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## CHAPTER 25

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# AUSTRONESIA

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### 25.1 INTRODUCTION

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THE Austronesian languages cover a vast area, reaching from Madagascar in the west to Hawai'i and Easter Island in the east. With close to 1,300 languages, over 550 of which belong to the large Oceanic subgroup spanning the Pacific Ocean, they constitute one of the largest well-established phylogenetic units of languages. While a few Austronesian languages, in particular Malay in its many varieties and the major Philippine languages, have been documented for some centuries, most of them remain underdocumented and understudied. The major monographic reference work on Austronesian languages is Blust (2013). Adelaar and Himmelmann (2005) and Lynch et al. (2005) provide language sketches as well as typological and historical overviews of the non-Oceanic and Oceanic Austronesian languages, respectively.

Major nodes in the phylogenetic structure of the Austronesian family are shown in Figure 25.1 (see Blust 2013: ch. 10 for a summary). Following Ross (2008), the italicized groupings in Figure 25.1 are not valid phylogenetic subgroups but rather collections of subgroups whose relations have not yet been fully worked out. The groupings in boxes, on the other hand, are thought to represent single proto-languages and have been partially reconstructed using the comparative method. Most of the languages mentioned in this chapter belong to the western Malayo-Polynesian linkage, which includes all the languages of the Philippines and, with a few exceptions, Indonesia. When languages from other branches are discussed, this is explicitly noted.

The prosody of none of the Austronesian languages has been studied to a degree that comes close to that of the well-studied European languages. There are a few specialist prosodic studies, but there is no comprehensive description of a prosodic system that covers how word-based prominence interacts with higher-level prominence. Sections on prosody in descriptive grammars, if they mention the topic at all, usually do not go beyond the statement of a default stress pattern (without providing evidence for a stress analysis) and the odd remark on intonation patterns, referring to pitch trajectories rather than attempting to identify phonologically relevant tonal targets.

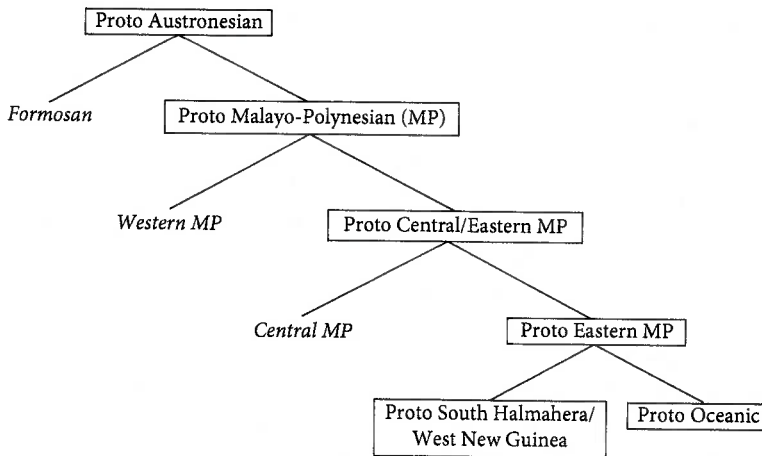


FIGURE 25.1 The Austronesian family tree (Blust 1999; Ross 2008).

This chapter is exclusively concerned with the two major word-based prosodies, lexical tone and lexical stress, and with phrase-based intonation, ignoring other word-related suprasegmental phenomena such as Sundanese nasal spreading, made famous by Robins (1957) and repeatedly taken up in the phonological literature (cf. Blust 2013: 238–241). Stress and tone have their own sections in Blust (2013), which, however, does not deal with intonation.

## 25.2 LEXICAL TONE

Most Austronesian languages do not use tone to distinguish lexical items. Distinctive lexical tone patterns have only been reported for a few geographically widely separated language groups, for which see Edmondson and Gregerson (1993), Remijsen (2001), Brunelle (2005), and Blust (2013: 657–659). This section provides some general observations and briefly reports on the cross-linguistically very unusual tone systems in West New Guinea languages. See also chapter 23 for the Chamic subgroup of Western Malayo-Polynesian and chapter 26 for languages in New Guinea.

In most instances, distinctive lexical tone in Austronesian languages is transparently due to contact influences, which provide important evidence for transferred tonogenesis. Tonal distinctions usually are restricted, either phonotactically (e.g. contrast only on final syllable) or with regard to permissible tone patterns per word (e.g. words bear either high or low tone). Contact-induced tonogenesis often involves a shift from disyllabic words characteristic of the family to monosyllables as the most common word type. Edmondson and Gregersen (1993) contains specialist chapters on a number of the better-studied Austronesian tone languages.

The little that is known about the West New Guinea languages, mostly spoken on the islands along the Bird's Head and Cenderawasih Bay in eastern Indonesia, points to a bewildering variety of word-prosodic systems. These languages are part of the extended contact zone between Austronesian and Papuan languages along the island of New Guinea.

Monosyllabic words have a six-way tone contrast in Magey Matbat according to Remijsen (2007). From the few examples he gives, it appears that at least one syllable in polysyllabic words is toneless, but the position of tone-bearing syllables is not predictable. This contrasts with Moor, which is analysed by Kamholz (2014: 101–106) as having four tonal patterns, largely confined to the final two syllables. More importantly, and rather unusually for a tone language, ‘tones are realized only on phrase-final words’ (Kamholz 2014: 102). Kamholz (2014: 116 and *passim*) also briefly mentions Yerisiam and Yaur as languages with complex word-tone systems plus contrastive vowel length.

A particularly complex—and cross-linguistically unusual—word-prosodic system is found in Ma’ya. Remijsen (2001, 2002) makes a convincing case for an analysis in terms of both lexical stress and lexical tone. There are three tonal contrasts that are confined to the final syllable. In addition, lexical bases differ in whether they are stressed on the penultimate or ultimate syllable. That is, there are minimal pairs that differ only with regard to tone, e.g. /sa<sup>2</sup>/ ‘to sweep’ vs. /sa<sup>3</sup>/ ‘to climb’ vs. toneless /sa/ ‘one’ (Remijsen 2002: 596). There are also minimal pairs differing only in stress, e.g. /mana<sup>3</sup>/ ‘light (of weight)’ vs. /ma<sup>1</sup>na<sup>3</sup>/ ‘grease’ (Remijsen 2002: 600). Importantly, Remijsen (2002: 602–610) provides detailed acoustic evidence for the proposed stress difference, which includes not only duration measures but also differences in vowel quality and spectral balance.

