

## Accental phrases in Tagalog intonation and their loose relation to word prosody

Alessa Farinella & Sun-Ah Jun\*

**Abstract.** In this paper, we present a preliminary analysis of Tagalog intonational phonology. We argue for three levels of prosodic phrasing above the prosodic word: an Accentual Phrase (AP), an Intermediate Phrase (iP) and an Intonational Phrase (IP). Each of these phrases are defined by edge tones, which contributes to the regular tonal melody of Tagalog utterances. We argue that Tagalog is typologically unusual in that some tones display variability in terms of their alignment: sometimes these tones target prominent syllables, while other times they appear to ignore them and target phrase edges. In particular, the left edge tone of an iP-medial AP is sometimes aligned to an (unstressed) AP-initial syllable, and other times is aligned to the stressed syllable of an AP-initial word. This finding suggests that Tagalog represents a new type of language, one with variable tonal alignment, which is not easily accounted for in the Autosegmental-Metrical theory of intonational phonology.

**Keywords.** Tagalog; Austronesian; intonation; prosody; Autosegmental-Metrical theory; Accentual Phrase

**1. Introduction.** This paper presents a preliminary model of the intonational phonology of Tagalog in the Autosegmental Metrical (AM) framework. Little work exists on phrasal prosody in the language, and the study presented here is a step toward documenting Tagalog intonation and proposing a model of the intonational phonology. Tagalog displays a regular tonal melody, which we attribute to the presence of edge tones marking the left and/or right edges of prosodic constituents.

An unusual property of Tagalog intonation relates to the tune-text alignment. Crosslinguistically, tones either align to prominent syllables or phrase boundaries, and in some cases both simultaneously (as is the case for secondary association of phrase accents in Greek (Grice et al. 2000) or a pitch accent marking the edge of an AP as in French (Jun & Fougeron 2000, 2002; Welby 2007) or Bangladesh Bengali (Khan 2008, 2014)). In Tagalog, instead of aligning consistently to word level prominence or phrase edges, certain tones can optionally align to either of these. They sometimes appear to target stressed syllables, but often ignore them entirely and land on a phrase-initial unstressed syllable. This study shows that Tagalog is unique in that it shows optional alignment of a phrase initial edge tone to a stressed syllable. This finding presents a challenge for intonational theory.

This work therefore raises questions about the adequacy of the AM model of intonation in its current form. It suggests that the model needs to be revised in order to account for a language like Tagalog, in which the alignment of intonational tones is flexible.

**1.1. THE AUTOSEGMENTAL METRICAL (AM) MODEL OF INTONATIONAL PHONOLOGY.** A central tenet in AM theory is that tones have two functions: they either mark prominence or prosodic boundaries. These functions are performed by two types of tones: pitch accents aligned to stressed syllables, and edge tones aligned to edges of prosodic units such as a word or phrase (Pierrehumbert 1980; Beckman & Pierrehumbert 1986; Ladd 1996/2008). However, it has been

\* We wish to thank Daniel Kaufman, Kristine Yu, Jed Pizarro-Guevara, Charlotte Kaiser, J.M. De Pano and Kristina Gallego. Authors: Alessa Farinella, University of Massachusetts, Amherst ([afarinella@umass.edu](mailto:afarinella@umass.edu)) & Sun-Ah Jun, University of California, Los Angeles ([jun@humnet.ucla.edu](mailto:jun@humnet.ucla.edu)).

shown that these assumptions do not work for all languages, such as languages which lack stress entirely (?Jun 2014) and languages with tones that do not exhibit canonical properties of either prominence or edge marking tones (Royer & Jun 2019; Grice 2022). For instance, Royer & Jun (2019) claim that in Kazan Tartar, prominence is marked by either a pitch accent or a H phrasal tone associated to an unstressed initial (first or second) syllable of a phrase, and this phrasal tone is not a boundary tone of a prosodic unit. They find that this High tone at the beginning of a word can be used to mark focus on that word. While tones that associate to phrase edges typically serve to mark prosodic boundaries, it appears that these phrase-initial H tones in Kazan Tartar mark prominence, similar to the French AP-initial H tone (Jun & Fougeron (2000); cf. secondary or intellectual accent in Fónagy (1980); Lucci (1983); Vaissière (1974)). A similar phenomenon is shown in Maltese (Grice 2022). Like Kazan Tartar, Maltese has word level stress, and canonical pitch accents which associate to stressed syllables mark prominence. However, it is also possible to mark prominence with tones that associate to phrase edges.

This finding that prominence is not always marked by pitch accents has also been demonstrated for other languages. In languages like Korean that do not have lexical prosody (i.e., languages that belong to an edge-prominence marking type in Jun (2005, 2014)), prominence is marked by edge tones (e.g., edge tones of an AP in Korean; see Hatcher et al. (2024)). Grice (2022) also presents evidence that pitch accents need not always mark prominence. In Bari Italian, in addition to canonical pitch accents which mark prominence, there are tones that associate to stressed syllables and mark sentence modality (questions vs. statements). Bari Italian therefore demonstrates that pitch accents need not serve a prominence marking function. The findings just discussed suggest the need for modifications to the classic AM model in order to account for languages whose tone types do not always serve the expected function (Grice 2022; Jun 2025).

In this paper, we present data which pose a new problem for the standard AM model. In Tagalog, certain tones demonstrate variable alignment properties. These tones only optionally align to word level prominence, exhibiting pitch accent properties. Other times, they ignore word level prominence entirely, displaying edge tone properties. Tagalog is, to our knowledge, the first language argued to display this type of variable tonal alignment, and is therefore typologically unusual. This property of Tagalog is difficult to account for under the standard assumptions of AM theory, in which tones are categorized by their alignment properties.

It remains unclear as of yet whether the functions of the tone differ depending on alignment. If they do, it's not straightforward in what way they differ. All utterances analyzed in this paper were broad focus declaratives. A perception experiment would need to confirm whether the difference in tonal alignment is meaningful to listeners. In this paper, we present our findings regarding the variability in tonal alignment, and future work will continue to explore the factors conditioning this variation.

1.2. LANGUAGE BACKGROUND. Tagalog is an Austronesian language spoken in the Philippines and in various diaspora communities. It is a predicate initial language with a relatively free post-verbal word order. The language possesses a classic “Philippine-type” voice system, in which verbal morphology references a particular privileged argument, marked with the proclitic case marker *ang* ([aŋ]) or *yung* ([juŋ]). The other core argument, if there is one, is marked with the proclitic case marker *ng* ([naŋ]). For simplicity, here we gloss case markers as determiners. There are four main voice types in Tagalog, but we focus here only on the most common voices: Actor Voice (AV), in which the actor is marked with *ang/yung* and the patient/theme with *ng*, and

Patient Voice (PV), in which the patient/theme is marked with *ang/yung* and the actor with *ng*. An example is shown in (1). (1a) is an AV sentence in Verb-Subject-Object order, and (1b) is the same sentence in the PV. Verbal morphology and case marking on the arguments is affected by voice type, but the meaning is not, with the exception that the *ang*-marked argument receives a definite interpretation.

- (1) a. B⟨um⟩ibili ang babae ng kendi  
 ⟨AV⟩buy DET woman DET candy  
 ‘The woman is buying some candy.’  
 b. B⟨in⟩ibili ng babae ang kendi  
 ⟨PV⟩buy DET woman DET candy  
 ‘A woman is buying the candy.’

