MPUR TONES AND INTONATION IN AN AMBERBAKEN MYTH1

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In memory of Antonie Cohen

The present article discusses tones and intonation in a myth of origin, the Amberbaken story and is a first attempt to describe prosody in Mpür. Apart from the linguistic material it presents, the story is an example of oral tradition of the Mpür speaking Amberbaken people, living on the northeast coast of the Bird’s Head in Irian Jaya, Indonesia. In section 2 some notes on the Mpür language are given. The method used to analyse and describe tones and intonation is dealt with in section 3. In section 4, pitch phenomena in Mpür are discussed, with examples. In section 5, the full text of the Amberbaken myth with a limited (but for present purposes sufficient) morphological description and a literal and free English translation is presented.

1 Background of the linguistic material

The original recording of the Amberbaken myth was made in the village Anjai, Kebar valley in 1994, using a DAT-taperecorder and a stereo directional microphone. The speaker is Seppy Wabia, a thirty-year-old man who was born in Saukorem on the north coast2. At the age of twelve, after his Amberbaken father died, he and his Kebar mother moved to the Kebar valley3. He is educated in Indonesian at school and is one of the few Mpür speakers who can read texts in his mother tongue, although he has difficulties writing it4.

2 Some notes on the Mpür language

2.1 Classification

Mpür belongs to the West Papuan Phylum (WPP), Bird’s Head Superstock, and has been classified as Amberbaken Stock-level isolate5 (Voorhoeve 1994:73ff.). It is spoken by approximately five thousand speakers in the Kebar valley, in its surrounding mountains, and, roughly speaking, on the north-east coast between Arfu in the east and Wau in the north (see the map in the Introduction of this volume). In the literature, Mpür is often referred to as Amberbaken or Kebar, which are geographical names for different parts of the area. Mpür

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2 After the story was recorded, Seppy Wabia told me he was not quite sure about some fragments and referred for "a more clear and complete version of the myth" to the well-known Dutch missionary Kamma (1976 I: 66-67; 1978: 42-44), who spent long periods in the Bird’s Head Area.
3 For an anthropological study of the Kebar people, the reader is referred to Miedema (1984, 1994).
4 Most literate Mpür speakers do not recognize words written in their mother tongue.
5 The indication “stock-level isolate” means that on the basis of a 200-word list, 6-12% of lexical items show correspondences (i.e. are cognates) between a given language and other languages of the same phylum.
is the name of the language as used by its speakers. Mpûr has two main dialects: Sîrîr (on the coast) and Ājiw (in the mountains). A list of about 2000 lexical items shows 10% difference between these two dialects. Phonetic and prosodic differences are also observed (e.g. pronunciation of stops and fricatives, tonal and intonational differences).

Mpûr is one of the few tonal languages in the Bird's Head Area. Other languages in this area still under investigation as to tonal features are Maybrat (Dol: in progress), Abun (Ch.Berry: 1995, K. Berry: 1995, Odé: in progress), Meyah (Gravelle: in progress) and Moskona (research recently started), all spoken in the North and North-East Bird's Head. Except for Abun, which seems to have grammatical as well as lexical tone contrasts, all these languages probably have only remnants of lexical tone.

The literature on prosodic phenomena (tone, intonation and temporal organization (such as variations in syllable duration, rhythm, pauses)) in Papuan languages of Irian Jaya is not very rich. Studies on tone in Papuan languages of Irian Jaya are, among others, Bateman (1990), Edmondson (1992), Clouse (1993 and in progress). In Foley’s study (Foley 1986:64) there is only a remark about the necessity to study suprasegmental systems. Detailed studies on tone in Papuan languages of Papua New Guinea have been found in, to mention a few authors, Hendriks (1995 and references cited therein), James (1994), Pike (1964).

2.2 Phonology

Mpûr has twelve consonant and five vowel phonemes, as well as five lexical tone contrasts (see section 4). The phonemes in Mpûr are presented below. A detailed discussion of Mpûr phonology is beyond the scope of this article. However, I would like to mention that Mpûr has a great number of allophonic rules and a very wide tolerance of realization of both consonant and vowel phonemes as long as oppositions are maintained.

So far, there is no evidence that Mpûr is a language with phonemic lexical stress. That is, no lexical stress contrasts or minimal stress pairs like, for instance, *'mamir vs. *ma'mir have been found to exist. Intensity, duration and/or fundamental frequency, traditionally regarded as the acoustic phonetic correlates of stress in languages like Dutch, English and Russian, seem not to function in Mpûr to mark stress. See section 4.3.

### Consonants

<table>
<thead>
<tr>
<th>Type</th>
<th>音素</th>
<th>ipa</th>
</tr>
</thead>
<tbody>
<tr>
<td>voiceless stops:</td>
<td>bilabial</td>
<td>/p/</td>
</tr>
<tr>
<td></td>
<td>alveolar</td>
<td>/t/</td>
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<tr>
<td></td>
<td>palatal-velar</td>
<td>/k/</td>
</tr>
<tr>
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<td>/b/</td>
</tr>
<tr>
<td></td>
<td>alveolar</td>
<td>/d/</td>
</tr>
<tr>
<td>flap</td>
<td>alveolar</td>
<td>/ɹ/</td>
</tr>
<tr>
<td>voiceless fricatives:</td>
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<td>/f/</td>
</tr>
<tr>
<td></td>
<td>alveolar</td>
<td>/s/</td>
</tr>
<tr>
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<td>palatal-velar</td>
<td>/ɬ/</td>
</tr>
<tr>
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<td></td>
<td>/m/, /n/</td>
</tr>
<tr>
<td>semivowels:</td>
<td></td>
<td>/w/, /y/</td>
</tr>
</tbody>
</table>

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6. A detailed phonology of Mpûr by G. Kalmbacher (SIL/Universitas Cenderawasih, Jayapura) is in preparation. I am indebted to him for his observations and preliminary materials.