### 25.3 LEXICAL STRESS

Many Austronesian languages are described as having primary stress on the penultimate syllable, more rarely on the ultima. Outside the Philippine languages, discussed below, stress is rarely claimed to be contrastive, and, if it is, the contrast usually applies only to a small subset of lexical items that are said to have final stress (e.g. Toba Batak; cf. van der Tuuk 1971). Structural correlates of stress, such as differing phoneme inventories for stressed and unstressed syllables, are relatively rare. Examples include a stress-dependent *ə/o* alternation in Begak (Goudswaard 2005); a stress-dependent umlaut process in Chamorro, which has figured in several theoretical studies beginning with Chung (1983); and pre-stress vowel reduction in the Atayalic languages (Li 1981; Huang 2018), among others. A number of Austronesian languages with iambic stress patterns are reported for western Indonesia. Some of these are clearly the result of contact with mainland South East Asian languages, as is the case with Acehnese (Durie 1985), Chamic (Thurgood 1999), and Moken (Larish 1999; Pittayaporn 2005). Other iambic languages in Borneo (e.g. Merap, Segai-Modang group, Bidayuh) are also likely due to areal effects, although evidence for direct contact with non-Austronesians is unclear. In some of these languages, the iambic pattern has led to vowel breaking in the final syllable and vowel weakening in the initial syllable, as described by Smith (2017).

Stress is often described impressionistically on the basis of words heard in isolation, without properly distinguishing between word-based and phrase-based prominence (a general problem for the study of word stress; cf. Hyman 2014c; Roettger and Gordon 2017). Work going beyond auditory impressions discusses stress solely in terms of pitch, duration, and overall intensity. Notable exceptions include Remijsen (2002) and Maskikit-Essed and Gussenhoven (2016), who also examine spectral balance. Furthermore, Rehg (1993) claims

that the major pitch excursions occurring on the penultimate syllable do not necessarily correlate with stress in Micronesian languages.

Claims regarding stress that are primarily based on (impressionistic) evidence from pitch are difficult to evaluate without a more comprehensive account of the intonational system, which is usually missing. In line with widespread assumptions of current prosodic theory, in particular the autosegmental-metrical framework of analysis for intonation (Gussenhoven 2004; Ladd 2008b), the present discussion is based on the assumption that the analysis of pitch trajectories does not necessarily presuppose the existence of metrically strong anchoring points (i.e. lexically stressed syllables). Rather, intonational targets may also be linked to the boundaries of prosodic phrases. Consequently, many claims about stress in Austronesian languages found in the literature need further investigation, which may lead to the conclusion that a putative stress phenomenon allows for a more insightful analysis in other terms. An instructive example in this regard is the so-called definitive accent in Tongan. Here, definiteness was previously claimed to be marked by shifting stress from the penult to the ultima, but it has now convincingly been argued that the relevant contrast is essentially one of vowel length (which is phonemic in Tongan) and involves an enclitic vowel (cf. Anderson and Otsuka 2006).

The bulk of the specialist work on stress relates to Standard Indonesian, the variety of Malay serving as the national language of Indonesia. Like many other varieties of Malay, Indonesian has widely been claimed to have penultimate (primary) stress, unless the penultimate syllable contains a schwa, in which case stress then shifts to the ultima (see Halim 1981: ch. 2 for a summary of the early literature). Beginning with Odé (1994), however, a group of Leiden phoneticians have questioned this view in acoustic and perceptual investigations of presumed stress phenomena in Indonesia (see also Zubkova 1966). Van Heuven and van Zanten (2007) provide a detailed report on this work, which also extends to three other Malayic varieties—Betawi (see also van Heuven et al. 2008), Manado, and Kutai Malay—as well as to Toba Batak. The main findings are as follows (see also Zuraidah et al. 2008 on Malaysian Standard Malay and Maskikit-Essed and Gussenhoven 2016 on Ambon Malay):

- Strong first language (L1) effects exist for the production and perception of potentially stress-related parameters in Indonesian, with L1 Javanese speakers having the least clear evidence for stress.
- Speakers of Manado Malay and L1 Toba Batak speakers of Indonesian are more consistent in rendering a fixed (typically penultimate) syllable within words more prominent.
- Perceptually, speakers rate examples where one of the final three syllables is made acoustically prominent by manipulating pitch, duration, or overall intensity as roughly equivalent. Using a different methodology, Riesberg et al. (2018) find that speakers of Papuan Malay are unable to agree on which syllables are prominent in short excerpts of spontaneous narrative Papuan Malay speech. However, Kaland (2019) presents acoustic data that may be indicative of a subtle stress distinction outside IP-final positions.
- Prominence distinctions between words appear to lack a communicative function in Indonesian. Thus, in gating experiments, Indonesian speakers were unable to make use of prominence differences in the initial syllables. They were also unable to understand contrastive stress on the subword level (as in English, 'cof[FER] not cof[FIN]'),

as shown by their inability to judge the pragmatic appropriateness of examples involving such contrasts (van Heuven and Faust 2009).

Much of this work argues that what has been analysed as word stress in Indonesian has no functional relevance for native speakers and that Indonesian and other varieties of Malay have no word-based prominence, a conclusion that, however, still needs further scrutiny before it can be considered to be firmly established.

Inasmuch as the evidence for stress in other Austronesian languages is similar to that invoked for Indonesian, this kind of argument may apply more widely. This is, in fact, hypothesized in Goedemans and van Zanten (2014), who propose a set of diagnostics for suspicious stress claims, noting that these apply to a broad range of Austronesian languages. For example, some of the variation noted in older descriptions of Indonesian stress has also been described for dialects of Paiwan, a Formosan language of Taiwan, by Chen (2009b, 2009c). Chen observes that the southern dialect has invariable stress on the penultimate syllable but that the Piuma dialect shifts it to the ultima when the nucleus of the penultimate syllable is schwa. But, as in the case of Indonesian, studies of stress and prosodic prominence in Formosan languages (e.g. Chiang and Chiang 2005 for Saisiyat) generally do not take phrasal phonology into account, and the same questions thus remain open.