Despite the abundance of work on Tagalog syntax, there is considerably less work on prosody in the language. Tagalog has a word level relative prominence distinction which has been analyzed as either a vowel length contrast or stress. On the latter analysis, Tagalog roots have unpredictable stress within a two syllable window at the right edge of words (Bloomfield 1917; French 1988). This gives rise to minimal pairs such as /'aso/ (dog) and /as'o/ (smoke). The other approach claims that Tagalog has a vowel length contrast on penultimate syllables in roots (Schachter & Otnes 1972; Kaufman & Himmelmann 2024; Kaufman To appear). For the minimal pair above, then, the contrast would be between /a:so/ (dog) and /aso/ (smoke), with the first syllable in dog containing a long vowel. Under the length approach, long penultimate vowels attract edge tones. When the penult contains a short vowel, the edge tone falls on the final syllable. On this view, “final stress” is simply the default alignment of phrasal tones to the final syllable (see Himmelmann & Kaufman (2020) and Kaufman (To appear) for more comprehensive arguments in favor of this view).

The purpose of this paper is not to make claims about the word level prosodic system of Tagalog, but about intonation. We remain agnostic as to the organization of the word level prosody for the time being, and refer to relative prominence at the word level as ‘stress,’ without any commitment to the underlying source of prominence (whether a length distinction or metrical prominence). However, a better understanding of Tagalog intonation can weigh in on this debate in the future. On the analysis that views word level prominence as stress, we might expect the intonational system to be sensitive to the position of stress, even in phrase-medial position. On the contrastive vowel length view, however, the expectation is that intonational tones are sensitive to word level prominence only in phrase final position, as long penultimate vowels are said to attract phrasal edge tones. However, if intonational tones in Tagalog never align to prominent syllables except at phrase edges, this is not necessarily an argument against the existence of lexical stress, as it is possible for a language to have stress at the word level which is ignored by phrasal prosody (e.g., Kuot (Lindström & Remijsen 2005)).

Compared to studies on word level prosody, work on Tagalog phrasal prosody is even more scarce. Richards (2017), in a study of Tagalog intonation involving four speakers, varied voice type and word order. He found a tendency for rises on stressed syllables, which he attributes to a L\*+H pitch accent, as the Low tone occurs on the stressed syllable and the High tone occurs on the following syllable or later. This results in a rising-falling pattern across the utterance. For some speakers, f0 remains high after the initial H of the L+H\* pitch accent, and falls sharply on

the L\* of the following stressed syllable, while for other speakers, f0 gradually falls from the H to the following L\*. Richards attributes the sustained high as owing to an additional High tone before the final L\* in a phrase. He does not discuss edge tones at all, but claims that the rises and falls are due to pitch accents, as he claims their timing is different depending on whether the word has penultimate or final stress.

A study by Sabbagh (2015) similarly argues for a LH rise and HL fall associated with stressed syllables in Tagalog. He claims that rises are optional on the stressed syllable of content words, but that verbs always contain a rise. However, since all of Sabbagh's sentences were verb-initial, this rise may not be targeting the verb, but the left edge of an initial phrase. Sabbagh also notes a rise-fall pattern similar to Richards (2017), and claims that falls occur on the stressed syllable nearest the right edge of a phrase. Sabbagh refers to the tonal events as "phrase accents", but like Richards, claims they align to stressed syllables. Sabbagh's study was small scale, and relied on data from just two speakers. Both Richards (2017) and Sabbagh (2015) describe variation across speakers.

Finally, typological surveys by Himmelmann & Kaufman (2020) and Kaufman & Himmelmann (2024) claim that tones in Tagalog and related languages are more consistently associated with intonational phrase edges, rather than word level prominence, in contrast to Richards (2017) and Sabbagh (2015). They also propose that only the right and sometimes the left edge of an IP are obligatorily tonally marked in Tagalog.

**2. Present study.** In this study, we sought to lay the foundation for a phonological model of Tagalog intonation in the AM framework. As there have been very few studies on Tagalog intonational phonology to date, we carefully controlled the stimuli and carried out the experiment in the form of a structured elicitation. For the stimuli, we carefully varied the voice type of the verb (Actor Voice or Patient Voice), stress location (penultimate or final), and sentence length. All sentences were in Verb-Subject-Object order.

**2.1. MATERIALS.** Stimuli consisted of 48 experimental items in VSO order, half of which had AV verbs and half of which had PV verbs, for a total of 24 for each voice type. For each item, we varied sentence length four ways in order to assess the effect on prosodic phrasing. The conditions were simple VSO, VSO modified by an initial sentential adverb, VSO with the subject and object modified by an adjective, and a condition with an initial adverb and each argument modified by an adjective. In addition, stress placement was varied. Half of the verbs in each voice type had penultimate stress (12) and half had final stress (12). Within each group, we varied stress placement in each of the arguments independently (again, either penultimate or final), in order to manipulate the distance between stressed syllables. In addition, we recorded some sentences with antepenultimate stress on loan names, as well as sentences with narrow focus on different arguments for later analysis. Table 1 shows the different factors and examples of the stimuli.

**2.2. PROCEDURE.** Data were collected in the form of a structured elicitation. Sentences were presented to participants in a PowerPoint presentation one at a time in a randomized order. Participants were asked to say them aloud as if they were responding to the question "What happened?", in order to elicit broad focus declarative intonation. Data for the present study come from seven speakers of the Manila variety of Tagalog (3 males, 4 females), ranging in age from 18-32 (median age 20). All participants were recorded in a quiet room at the University of the Philippines, Diliman using a head-mounted microphone and a Zoom H5 recorder.



Table 1. Stimuli types and examples

Factor	Levels	Example
Voice type	Actor Voice	Humahabol ang pusa ng daga chase.AV DET cat DET rat
	Patient Voice	Hinahabol ng pusa ang daga chase.PV DET cat DET rat
Length	VSO	Humahabol ang pusa ng daga chase.AV DET cat DET rat
	Adv VSO	Kadalasan humahabol ang pusa ng daga usually chase.AV DET cat DET rat
	V Adj+S Adj+O	Humahabol ang gutom na pusa ng mata- bang daga chase.AV DET hungry LNK cat DET fat=LNK rat
	Adv V Adj+S Adj+O	Kadalasan humahabol ang gutom na pusa ng matabang daga usually chase.AV DET hungry LNK cat DET fat=LNK rat
Stress	Penultimate	Humahabol ang 'pusa ng daga chase.AV DET cat DET rat
	Final	Humahabol ang da'ga ng pusa chase.AV DET rat DET cat

All recordings were checked for naturalness by a native speaker of Tagalog, and any repetitions deemed to be somewhat unnatural were discarded. Recordings were then segmented in Praat (Boersma & Weenink 2024) and forced aligned using WebMAUS (Schiel 1999) using the English model, and then hand corrected. A total of 1281 utterances were left after discarding unnatural utterances.

**3. Tagalog intonational phonology.** In this section, we present a qualitative analysis of the results. We first discuss the results in terms of prosodic structure, consisting of hierarchically organized prosodic units, and the tones accompanying each prosodic unit. The prosodic hierarchy we argue for and the tonal inventory are presented in a preliminary model of the intonational phonology (3.3). Finally, we discuss the alignment of tones in Tagalog, and the implications for AM theory (3.4).

**3.1. PROSODIC STRUCTURE.** Based on our data, we propose three tonally defined units above the prosodic word: an Intonational Phrase (IP), Intermediate Phrase (iP) and an Accentual Phrase (AP). Tagalog utterances typically consist of a clearly defined rise-fall melody, which is due to left and/or right edge tones associated with these phrases. Each phrase is discussed in turn.

