not prosodically marked as expected. These cases are briefly addressed, and some paths for further investigations are suggested.

It is hoped that this research can be used in typological work on intonation and the information structure-prosody interface, and encourage research into the intonational systems of lesser described languages.

Keywords: intonation, information structure, Oceanic languages, Autosegmental-metrical theory

1. Introduction[1]

In this paper I will present an analysis of meaningful sentence-level pitch – i.e. intonation – which shows it is one way information structure is encoded in Torau. Specifically I shall show that a H* pitch accent is a correlate of focus. In doing so, I present data and preliminary research suggesting that there is great possibility for further studies in intonation in Oceanic languages in general, and Torau, specifically.

I begin the prosodic analysis by giving an overview of the Autosegmental-metrical (AM) theory that is used to analyse the Torau data, as well as the Tone and Break Indices (ToBI) system that is used in the prosodic transcriptions. A brief discussion of Torau word-level prosody provides the basis for the analysis of Torau sentence prosody in §2.2.

Section 3 contains information about the data, annotation and analysis. Following a discussion of Dik's (1997) framework of information structure in §4, in §5 I present data exploring correlations between sentence prosody and information structure in Torau. I argue that there is a correlation between pragmatic and prosodic prominence.

To conclude, I show some exceptions to the H* pitch accent encoding of focus, in particular, when foci are not prosodically prominent, and discuss potential directions for further research.

1.1 Torau language

Torau is an Oceanic language spoken by approximately 2000 people on the east coast of Bougainville Island, Papua New Guinea. Although Torau shows many characteristics typical of Oceanic languages, atypically, it has SOV unmarked word order and exhibits other patterns which are associated with verb final word order, such as postpositions and possesser+possessum possession phrases (Evans & Palmer 2011: 488ff). Phonologically, Torau's system appears to be conservative

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when compared with Proto-Oceanic (Lynch, Ross & Crowley 2002). The phoneme inventory contains 12 consonants, as well as five short vowels, and, not so typically, five long vowels.

2. Intonation

Intonation is the use of pitch at the level of the sentence to convey distinctions in a number of areas of grammar; speaker attitude, discourse grouping and information structure for example. Prosody more generally is assumed to divide up a stream of speech into smaller units of one sort or another (Ladd 2008: 288). The units which are segmented have been given many names in the literature: 'breath group', 'tone-unit', 'sense group', 'prosodic phrase' (Cruttenden 1997; Ladd 2008). In this paper 'intonational phrase' shall be used to refer to these units.

While intonational phrases are units of speech production – a place where one can take a breath, for example – they are also the "basic units of information", having a role in "higher-level linguistic processing" for both the speaker and hearer (Himmelmann & Ladd 2008: 251).

2.1 Autosegmental-metrical theory and ToBI transcription method

The analysis of intonation in Torau presented in this paper follows an Autosegmental-metrical (AM) approach as presented by Ladd (2008). Within the AM theory, pitch is considered to be phonological. Two levels of pitch are distinguished: relatively high and relatively low. These are called 'tones' and are represented by H and L, respectively. Tones are target pitch levels, not particular fundamental frequencies, so they are considered relative to their surroundings. This means that global trends, such as declination[2], do not impact on the labelling of H and L tones. Pitch contours such as rises and falls are analysed as being movement from one level tone to another.

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[2] Declination is the tendency for a speaker's fundamental frequency (f0) to gradually fall over the course of an utterance and is observed in many typologically varied languages (Ladd 1984, 't Hart et al. 1990; Gussenhoven 2004). Explanations for this gradual decline include a drop in subglottal pressure which slows the vocal chords' vibrations resulting in lower pitch being produced, and the 'laziness principle' which says that a speaker will produce smaller rises than falls because of the effort required to produce a higher f0, resulting in a downward trend in the f0 of an utterance.

There are two types of localised phenomena, known as intonational events, which are considered important in the AM theory. Firstly, there are pitch accents (marked with * to indicate association with the stressed syllable of a word), which are post-lexical pitch movements that mark accentual prominence. They can be simple and comprised of a single high (H*) or low (L*) tone, or complex, bitonal accents like H*+L. And secondly, there are boundary tones (marked with %), which mark the edge of intonational units, and like pitch accents can be simple or complex. These intonational events contribute to the intonational pattern of a stretch of speech. Within the AM theory the transitional areas between these intonational events are phonologically unspecified which means that some pitch excursions are not considered to be phonologically relevant.

The Tone and Break Indices (ToBI) transcription system (see Beckman & Ayers-Elam 1997 and Jun 2005) was created in line with the AM theory. Like the AM theory, ToBI transcriptions make use of two level tones: a high represented with a H, and a low represented with a L. Fully formed ToBI systems usually consist of minimally four tiers which are: the word tier, the tone tier, the break indices tier, and a miscellaneous tier. The analysis presented in this paper requires only the word tier, in which words are indicated, and the tone tier in which pitch events are indicated. As in the AM theory, * is used to mark pitch accents, and % is used to indicate boundary tones.

2.2 Intonation in Torau

Below I present an initial description of Torau's prosodic system. Firstly, prosody at the level of the word is considered. It appears at this stage of analysis that the word-level feature which is relevant to intonation in Torau is stress. The intonational phonology in §2.2.2 builds on the ideas in the word-level prosody section, and the intonational events found in Torau are discussed and described.

Intonational phrases only are under consideration in §2.2.2. Selkirk (1986) presents some other prosodic units which may be of interest in studies of intonational systems, such as the phonological phrase and the utterance. These units can be hierarchically ordered, with each unit being comprised of units from the level immediately below it. With further analysis, a comprehensive prosodic hierarchy for Torau could be developed.

2.3 Word-level prosody

Stress – a combination of duration, intensity, and pitch resulting in 'phonetic prominence' or 'acoustic salience' (Ladd 2008: 61) – usually falls on the penultimate syllable of a word in Torau, for example ˈa.te 'water', ta.ˈbu.ni 'place'. Secondary stress occurs on every second syllable preceding the penultimate syllable, for example ˌgi.go.ˈwe.le 'whirlpool'. Penultimate stress is a typologically common feature of Oceanic languages (Lynch, Ross & Crowley 2002: 67).