7. It is not yet clear whether /ɹ/ is indeed a phoneme or an allophone of /d/. In the Kebar valley, /ɹ/ rarely occurs in word-initial position, whereas in the Amberbaken region it does occur in that position (e.g. ra "earlier").
Vowels
  high front /i/
  high back /u/
  mid front /e/
  mid back /o/
  low central /a/

Tones

<table>
<thead>
<tr>
<th>name of tones</th>
<th>pitch description</th>
<th>transcription</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>high level</td>
<td>'</td>
</tr>
<tr>
<td>M</td>
<td>mid level, varying</td>
<td>unmarked⁸</td>
</tr>
<tr>
<td>ML</td>
<td>midlow level</td>
<td>-</td>
</tr>
<tr>
<td>L</td>
<td>low level</td>
<td>'</td>
</tr>
<tr>
<td>FR</td>
<td>falling&amp;rising</td>
<td>~</td>
</tr>
</tbody>
</table>

Chart of Mpûr tones on the basis of Odé (1995). The transcription symbols for tones are according to the International Phonetic Alphabet, IPA (1993).

2.3 Morphology
Similar to other languages of the WPP (e.g. Maybrat, Moî), the Mpûr language has on the whole a simple morphological structure. However, the deictic system in Mpûr is, like in other WPP languages, rather complicated and not yet very well understood. Mpûr employs prefixation for subject agreement on verbs and for possessor agreement on inalienable nouns, distinguishing person, gender for third person, and number: singular, dual and plural. Unlike some of the WPP languages (e.g. Moî, Hatam, Sough (Reesink, this volume)), there is no opposition inclusive-exclusive for first person plural. The word order in declarative sentences is SVO. For more detailed, recent studies on the typology of WPP languages, the reader is referred to Voorhoeve (1987, 1994) and Reesink (this volume).

3 Perceptually analysing and describing tones and intonation

3.1 Introduction
Lexical, morphological and syntactic aspects as well as gestures and facial expressions, together with the prosodic information, contribute to the overall interpretation of an utterance. The present article studies part of the prosodic information, i.e. pitch phenomena, which are therefore separated from the other prosodic parameters. The final aim of my study is a linguistic description of types of tone and intonation in Mpûr. Starting point for such a description is an experimental study of the formal phonetic contour of tone and intonation from a perceptual point of view.

⁸ The variety of allotones of type M is so large that it is questionable whether type M is a tone; it possibly could be another name for ‘no tone’.
An experimental phonetic approach, in which data are experimentally verified with native speakers of a given language, enables us to present a formal description of types of tone and intonation with detailed phonetic specifications which are fully accessible and which can be reproduced. With the research tools nowadays available, it is no longer necessary to come up with an impressionistic description of prosodic data that are only accessible to (the ears of) the author.

Given the above mentioned considerations, the most appropriate approach to study and analyse tones and intonation in Mpiùr is found to be the perceptual analysis-by-resynthesis method. This advanced so-called stylization method is developed at the Institute of Perception Research (IPO) in Eindhoven, The Netherlands (‘t Hart, Collier, Cohen 1990).

3.2 The stylization method

Stylizing pitch contours means replacing measured fundamental frequency curves by the smallest number of straight-line segments which still yield perceptual equality with the original fundamental frequency (F0) curves. In the process from the original F0 curve to the final stylized pitch contour, the following phases can be distinguished:

- the original F0 curve is measured and resynthesized;
- the resynthesized F0 curve is compared by ear with the original F0 curve: there may be no audible differences;
- in interaction with the computer the experimenter reduces the F0 curve to the smallest number of straight-line segments in such a way that perceptual equality between the original F0 curve and the stylized contour is still maintained. The stylized pitch movements can be made audible by resynthesis and compared with the original F0 curve of the same fragment of the speech signal\(^9\). No differences may be audible. All pitch movements in a final stylization are perceptually relevant and cannot be reduced further without introducing a perceptual difference with the original F0 curve;
- the equality between the stylized pitch contours and the original versions can be experimentally verified.

A stylized pitch contour is called a close-copy stylization (‘t Hart et al. 1990: 42).

The result of the process is a representation of F0 curves in terms of perceptually relevant pitch movements that combine to form complete stylized contours.

The speech synthesis technique used for the present analysis is based on the so-called PSOLA (Pitch-Synchronous Overlap-Add) approach, described in Charpentier & Moulines (1989). This technique, based on waveform editing, has been adapted in 1992 by L.L.M. Vogten at IPO, Eindhoven, under the name PIOLA, for which a patent has been granted (PHN 13.801). In my experience with PIOLA, the quality of this technique is very high, provided the pitch in the speech signal is manipulated to no more than ca. 4 semitones above or below the original signal. Almost no difference in quality between the resynthesized stylization and the original recording is perceptible. For the present article, part of the analysis has been carried out at IPO, where a new software package for the stylization method has recently been developed (and is still in development) by E. Gigi (IPO), called Graphical

\(^9\) A whole stylized utterance, a fragment or short stretches of speech (20 or 30 milliseconds, 10 ms is too short for comparison) can be compared to the original speech signal. However, a short, isolated stylized stretch may sound acceptable as compared to the original, but it can sound unacceptable in the whole utterance. Therefore, it is important to listen to how the stretch fits into the whole fragment melodically.
Interactive Processing of Speech (GIPOS), under the supervision of L.L.M. Vogten. In this software, the PSOLA/PIOLA technique is implemented.