**3.1.1. INTONATIONAL PHRASE.** The intonational phrase (IP) is the largest prosodic unit we have found evidence for in Tagalog. It is marked by a number of possible right edge tones serve a pragmatic function. The full inventory of IP final tones and their functions is the subject of ongoing research. In this study, we found two IP-final boundary tones (L%, H%), marking the end of declaratives. At the left edge of the IP, there is an optional Low boundary tone (%L). When

the Low tone is absent, the utterance starts high (Figure 1). When an IP has an initial %L tone, the utterance starts low and rises on the first word, as is the case in the rest of the pitch tracks in this paper. This will be discussed further when Accentual Phrases are introduced. Intonational phrases are also accompanied by final lengthening at their right edges. Pitch reset occurs following an IP, contributing to the sense of a large juncture.

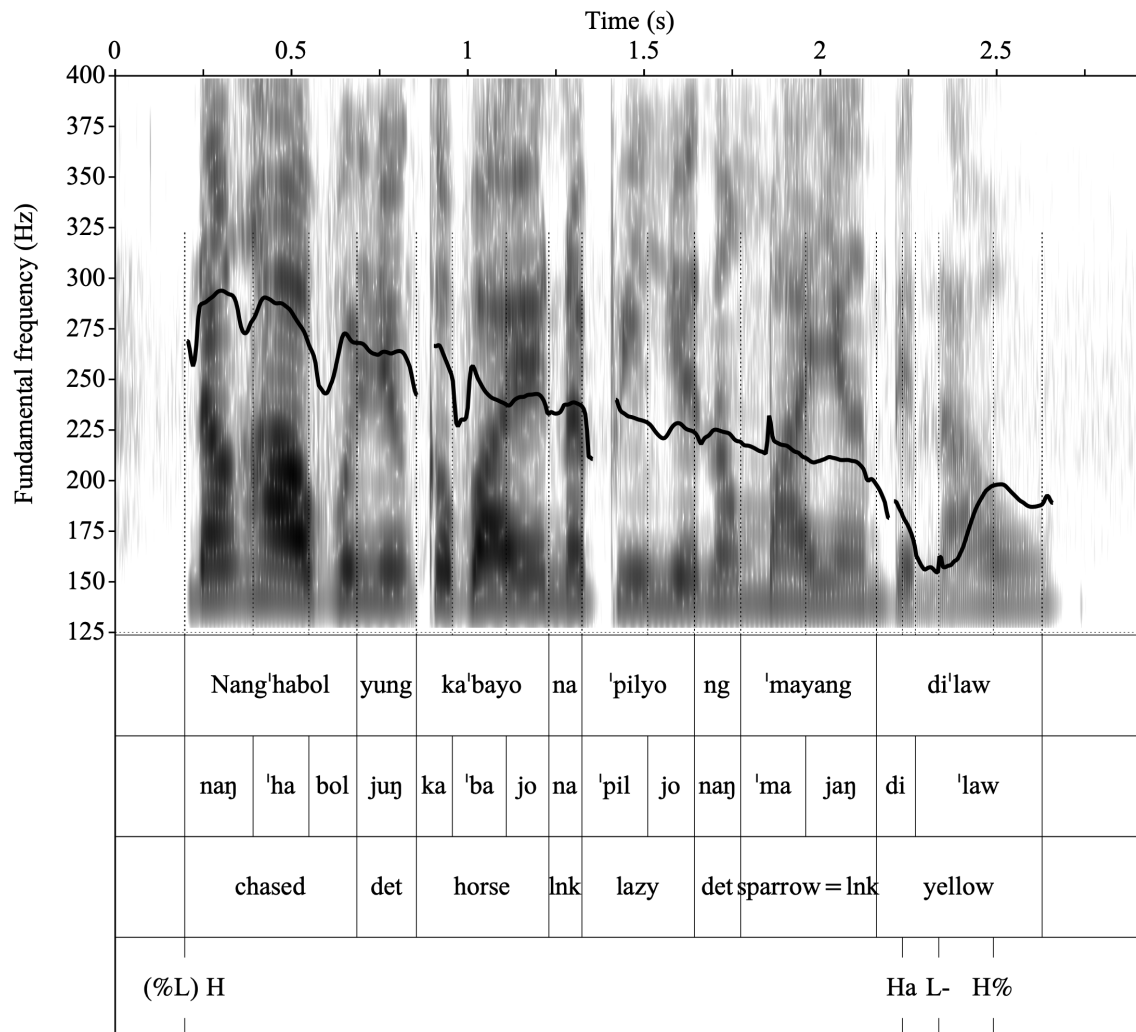


Figure 1. An utterance without an IP initial %L. The sentence means ‘The lazy horse chased a yellow sparrow.’

3.2. INTERMEDIATE PHRASE (IP). The intermediate phrase is one level below the IP on the prosodic hierarchy. Tonally, it is marked by a Low tone (L-) at its right edge. Each successive iP within an IP shows reduced pitch range. In Figure 2, there is an iP final L- boundary tone at the end of the first iP, realized on the last syllable of the word *karpin'tero* (‘carpenter’). In the second iP, whose final syllable is also the last syllable of an IP, the iP-final boundary tone (L-) is realized on the penultimate syllable of the IP and the IP-final boundary tone is realized on the

final syllable of the IP. That is, the iP- and IP-final boundary tones are realized over the final two syllables of the IP. However, these two boundary tones can be realized together on the IP-final syllable when the penultimate syllable is not available to carry the iP boundary tone (see Fig. 8).