Long vowels do not appear to impact on stress placement in Torau, for example ˈeelo 'sea water', ˈeloo 'wait'. However, more investigation into the word-level prosody of Torau in general, as well as how long vowels and other phonological and morphological aspects of the grammar impact on stress placement is needed.

2.4 Intonational phonology

When beginning to look at intonation, one must discern the units relevant to its study. As mentioned above, the unit considered most relevant to the present study of intonation is the intonational phrase – a unit segmented prosodically, and also the basic unit of information. Specifically, intonational phrases were defined here on the basis of pauses, pitch resets and boundary tones.

In Torau, an intonational phrase is characterised by having a boundary tone at the right edge, and may have none, one, or more pitch accents. Torau's intonational phonological system consists of two boundary tones, L% and H%, and two pitch accents, H* and H+L*.

The boundary tones in Torau mark the end of intonational phrases and are associated with the final syllable of the last word of the intonational phrase. The L% boundary tone is the most common of the two boundary tones. It is realised in two ways: as a fall to a lower fundamental frequency (f0), or as a level, relatively low pitch. Importantly, the f0 of the L% boundary tone is equal to or lower than the syllable preceding it. For example:

(1)　　H*　　　　　　　L%
　　　　Baina　　isi-na　　alaa.
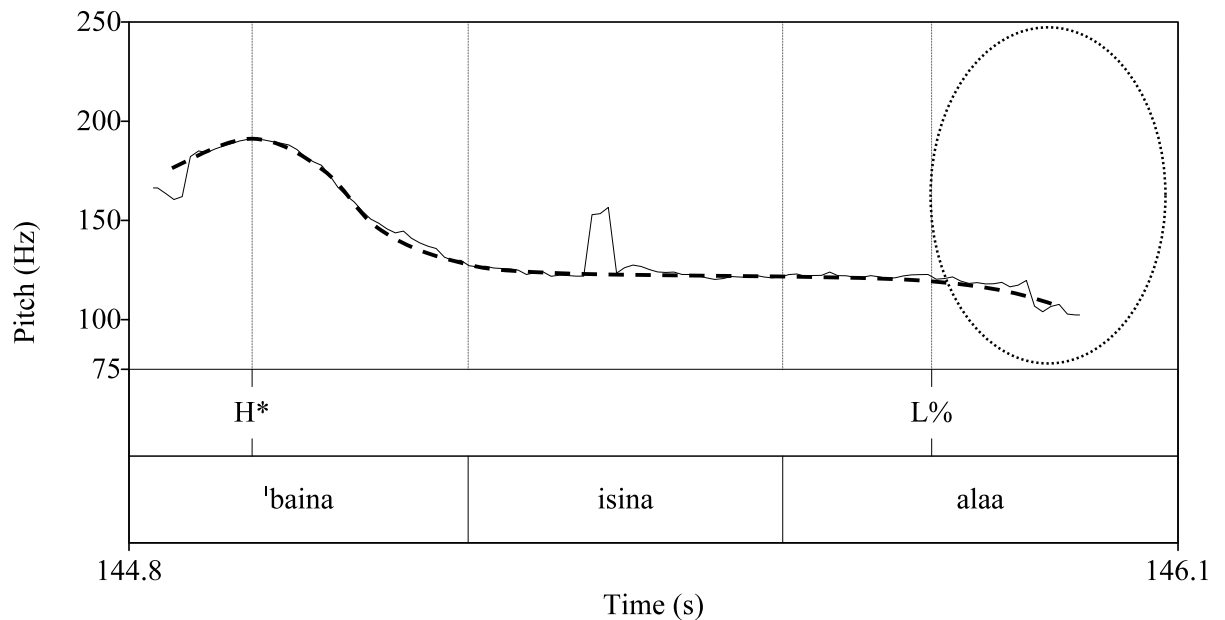　　　　woman　　COM-SG　　man

　　　　'A woman with a man.'

Figure 1. Pitch track for intonational phrase with L% boundary tone.

The H% boundary tone also has two phonetic realisations. It may be realised as a rise to a higher f0, or as a level pitch in the higher region of the speaker's pitch range. The H% boundary tone is realised with a pitch that is equal to or greater than the syllable preceding it. The H% boundary tone may have a higher f0 than the preceding pitch accents but not necessarily. Example (2) and Figure 2 gives an example of a H% boundary tone.

(2)　　H*　　　　　　　H%
　　　　Tuu~tuu-ala　　aikala?
　　　　RDP~sit-NOM　　NEG
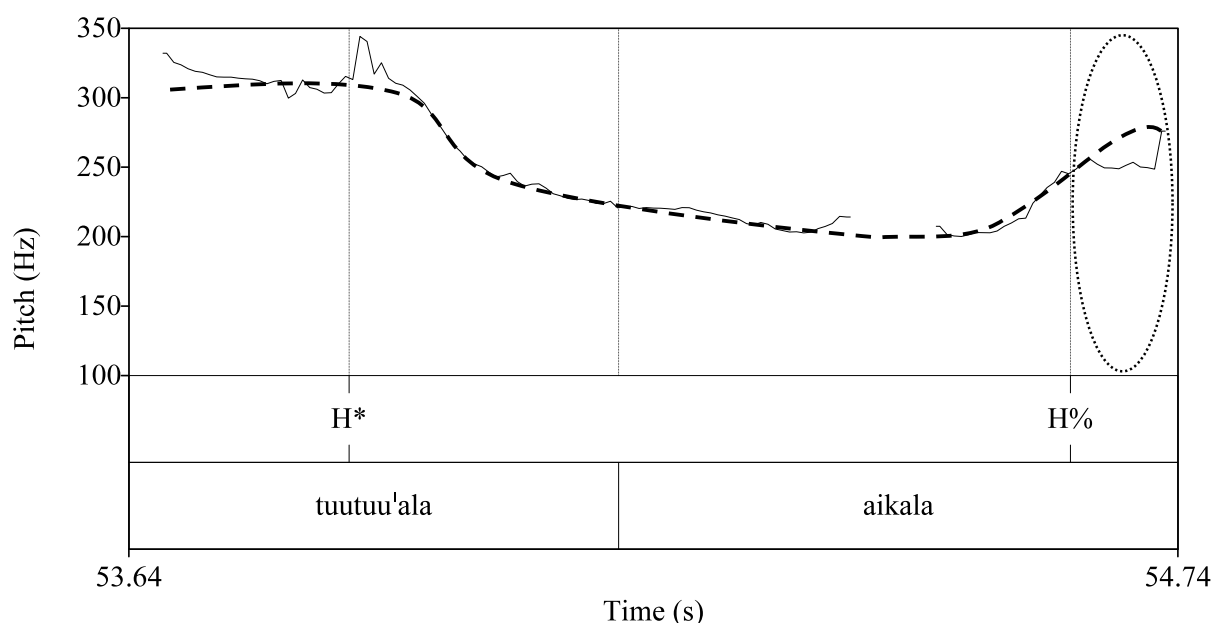
　　　　'Aren't there any seats?'