Philippine languages present different problems for stress typology, since the vast majority of these languages have a phonemic distinction in prosodic prominence on the root level. Zorc (1978) is an early attempt to understand the phenomenon in a historical perspective and Zorc (1993) provides an overview. In Tagalog, the best-studied language of the Philippines, this prominence has alternatively been analysed as due to underlying stress or vowel length. Official Tagalog orthographic conventions for indicating stress imply that final stress is word-based (e.g. <gandá> 'beauty') and that penultimate stress is unmarked (e.g. <ulo> 'head'). Both implications are probably wrong. First, what has been analysed as word-final stress is most likely a right-aligned edge tone, as further illustrated in §25.4. Second, it has been noted that roots with apparent 'final stress' in Tagalog are significantly more common than those with 'penultimate stress' (Blust 2013: 179), and thus that penultimate stress or prominence should be considered the marked case. The situation becomes clearer when we examine words in non-final positions, as shown in (1), where all syllables would typically be pronounced with even duration, overall intensity, and pitch except the final one (the stress mark here simply indicates some form of perceived prominence).

- (1) Tagalog
- |            |                            |
|------------|----------------------------|
| a. [ta'ŋa] | b. [aŋ ta~taŋa ni'la]      |
| stupid     | DET PL~stupid 3PL note.GEN |
| 'stupid'   | 'How stupid they are!'     |

Unlike final prominence, penultimate prominence in the Tagalog word does *not* disappear in non-final contexts such as the above. It does, however, shift with suffixation. For instance, ['ba:sag] 'break' becomes [ba'sa:gin] 'break (patient voice)' with the /-in/ suffix. Again, unlike final prominence, penultimate prominence does not shift when the word is followed by clitics or other lexical material, e.g. [ba'sa:gin mo] 'you break it!'. This, *prima facie*, looks like a proper stress system. Treating Philippine prosodic systems such as Tagalog



as inherently stress based, however, leads to a paradox in which heavy syllables seem to repel stress. While roots with an open penult allow for penultimate (trochaic) or final (iambic) prominence, no possibility exists for a trochaic pattern when the penultimate syllable is closed (2).

- (2) Tagalog syllable structure and putatively word-level prominence patterns
- |               |             |            |
|---------------|-------------|------------|
| open penult   | 'CV.CV(C)   | CV.'CV(C)  |
| closed penult | *'CVC.CV(C) | CVC.'CV(C) |

This, in conjunction with the divergent behaviour of penultimate and final prominence, strongly suggests that length is the underlying category of interest (following Schachter and Otanes 1972: 15–18; Wolff et al. 1991: 12; Zorc 1993; but contra Bloomfield 1917: 141–142; French 1988: 63–64f). The penultimate syllable of native roots can bear a long vowel, as in /ba:sag/ 'break', or not, as in /taŋa/ 'stupid'. Apparent final stress is thus post-lexical, occurring only when the word occurs in phrase-final position. Penultimate prominence reflects a lexically specified long vowel. Long vowels can only occur in open syllables, a common state of affairs, so the paradox of heavy syllables repelling stress is illusory. Long vowels cannot occur in final syllables, but this is also not unusual, as final-lengthening effects tend to neutralize length distinctions in final positions (Barnes 2006: 151). What is unusual about Philippine prosodic systems such as that of Tagalog is that they instantiate 'length shift', a phenomenon far more familiar from stress. This can be explained as a structure preservation effect in light of the fact that long vowels never appear in (native) roots earlier than the penultimate syllable. Length shift thus preserves this generalization over suffixed words.

Iterative stress (typically, with trochaic feet) has been posited for a number of Austronesian languages as well.<sup>1</sup> It is worth noting that, with only very few exceptions (e.g. French 1988, which does not contain phonetic evidence), iterative stress has only been demonstrated for Western Malayo-Polynesian languages lacking phonemic prominence distinctions on the word level. The Sama languages of the southern Philippines have no length distinction on the penultimate syllable and are perhaps the best candidates for possessing iterative (right-aligned trochaic) stress (Allison 1979 for Sibutu; Walton 1979 for Pangutaran; Brainard and Behrens 2002 for Yakan). A similar iterative footing is reported for Oceanic languages and tentatively reconstructed for Proto-Oceanic by Ross (1988: 18). The main areas of investigation within right-aligned trochaic systems have been the integration of suffixes and clitics, the treatment of the left edge of the prosodic word (e.g. whether or not it contains an initial dactyl), and the often irregular behaviour of vowel hiatus. Zuraw et al. (2014) exemplify this line of inquiry for Samoan, while Buckley (1998) examines related issues in the much discussed stress pattern of Manam (Lichtenberk 1983; Chaski 1985).

<sup>1</sup> Such a pattern was also posited by Cohn (1989) for non-Javanese Indonesian. It is likely that the divergence between these analyses and the more recent stressless analyses discussed above is partly due to differences in substrate between the varieties under examination (e.g. Toba Batak vs. Javanese) and partly due to differences in methodology (stress perception tests vs. impressionistic evaluation of words in isolation).



## 25.4 INTONATION

Stoel (2005, 2006) has proposed analyses of the intonation of Manado Malay and Banyumas Javanese, the essential features of which have also been found for Malaysian Malay (Zuraidah et al. 2008), Waima'a (Himmelman 2010, 2018), and Ambon Malay (Maskikit-Essed and Gussenhoven 2016). See also Halim (1981) for a description of Indonesian in a pre-autosegmental framework. There is still no well-established standard analysis of intonation in Austronesian languages and much of what is reported here is still tentative. In fact, for most branches too little is known about intonation to provide a basis for even the most basic observations. (For the Oceanic branch, see e.g. Rehg 1993; Clemens 2014; Jepson 2014; Calhoun 2015. For the Formosan languages, there are Chiang et al. 2006; Karlsson and Holmer 2011; and a number of Taiwanese MA theses.)