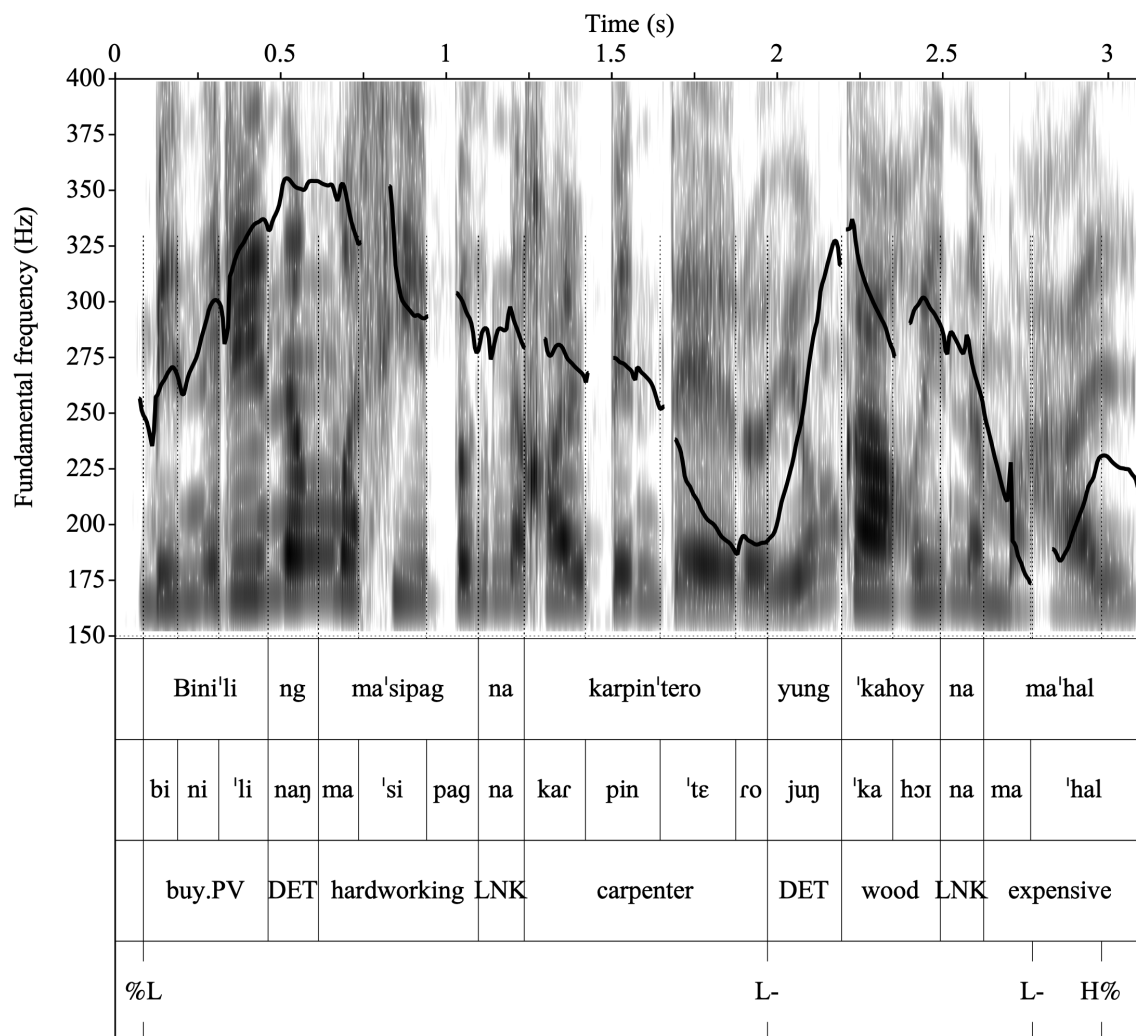


Figure 2. An utterance with an IP-initial %L and two iP-final L- tones. The sentence means ‘A hardworking carpenter bought the expensive wood.’

3.2.1. ACCENTUAL PHRASE (AP). The Accentual Phrase (AP), which is larger than the prosodic word, is the smallest prosodic unit defined by intonation. An AP typically consists of 1-2 words. Proclitic case markers (/aŋ/, /juŋ/ and /naŋ/) are typically phrased as part of the preceding AP, and not with the word they belong to syntactically (see also Himmelmann (2014)).

The AP typically begins with a H tone and ends with a H tone (Ha). However, the alignment of these H tones and their realizations vary depending on the prosodic conditions such as the length of the AP and the location of the AP within an iP and an IP. In IP-medial APs, a typical tonal pattern is a high plateau, due to interpolation between the AP-initial and final H. In the

IP-initial AP, however, the initial H can be lower than Ha or higher than Ha, and the degree of rising or falling varies. Sometimes, the initial H is undershot and surfaces much lower than Ha (Fig. 4, Fig. 8), while other times, Ha is much lower than H (Fig. 1, Fig. 3). We don't yet know what determines the different realizations.

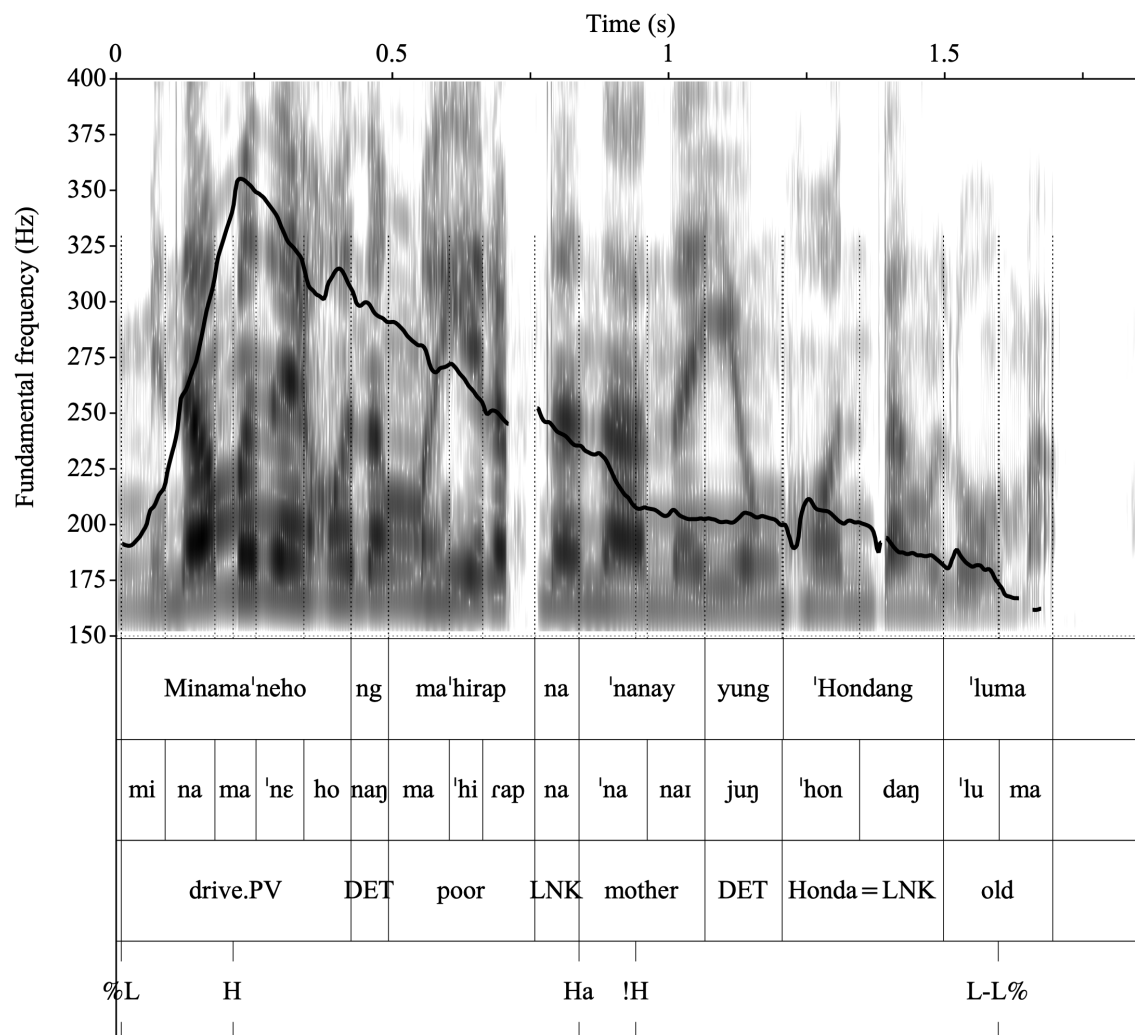


Figure 3. An AP in which the Ha tone in the first AP is undershot. Note that f0 remains higher than would be expected if there were no Ha at the end of the AP. The sentence means 'A poor mother is driving that old Honda.'

Tagalog demonstrates evidence of tonal crowding avoidance. When the AP is IP-initial and a %L boundary tone is realized on the IP-initial syllable, the AP-initial H tone is typically realized on the second or third syllable of the AP (Fig. 2). This is likely due to a pressure to avoid tonal crowding with the IP-initial boundary tone. The interpolation between the initial %L boundary tone, if there is one, and the AP-initial H creates the sentence-initial rise. When there is no IP-initial boundary tone, the utterance simply starts high due to the AP-initial H tone (as in Fig. 1).