Figure 2. Pitch track for intonational phrase with H% boundary tone.

Of the two pitch accents, the H* pitch accent is by far the most common, occurring approximately seven times more frequently than the H+L* pitch accent. Only the H* pitch accent will be considered here.

The H* pitch accent may be realised as a rise to a peak in f0 on the stressed syllable of a word, or, if the H* pitch accent is on the first word of an intonational phrase it may be realised as a level high pitch.[3]

In example (3) and Figure 3, there are two H* pitch accents, one at the beginning of the intonational phrase, and one intonational phrase internal.

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[3] Words with four syllables with an associated H* pitch accent are most commonly realised with a high f0 over the first two syllables and a falling, low f0 on the second two syllables. This is what we see for *sawiako* 'tapioca' in example (3), Figure 3. Trisyllabic words with a reduplicated first syllable and an associated H* pitch accent are often realised with a high f0 over the first two syllables and falling to a lower f0 on the final syllable.

(3)　　H*　　　　　　　　H*　　　　　　　　　　　　　　　　　L%
　　　Saviako　isi-na　　metee　　pa　　　ari　　　　more-en=a.
　　　tapioca　　COM-SG　coconut　2SUBJ.IRR　REFL/RECP　mix-APPL=3SG.OBJ

　　　'You will mix the tapioca and coconut together.'
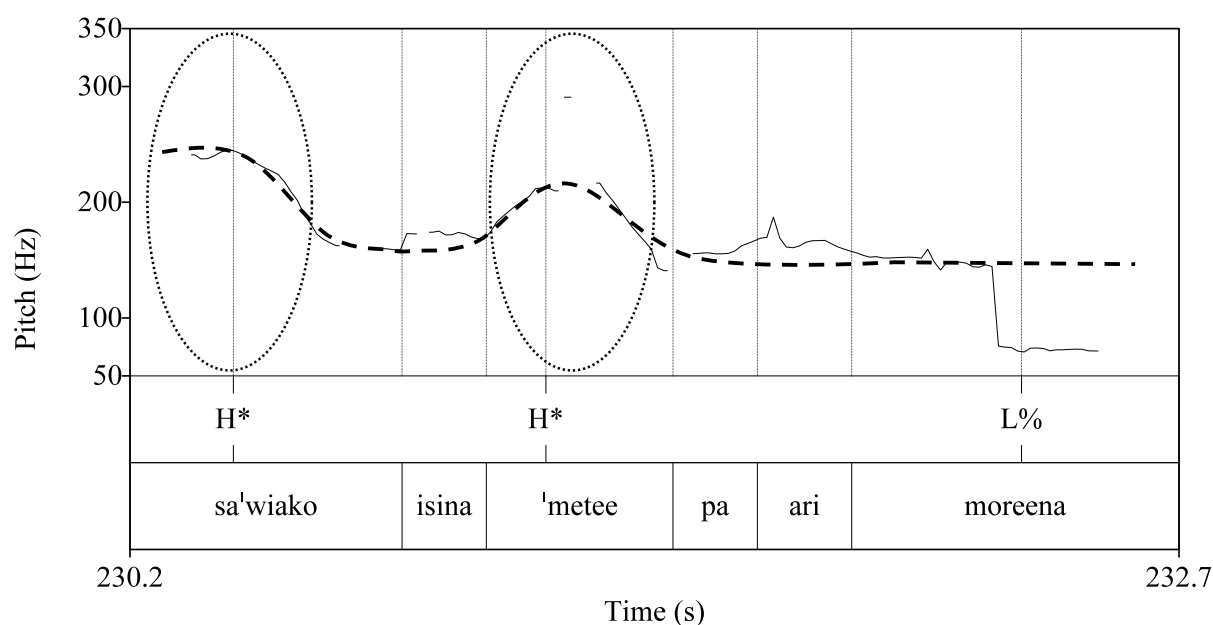

Figure 3. Pitch track for intonational phrase with two H* pitch accents.

3. Methodology

3.1 Data

This paper presents some of the findings from my Honours dissertation (Jepson 2013) using data collected by Bethwyn Evans in 2010, and by me and Bethwyn Evans in 2012. For the analysis of the word-level prosodic system of Torau a word list of 90 words was used. A set of nine texts, totalling approximately 615 intonational phrases, was chosen for detailed analysis of Torau's intonational system. The texts were recorded with seven speakers, four women, and three men, all of whom live in Rorovana 1 village in Bougainville.

The data set consists of five natural speech narratives and four photo description tasks. The photo description tasks were of two kinds. They were either performed by one person or two people. In these tasks, a speaker looks at a photograph and describes it in as much detail as they would like. When two people are involved in

the task, the second participant is unable to see the photograph and asks questions to gain more information about the happenings in the photograph. In this way the data were targeted, but not elicited. Because the data were spontaneous, there are pauses and disruptions in the pitch tracks relating to characteristics of segmental phonology and recording conditions.