An illustration of the stylization method is given in figure 1, in which waveform, original fundamental frequency curves and close-copy stylization (solid straight-line segments) of speech fragment No.1 (this number refers to the number of the fragment in section 5) bàri kú sőbőni ‘once upon a time’, are presented on an ERB-rate scale\(^\text{10}\).

\[\text{Figure 1. Waveform and original F0 curve (capricious lines, top) and close-copy stylization on an ERB-rate scale (solid straight lines, bottom) of speech fragment No.1 bàri kú sőbőni ‘once upon a time’}.\]

\(^{10}\)The ERB-rate scale (Equivalent Rectangular Bandwidth rate) is discussed in Hermes & van Gestel 1991. As a result of a number of perception experiments, the authors found that there is a difference between speech and music as to how the human ear perceives melodic intervals. It appears that if we want to compare pitch intervals in speech in different positions in the register of one or different voices, pitch values can better be expressed in ERB’s on an ERB-rate scale instead of in semitones on a logarithmic scale. But since in the present article we deal with only one speaker, and no comparisons between voices are made, pitch values in the text are not expressed in ERB’s, but in the more familiar semitones. Pitch contours in the pictures, however, are presented on the ERB-rate scale.
In all further figures of pitch contours in this article, the vertical axis shows fundamental frequency in hertz on the ERB-rate scale against time in seconds on the horizontal axis.

When the perceptually relevant pitch movements have been found and the stylizations have been verified, the movements are classified into discretely different types of perceptually relevant pitch movement on the basis of melodic similarity. A classification of the pitch movements on the basis of phonetic features is not reliable as long as we don’t know which acoustic features are responsible for the perception of that type of movement. For a detailed perceptual description of (Russian) intonation by means of the stylization method, the reader is referred to Odé (1989).

By analysing, classifying and describing types of tone in the Amberbaken myth and in Odé (1995), I have shown that the stylization method, so far mainly used to analyse intonation, is applicable to a tone language as well.

4 A description of tones and intonation in Mpùr

4.1 Tones in Mpùr

Tones in Mpùr are phonemic and serve to contrast lexically between words. No evidence for grammatical tone has been found.

On the basis of production and perception data, using the stylization method described in section 3.2, Odé (1995) analyses the five lexical tone contrasts in Mpùr: three level tones (high, mid, and low (H,M,L)) and two contour tones (low falling (LF) (this type has now been redefined as type midlow level (ML), see below) and falling&rising (FR)). The description of the five types of tone was arrived at by analysing and stylizing words in isolation and in a small context, then classifying these words into types of pitch level or pitch movement on the basis of perceptual and phonetic similarity, and, finally, by verifying them in original and manipulated versions in experiments presented to native Mpùr speakers (Odé 1995).

The differentiation between pitch levels and pitch movements was made as follows. If in a syllable, pitch could be stylized (see section 3.2) into a level straight-line segment (even if some movement was present, see also section 4.5) without introducing a perceptual difference with the original pitch, the tone was defined as a level pitch; otherwise, if a rise and/or fall could not be removed without perceptually relevant difference, it was defined as a pitch movement (Odé 1995:216).

In Mpùr the pitch range between high and low is large, as can be expected in a language with four phonemic pitch levels: the difference, that is, the interval between two levels must be perceptible\(^{11}\). The falling&rising type has a clearly audible falling movement within the syllable before pitch rises.

Phonetic specifications of Mpùr tones are presented below.

In the present article one type of tone differs from the description given in Odé (1995): tone LF (low falling tone) has been redefined as type ML, a midlow level tone. Reasons for redefining type LF into ML are based upon many newly analysed and manipulated production

\(^{11}\) Perception experiments have shown that the differential threshold of pitch distance in speech communication is 3 semitones or more; in psychoacoustic experiments, the just noticeable difference in speech is 1.5 to 2 semitones (‘t Hart et al. 1990:29). According to these results, the pitch range in a language with four distinctive pitch levels must be ca. 9 semitones. In Mpùr I have found pitch distances between two levels of ca. 2 semitones.
data in isolation and in context after the 1995 experiments had been carried out. For the time being, the other types of tone remain unchanged.

For Seppy Wabia, the speaker of the Amberbaken myth, the phonetic specifications of the five tones H, M, ML, L and FR in semitones are the following:\footnote{12 Wabia’s specifications discussed here do not substantially deviate from other recorded and analysed Mpur speakers of the Ai\textit{t}w dialect.}

\begin{align*}
H & 200 \text{ Hz} & 12 \text{ ST above L} \\
M & 150 \text{ Hz} & 7 \text{ ST above L} \\
ML & 125 \text{ Hz} & 4 \text{ ST above L} \\
L & 100 \text{ Hz} & 0 \text{ ST} \\
FR & 145/125/100-125/145 \text{ Hz} & 6.5/4-0-4/6.5 \text{ ST above L}
\end{align*}

As can be seen here, the average range of Wabia’s register between tones H and L is ca. 200-100 Hz or, in relative pitch values on a logarithmic scale\footnote{13 It does not make sense, even for one and the same speaker, to compare or to classify pitch levels or movements, especially if segmented out of spontaneous speech, in absolute values expressed in hertz. For the convenience of the reader the traditional semitones are used here instead of the still more appropriate ERB’s. See note 10.}, 12 semitones (ST), which is the interval of one octave. However, the range of the distance between the pitch levels of two types of tone varies considerably in spontaneous or expressive speech: the distance between, for instance, tones H and M is not always 5 ST, but can be smaller or larger, as along as the limits of perceptual tolerance (i.e. the minimal limits between two types of tone of ca. 2 ST; see also note 11) are obeyed. Especially in realizations of types M and FR, phonetic specifications vary considerably.