The AP also begins with a rise when it's iP-initial IP-medially because the preceding iP ends with L-, as in Figure 2. In this case, the AP-initial H is realized at the end of the AP-initial syllable.

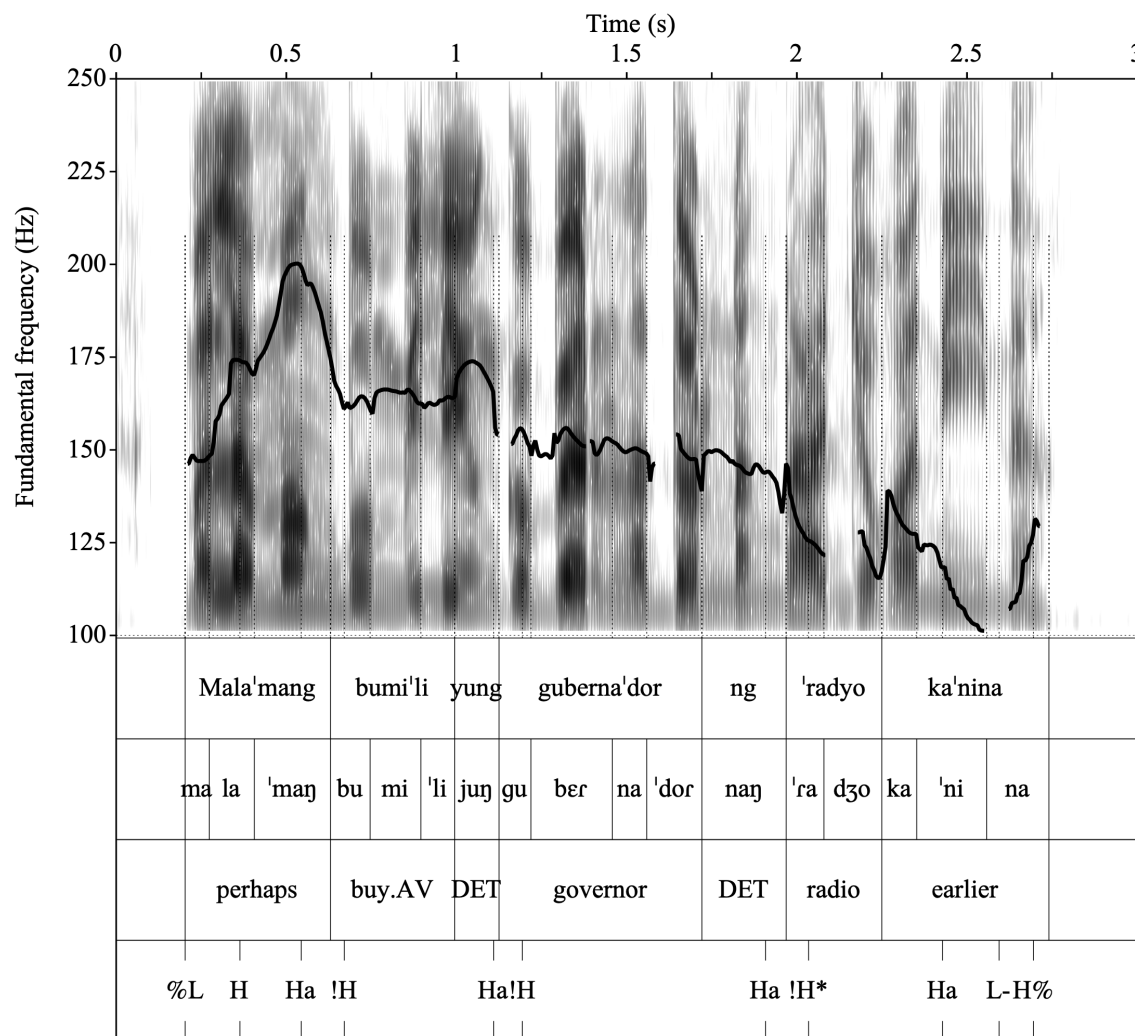


Figure 4. An IP containing 4 APs, demonstrating the downstep and high plateau pattern. The sentence means 'Perhaps the governor bought a radio earlier.'

Within an AP, f0 tends to stay level, creating a high plateau to the end of the phrase. When there is more than one AP in an iP, the second AP's initial H tone is downstepped relative to the H tone of the preceding AP. Downstep therefore diagnoses the left edge of a (non-iP-initial) AP. The downstepped AP-initial H tone will be represented as !H. The combination of downstepping and interpolation between the two H tones in an AP gives the stepwise f0 pattern found in many Tagalog declarative utterances. In Figure 4, the whole sentence is produced in one IP and one iP, which includes four APs. The first AP begins with a low tone (IP-initial %L) and an initial H on the second syllable. The Ha on the final syllable is much higher than the initial H, creating a sharp rising tonal pattern, instead of a high plateau pattern. At the beginning of the second AP,

the verb *bumili* shows a decrease in f0 from the preceding Ha, but it does not drop quite to a Low tone, and we therefore label it !H. In this AP, Ha is slightly higher than H. The third AP begins with a downstepped H (!H) at the beginning of the word ‘governor’ and shows a plateau before dropping to the beginning of the word ‘radio’, justifying the presence of the AP-final Ha tone on the determiner (*ng*). In the final AP, however, the Ha tone is realized on the antepenultimate syllable [ka] (the fluctuating f0 around the onset [k] is due to microprosody), in order to leave room for the iP boundary tone (L- on the penultimate syllable) and the IP boundary tone (H% on the final syllable) and avoid tonal crowding. This suggests that Tagalog is similar to English, where the iP-final boundary tone is realized right before the IP-final boundary tone (e.g., L-H%). Tagalog differs from Korean, where the boundary tone of a lower-level prosodic unit is overridden by the boundary tone of a higher-level prosodic unit (i.e., the AP-final boundary tone is not realized iP-finally, and the iP-final boundary tone is not realized IP-finally).

3.3. PRELIMINARY MODEL. The model we propose here for Tagalog prosodic structure and intonational phonology is in Figure 5. Parentheses indicate optionality, which will be discussed further in Section 3.4.

As shown in the model, each IP consists of one or more iP. The IP is marked by a boundary tone at its right edge (L% and H% found in the current data, though more types of % boundary tones are possible), and an optional Low boundary tone at its left edge. iPs are marked with a Low right edge tone (L-). Each iP dominates one or more AP, which is marked by a H tone at its left edge. This H tone is downstepped (!H) for each non-initial AP in an iP. APs also have a H tone at their right edge (Ha), creating a high plateau between the initial and final H of the AP. The AP-initial tone H is represented as !H(\*) when it is not iP-initial. This is to reflect the variable alignment of the !H tone, which is described in more detail in the following section.