3.2 Annotation and analysis

In this analysis Toolbox[4] was used for the interlinear glosses[5], ELAN[6] was used for prosodic analysis and transcriptions, and Praat[7] was used to analyse and represent prosodic contours.

Before beginning the analysis the texts were entered into Toolbox, and an interlinear gloss added. All recordings were transcribed and analysed in ELAN and prosodically important units, such as intonational phrases, were segmented.

A detailed analysis of lexical stress was not attempted. However, preliminary analysis suggests the unmarked position for stress in Torau is the penultimate syllable. This was determined aurally as there did not appear to be any obvious acoustic correlates. Tests were conducted in Praat to assess if pitch, vowel duration, or intensity were correlates of lexical stress, but none appeared to be reliable indicators.

As mentioned above (§2.1) not all pitch movements are considered to be phonological (i.e. not intonational events) within the AM theory. To determine what pitch movements were phonological or merely unspecified pitch movement, I examined the pitch tracks in Praat. I noted if the movement was relatively uniform, and markedly different from the surrounding pitch, and I also relied on pitch accents to be audible. I assumed that, while my ear was not accustomed to hearing Torau, I should still be able to identify major pitch movements that could be meaning bearing.

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[4] Toolbox (SIL International 2012) available from: http://www-01.sil.org/computing/toolbox/index.htm.

[5] Abbreviations used in morphemic glosses follow the Leipzig Glossing Rules. Additional abbreviations are: PRT particle, CONJ conjunction, LMT limiting, RDP reduplicated.

[6] ELAN (Max Planck Institute for Psycholinguistics, The Language Archive, Nijmegen, The Netherlands 2012) available from: http://tla.mpi.nl/tools/tla-tools/elan/.

[7] Praat (Boersma & Weenink 2012) available from: http://fon.hum.uva.nl/praat/.

Identifying the turning points of H* pitch accents was done in Praat by moving the curser to the position of the maximum pitch in a segment within the recording. This allowed for the f0 peak in that section to be assessed in relation to the spectrogram picture, and more accurately associated with a syllable.

Once an intonational event and its location was identified, I used Praat text grids to annotate the pitch track. To assist the reader in following pitch tracks a trend line has been superimposed on pitch track figures in this paper.

The ToBI transcriptions are found at the bottom of the figures in this paper. The top tier is the tone tier and shows intonational events and where they are associated within the intonational phrase (pitch accents associated with a peak in f0, boundary tones align with the beginning of the syllable to which they are associated). The bottom tier is the word tier. Stress is indicated with (').

4. Information structure

Information structure is concerned with how speakers order their speech. The speaker's goal is to make information in their speech as accessible as possible for their addressee. The speaker must be sensitive to the information their addressee has or does not have and structure their speech accordingly (Erteschik-Shir 2007: 14). They can do this in a number of ways: through word order, through morphological markers, and through prosody. Using these methods, the speaker attempts to make particular pieces of information maximally salient for their addressee.

Each interaction is different and the circumstances (i.e. the knowledge available to the speaker and hearer) change within an interaction, so the speaker must be constantly reassessing the situation, taking into account the new circumstances and so presenting their information accordingly (Vallduví 1993: 3). Vallduví (1993) writes of 'information packaging', describing speech as containing instructions for the addressee. The structures that a speaker uses in their speech tells their addressee to enter the information in the sentence into their knowledge store in a particular way (Vallduví 1993).

Different scholars establish different categories to distinguish between types of information that are relevant to grammar. I follow Lambrecht (1994),

Erteschik-Shir (1997; 2007), and Dik (1997) among others, using the two broad categories of topic and focus.

Traditionally, the information in speech categorised as topic and focus is discussed as a binary distinction: old and new; given and new; accessible/active and inactive; known and not known. Information can be considered as being in various states of activation – active, semi-active or accessible, and inactive (Skopeteas, et al. 2006). And in this way, one can account for focus entities larger than a lexical item; a relationship between two entities, for example may align with the category of focus.

A distinction in 'old' and 'new' information is not adopted here, neither is a 'given' and 'new' division. This is because there are instances, not uncommon, when information has an element of 'old' and 'new', or 'given' and 'new' about it, such as when a topic is introduced into a discourse for the first time, or when focus is used to reemphasise information already known to the interlocutors in an interaction (Erteschik-Shir 2007: 38). Because of instances like these, it is noted in the literature that when thinking about information and the categories of topic and focus it is best to avoid using 'old' and 'new', and to rather think of these terms as relational (see Vallduví 1993: 23 and Lambrecht 1994: 208). A particular entity is only the focus because of its relationships with other information in the discourse.

A combination of this idea – that topic and focus are relational rather than grammatical categories – and that information is in different states of activation is adopted in this paper.

To be more transparent in my use of the terms 'topic' and 'focus', this is how I understand them to be and use them in this paper: a topic represents information which (the speaker believes) is accessible, if not active in the minds of all interlocutors in an interaction. A topic may be accessible or active through having been mentioned explicitly in the discourse previously, because of a close link to information already mentioned in the discourse, or through shared world knowledge. A focus represents information – an object, relationship, and so on – which (the speaker believes) is not accessible to all participants in the discourse. Because of this it is often marked in some way by the speaker as being of particular interest for their addressee, and it is cross-linguistically common for foci

to be prosodically prominent, primarily by f0 height (Erteschik-Shir 2007: 30). This is typical in Torau.

4.1 Information structure in Torau

It is evident when considering examples of focus that not all focus marked entities are the same in the type of information they convey. For example, one is inclined to say that the type of information conveyed by a question word in a content question is different to the information conveyed when one expresses that they prefer pears over apples, even though the question word and 'pears' can both be considered the focus of their respective sentences. Because of this intuitive splitting in the type of information conveyed by focus marked entities, I consider it important to make distinctions in focus and topic types when looking at information structure. Also, different types of foci (and topics) may be encoded differently in a language. Dik's (1997) distinctions in information structure categories are followed in this paper.

I investigated six types of focus described by Dik (1997), two of which are categorised as 'information gap': questioning and completive; and four of which are in the contrast, counter-prepropositional category: rejecting, replacing, expanding, and selecting. (Restricting focus, another type of focus described by Dik (1997), did not occur in the data set and so is not discussed.)

