

Adjuncts at the syntax-prosody interface in nominal structures in Dela

Thersia M. Tamelan

Artha Wacana Christian University

I Wayan Arka

Australian National University/Universitas Udayana

Proceedings of the LFG'21 Conference

On-Line

Miriam Butt, Jamie Y. Findlay, Ida Toivonen (Editors)


2021

CSLI Publications

pages 264–284

<http://csli-publications.stanford.edu/LFG/2021>

Keywords: nominal alternation, NP head-adjunct relation, light/heavy syllable, syntax-prosody interface, modular model.

Tamelan, Thersia M., & Arka, I Wayan. 2021. Adjuncts at the syntax-prosody interface in nominal structures in Dela. In Butt, Miriam, Findlay, Jamie Y., & Toivonen, Ida (Eds.), *Proceedings of the LFG'21 Conference, On-Line*, 264–284. Stanford, CA: CSLI Publications. 

Abstract

This paper discusses an intriguing syntax-prosody interface phenomenon in Dela, an Austronesian language spoken on Rote Island, eastern Indonesia. Typologically, Dela is an SVO language where the NP's head-adjunct relation is marked by a light/heavy syllable alternation resulting in C(onsonant) deletion/insertion. Our study contributes to the typological and theoretical research on the nature and function of prosody in grammar. We demonstrate that LFG's modular model nicely captures the syntax-prosody phenomenon in Dela.

1 Introduction

This paper describes the NP head-adjunct relation at the syntax-phonology interface in Dela.¹ An adjunct in this language is marked by a light/heavy syllable alternation, as illustrated by the examples in (1). The consonant-final word *anin* 'wind' retains its final consonant in (1a) because it is not followed by an adjunct.² However, in (1b), it is followed by an adjunct (*barat* 'west') and the word-final consonant of *anin* is elided. The final word of the NP in Dela receives (phrasal) prosodic prominence.³ Thus, the NP [*ani barat*] in (1b) has its phrasal prosodic peak, represented by H* (of the melodic H*L), associated with the word at the right boundary (RB) of the intonational unit/prosodic phrase. The prosodic peak typically coincides with the penultimate syllable, which is also the bearer of primary stress in a word.

- (1) a. The underlying word-final C is retained

[[*anin*]_{NP=a}]_{DP} *tao* *mangarau?*=*ra* *ra-ta-mbele*
wind=DEF make rubbish=PL 3PL-VBLZ-fly
'The wind blew the rubbish.' [YN2.23]⁴

¹ We thank the Dela speakers who provided us with data for this paper, the anonymous reviewers of the abstract, and the LFG 2021 audience members, in particular, Louise Mycock, Chen Xie, and Stephen Wechsler, for their detailed and valuable comments which helped improve this paper significantly. We also thank Charbel El-Khaissi for proofreading our paper. All remaining errors and inconsistencies are our own.

² Abbreviations are as follows: 1, 2, 3=first, second, third person; VBLZ=verbaliser; DEF=definite; DEM=demonstrative; DISC=discourse; DIST=distal; GEN=genitive; NOM=nominative; NMLZ= nominaliser; N?=nominal ?; ORD=ordinal; PL=plural; PROX=proximal; REL=relativiser; SG=singular; STAT=stative.

³ The syllable that shows a heavy/light alternation in adjunct relation in the relevant NP under discussion is underlined. The syllable that bears the word stress and/or phrasal prosodic peak/prominence is in bold.

⁴ This code in square brackets [] following the free translation is the citation for the recorded texts indicating the source of the example in the Dela corpus.

b. The underlying word-final C is elided

kalo fula ka-sanahulu-n na [ani barat]_{NP}
H*L
if month ORD-ten-ORD DISC wind west
'If it's October, (it's) *west wind*.' [NA1.30]

Based on the data for the NP head-adjunct relation, we argue for two key empirical points:

- 1) Syllable marking: a noun's word-final syllable alternation (light vs. heavy) encodes the presence/absence of an adjunct close to the head of the NP.
- 2) Unit alignment: the syntactic unit of NP is aligned with the prosodic unit of Phonological Phrase (PhP), characterised by the melodic tone/prosodic peak of H*L at the right edge of the NP/PhP.