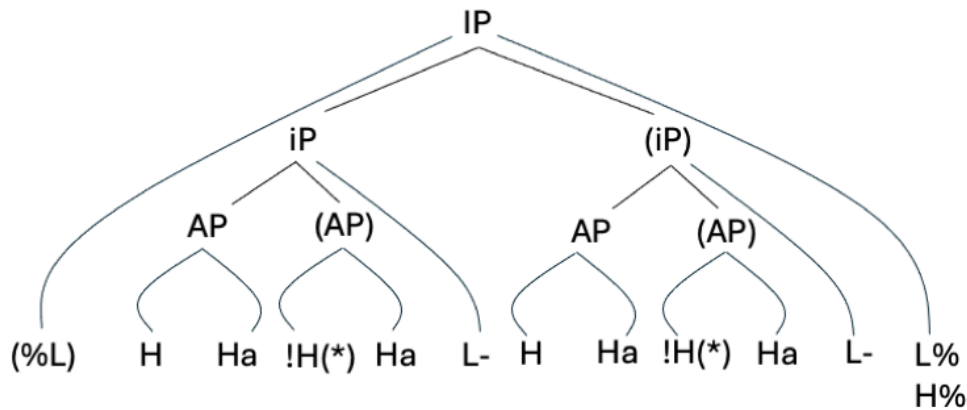


Figure 5. An AM model of Tagalog intonation: Intonationally defined prosodic structure.

3.4. TONAL ALIGNMENT. Although Tagalog has word level prosodic prominence (analyzed as either a stress or vowel length contrast), intonational tones are often not sensitive to word level prominence. Instead, they appear to be for the most part anchored to phrase edges. This is typologically unusual because, in languages that have stress, intonational tones typically involve a pitch accent realized on a stressed syllable. Tagalog is also typologically unusual because the alignment of the AP-initial tone is variable. As a boundary tone marking the left edge of an AP, the initial H is often realized on the AP-initial syllable, whether stressed or unstressed. However,

it is sometimes realized on the stressed syllable of the AP-initial word. That is, the H edge tone is sometimes aligned with the stressed syllable, even when the syllable is not word-initial.

The intonation pattern in Figure 6 is what would be expected if the AP initial H is an edge tone. The word *gubernador* (‘governor’) starts a new AP. Even though this word has final stress, the !H tone falls at the beginning of the word (and at the beginning of the AP). This was true for much of our data, regardless of whether the AP initial word had penultimate or final stress. Figure 7 shows a different alignment pattern. Here, the word *bombero* (‘firefighter’) starts a new AP. In this case, the !H tone is delayed, and is reached on the penultimate stressed syllable of the word. To reflect this unusual alignment, we label it with !H\*.

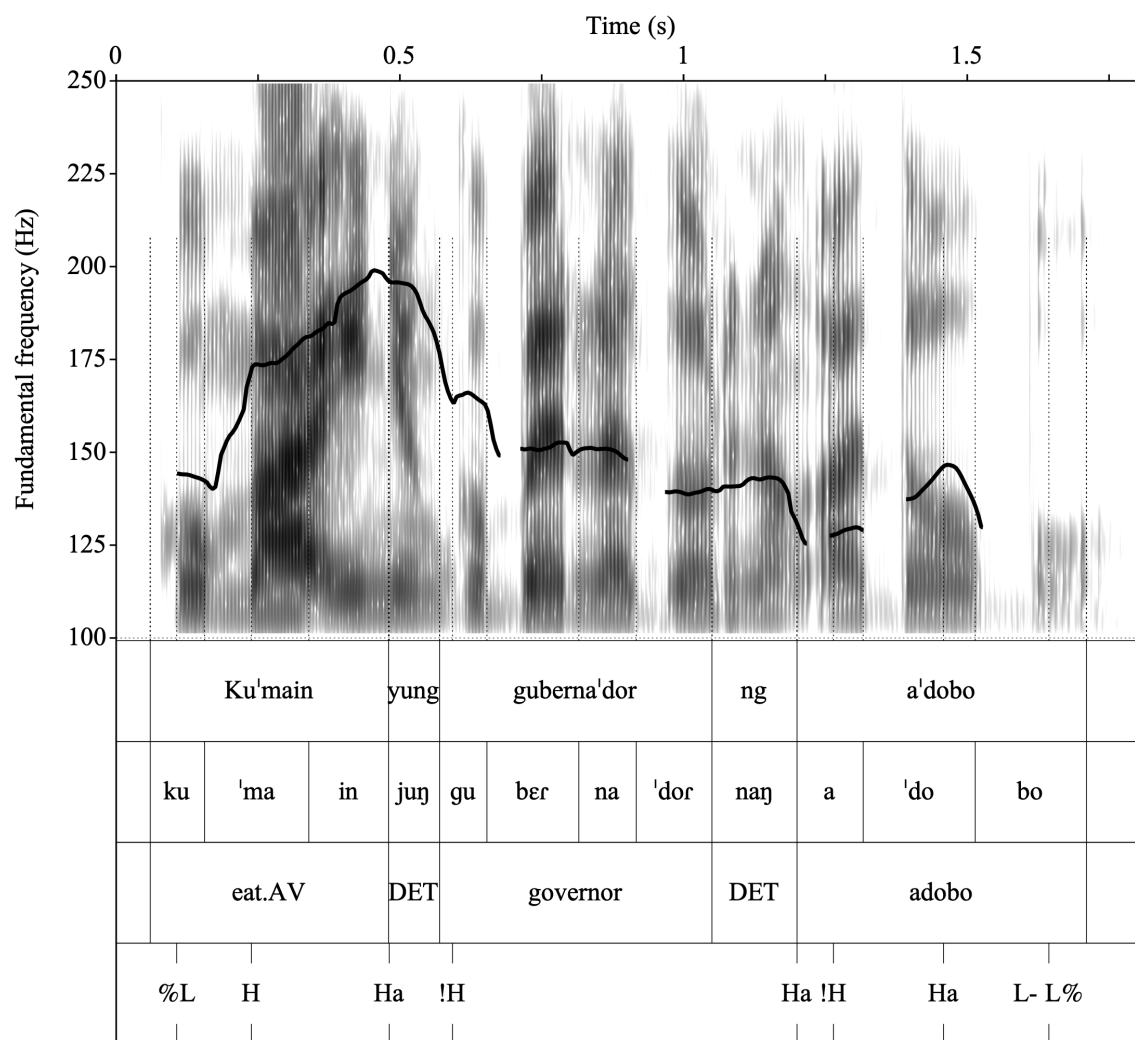


Figure 6. An example of an AP-initial tone aligning to the unstressed initial syllable of the word *guberna'dor*. The sentence means ‘The governor ate some adobo.’

This delayed fall is not only seen in words with penultimate stress, as demonstrated by Figure 8. The word *kalabaw* (‘buffalo’), which has final stress, begins a new AP. The !H is delayed

until the end of the word, and reaches its target on the final stressed syllable. After this fall, there is the typical plateau until the end of the AP. Though the f0 tracks in Figures 6-8 above come from different speakers, this does not appear to be a matter of individual variation, as all speakers in our data seem to show this variability.

The fact that the left edge tone of an AP in Tagalog optionally displays a preference for aligning to a stressed syllable away from the edge of the AP presents a challenge to the standard AM model, in which tones are analyzed as being either prominence-marking pitch accents aligned to a stressed syllable, or edge-marking boundary tones aligned to the edge syllable of a prosodic unit, and not displaying variable association properties. Future work will attempt to better understand what conditions this tonal alignment.