Type of Focus	P_S	$(P_A)_S$	Expression
Questioning	?	X	?
Completive	X	?	X!
Rejecting	not X	X	not X!
Replacing	Y	X	(not X, but) Y
Expanding	X and Y	X	also Y!
Restricting	X	X and Y	only X!
Selecting	X	X or Y	X!

PS = speakers knowledge; (PA)S = knowledge the speaker presumes the addressee to have; X, Y = information the interlocutors have; ? = gap in knowledge; ! = information the speaker believes the addressee not to have.

Table 1. *Focus Types in Terms of Communicative Point (Dik 1997: 332)*

Table 1 shows what information is important for, and expressed in each type of focus. Column PS presents the speaker's knowledge, while column (PA)S presents the knowledge that the speaker presumes the addressee to have. The expression column presents the information which is conveyed in expressions of each type of focus.

In cases where questioning focus is used, the speaker has a gap in their information (represented by ? in the PS column), which they believe the addressee can fill (information X in (PA)S column represents the information the speaker assumes their addressee to have which will fill their gap in information). Because of the speaker's knowledge and presumptions about the addressee's knowledge, the speaker produces an expression which conveys that there is a gap in their knowledge.

When selecting focus is used in an utterance, it is because the speaker believes information X to be the case, and presumes that their addressee believes that X or Y is the case, but is not sure of which. Because of that, the speaker says something that conveys the information X!, i.e. information X (not Y) is correct. Selecting focus is used when a speaker is answering a question in which two or more options for the answer are provided.

Example (4) is an example of question focus in Torau (*geesi akaia kikina* 'big or small'). Example (5), which is the response to the question in (4), is an example of selecting focus (*geesi aikala* 'not big').

(4)   *Ia   geesi   aka-ia   kiki-na?*
        PRT:PL   be.big   or-PL   small-SG

        'Are they [the houses] big or small?'

(5)   *Wagana   ruma   geesi   aikala.*
        lots   house   big   NEG

        'Not very big houses.'

The prosodic marking of topics is not of primary interest in this paper, but different types of topics are referred to when explaining the occurrence and placement of pitch accents. Table 2 provides the reader with a brief overview of

topic types according to Dik (1997), and Table 3 presents Jepson's (2013) analysis of prosodic marking of these topic types in Torau.

Discourse topic	What the discourse is about; is assumed to be accessible for the addressee
Given topic	An entity which has been introduced into the discourse; is assumed to be accessible for the addressee
Sub-topic	An entity which is related to a given topic and is assumed to be accessible for the addressee without having been mentioned in the discourse
New topic	A topical entity that is introduced into the discourse for the first time
Resumed topic	A given topic which has not been mentioned for a length of time such that the speaker believes it must be 'revived' for the addressee

Table 2. *Types of Topic (Dik 1997: 313-316)*

Given topics, sub-topics, new topics and resumed topics were analysed for their prosodic encoding in Torau. Given topics were found to not be marked with a H* pitch accent. Sub-, resumed and new topics were all encoded with a H* pitch accent.

	+accent	−accent
Types of Topic		
Given topic		✓
Sub-topic	✓	
New topic	✓	
Resumed topic	✓	

Table 3. *Summary of Prosodic Encoding of Topics in Torau (Jepson 2013)*

5. Results

Of the six focus types studied, all but rejecting focus are, or can be, marked by a H* pitch accent in Torau.

Looking first to the information gap category, let us examine a content question. *Eisa* 'how many' is the focus in (6).

(6)   H*   L%
         Ia   *eisa*   *ruma?*
         PRT:PL   how.many   house
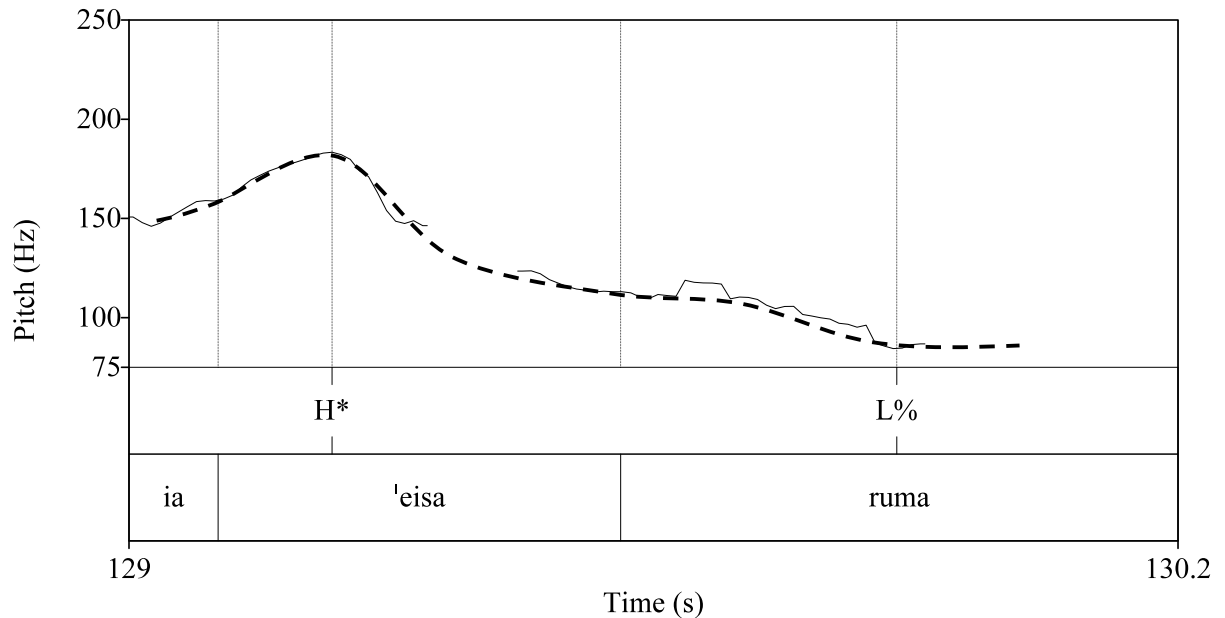
'How many houses are there?'