Despite the great diversity of Austronesian languages and the scarcity of detailed analyses, several generalizations may still apply widely. We have not encountered any languages with post-focus compression, although this may not be surprising given the large number of languages for which it is thought to be absent (Xu et al. 2012). Relatedly, it appears impossible for most Austronesian languages to express narrow focus on a sub-constituent of a clause or noun phrase with intonation alone. Narrow focus is achieved through syntactic or morphological means, potentially in conjunction with a particular intonational pattern, but the role of intonation in focus marking is clearly more circumspect when compared to a language like English (Kaufman 2005).

In many languages, the tones aligned with the edges of phrases and utterances are the only tonal targets that surface with any consistency. As is cross-linguistically common, we find an association between H-L% and declarative statements contrasting with a L-H% combination for polar interrogatives. This can be seen in the Waima'a and Totoli examples in (3) and (4).<sup>2</sup>

- (3) Waima'a (elicited)  
 ne de kara haru lumu  
 3SG NEG like shirt green  
 'S/he doesn't like the green shirt.'
- (4) Totoli (elicited)  
 isei nangaanko saginna  
 who AV.RLS:eat:AND banana:3SG.POSS  
 'Who ate his/her banana?'

In addition to the bitonal target at the right edge, intonational phrases (IP) are often (but not necessarily; cf. Figure 25.2) divided into phonological phrases ( $\varphi$ ), which usually end on a high target, represented by H\$ in Figure 25.3. Note that all tonal annotations in this section only pertain to targets that are clearly recognizable in the fundamental frequency ( $f_0$ ) extraction. Sub-IP phrasing is too little understood to allow for speculations as to whether

<sup>2</sup> Throughout this section we will refer to the combination of the two tonal targets as 'edge tones', the final pitch excursion as a 'boundary tone' (T%), and the target preceding the latter as the 'prefinal target' (T-). We will return to issues in the analysis of this prefinal target below.

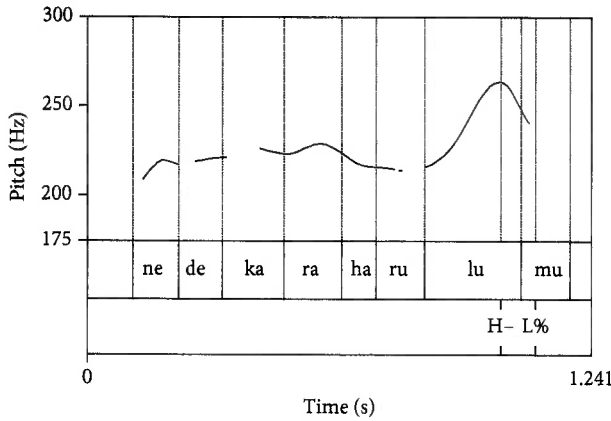


FIGURE 25.2  $f_0$  and edge tones for (3).

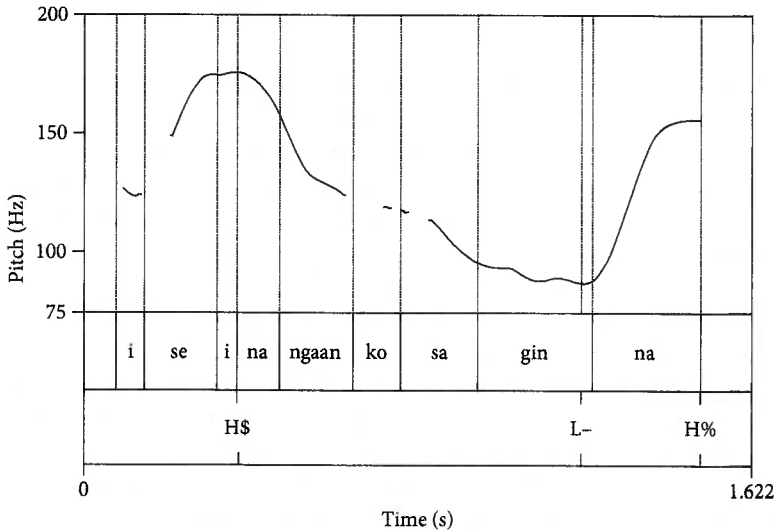


FIGURE 25.3  $f_0$  and edge tones for (4).

IP's are exhaustively divided into  $\phi$ 's (with deletion of the  $\phi$ -final boundary tone). Where they exist,  $\phi$ 's are of variable size, but are often larger than a single phonological word and may span complete (subordinate) clauses. Himmelmann (2018) provides more details for Waima'a and Totoli.

The cues for prosodic phrasing are generally intonational in Austronesian languages and can be subtle. Downstep of H tones within  $\phi$  has been observed in all the languages discussed here, with exceptions for IP-final excursions, which can be considerably higher (arguably due to H%). Higher-level durational effects remain largely unexplored, although this is a potentially rich area for uncovering the mapping of syntactic structure to  $\phi$ 's. Richards (2010: 165–182), for example, explores the structure of higher prosody in Tagalog with a view towards syntactic analysis and suggests an algorithm for locating edge tones at initial  $\phi$ -edges. Hsieh (2016) examines Tagalog verb durations in two conditions and shows

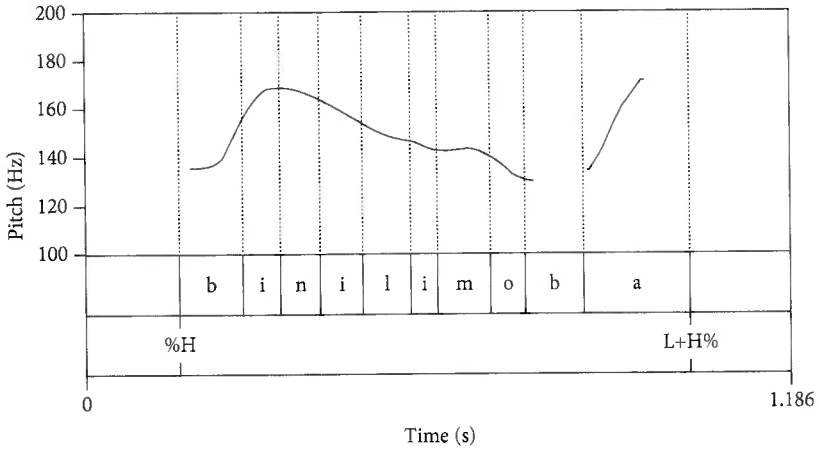


FIGURE 25.5 f0 and edge tones for (7).