In figure 2 an example of the five types of lexical tone in Mpur is given.

\textit{Note that in this section all numbers given to the examples refer to the numbers of the fragments where the examples occur in the full text of the Amberbaken myth in section 5; all examples given in the figures in this section are in stylized pitch contours on the ERB-rate scale (see note 10).}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure2}
\caption{The five types of lexical tone in Mpur: types H (pér ‘dog’), M (bar ‘thing’), ML (têp ‘plate’), L (pà ‘already’) and H-FR (fit’ ‘a certain’).}
\end{figure}
Type ML

Type ML is a level tone which is often realized as a midlow falling contour as a result of tone sandhi (see section 4.2) and/or intonation (see section 4.3). In figures 3a and 3b realizations of type ML with a midlow pitch level and a midlow falling movement are presented occurring in the word tēp ‘plate’ in the myth:
- in utterance-initial position as slightly falling (a fall of 3 ST with a rate of pitch change of 15 ST per second): No. 39 tēp bātaka ‘plate that’;
- in utterance-central position as level preceded by a very short (90 milliseconds) falling movement (-5.6 ST): No. 38 wārkwā tēp fiti ‘water-takes along-plate-a certain’.

From these and other examples it is clear that type ML is realized as a falling movement if it occurs at a prosodic boundary (see section 4.3 below), in an accented syllable (i.e. a syllable in a word that is perceptually prominent and which gives a word more saliency than other words in its environment) or in the case of tone sandhi.

Type M

Type M, a mid level tone, is often called "empty" by native speakers of Mpür. More analyses and perception experiments are needed to find out whether type M is, as I expect, a neutral, unmarked type of tone with realizations depending on the tonal context, occurring mainly in unaccented syllables. See also note 8.

Word-initial nasals followed by a stop are syllabic and in the Amberbaken myth occur with tone M only. Examples are nkàn ‘old man’, nkà ‘that’, mbwar ‘I say’, ntar ‘I possess’, ndà ‘that’. Word initial clusters of more than two consonants do not occur in Mpür. Between two

![Figure 3a](image.png)

Figure 3a. A realization of type ML in the word tēp ‘plate’ in initial position of utterance No. 39.
Figure 3b. A realization of type ML in the word ĭp ‘plate’ in central position of utterance No. 38.

Figure 4a. Realization of a word-initial syllabic nasal with type M in fragment No. 2 in the word nkăn ‘old man’.
word initial consonants a central vowel is often found with the unmarked tone M (e.g. beraw vs. braw ‘and, with’). If, conversely, vowels in word-initial syllables are swallowed after a nasal, the given nasal becomes syllabic, e.g. mintaki vs. mtaki ‘like this’. For examples of syllabic nasals see figures 4a and 4b.

Types H and L

Not surprisingly, the other two level tones, types H and L, are the least problematic in the Mpùr tone system. Examples of level types H, M and L are presented in figure 5.

Figure 5. Realizations of types H, M and L in the words bé ‘but’, be ‘in’, bè ‘fruit’ in fragments Nos. 36, 40, 43.
Some more remarks on level tones
If not influenced by tone sandhi and/or intonation, as we will see below, a sequence of two of the same level tones is realized on the same (or almost the same) pitch level, for example in central position in the utterance ākon buru pà bé për mankā tów ‘he slept deeply already but dog that barked’, fragment No. 36.

The example is presented in figure 6.

![Waveform and pitch chart](image.png)

Figure 6. Example of a sequence of two high tones in the utterance ākon buru pà bé për mankā tów ‘he slept deeply already but dog that barked’, fragment No. 36.

The distance between types H and M, between M and ML and between ML and L fluctuates under the influence of, inter alia, accent. For example, if a two-syllable word with tone sequence H-ML is accented, the distance between types H and ML can be much larger than if the syllables were not accented. In the Amberbaken myth, in fragments Nos. 45 and 46, āre wärkwā kūtūl/ wärkwā kūtūlē ‘so the water took along/ the water took along’ the verb wärkwā ‘water+to carry’ is accented in the first, but unaccented in the second utterance. The excursion size between types H and ML in the accented realization is 6.2 ST, in the unaccented realization 4.4 ST, a difference of 1.8 ST. The examples are given in figures 7a and 7b.

Type FR
The only contour tone, type FR, is somewhat suspect in the sense that it rarely occurs in monosyllabic words and if it does, the final consonant is a nasal (e.g. sūm ‘a counternoun for short, cut-off objects’). In disyllabic words it occurs, as far as I know, only in the final syllable. However, in realizations of type FR the rise is clearly observed and it cannot be removed, except if the syllable in which type FR occurs is subject to intonational or sandhi
Figure 7a. Realization of types H-ML in the word wárkwá ‘wár+dukwa’ ‘water + to carry’ in accented position (fragment No. 45).

Figure 7b. Realizations of types H-ML in the word wárkwá ‘wár+dukwa’ ‘water + to carry’ in unaccented position (fragments No. 46).
phenomena. For instance, in fragment No. 35 ākon kū jaswākē-e-e ‘he sleeps in the hut’, type FR precedes type ML which is realized emphatically in utterance-final position with a falling movement (intonation); the rising movement of type FR is completed only in the last syllable. Two examples, fragments Nos. 2 and 23, are given in figures 8a and 8b.