Our analysis builds on previous LFG approaches to the prosody-syntax interface. In this approach, the prosodic structure is a layer with its own properties and distinct from other layers such as c- and f-structures (Butt and King 1998, Dalrymple and Mycock 2011, Mycock and Lowe 2013, Dalrymple, Lowe, and Mycock 2019, Bögel 2015). The analysis consists of the lexical entry specification with prosodic information and the proper grammatical function (GF) annotation to account for the syntax-prosody interface.

This paper is structured as follows: in §2, we provide an overview of Dela phonology and morphosyntax. Then, we describe the NP head-adjunct relations in §3, followed by an analysis of these relations within the LFG framework in §4. We contextualise this phenomenon in Dela by providing an areal comparison with neighbouring languages that exhibit a similar pattern (§5). Finally, in §6, we conclude with the implications of this study and questions for future investigation.

2 An overview of Dela phonology and morphosyntax

A number of phonological and morphosyntactic structures of Dela that are related to the topic of this paper are presented here. These include word stress, syllable structure, basic clause structure, nominal structure and morphology of Dela nouns. The description is mainly based on the work of Tamelan (2021).

2.1 Phonology

In Dela, word stress falls on the penultimate syllable of the root and each vowel is a syllable nucleus. The root or stem is typically disyllabic, forming a trochee (metrical foot consisting of a stressed syllable followed by an unstressed syllable). This is illustrated in words with the root *mata* 'eye' and stem *naa* '3SG.eat' in (2) with stress on the first (boldened) syllables. Prefixes, genitive and plural enclitics are extrametrical—they do not influence word stress, or in

other words, stress does not shift. Notice that when the genitive enclitic =*na* attaches to a word, the nominal suffix -*ʔ* is omitted (i.e. *mata=na* is underlyingly *mata-ʔ=na*).⁵ The plural enclitic =*ra* can, however, co-occur with the nominal suffix.

(2) Stress pattern for disyllabic roots

	x										
(x)	x	x		(x)		(x)					
(C)	(V-)	(C)	V(C)	V(C)	(-C)	(V)	(-C)	(V)			
		m	a	t	a		-ʔ		‘eye-Nʔ (unassociated)’		
		m	a	t	a		=n	a	‘eye=3SG.GEN’		
		m	a	t	a		=n	a	=r	a	‘eye=3SG.GEN=PL’
		m	a	t	a		-ʔ		=r	a	‘eye-Nʔ=PL’
		n	-a	a							‘3SG-eat’
n	a-	n	-a	a			-t				‘food’
n	a-	n	-a	a		=n	a	=r	a		‘food=3SG.GEN=PL’

* (X): the syllables are extrametrical

Double vowels are sequences of two (like or unlike) vowels with each vowel being the head of a syllable nucleus. This is shown by the fact that the stress remains on the penultimate syllable (i.e. vowel) of the root, as in (3), for both like vowels, which results in a phonetically long vowel (e.g. *fuu*), and unlike vowels (e.g. *fui*). In reduplicated words with like vowels, as in (4), the double vowels are not reduplicated as a unit. Instead, the syllable that is copied and prefixed to the stem is a short vowel (e.g. *fu-* in *fu~fuu*).

(3) Stress remains in the penultimate syllable

fui [ˈfui] ‘wild’ *fuu* [ˈfu:] ‘blow’
liliiʔ [liˈli:ʔ] ‘forget’ *la~lai* [laˈlai] ‘slicing’

(4) CV reduplication does not reduplicate two like vowels as a unit

fuu [ˈfu:] ‘blow’ → *fu~fuu* [fuˈfu:] ‘blowing’
laa [ˈla:] ‘float’ → *la~laa* [laˈla:] ‘floating’

In Dela, the medial C-slots in monomorphemic roots are ambisyllabic—they occur as both the coda of the syllable to their left and the onset of the syllable to their right. A template for disyllabic root structure is given in (5). The evidence for this analysis is shown in reduplication such as *mali* ‘laugh’ → *mal~mali* ‘laugh intensively’ and *esa* ‘one’ → *es~esa* ‘each one’. In these examples, the root medial consonants are /l/ and /s/ respectively, and they serve as the coda of the syllable to their left and the onset of the syllable to their right. Hence, they are included in the reduplicants.