- (7) Tagalog (elicited)  
 b<in>ili=mo=ba?  
 <PRF,PV>buy=2SG.GEN=QM  
 'Did you buy (it)?'

The initial H typically docks to the first word of the IP but not necessarily to its first syllable, as seen in Figure 25.6, where it is aligned with the final syllable of the proclitic /maŋa/. The initial and final pitch targets in this typical Tagalog pattern fully ignore the lexical/functional and the prosodic word/clitic distinctions. In terms of duration, note that only syllables with lexically specified vowel length and length derived through compensatory lengthening after ?-deletion emerge as long. No word-based durational effects are present outside of vowel length in (8) (see also Figure 25.6), an elicited example.

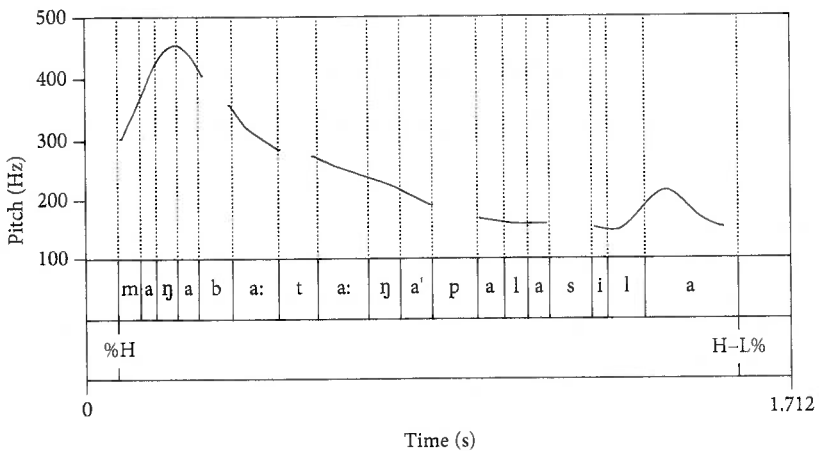


FIGURE 25.6 f0 and edge tones for (8).

(8) Tagalog (elicited)

maɲa=ba:taʔ=ɲaʔ=pala=sila  
 PL=child=EMPH=MIRA=3PL.NOM  
 [maɲa ba:ta: ɲa: pala sila]  
 'They are really children!'

In the Pamona-Kaili and South Sulawesi languages of Sulawesi, on the other hand, function words are treated distinctly from lexical words, where only the latter project pitch accents. For Uma, a Pamona-Kaili language, word-based prominence is aligned with the penultimate syllable of a window that includes the lexical word itself and a small number of adverbial clitics such as /mpuʔu/ 'really' and /oaʔ/ 'anyway' (Martens 1988). A large number of other types of clitic, including those with pronominal, aspectual, and adverbial functions, are excluded from this window. Martens's (1988) observations are of interest, because they concern prominence in what is generally a non-final element in the Uma clause, the verb. A similar pattern can be found in the closely related Kulawi language (Adriani and Esser 1939: 9), where prominence is associated with the penultimate syllable of the word including suffixes but excluding pronominal and adverbial clitics.<sup>3</sup> Enclitics do not attract prominence even when they are disyllabic, as in [ʔhou=kami] house=1PL.EXCL.GEN 'our house'. Unlike the Philippine languages discussed above, Kulawi and Uma appear to make a clear distinction between lexical and functional words, with pitch targets anchoring only to lexical words. Note how the pitch targets in (9) (see also Figure 25.7) are anchored to the penultimate syllable of the lexical word excluding the genitive clitics. Similarly, in (10) (see also Figure 25.8) the function word /padena/ 'then' and the pronominal clitic are not associated with pitch excursions.

(9) Kulawi (from a spoken narrative)

nam-pe'gika 'dike=na no-pa-'dapa hi'noko=ra  
 RLS.AV-wait dog=3SG.GEN RLS.AV-CAUS-hunt prey=3PL.GEN  
 '... his dog was waiting while he was hunting their prey.'

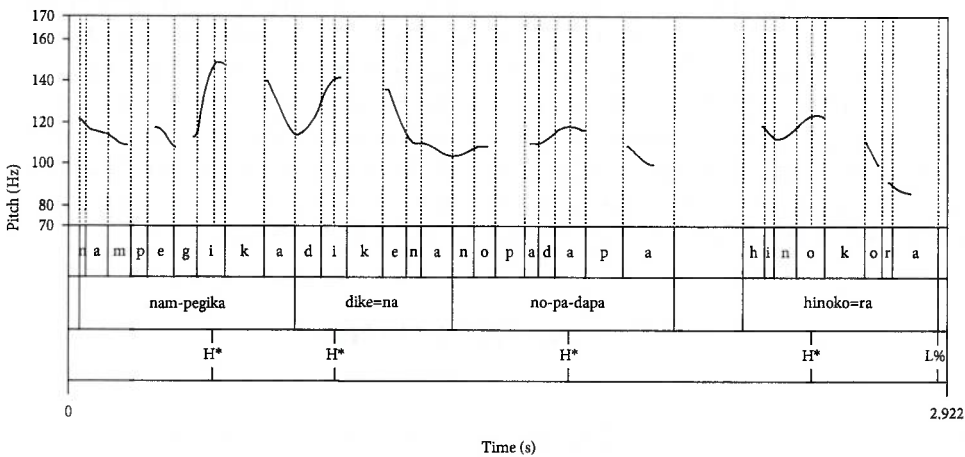


FIGURE 25.7 f0 and tonal targets for (9).

<sup>3</sup> Similar patterns are found in South Sulawesi languages, such as Bugis (Sirk 1996) and Makassar (Jukes 2006).