Though the rise in the realization of tone FR may reach a level higher than mid, there is no neutralization of type FR and type H after type M in, for example, minimal tone pair kūkwān ‘wild’ (M-H) vs. kūkwān ‘butterfly’ (M-FR). Other examples of minimal tone pairs or tone contrasts with type FR are akā ‘to meet’ (L-L) - āka ‘thus’ (L-M) vs. sēnār ‘because’ (L-L) - sēnār ‘left-overs’ (L-FR); are ‘bird of paradise’ (M-M) vs. nikā ‘kunai grass’ (M-FR).

4.2 Tone sandhi

Tone sandhi, the term used for the influence of tones on the realization of adjacent tones, is a normal phenomenon in Mpur. Rules for tone sandhi in Mpur have not been established yet; an example is, for instance, the realization of type FR followed by a level tone, where the rise of type FR is continued and/or completed in the next syllable. An example has been given above in section 4.1, type FR in fragment No. 23, figure 8b.

4.3 Intonation

In the text of the Amberbaken myth presented in section 5 below, perceived prosodic boundaries are indicated with the mark / . Prosodic boundaries occur at a pause, a silence, a hesitation or a reset (upwards or downwards in the speaker’s register), and/or as a result of the temporal organization of an utterance, or at the end of a stream of thought. In the present text, pauses and hesitations are often accompanied or filled by the word yāw ‘well’.

Figure 8a. Realization of type FR in fragment No. 2 in the word fiti ‘a certain’ at a boundary
Figure 8b. Realization of type FR in fragment No. 23 in the word *đêm* ‘mouth of river’ in central position.

Figure 9a. Example of a boundary after hesitation in fragment No. 92 yâw ‘well’.
Figure 9b. Example of a boundary after vowel-lengthening in fragment No. 5 mā-a-a ‘at’.

Figure 9c. Example of a boundary after a silence in fragments Nos. 80-83 in/ ināw si/ ināw si yaw/ Amhoro/ ‘I go home to/ I go home to well/ Amber’. 
(e.g. fragment No. 92 femükí debwa yàw/ ‘now they say well’) by vowel-lengthening (e.g. fragment No. 5 kòpaw mā-a–a/ ‘there at’) and by silence (absence of vocalization) in fragments Nos. 80-83 in/ ináw si/ ináw si yàw/ Ambero/ ‘1/ I go home to/ I go home to well/ Amber/’. Three possibilities are illustrated in figures 9a, 9b and 9c.

In declarative sentences, at a sentence-final boundary final lowering (a pitch movement falling to the lowest level of the speaker) is usually observed in traditional intonation languages such as Dutch, English and Russian. Also, at final boundaries level tones, regardless of height, show up as a falling movement superimposed upon the tones. In the fragments No. 20 ĕbwa– áta– báriosi nkà wà ‘we say he had this food already’ and No. 32 àsoma kamo ján ‘he didn’t find any game’, low tone in the final words wà ‘already’ and ján ‘not’ is realized with a low falling movement (see figures 10a and 10b).

At other types of boundary in declarative sentences, a level tone is also frequently realized as a pitch movement. In fragment No. 9 āmen pèr fôn ‘he looked after dogs many’, for example, high tone in fôn is realized with a high falling movement. The example is presented in figure 11.

Next, some examples of interrogative intonation with and without question words are discussed.

Two questions with the question word bawàn ‘what’ occur in the text: fragment No. 55 pèr tò– wawàn ka? ‘what was the dog barking at?’ and Nos. 60-61 bawàn mà/ pèr tòw mài–mài kàrà? ‘what is the dog barking at all the time?’. The second question occurs in a direct quote and it is realized at a much higher level. But both question words have a falling intonation contour. The examples are presented in figures 12a and 12b.
Figure 10b. An example of a declarative utterance, fragment No. 32: *ásoma kamo jān* ‘he didn’t find any game’.

Figure 11. Example of a falling pitch movement at a non-final boundary in fragment No. 9 *āmen pēr fōn* ‘he looked after dogs many’.
Figure 12a. Example of a question with the question word bawán: pér tò- wawan ka? ‘what was the dog barking at?’ in fragment No. 55.

Figure 12b. Example of a question with the question word bawán: bawan ma/ (pér tòw maju-maju karà) ‘what is the dog (barking at all the time?)’ in fragment(s) Nos. 60(-61).
Figure 13a. Dialogue with question particle -ê in jâne ‘home?’.

Figure 13b. Dialogue with question particle -ê in mankêê ‘this?’.
Figure 14. Stylized contour in the question waräs unte? 'what is the time?' with question-word unte ‘how much?’.

Figure 15a. An example of vowel lengthening in the word bwa ‘it said’ in fragment No. 74 (figure 15b) after fragment No. 73 (figure 15a) kamän bwa na Sasüa‘ the pumpkin said to Sasua‘.
Figure 15b. An example of vowel lengthening in the word *bwa* 'it said' in fragment No. 74 (figure 15b) after fragment No. 73 (figure 15a) *kanm bwa na Sas’al* 'the pumpkin said to Sasua’.

Figure 16a. Example of vowel lengthening in an enumeration in fragment No. 15: *āji- dwawō* 'he kills pigs'.
Figure 16b. Example of vowel lengthening in an enumeration in fragment No. 16: āji-bājinēkō/ 'he kills kangaroos'.