⁵ In Dela, genitive enclitics usually replace any final consonant of the root they attach to except when the omission causes lexical ambiguity (Tamelan 2021:52).

- (5) Template for disyllabic root structure



2.2 Morphosyntax

Dela has a basic SVO order, as shown in (6) and (7). It has a nominative-accusative alignment system where S and A are treated the same, as opposed to O (or patient), as seen in pronoun sets.⁶ See Tamelan (2021:97–106) for a more detailed discussion on Dela’s pronominal system.

- (6) [ana]_{SUBJ} [n-ita]_V [e]_{OBJ}
 3SG.NOM 3SG-see 3SG.ACC
 ‘She saw him.’ [YB6.57]
- (7) [ana]_{SUBJ} [lao]_V
 3SG.NOM leave
 ‘She left...’ [YNHN1.9]

Dela is predominantly left-headed and, as expected, shows post-head modifiers despite being a predominantly prepositional language, as in (8). The maximal nominal unit with D is DP. Like several other languages in the region, Dela does not have a separate grammatical class of adjectives. Words expressing property concepts such as ‘old’ behave as either a noun (obligatorily appearing with the nominal suffix -ʔ), as in (8), or a verb (obligatorily taking the subject and stative prefixes), as in (9).

- (8) *tu* *lasi-ʔ* *naa*
 male old-Nʔ DIST
 ‘that old man’
- (9) *ana* *na-ma-lasi*
 3SG.NOM 3SG-STAT-old
 ‘He is old’/ ‘He becomes old’

Nouns in Dela can be morphosyntactically derived or free (i.e. non-derived), as in (10) and (11), and they have either a root-final light syllable (‘light noun’) or root-final heavy syllable (‘heavy noun’). Free nouns are typically light nouns (i.e. with a final syllable without a C coda), as in (10a). Heavy non-derived nouns such as *anin* ‘wind’ in (10b) are rare. Heavy syllables are typically syllables with

⁶ Whether a verb takes a subject prefix or not is lexically determined. The prefixes consist of two paradigms: syllabic and non-syllabic prefixes. The non-syllabic prefixes consist of the initial consonant of the syllabic prefixes (Tamelan 2021:130).

a consonant coda. Note that a syllable with a phonetically long vowel is analysed as a sequence of two vowels, with each vowel being the head of a syllable nucleus (Tamelan 2021:23). Syllables with diphthongs are only found in loan words. Underlyingly or by default, all derived nouns are, by definition, heavy nouns. They are derived from precategory roots or subcategorised roots.⁷

(10) Morphosyntactically free nouns:

- a. ‘Light’ noun: having a light root-final syllable (i.e. without a coda)
e.g. *oe* ‘water’, *moko* ‘big’.
- b. ‘Heavy’ noun: having a heavy root-final syllable
e.g. *anin* ‘wind’

(11) Derived nouns (typically from a light root-final syllable) primarily by means of nominaliser *-ʔ*, *-s* or *-t*

- a. From ‘precategory’ roots; e.g. *lasi-ʔ* ‘old’, *hedī-s* ‘illness’
- b. From subcategorised roots;
e.g. *ηgoe* ‘to lock’ → *ηgoe-ʔ* ‘a key’,
n-aa ‘3SG eat’ → *na-n-aa-t* ‘food’
oe ‘water’ → *oe-ʔ* ‘liquid’

Some free nouns with a root-final light syllable such as *oe* ‘water’ and *moko* ‘big’ may behave differently in terms of nominal marking when they appear attributively. Both *oe* ‘water’ and *moko* ‘big’ can function as head nouns like in (12a) and (13a). The noun *oe* ‘water’, however, requires the general/default nominal marking *-ʔ* when it appears as an adjunct, appearing as *oeʔ* in (12b). It appears that the nominaliser *-ʔ* functionally turns ‘entity’ nouns with referential meaning to a ‘property/quality’ noun. By contrast, the noun *moko* requires no *-ʔ* marking when it functions attributively as in (13b), apparently due to existing ‘property/quality’ signification in the noun. That is, it is a property (or ‘adjectival’) noun, and it does not need a nominaliser to function attributively in Dela.