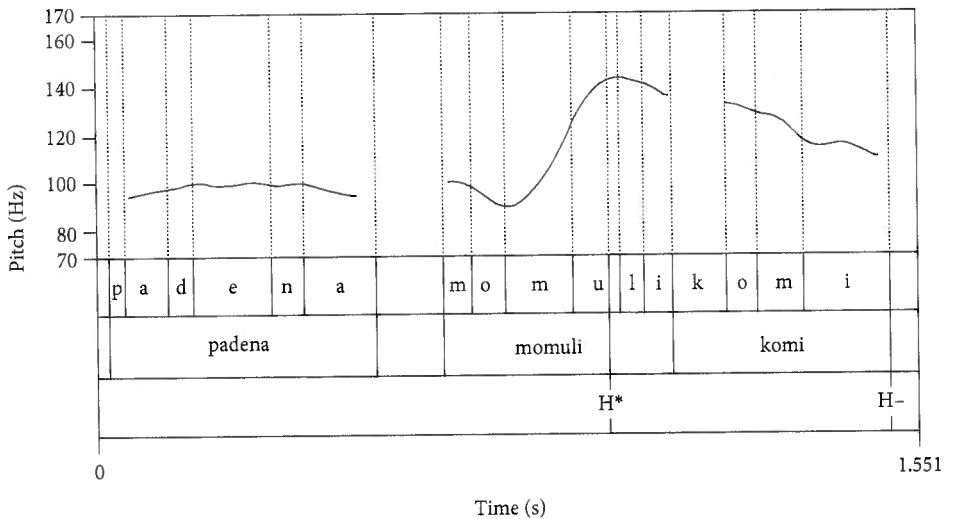


FIGURE 25.8  $f_0$  and tonal targets for (10).

- (10) Kulawi (from a spoken narrative)  
 padena mo-'muli=komi  
 then IRR.AV-create=2PL.NOM  
 'you (go) create'

The prosodic framework in this chapter is not sufficient to capture all relevant intonational contrasts. Thus, in Manado Malay and the Javanese Palace language (see chapters in van Heuven and van Zanten 2007), questions may involve a (more or less) continuous rise across most of an IP, usually after a minor initial drop. Furthermore, echo questions may have specific features such as a higher pitch level than the preceding statement. In fact, there appear to be various ways to expand the IP at the right edge, after the IP-marking edge tone combination. Stoel (2005), for example, reports the option for Manado Malay to add a single further phrase after the IP edge tones; this phrase tends to be flat and involves a highly compressed pitch range. There are also various options for what may be termed 'intonational clitics', often determiners or conjunctions, which may occur after the IP-marking edge tone combination. This is similar to the compression found on post-posed reporting clauses and vocatives in English (e.g. 'Don't do it!' *she said.*)

## 25.6 CONCLUSION

Until very recently, Austronesian languages had contributed little to our understanding of prosodic typology. We are now in a position to enumerate several unusual features of these languages, which require special attention from theoretical, typological, and experimental approaches. First of all, the possibility that many languages of Indonesia lack word-based prominence must be taken seriously and examined with a more diverse range of tools. Corpus investigations, which are necessary to reveal the predictive power of production

and perception studies cited in the preceding sections, are lacking. The theoretical implications of 'stresslessness' have also gone unexplored. Does 'stresslessness' simply indicate that intonational and durational prominence are anchored to higher levels within an otherwise normal hierarchical prosodic structure, or does it imply a restructuring or even a lack of structure on the level of the prosodic word? To answer this, evidence for prosodic structure must be culled from segmental alternations, phonotactic generalizations, morphophonological processes, acquisition, and elsewhere. Only then will we be able to say whether a lack of word-based prominence is diagnostic of more profound structural differences. Philippine languages, on the other hand, present us with the problem of mobile (and morphologically conditioned) vowel length, its relation to syllable type, and the anchoring of pitch movements, areas that show interesting cross-linguistic variation within the group. Making progress here will require abandoning (at least temporarily) the composite notion of 'word stress'. For each language under investigation, the determinants of segment and syllable duration, pitch movements, overall intensity, and other possible measures such as spectral tilt must be treated as a priori independent dimensions with special attention to keeping word-level, phrase-level, and utterance-level effects distinct. It may emerge that Austronesian languages indeed provide broad support for the 'no stress type'. On the other hand, we cannot yet rule out that a careful reassessment of prosodic organization in some of the apparently stressless languages could yield subtle word-based prominence patterns that are occluded by higher-level prosodic phenomena.

## References

- Adelaar, K. Alexander & Nikolaus P. Himmelmann. 2005. *The Austronesian Languages of Asia and Madagascar*. London: Routledge.
- Adriani, Nicolaus & Samuel J. Esser. 1939. *Koelawische taalstudien*. (Bibliotheca Celebica, I, II, III.) Bandoeng: A.C. Nix.
- Allison, E. Joseph. 1979. The phonology of Sibu Sama: a language of the southern Philippines. *Studies in Philippine Linguistics* 3:63-104.
- Anderson, Victoria & Yuko Otsuka. 2006. The Phonetics and Phonology of "Definitive Accent" in Tongan. *Oceanic Linguistics* 45:21-42.
- Barnes, Jonathan. 2006. Strength and Weakness at the Interface: Positional Neutralization in Phonetics and Phonology. Berlin & New York: Mouton de Gruyter.
- Billings, Loren & Daniel Kaufman, 2004. Towards a typology of Austronesian pronominal clisis. *ZAS Papers in linguistics*, 34, pp.15-29.
- Bloomfield, Leonard. 1917. *Tagalog texts with grammatical analysis*. 3 vols. Urbana, Ill.: University of Illinois.