Figure 17a. Example of a continuation with vowel lengthening in -i- in fragment No. 21 ārā- bain/ 'he makes a garden'.
Yes/no questions with the utterance-final question particle -è do not occur in this text. Nevertheless, I would like to present some examples. The question particle -è has a low tone. If the pitch level in the syllable preceding the question particle is high, pitch falls from that level to the low level. For example, in the dialogue

- Yët- ãun si jànè? Is he going home?
- Yë, yët- ãun si jàn. Yes, he is going home.

after jàn ‘house’ (high tone) in the question, the tone in particle -è falls from the high level to the low level; in the answer, jàn ‘house’ (high tone) remains high. In the dialogue

- Bijâm mankètè? Is this ironwood?
- Yë, mankè bijâm. Yes, this is ironwood.

rising pitch in -tè continues in question particle -è and then pitch falls to the low level. Both dialogues, spoken by Amanda Ajoj (Anjai, Kebar valley) are given in figures 13a and 13b.

In question words, the final syllable with the question suffix -te has a mid level tone: mantè ‘where to’, unto ‘how much’, àrote ‘how’, sometimes realized with mid rising pitch. An example by the same female speaker is presented in figure 14.

4.4 Some other prosodic phenomena
At a prosodic boundary, prosody may lend prominence to a syllable and make it more salient than its adjacent syllables. A cue is e.g. vowel-lengthening, which is not contrastive in Mpûr.
Consider, for example, the following fragment (Nos. 73-74): *kamàn bwa na Sasùā/ bwa/* ‘the pumpkin said to Sasua/ it said/’, where the first instance of *bwa* has a duration of 170 milliseconds (ms). The second instance, a quote introducer, is considerably longer, having a duration of 485 ms. See figures 15a and 15b.

Vowel lengthening is also observed in enumerations. Examples in the text are, for instance, fragments Nos. 15-16 *āji- dwāwō/* *āji- bājinēkō/* ‘he kills pigs/ he kills kangaroos’ where final *-ō/* is lengthened. The examples are given in figures 16a and 16b.

Furthermore, vowel lengthening occurs at a continuation boundary, where a stream of thought is not finished yet. Examples are *-i- in* *bain* ‘garden’, fragment No. 21 *ārā- bain/* ‘he makes a garden’ and *-ā in wā ‘already’, fragment No. 27 *āun tu- bāri krīmbór wā ‘he went with (the dog) since that morning already’, given in figures 17a and 17b.

Excitement, emotive emphasis are commonly expressed with the particles -*t(e) or -i*, frequently together with vowel lengthening and increased loudness. Words are sometimes repeated up to five times within an utterance as a means for emphasis or expressiveness. Examples of expressive utterances are presented in figures 18a-d: *āun tu- për tāsi- tāsi- tāsi-tāsi-kē ‘he went with his dog in vain’, për to-to-to-tōw ‘the dog barked and barked and barked’, *ākon tē-e-e ‘he slept all the time’, ħ-e-e yāw ‘oh well’ in fragments Nos. 31, 50, 57, 65. As can be seen in these examples, the realization of tone in the repeated words does not change in the course of the utterance.

\[\text{Figure 18a. Example of an expressive utterance: } \text{*āun tu- për tāsi-tāsi-tāsi-tāsi-kē ‘he went with his dog but in vain’ in fragment No. 31.}\]

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14 Also, many examples of tail-head constructions can be found in the Amberbaken myth. This is characteristic of the oral tradition of other people of New Guinea as well. Examples are fragments nrs. 11-12 *āmsa bār/* *āmsa bār mā ‘he hunts something/ he hunts something at’ and nrs. 73-74 *kamàn bwa/* *kamàn bwar na Sasùā/ ‘the pumpkin said/ the pumpkin said’, where the final syllable in the tail is much longer than in the head.
Figure 18b. Example of an expressive utterance: *pér to-to-to-tōw* ‘the dog barked and barked and barked’ in fragment No. 50.

Figure 18c. Example of an expressive utterance: *ākon tē-e-e* ‘he slept all the time’ in fragment No. 57.
4.5 Declination, downdrift and downstep: a discussion

In this final subsection on tones and intonation in *Mpur*, I would like to discuss three more pitch phenomena, declination, downdrift and downstep. The issue needs a serious and extensive investigation though, which is beyond the scope of the present article.

A well-known pitch phenomenon in speech is declination, the term used for the involuntary, physiologically determined tendency of the fundamental frequency to decline gradually in the course of an utterance (‘t Hart et al. 1990:121f.). According to the basic assumption of ‘t Hart et al., all relevant pitch fluctuations are F0 changes, voluntarily made by the speaker (‘t Hart et al. 1990:123). Yet declination can be perceptually relevant and it can be employed linguistically. A speaker can voluntarily influence the rate of declination or make a declination reset (a jump upward or downward in the fundamental frequency course). For instance, a reset is often used in spontaneous speech in long sentences, if a speaker reaches a low level "too early", or if s/he hesitates.

In my own observations of spontaneous speech of different languages (Dutch, Indonesian, Russian), a clearly measurable declination line is often not found, but this discussion is beyond the scope of the present article. Declination as such is also not observed in the Amberbaken myth, but in *Mpur* in general it does occur. Declination can be observed in *Mpur* in a sustained pitch level or in a sequence of two tones of the same type (H-H, M-M etc.), where the second tone is realized somewhat lower than the first. Here, the term declination recognizes the fact that in the stylizations of pitch levels there is always some declination. If in a sequence of two tones of the same type, the second tone were realized exactly on the same pitch level as the first in terms of hertz, the second would be perceived as higher. If a level tone is sustained on a constant (in hertz) pitch level over a number of
syllables, it will be perceived as inclination, i.e. a gradual rise (Odé 1989:27-28). Declination in this sense must not be confused with downstep or downdrift (see below)).