Figure 4. Pitch track for intonational phrase: H* pitch accent and questioning focus.

In example (6) Figure 4 there is a H* pitch accent on the question word *eisa* 'how many'. This example is from a question and answer description task. The photo is of a burial in an unknown village. In the expression immediately before this question, the other participant said that the houses in the photograph are sago leaf houses. In (6) the speaker, who is unable to see the photograph, asks how many houses there are. The H* pitch accent marks the question word as prominent, and directs the addressee's attention to this information: that the speaker has a gap in their information. This is the unmarked content question form in Torau.

In response to questions, completive or selecting focus may be used. In these instances, the information which 'fills the gap' that the question asker has highlighted in their question is the focus and is prosodically prominent, receiving a H* pitch accent.

(7)　　　　　　　H*　　　　　　　　　　　　L%
　　　　　　　Ia　　*losoo-la*　　　　*bea*　　*are*　|
　　　　　　　PRT:PL　be.many-3SG.POSS　maybe　CONJ

'(Maybe) there are many houses, but…'

H*　　　　　　　　　　　　　　　　　　　　　　H%
erua　*ese-ese*　*asa*　*to-tor-i=dia*　　　　　*isa-gu.*
two　　in.total　LMT　RDP-look-APPL=3PL.OBJ　IPFV-1SG.SUBJ

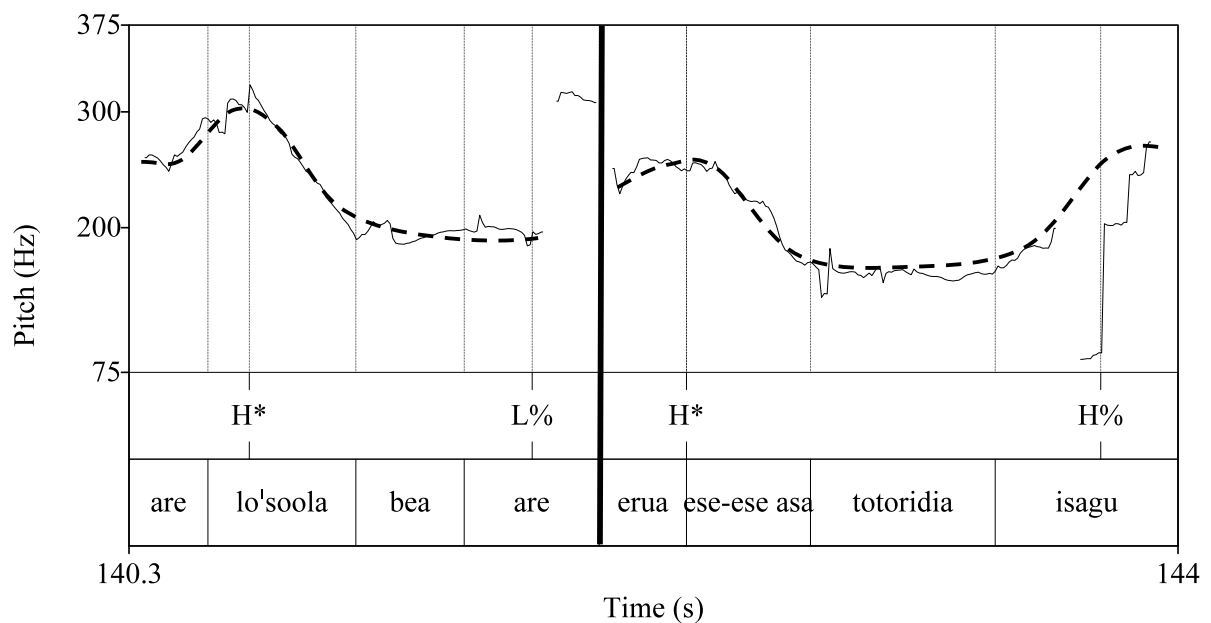'I am only seeing two of them.'

Figure 5. Pitch track for two intonational phrases: H* pitch accent and completive focus.

Example (7) Figure 5 was given in response to example (6) *Ia eisa ruma?* 'How many houses are there?'. There are two intonational phrases in example (7). The first is of primary interest. There is a H* pitch accent on *losoola* 'be many' which is the information that fills the gap highlighted by the speaker in (6) (now the addressee).

Replacing and expanding focus types are also typically marked with a H* pitch accent. They present information differently, taking into account the presumed knowledge of the addressee, highlighting the information that the speaker believes to be most important for their addressee. For example, expanding focus is often used in narratives when a speaker is adding information about a discourse topic. Example (8) contains two instances of expanding focus.

(8)　　H*　　　　　　　H*　　　　　　L%
　　　Boksa　asana　　ropo　di　　pala-i=a　　　　　　|
　　　box　　INS　　　rope　3PL.SUBJ　fasten-APPL=3SG.OBJ