- (12) a. *ara* *nasu* [*oe* *hanas*]_{NP}
3PL.NOM boil water hot
‘They boiled hot water.’ [LK2.28]
- b. *ina-ʔ=ra* *mana* *lemba* [*tasi* *oe-ʔ*]
female-Nʔ=PL REL carry.with.pole sea water-Nʔ
‘The women are the ones who carried sea water.’ [HL4.7]

⁷ Precategory roots are those with no clear evidence that one derived form is more basic than the other/s, while subcategorised roots are those that clearly belong to one particular morphological or syntactic category (Tamelan 2021:67).

- (13) a. *au tenga ʔ-ala [moko=ra]*
 1SG pick 1SG-get big=PL
 ‘I picked the *big* ones.’ [YNML6.10]
- b. *ana hasa n-ala [baruu moko]*
 3SG.NOM buy 3SG-get pants big
 ‘He bought *big* pants.’ [Elicited]

3 NP head-adjunct relation

There are two patterns of heavy/light syllable alternation involved in an NP-adjunct relation. The first pattern is the heavy-to-light alternation which happens to the noun head or a noun adjunct preceding another adjunct. This alternation is regular and applicable (or imposed) across Dela nouns (cf. the second pattern discussed below). Further, the alternation is syntactically motivated by the presence of an adjunct that follows a noun with a lexically specified word-final heavy syllable. The presence of an adjunct is marked by a word-final light syllable as seen in the deletion of a word-final consonant in a noun. Hence, *anin* ‘wind’ becomes *ani* as in the previous examples (1a, b), repeated below in (14a, b). The noun retains its final consonant in (14a) because there is no adjunct following it, but it lacks a coda in (14b) to mark the presence of the following adjunct, *barat* ‘west’. Notice that in (14c), the noun adjunct *barat* ‘west’ also lacks a coda to mark the presence of the second adjunct, *monaeʔ* ‘big’.

- (14) a. The underlying word-final C is retained
 [[*anin*]_{NP=a}]_{DP} *tao mangarauʔ=ra ra-ta-mbele*
 wind=DEF make rubbish=PL 3PL-VBLZ-fly
 ‘The *wind* blew the rubbish.’ [YN2.23]
- b. The underlying word-final C is elided
kalo fula ka-sanahulu-n na [ani barat]_{NP}
 if month ORD-ten-ORD DISC wind west
 ‘If it’s October, (it’s) *west wind*.’ [NA1.30]
- c. *ʔoi fula ka-esa-ʔ ia [ani bara monae-ʔ]_{NP}*
 say month ORD-one-Nʔ PROX wind west big-Nʔ
 ‘(It is) reported that in this January, (there will be) *strong west wind*.’
 [YB8.28]

There is no heavy-to-light syllable alternation when marking an adjunct relation if the final syllable of the preceding noun is already lexically light. This is because the requirement of a word-final light syllable is respected (see example [15a] below). However, a syllable alternation pattern still exists with these noun types despite being of a different kind to the first pattern in (14). This second pattern is a light-to-heavy syllable alternation. This marking takes place when an adjunct relation is associated with certain nouns containing a word-final light syllable, such as *oe* ‘water’, as seen in (15). Unlike the highly regular pattern

exemplified in (14), a light-to-heavy syllable alternation is semantically constrained and only applicable to certain adjunct nouns. The semantic constraint appears to be associated with the typical nature of an adjunct as a ‘property/quality’ word. That is, since light nouns like *oe* ‘water’ are entity nouns, they appear in their basic form when heading an NP with or without an adjunct (15a). When an entity noun carries a modifying function, as in (15b), it has to be turned into ‘property’ noun subclass by means of the suffix *-ʔ*: *oe-ʔ*. Hence, the formation of *oe-ʔ* is derivational at the level of morphology and provides the syntactic level with the right semantic (sub-)type in order to appear in an attributive slot.