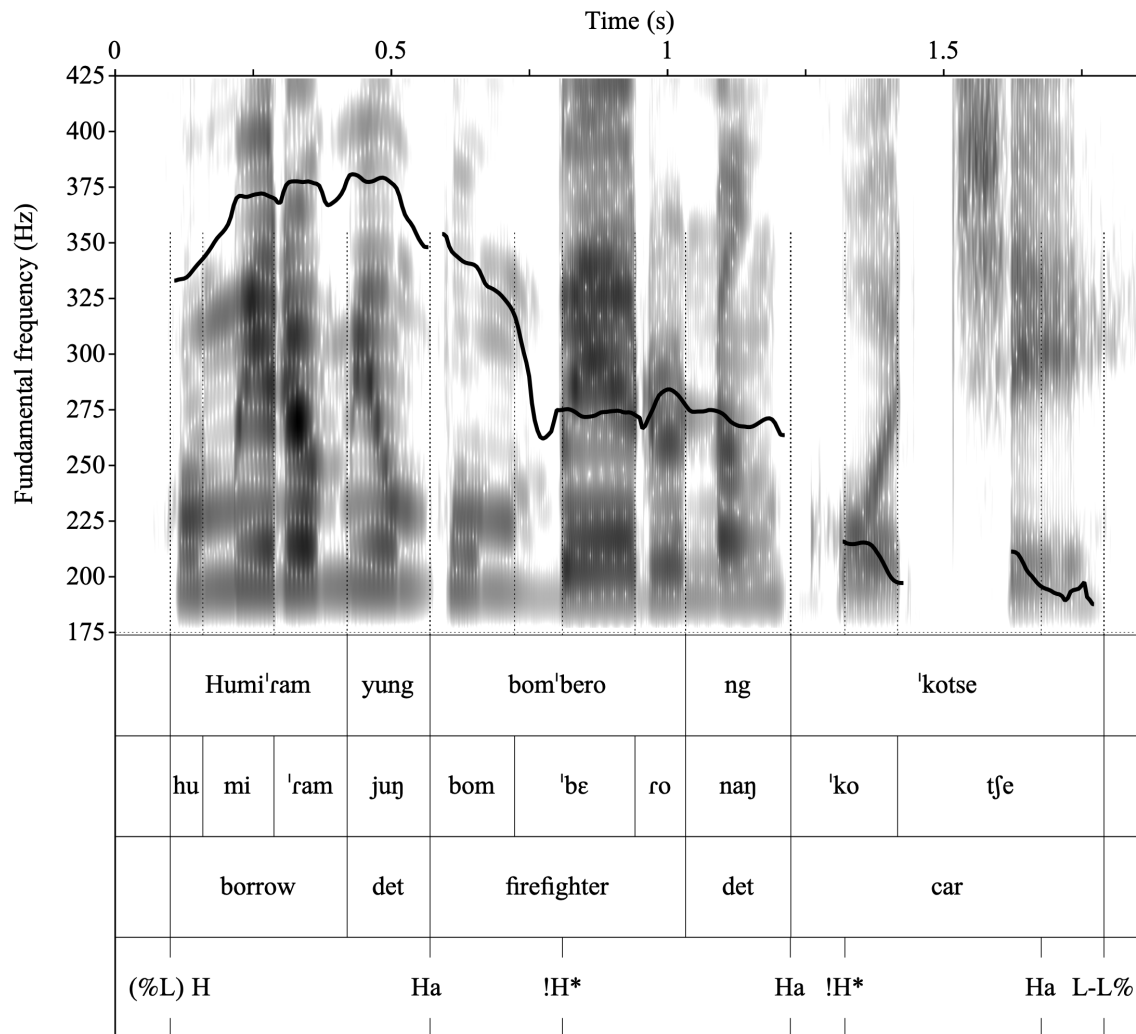


Figure 7. An example of an AP-initial tone targeting the stressed penultimate syllable of the word *bom'bero*. The sentence means ‘The firefighter borrowed a car.’



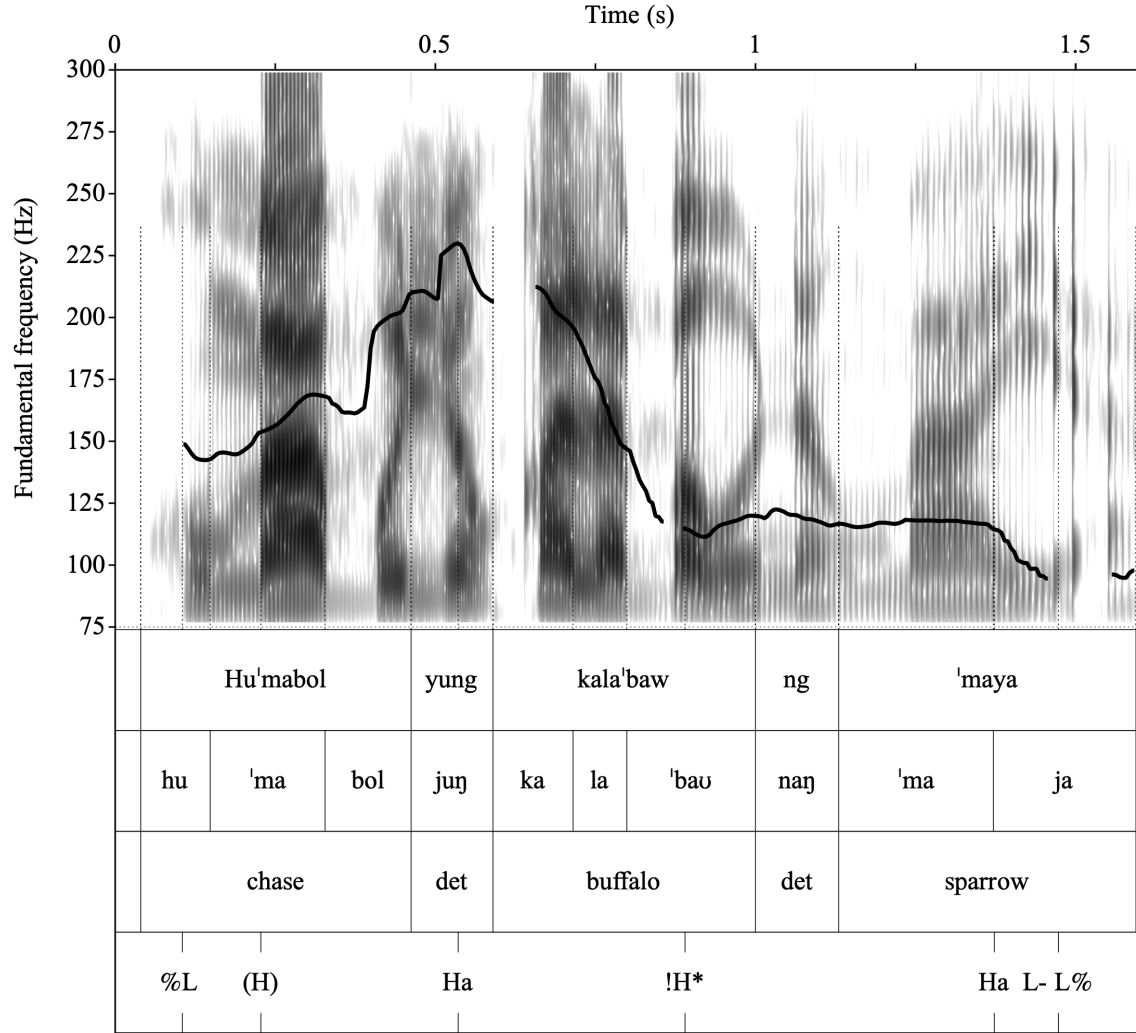


Figure 8. An example of the AP-initial tone targeting the final stressed syllable of the word *kala'baw*. The sentence means ‘The buffalo chased a sparrow.’