- Blust, Robert. 1999. Subgrouping, circularity, and extinction: Some issues in Austronesian comparative history. In Elizabeth Zeitoun and Paul Jen-kuei Li (eds), *Selected Papers from the Eighth International Conference on Austronesian Linguistics*, pp. 31–94, Taipei: Academica Sinica.
- Blust, Robert A. 2013. *The Austronesian Languages*. Revised Edition. Canberra: Asia-Pacific Linguistics URL: <http://hdl.handle.net/1885/10191>
- Brainard, Sherri & Dietlinde Behrens. 2002. *A Grammar of Yakan*. Manila: Linguistic Society of the Philippines.
- Brunelle, Marc. 2005. Eastern Cham register: phonetic, phonological and sociolinguistic approaches. Ph.D. dissertation, Cornell University.
- Buckley, Eugene. 1998. Alignment in Manam stress. *Linguistic Inquiry* 29.3:475-495.
- Calhoun, Sasha. 2015. The interaction of prosody and syntax in Samoan focus marking. *Lingua* 165: 205-229. doi: 10.1016/j.lingua.2014.11.007
- Chaski, Carole. 1985. Linear and metrical analyses of Manam stress. *Oceanic Linguistics* 25:167-209
- Chen, Chun-Mei. 2009a. Documenting Paiwan Phonology: Issues in Segments and Non-Stress Prosodic Features. *Concentric: Studies in Linguistics* 35.2:193-223.
- Chen, Chun-mei. 2009b. The phonetics of Paiwan word-level prosody. *Language and Linguistics* 10.3:593-625.
- Chiang, Wen-yu & Fang-mei Chiang. 2005. Saisiyat as a pitch accent language: Evidence from acoustic study of words. *Oceanic Linguistics* 44:404–426.
- Chiang, Wen-yu, I Chang-liao and Fang-mei Chiang. 2006. The prosodic realization of negation in Saisiyat and English. *Oceanic Linguistics* 45.1:110-132.
- Chung, Sandra. 1983. Transderivational relationships in Chamorro phonology. *Language* 59: 35-66.
- Clemens, Lauren Eby. 2014. Prosodic Noun Incorporation and Verb-Initial Syntax. Doctoral dissertation, Harvard University.
- Cohn, Abigail. 1989. Stress in Indonesian and bracketing paradoxes. *Natural Language and Linguistic Theory* 7:167-216.
- Durie, Mark. 1985. *A Grammar of Acehnese on the Basis of a Dialect of North Aceh*. Dordrecht: Foris.
- Edmondson, Jerold A. & Kenneth J. Gregerson (eds). 1993. *Tonality in Austronesian languages*. Oceanic Linguistics Special Publication 24. Honolulu: University of Hawaii Press.
- Edwards, Owen. 2016. Metathesis and unmetathesis: Parallelism and complementarity in Amarasi, Timor. Ph.D. dissertation, Australian National Univeresity.
- French, Koleen Matsuda. 1988. *Insights into Tagalog. Reduplication, Infixation, and Stress from Nonlinear Phonology*. Dallas: The University of Texas at Arlington.
- Goedemans, Rob W.N. & Ellen van Zanten. 2014. No Stress Typology. In Johanneke Caspers, Yiya Chen, Willemijn Heeren, Jos Pacilly, Niels O. Schiller & Ellen van Zanten (eds), *Above and Beyond the Segments: Experimental linguistics and phonetics*. Amsterdam: John Benjamins, 83–95.
- Goudswaard, Nelleke. 2005. *The Begak (Ida'an) Language of Sabah*. Utrecht: LOT.
- Gussenhoven, Carlos. 2004. *The phonology of tone and intonation*. Cambridge: Cambridge University Press.
- Halim, Amran. 1981. *Intonation in relation to syntax in Indonesian*. Pacific Linguistics, Series D, No. 36. Canberra: Pacific Linguistics.
- Heuven, Vincent J. van & Ellen van Zanten (eds). 2007. *Prosody in Austronesian languages of Indonesia*. Utrecht: LOT
- Heuven, Vincent J. van, Lilie Roosman & Ellen van Zanten. 2008. Betawi Malay word prosody. *Lingua* 118: 1271–1287.
- Heuven, Vincent J. van & Vera Faust. 2009. Are Indonesians sensitive to contrastive accentuation below the word level? *Wacana, Jurnal Ilmu Pengetahuan Budaya* 11: 226–240.
- Himmelman, Nikolaus P. 2010. Notes on Waima'a intonation. In Michael Ewing & Marian Klamer (eds), *Typological and Areal Analyses: Contributions from East Nusantara*. Canberra: Pacific Linguistics, 47–69.