　　'They have tied ropes around the coffin

　　　　　　　H*　　　　　　　　　　　　L%
　　　are　　pidani=ai　　di-pa　　　a-daapa-i=a-to.
　　　CONJ　land=3SG.OBJ　3PL.SUBJ-IRR　CAUS-put.inside-APPL=3SG.OBJ=PRS
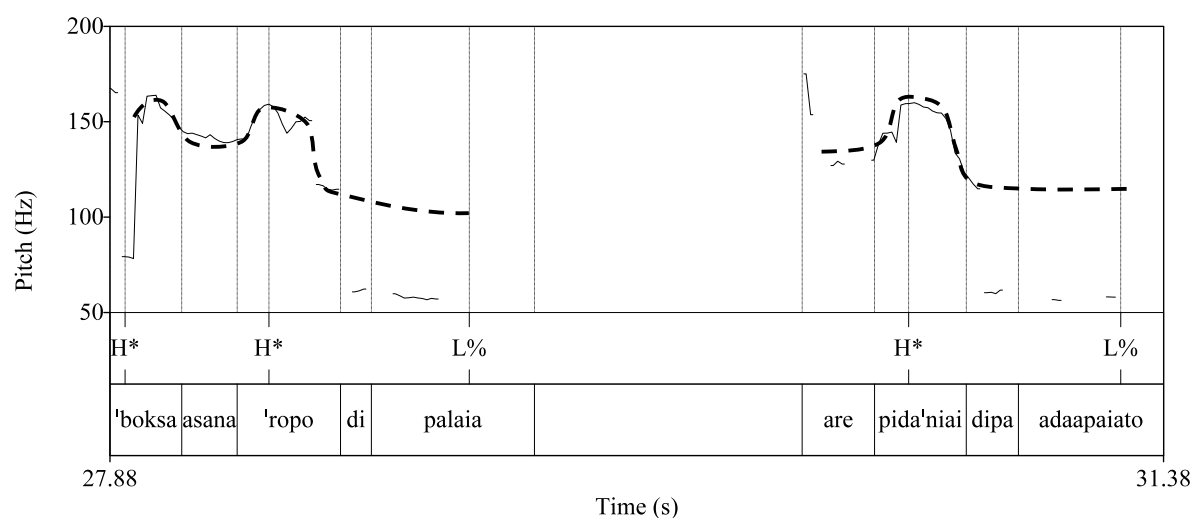
　　and they're lowering it into the ground.'

***Figure 6**. Pitch track for two intonational phrases: H* pitch accent and expanding focus.*

There are two intonational phrases in example (8). The first intonational phrase *boksa asana ropo di palaia* 'they have tied ropes around the coffin' has two H* pitch accents, one on *boksa* 'box/coffin', and one on *ropo* 'rope'. This example is from a text in which a speaker is describing the same photo of a burial as was used in the text from which examples (6) and (7) are taken. The speaker has previously been discussing some general points about the photo – it looks like someone has died, they have put the body into a coffin and it's being lowered into the ground. In the clauses immediately preceding those in example (8), the speaker says that the people do not look sad. Because the preceding clauses have a different topic, in example (8) *boksa* 'box/coffin' (or rather 'what people are doing (at the burial) with the coffin' as expressed in *boksa*) is analysed as being a resumed topic, and so is marked with a H* pitch accent.

The second H* pitch accent in the first intonational phrase on *ropo* is analysed as being expanding focus as it adds information about what is happening to the

coffin.[8] *Pidaniai* 'land' in the second intonational phrase is also analysed as expanding focus as it too adds more information about what the people are doing to the coffin.

These examples show that there is a tendency for a H* pitch accent to be associated with what is analysed as the focus entity within an intonational phrase in Torau. The focus entity may represent information greater than the individual lexical item, but analysis of the scope of foci is needed before more can be said on this aspect of focus in Torau.

6. Conclusions, exceptions, and where to next?

This analysis suggests that prosodic prominence, in the form of a H* pitch accent, is a correlate of most focus types in Torau. Table 4 shows which types of focus are marked as being prosodically prominent through a H* pitch accent (+accent), and those which are not (–accent). All types of focus are marked with the H* pitch accent with the exception of rejecting focus which was not prosodically prominent in the single example in the data set (see example (10) and Figure 8, below). Expanding focus and the question word focus in content questions may occur without prosodic prominence and this is indicated with a tick in the –accent column.

	+accent	–accent
Types of Focus		
Content questions	✓	✓
Yes-no questions	✓	
Option questions	✓	
Completive focus	✓	
Selecting focus	✓	
Replacing focus	(✓)	
Rejecting focus		(✓)
Expanding focus	✓	✓

Table 4. *Summary of Prosodic Encoding of Focus in Torau (Jepson 2013)*

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[8] While the pitch accent occurs on *ropo*, information something like 'tied with ropes' is considered to be the focus information which is conveyed by the H* pitch accent on *ropo*.

Ticks in parentheses indicate that the analysis is based on minimal examples and requires further testing.

Although there is a strong correlation between pragmatically prominent focus marked entities and prosodic prominence in the form of a H* pitch accent, there are instances of unpredicted prosodic marking that require further investigation. I shall mention only two here. Firstly, instances when one entity is favoured over another to receive prosodic prominence when both constituents are attested as being prosodically prominent elsewhere. Secondly, I shall present the single example of rejecting focus found in the data and discuss why its prosodic encoding is unexpected.

The major question to look at in relation to no prosodic marking of some foci is why can there not be two H* pitch accents in those utterances when there are instances of intonational phrases containing two pitch accents elsewhere in the data (see example (8), figure 6). The second question is how the decision is made to privilege one accent-worthy constituent over another. Instances where there is a 'clash' are not uncommon, occurring when a topic which is usually accented is in an utterance with a focus which is usually accented. An example is when a question contains a resumed (switched) topic or a sub-topic; the prosodic prominence (i.e. the H* pitch accent) occurs (as expected) on the topical entity, but surprisingly not on the questioning focus. These questions are also syntactically marked, with the question word, usually in a sentence initial position, occurring in the sentence final position (cf. example (6)).