In the literature the terms "downdrift" and "declination" are sometimes used to indicate the same phenomenon (cf., for instance, in Fromkin 1978: Ohala, 31-32; McCawley, 129; Anderson, 139-144). Downdrift is a term used to indicate "the downward slippage of the tonal register", occurring in sequences of tones. For instance in Efik, spoken in Nigeria, West Afrika (Cook 1985:121-128), a high tone after a low tone is realized lower than a high tone preceding that low tone; a low tone after a high tone is realized lower than a low tone preceding that high tone. Downdrift does not occur in all spoken (tone) languages. So far, downdrift has not been found in Mpür.

The phenomenon downstep ("a non-predictable, phonologically significant lowering of the register" (Cook 1985:128), a clearly audible step downwards of the second tone in a sequence of two of the same tones), occurring for instance in many African tone languages, is not found in Mpür.

Summarizing, downstep and downdrift are realized by a speaker intentionally, in accordance with linguistic rules. Declination always occurs unintentionally, in some types of speech, by default, if a speaker does not voluntarily compensate for it; the latter can have a linguistic function.

5 Annotated text with literal and free English translation

Every fragment consists of four lines. Numbers indicate the fragments referred to in the sections above.

In the first line, tones are marked in the text according to the chart of tones given in section 2. A word-final hyphen in the first line indicates a vowel or consonant that is not pronounced or is contracted with the adjacent vowel or consonant. In running speech, syllable-final stops [p,t,k] and flap [r] are often elided. Words marked with an asterisk (*) are slips of the tongue of the speaker. Boundaries are indicated with /. Paragraph boundaries that were indicated by the speaker in the written text with a full stop are marked with //.

In the second line, words are broken down into morphemes as far as these were recoverable and/or verified with native informants.

In the third line, a literal English translation is given, sometimes with a morphological annotation. The abbreviations used can be found below. A question mark in the second or third line indicates that the meaning of a given morpheme is not yet understood.

The fourth line gives a free English translation.

1 2 3
bàri kù sòbòni/ nkàn fìtì/ àmùk Sasùà/ sobon-i a-muk
from at before-narr old person certain 3sM-name Sasua
Once upon a time, there was a certain old man named Sasua.
Sasuá ka ájap/ kópaw mā-a-a/ Āmtùr ātēm/
a-jap ku-taw? a-tem
Sasuá DEF 3sM-live there at Amtur 3sM-mouth of river
Sasuá lived there at the mouth of the river Amtur.

ājap kú mankā/ āmen pér/
a-jap a-men
3sM-live at REL-DEM 3sM-look after dog
He lived there and looked after his dogs,

āmen pér fón/ ārkwa pér mankā
a-men a-dukwa
3sM-look after dog many 3sM-carry dog REL-DEM
he looked after many dogs. He took along those dogs.

day-? 3sM-go to 3sM-hunt something
every day when he went hunting.

āmsa bar mā ms*/ Āmtùr atòw namèk/
a-minsa a-tow
3sM-hunt something at Amtur 3sM-headwaters there
He hunted there at the headwaters of the Amtur,

to so that 3sM-kill pig-and 3sM-kill kangaroo-and
in order to kill pigs and kangaroos,

ājí- ka- mankā nara*/ ārkwa na tòka/
a-jik kam a-dukwa
3sM-kill game REL-DEM nara* 3sM-takes along to
so that after he had killed that game, he took it along in order to
äkat n- ärêt/ ëbwa- äta-
a-kat na a-det e-bwar a-tar
3sM-put so that 3sM-eat 1pl-say 3sM-possess
put the food inside a bambu so that he could eat it, we say now he had

bârêti nkà wà/ âmà- bâin/
bar-det-i pa a-dak
thing-eat-emph DEM already 3sM-work garden
this food already, he worked in the garden where

ajap ârâ- jân kú m- Âmtûr âtêm ka//
a-jap a-dak ma a-tem
3sM-live 3sM-work house at at Amtur 3sM-mouth of river DEF
he lived and built a house at the mouth of the river Amtur.

äun tu- bâri krîmbôr wà/
a-un tut pa
3sM-go with from morning already
he went with his dog already since the morning,

äun tut/ ämim bâpu mä Âmtûr anâmèk//
a-un a-mim a-namek
3sM-go with 3sM-arrive at far away at Amtur 3sM-there
he went with his dog until he arrived far away at the Amtur there.

äun äyafnâ/ äun tu- pêr
a-un a-afena a-un tut
3sM-go 3sM-return 3sM-go with dog
He went to and fro, he went with his dog
tási-tási-tási-tásike/ āsoma kamo jàn/
tasik-e a-soma kam-o
in vain-excl 3sM-find game-whatever not
in vain, he didn’t find any game,

ānamen- āwamar pà/ ākon kú jaswā-//
a-namena a-wamar a-kon jaswak
3sM-come back 3sM-tired already 3sM-sleep in hut
he came back and already tired, he went to sleep in the hut.

ākon kú jaswākē-e-e/ ākon buru pà/
a-kon jaswak-e a-kon
3sM-sleep in hut-excl 3sM-sleep to descend already
As he slept in the hut, when he was well asleep,

bé pèr mankā tòw/ yāw// wárkwā tèp fît’/
war-dukwa
but dog DEM bark well river-take along plate certain
but the dog barked, well, the water took along some plate,

tē- bátaka/ bawa út be tèp beu
tep be-u
plate DEM what stay in plate in-inside
that plate, there was something inside that plate,

bátaka/ kamàn/ kamàn bè mankā út be/
bar-ta-ka?
thing-DEM-DEF? pumpkin pumpkin fruit that stay inside
it was a pumpkin. The pumpkin-fruit stayed

tèp beu/ ãre wárkwā kútu-/
war-dukwa ku-tut
plate inside therefore river-take along at-with
the plate, so the river took along
wárkwâ kútutê-e-e/ mim fanâm kú ma
war-dukwâ ku-tut-e
river-take at-with-excl arrive near at REL
the water took the plate along till near the

48

wátêm/ Āmtûr atêmâ/
war-tem a-tem-a
river-mouth 3sM-mouth-?
mouth of the Amtur.