- Himmelman, Nikolaus P. 2018. Some preliminary observations on prosody and information structure in Austronesian languages of Indonesia and East Timor. In S. Riesberg, A. Shiohara & A. Utsumi (eds), *A cross-linguistic perspective on information structure in Austronesian languages*. Berlin: Language Science Press.
- Hsieh, Henrison. 2016. "Prosodic indicators of phrase structure in Tagalog transitive sentences" in Hiroki Nomoto, Takuya Miyauchi and Asako Shiohara (eds.) *Proceedings of AFLA 23rd Meeting of the Austronesian Formal Linguistics Association*, p.111-22. Canberra: Asia-Pacific Linguistics.
- Hyman, Larry. 2014. Do all languages have word accent? In Harry van der Hulst (ed.) *Word Stress: Theoretical and Typological Issues*, p.56-82. Cambridge: Cambridge University Press.
- Jepson, Kathleem. 2013. Intonational marking of focus in Torau. In Lauren Gawne and Jill Vaughan (eds), *Selected Papers from the 44th Conference of the Australian Linguistic Society*. 262-282. <http://hdl.handle.net/11343/40967>.
- Jukes, Anthony. 2006. Makassarese (basa Mangkasara'): A description of an Austronesian language of South Sulawesi. Ph.D. dissertation, University of Melbourne. [<http://www.oxis.org/theses/jukes-2006.pdf>]
- Kamholz, David C. 2014. Austronesians in Papua: Diversification and change in South Halmahera-West New Guinea. PhD dissertation UC Berkeley.
- Karlsson, Anastasia & Arthur Holmer. 2011. Interaction between word order, information structure and intonation in Puyuma. In M. Endo (ed.), *Linguistic Circle for the Study of Eastern Eurasian Languages*, p. 28-38.
- Kaufman, Daniel. 2005. Aspects of pragmatic focus in Tagalog. In Malcolm Ross and I Wayan Arka (eds.) *The many faces of Austronesian voice systems: some new empirical studies*, 175-196. Canberra: ANU Press.
- Kaufman, Daniel. 2010. The morphosyntax of Tagalog clitics: A typological approach. Ph.D. diss. Cornell University.
- Ladd, Robert D. 2008. *Intonational phonology*. 2nd edn. Cambridge: Cambridge University Press.
- Larish, Michael D. 1999. *The Position of Moken and Moklen within the Austronesian Language Family*. Ph.D. dissertation, University of Hawai'i at Manoa.
- Li, Paul Jen-Kuei . 1981. Reconstruction of Proto-Atayalic phonology. *Bulletin of the Institute of History and Philology*, 52.2: 235-301. Taipei: Academia Sinica.
- Lichtenberk, Frantisek. 1983. *A grammar of Manam*. Honolulu: University of Hawaii Press.
- Lynch, John, Malcolm Ross & Terry Crowley. 2005. *The Oceanic Languages*. London: Routledge.
- Martens, Michael P. 1988. Notes on Uma verbs. In Steinhauer, H. (ed.), *Papers in Western Austronesian Linguistics 4*, 167-237. Canberra: Australian National University.
- Maskikit-Essed, Raechel & Carlos Gussenhoven. 2016. No stress, no pitch accent, no prosodic focus: The case of Ambonese Malay. *Phonology* 33:353-389.
- Minde, van Don. 1997. *Malayu Ambong: Phonology, Morphology, Syntax*. Leiden: CNWS.
- Odé, Cecilia. 1994. On the perception of prominence in Indonesian. In C. Odé & V.J. van Heuven (eds) *Experimental studies of Indonesian prosody*. Semaian 9. Leiden: Vakgroep Talen en Culturen van Zuidoost-Azië en Oceanië, Leiden University, 27-107.
- Pittayaporn, Pittayawat. 2005. Moken as a Mainland Southeast Asian Language. *Chamic and Beyond* ed. by Anthony Grant & Paul Sidwell, 189-209. Canberra: Pacific Linguistics.
- Rehg, Kenneth L. 1993. Proto-Micronesian prosody. In Edmondson and Gregerson, 25-46.
- Remijsen, Bert. 2001. *Word-prosodic systems of Raja Ampat languages*. LOT Dissertation Series. Vol. 49. Utrecht: LOT.
- Remijsen, Bert. 2002. Lexically contrastive stress accent and lexical tone in Ma'ya. In Carlos Gussenhoven & Natasha Warner (eds.), *Laboratory phonology VII*. Berlin: de Gruyter, 585-614.
- Remijsen, Bert. 2007. Lexical tone in Magey Matbat. In van Heuven & van Zanten (eds), 9-34.
- Richards, Norvin. 2010. *Uttering Trees*. Cambridge, MA: MIT Press.
- Riesberg, Sonja, Janina Kalbertodt, Stefan Baumann & Nikolaus P. Himmelman. 2018. On the perception of prosodic prominences and boundaries in Papuan Malay. In S. Riesberg, A.

- Shiohara & A. Utsumi (eds), *A cross-linguistic perspective on information structure in Austronesian languages*. Berlin: Language Science Press.
- Roettger, Timo & Matthew Gordon. 2017. Methodological issues in the study of word stress correlates. *Linguistics Vanguard* 3.1: 1-11.
- Robins, Robert H. 1957. Vowel nasality in Sundanese: a phonological and grammatical study. *Studies in Linguistic Analysis* (Special volume of the Philological Society). Oxford: Blackwell, 87-103.
- Ross, Malcolm D. 1988. *Proto Oceanic and the Austronesian Languages of Western Melanesia*. Canberra: Pacific Linguistics.
- Ross, Malcolm D. 2008. The integrity of the Austronesian language family. In: Alicia Sanchez-Mazas, Roger Blench, Malcolm Ross, Ilia Peiros & Marie Lin, eds, *Past human migrations in East Asia: Matching archaeology, linguistics and genetics*, 161–181. London: Routledge
- Schachter, Paul & Fay Otanes. 1972. *Tagalog Reference Grammar*. Berkeley: University of California Press.
- Shyrock, Aaron. 1993. A metrical analysis of stress in Cebuano. *Lingua* 91, pp.103-48.
- Sirk, Ülo. 1996. *The Buginese language of traditional literature*. Self-published: Moscow.
- Smith, Alexander D. 2017. The languages of Borneo: A comprehensive classification. PhD thesis, University of Hawai'i.
- Stoel, Ruben B. 2005. *Focus in Manado Malay*. Leiden: CNWS Publications.
- Stoel, Ruben B. 2006. The intonation of Banyumas Javanese. *Proceedings of the Speech Prosody 2006 conference*, 827–830. Dresden: TUDpress.
- Thurgood, Graham. 1999. *From Ancient Cham to Modern Dialects: Two thousand years of language contact and change*. Honolulu: University of Hawai'i Press.
- Tuuk, Herman N. van der. 1971. *A Grammar of Toba Batak*. The Hague: Martinus Nijhoff.
- Walton, Charles. 1979. Panutaran (Sama) phonology. *Studies in Philippine Linguistics* 3.2: 189-217.
- Wolff, John U. 1972. *A Dictionary of Cebuano Visayan*. Ithaca, NY: Southeast Asia Program and Linguistic Society of the Philippines.
- Wolff, John U. with Maria Theresa C. Centeno & Der-Hwa V. Rau. 1991. *Pilipino through Self-Instruction*. Ithaca: Cornell Southeast Asia Program.
- Xu, Yi, Szu-wei Chen and Bei Wang (2012) .Prosodic focus with and without post-focus compression: A typological divide within the same language family? *The Linguistic Review* 29: 131-147.
- Zorc, Davic. 1978. Proto-Philippine word accent: Innovation or Proto-Hesperonesian retention? In S.A. Wurm, & L. Carrington (eds.), *Second International Conference on Austronesian Linguistics: Proceedings I* (pp. 67–119). Pacific Linguistics C 61.
- Zorc, David. 1993. Overview of Austronesian and Philippine accent patterns. In Edmondson and Gregerson, 17-24.
- Zubkova, Ludmila G. 1966. *Vokalizm Indonezijskogo jazyka*. Ph.D. dissertation. St Petersburg: Leningrad University.
- Zuraidah Mohd Don, Gerry Knowles & Janet Yong. 2008. How Words can be Misleading: A Study of Syllable Timing and 'Stress' in Malay. *The Linguistics Journal* 3:66-81.
- Zuraw, Kie, Kristine M. Yu & Robyn Orfitelli. 2014. The word-level prosody of Samoan. *Phonology* 31.2: 271 - 327.