**4. Conclusions.** In this paper, we proposed a hierarchical prosodic structure for Tagalog, consisting of three prosodic units above the prosodic word: the Accentual Phrase (AP), the Intermediate Phrase (iP), and the Intonational Phrase (IP). Evidence for each prosodic unit comes primarily from edge tones that are associated with these phrases, which contributes to the regular tonal melody seen in Tagalog utterances.

The Intonational Phrase is marked by an optional L tone at its left edge (%L), and is always marked by a boundary tone at its right edge (e.g., L%, H%) realized on the IP-final syllable, which is substantially lengthened. The intermediate phrase is marked by a Low tone at its right edge, realized on the final or penultimate syllable of the phrase. As shown in Figure 2, an iP is also the domain of pitch reset. The Accentual Phrase, the smallest prosodic unit above the prosodic word, is marked by an initial High tone and a final H tone. One of these tones may be undershot phonetically (in particular when the AP is short), resulting in an AP with more of a

rising-falling pattern. Similar variation was also seen in Richards (2017).

Downstep diagnoses the left edge of non-iP-initial APs. Here, we account for this by proposing a !H at the left edge of each non-iP-initial AP. The presence of downstep was also noted by Himmelmann & Kaufman (2020), who suggest that this may be a general feature of Philippine-type Western Austronesian languages, though work on the prosodic systems of these languages is lacking.

Perhaps the most interesting feature of Tagalog intonation is that the tones which are associated to Accentual Phrases in our model are variable in their alignment. AP-initial tones in Tagalog are only optionally sensitive to word level prosodic structure, and do not always consistently align to either word stress or domain edges. This perhaps makes sense of the conflicting claims that have been made about Tagalog intonation; while Richards (2017) and Sabbagh (2015) found tones that aligned to stressed syllables in their data, Himmelmann & Kaufman (2020), in their typological study, claim that tones are most consistently associated with phrase edges, and that this may be a more general feature of the areal typology. While they do not discuss phrasing below the level of the IP, Himmelmann & Kaufman (2020) claim that IP-final edge tones fall on the final syllable except when the final word has penultimate prominence (which they interpret to be vowel length), in which case the IP final tone falls on the penultimate syllable. In our study, we find evidence to support both the existence of tones aligning to stressed syllables and to phrase edges. However, rather than displaying properties of pitch accents or edge tones, certain tones in Tagalog variably show properties of both. This type of language is not easily accounted for in the AM model of intonational phonology (Pierrehumbert (1980), *a.o.*) or the model of prosodic typology ?Jun (2014), and suggests the need for a model which allows for the flexible alignment of tones.

## References

- Beckman, Mary E & Janet B Pierrehumbert. 1986. Intonational structure in Japanese and English. *Phonology* 3. 255–309.
- Bloomfield, Leonard. 1917. *Tagalog texts with grammatical analysis*. UMI. <https://cir.nii.ac.jp/crid/1130000796181875200>.
- Boersma, Paul & David Weenink. 2024. Praat: doing phonetics by computer [Computer program].
- Fónagy, Ivan. 1980. L’accent Français: accent probabilitaire (dynamique d’un changement prosodique). *Studia Phonetica Montréal* 15. 123–233.
- French, Koleen Matsuda. 1988. *Insights into Tagalog reduplication, infixation and stress from nonlinear phonology*. The University of Texas at Arlington.
- Grice, Martine. 2022. Autosegmental-metrical phonology—unpacking the boxes. *Zeitschrift für Sprachwissenschaft* 41(2). 393–411.
- Grice, Martine, D Robert Ladd & Amalia Arvaniti. 2000. On the place of phrase accents in intonational phonology. *Phonology* 17(2). 143–185.
- Hatcher, Richard, Hyunjung Joo, Sahyang Kim & Taehong Cho. 2024. Focus-induced tonal distribution in Seoul Korean as an edge-prominence language. *Journal of Phonetics* 107. 101353.
- Himmelmann, Nikolaus P. 2014. Asymmetries in the prosodic phrasing of function words: Another look at the suffixing preference. *Language* 90(4). 927–960.

- <https://doi.org/10.1353/lan.2014.0105>. <http://muse.jhu.edu/content/crossref/journals/language/v090/90.4.himmelman.html>.
- Himmelman, Nikolaus P. & Daniel Kaufman. 2020. Austronesia. In *The oxford handbook of language prosody*, Oxford University Press.
- Jun, Sun-Ah. 2014. Prosodic typology: By prominence type, word prosody, and macro-rhythm. *Prosodic typology II: The phonology of intonation and phrasing* 520539. 520–539.
- Jun, Sun-Ah. 2025. *Handbook in linguistics*, vol. 7 chap. Prosodic Typology: Intonational Tone Types and Functions, 93–111. Brill.
- Jun, Sun-Ah & Cécile Fougeron. 2000. A phonological model of French intonation. In *Intonation: Analysis, modelling and technology*, 209–242. Springer.
- Jun, Sun-Ah & Cécile Fougeron. 2002. Realizations of accentual phrase in French intonation. *Probus* 14. 147–172.
- Kaufman, Daniel. To appear. Philippine prosody and contrast preservation. In *The proceedings of the 31st annual meeting of the austronesian linguistics association*, 96–121.
- Kaufman, Daniel & Nikolaus Himmelman. 2024. Suprasegmental phonology. In *Oxford guide to the malayo-polynesian languages of southeast asia*, Oxford University Press.
- Khan, Sameer Ud Dowla. 2008. *Intonational phonology and focus prosody of Bengali*: University of California, Los Angeles: University of California dissertation.
- Khan, Sameerud Dowla. 2014. The intonational phonology of Bangladeshi standard Bengali. *Prosodic typology II: The phonology of intonation and phrasing* 81–117.
- Ladd, D Robert. 1996/2008. *Intonational phonology*. Cambridge University Press.
- Lindström, Eva & Bert Remijsen. 2005. Aspects of the prosody of Kuot, a language where intonation ignores stress. *Linguistics* (43:4). 839870.
- Lucci, Vincent. 1983. *Étude phonétique du Français contemporain à travers la variation situationnelle (débit, rythme, accent, intonation, a muet, liaisons, phonèmes)*. Grenoble: Publication Université de Grenoble.
- Pierrehumbert, Janet Breckenridge. 1980. *The phonology and phonetics of English intonation*: Massachusetts Institute of Technology dissertation.
- Richards, Norvin. 2017. Some notes on Tagalog prosody and scrambling. *Glossa: a journal of general linguistics* 2(1). <https://doi.org/10.5334/gjgl.252>. <https://www.glossa-journal.org/article/id/4883/>.
- Royer, Adam J & Sun-Ah Jun. 2019. Intonation of complex declarative sentences and interrogatives in Tatar. In *Proceedings of the 19th international congress of phonetic sciences*, 3797–3801.
- Sabbagh, Joseph. 2015. Intonation, adjunction, and verb-initial word order in Tagalog. Ms., UT Arlington .
- Schachter, Paul & Fe Otanes, T. 1972. *Tagalog Reference Grammar*. University of California Press.
- Schiel, F. 1999. Automatic Phonetic Transcription of Non-Prompted Speech. In *Proc. of the icphs*, 607–610. San Francisco.
- Vaissière, Jacqueline. 1974. On French prosody. *Quarterly Progress Report, Research Laboratory of Electronics, Massachusetts Institute of Technology* (114). 212–223.
- Welby, Pauline. 2007. The role of early fundamental frequency rises and elbows in french word segmentation. *Speech Communication* 49(1). 28–48.