(9)   H*   L%
        Baki-na   na   saa?
        wall-3SG.P   PRT:SG what

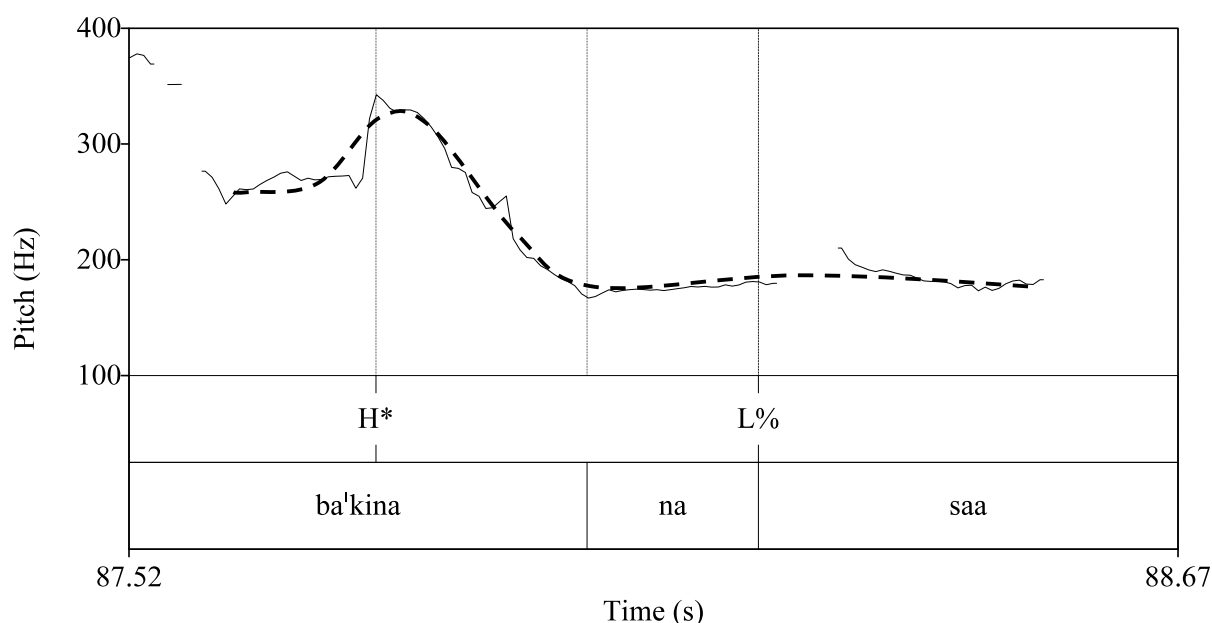   'What is its wall (made of)?'

Figure 7. Pitch track for intonational phrase: prosodically unmarked questioning focus.

We see that the H* pitch accent is on *bakina* 'its wall', and that the question word *saa* 'what' is without any associated pitch accent. This example is from a question and answer description task. *Bakina* 'wall' is analysed as a sub-topic because previously a building was being discussed, and it is proposed that the information contained in *bakina* is available to the participants in the discussion through shared or world knowledge.

Two possible analyses of this type of question could be that there is a content question intonational pattern which involves a H* pitch accent associated to the first word of the intonational phrase and a L% boundary tone. This analysis would take into account the constituent order; the question word occurring in the sentence final position and not receiving prosodic prominence. Or, an alternative analysis is that different focus and topic types are hierarchically ordered: resumed and sub-topics receive prosodic prominence over the question word in content questions. More data like example (9) are needed to be able to make generalisations about this aspect of the prosody-information structure interface. And examples which contain different constituent orders, but the same prosodic prominence correspondences would assist in developing a more accurate analysis.

As mentioned above, there is only one instance of rejecting focus in the data set (example (10) and Figure 8, below), and it does not support the hypothesis that a

H* pitch accent is a correlate of focus in Torau. It would be expected that the rejecting focus entity would take a H* pitch accent marking it as prominent, and drawing the addressee's attention to it. However, what is found is the opposite.

(10) H*   H%
    A   *e*   *dukuu-na*   *highlands=ai*   *aikala*   *e-na.*
    ah   DET   look.like-SG   highlands=LOC   NEG   DET-SG

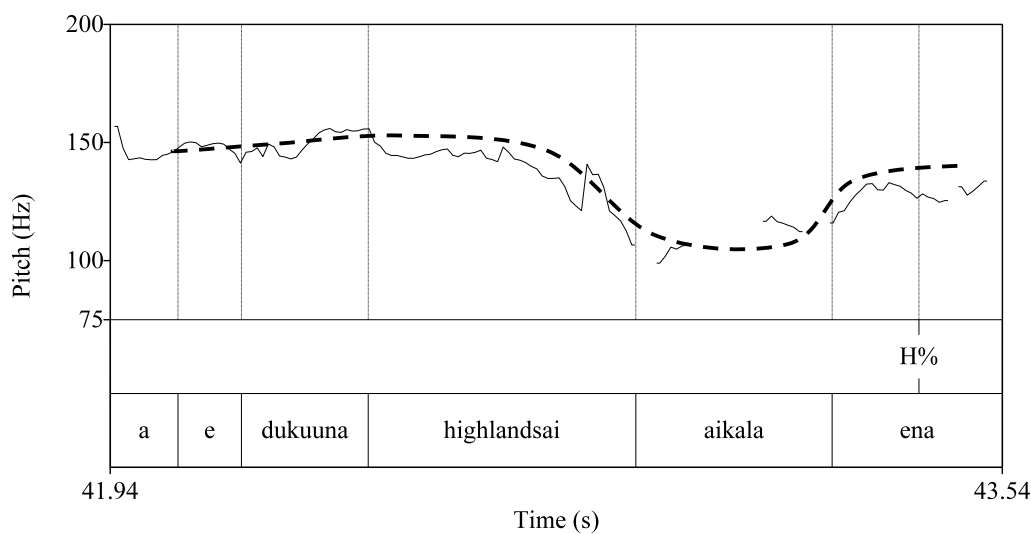   'Ah, it seems like it's not the highlands.'

Figure 8. *Pitch track for intonational phrases with rejecting focus.*

We can see that there is a mid-high level pitch which spans over the first four words of the intonational phrase. On the negator *aikala*, there is a drop in f0. The intonational phrase has a H% boundary tone.

In this narrative the speaker is describing a photo of a burial in an unknown village. Early in the narrative, the speaker noted that the location might be in the highlands. In example (10), the speaker returns to the topic of 'location of the photo (being the highlands)', and rejects the information 'the location is the highlands'. The word which has the rejecting focus *aikala*, has the lowest f0 in the intonational phrase. It is not clear if this is the common intonational marking for rejecting focus, or if this is an exception. More data is necessary to make any generalisations about rejecting focus, or comments about potentially having 'low key' intonational marking in Torau.

There is strong evidence to suggest that a H* pitch accent is a correlate of focus in Torau. However, there are clearly other syntactic and pragmatic issues at play warranting further investigation into how intonation and information structure interact in Torau.

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