49

āka përi namêna tòw/
per-i
and then dog-emph come back bark
And then the dog came back and barked,

50

për to-to-to-tòw/
tow
dog bark
the dog barked and barked and barked

51

ō yetân- āmsêm/ āmsêm âka/
yeta-(n)â a-minsem a-minsem
o 3sM-emph 3sM-hear 3sM-hear and then
oh he heard and heard it all the time

53

āmsêm bê ãwamar p- ãre yâw/ âmom ka
a-minsem a-wamar pa a-mom
3sM-hear but 3sM-tired already so well 3sM-not want DEM
he heard it but he was so tired that well he didn’t want

55

āun- äwot/ për tō- wawan ka//
a-un a-wot tow bawan
3sM-go 3sM-see dog bark what DEF
to go and see what it was the dog was barking at.
ājap  ākon  ātaw-  ākon  bōryā//
a-jap  a-kon  a-tar-bar  a-kon
3sM-sit  3sM-sleep  3sM-possess-thing  3sM-sleep fast
He sat and slept, he was fast asleep.

ākon  tē-e-e/  pēr  tōw  maw-maw-maw-maw/
a-kon
3sM-sleep emphasis  dog  bark  continuously
He slept all the time while the dog barked continuously.

āh/  ābwa-  nā/  bawān  ma  pēr  tōw
a-bwar
ah  3sM-say  well  what  REL  dog  bark
Ah, he said, well, what is it that the dog is barking?

maju-maju  karā/  ānmenā/  āwot/  ābw-  āwot
maju-maju (BI)  a-namena  a-wot  a-bwar  a-wot
all the time  that  3sM-come back  3sM-see  3sM-say  3sM-see
all the time? He went back and saw, he said he saw something

àka  ē-e-e  yāw/  kaman  nā  kaman  út  kú  yāw
and then excl  well  pumpkin  DEM  pumpkin  stay in  well
and then  oh  well, a pumpkin, a pumpkin stays in, well.

tēp  beu/  ō  ān-  awot  àka/  kaman
be-u  a-na  a-wot
plate inside  oh  3sM-come  3sM-see  and then pumpkin
in a plate, oh he came and saw it and then that very pumpkin
Mpùr tones and intonation in an Amberbaken myth

70

bani/ kòpo\(^{15}\) e ú- be/ tèp beyè/
bar-ni ut be-ye
thing-emph jump excl stay in plate in-outside jumped out of the plate it was in,

72

àka kamàn bwa-/ kamàn bwa- na Sasùà/
bwar bwar
and then pumpkin say pumpkin say to
and then the pumpkin said, the pumpkin said to Sasua,

74

bwa/ ò/ amwàmom k- anot íno pà/
bwar an-wamom ka an-wot in-o pa
say oh 2s-want-not DEM 2s-see 1s-also already
it said oh, so you didn’t want to see me,

76

bàri ma pùnuni pérd tòw in
put-nuni
from REL day-earlier dog bark I (direct object)
since the early day the dog barked at me

pértòwinb- án -anot injàn âre/
be an-na an-wot
dog bark I but 2s-come 2s-see I not therefore
the dog barked at me but you didn’t come to see me

78

tétaté/ mbwar -à nan/
te-ta-te in-bwar na
so 1s-say to 2s-you
so therefore I say to you

---

\(^{15}\) According to the story teller, he was not correct in using the word kòpo (to jump) and wishes it to be replaced by the word kwem (to fall).
80 81 82

ín/ ínáw  si/ ínáw  si  yāw/
in-aw  in-aw
I  ls-go home  to  ls-go home  to  well
I go home to, I go home to well

83 84

āmberō/ nta- bāken
Amber-o  in-tar
Amber-excl  ls-possess  trunk
the people with straight hair. That trunk of mine

85 86

bátaw  kon  kú/ tēp/ kon  jāti- kūtāw/
bar-taw  jatik  ku-taw
thing-DEM  stay in  plate  stay  wait  here
stays in the plate here, it stays here behind

87

bé  in  t- ínáw  si  āmber
te  in-aw
but I  emph  ls-go home to Amber
but me I am going home to that people with straight hair,

88 89

ndā  pā/  ō  anta-/ nta- bākena  tā  ú-
an-tar  in-tar  baken-a  ta  ut
DEM  already  o  2s-possess  ls-possess  (repair)  trunk  DEM  stay
oh that trunk of you... of mine stays

90

kūtāw/ mtaki  maw  ndākā  pā//
ku-taw  mim-ta-ki  nda-ka
at-here  arrive-DEM-DEM  finish  DEM  already
here, and this is the end.

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16 The story teller wishes the word tep (plate) to be replaced by the word tāw (here), because tep were not correct.
Acknowledgement

Ímbwar saswâr na ínimän Wasyaben Ajò braw ínimăta Kombwâra Wabya ma dobot bâtut wasi Mpûr braw dorim bar dorîtôt braw in 'I say thanks to my friend Amanda Ajoj and my friend Seppy Wabia for giving information about the Mpûr language and for being and laughing with me'.

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Abbreviations

narr  = continuation or narrative particle  
DEF   = definite  
DEM   = demonstrative pronoun  
REL   = relative pronoun  
excl  = exclamation particle  
emph  = emphasis particle  
1s    = first person singular  
2s    = second person singular  
3sM   = third person singular Masculine

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