- (15) a. *ara nasu [oe (hanas)]_{NP}*
 3PL.NOM boil water hot
 ‘They boiled (*hot*) water.’ [LK2.28]
- b. *ina-ʔ=ra mana lemba [tasi oe-ʔ]_{NP}*
 female-Nʔ=PL REL carry.with.pole sea water-Nʔ
 ‘The women are the ones who carried *seawater*.’ [HL4.7]
- c. *ia [tua oe ma-ʔei-ʔ]_{NP}*
 PROX palm water STAT-sour-Nʔ
 ‘This is *sour palm juice*.’ [Elicited]

The light adjunct noun in (15c) deserves additional commentary. Unlike (15b), the noun *oe* ‘water’ in (15c) differs in its final light syllable. This is because it is followed by another adjunct, *maʔeiʔ* ‘sour’. The surface form *oe* in (15c) is underlyingly *oe-ʔ*, which is identical to the derived form in (15b). That is, it is a property noun, but its final *-ʔ* has been elided to satisfy the requirement of phonological (light-syllable) marking in nouns followed by an adjunct.

Data points in (16)-(17) provide further evidence that the alternation to a light syllable is associated with adjunct marking. The quantifiers *naeʔ* ‘much’ and numeral *rua* ‘two’ in (16) do not trigger such an alternation. The final C of *anin* cannot be elided in (16a) because the following segment is not an adjunct. Likewise, the numeral *rua* does not trigger the C deletion in (16b): the V-final noun *tou* ‘male’ obligatorily appears with a heavy syllable (i.e. final glottal C).

- (16) a. *afis=a anin/*ani naeʔ*
 yesterday wind much
 ‘Yesterday, it was *windy*.’ [YN4.16]
- b. *tou-ʔ/*tou rua kerja sa ʔofaʔ=a*
 male-Nʔ two work LOC.IPFV boat=DEF
 ‘Two men work in the boat.’ [CH1.4]

In addition to final *-ʔ*, there are other nominalising suffixes in Dela whose distribution is lexically determined. Certain nouns, such as ‘food’ in (17), are derived by means of *-t*. Given it is a consonantal suffix, the derivation

unsurprisingly gives rise to a light/heavy syllable alternation that is subject to the constraints discussed so far. Thus, in examples (17b-c), the word-final C nominaliser *-t* (needed by the morphology for lexical derivation) is retained because there is no adjunct following the derived noun. The clitic pluraliser, *=(a)ra*, that follows it does not trigger light syllable marking, as shown in (17c).

- (17) a. *n-aa* b. *na~n-aa-t* c. *na~n-aa-t=ara*
 3SG-eat RDP~3SG-eat-NMLZ RDP~3SG-eat-NMLZ=PL
 ‘She eats’ ‘(different kinds of)food’ ‘the different kinds of food’

As expected, the word's light/heavy final syllable, together with the NP's prosody, disambiguates syntax. For example, it differentiates equative clauses or possessive NPs from attributive phrases (Tamelan 2021:243). As seen in their translation differences, (18a) is an NP showing an internal head-adjunct relation, whereas (18b) is a nominal clause consisting of two NPs. Similarly, (19a) shows an NP with an internal head-adjunct relation while (19b) is a genitive construction.

- (18) a. Attributive relation within a single NP
 na~n-aa *ma-lada-ʔ*
 RDP~3SG-eat STAT-tasty-N?
 ‘tasty food’
- b. Equative clausal relation involving two NPs
 na~n-aa-t *ma-lada-ʔ*
 RDP~3SG-eat-NMLZ STAT-tasty-N?
 ‘The food is tasty.’
- (19) a. Attributive relation
 mbela *deke-ʔ*
 corn seed-N?
 ‘corn seed(s)’ (i.e. corn seeds that are no longer attached to the cob)
- b. Genitive construction
 mbelaʔ *deke=n*
 corn seed=3SG.GEN
 POSSR_{NP} N_{POSSESSOR}
 ‘The seeds of a corn’ (i.e. seeds that are part of a corn plant)

Since a relative clause (RC) is syntactically an adjunct, it also triggers the light syllable alternation in Dela, as seen in (20). The first noun, *kokis*, appears in its original form and by itself as an NP with a heavy final syllable. However, its second occurrence appears with the word-final light syllable, *koki*, because a relative clause adjunct follows it. Note that the RC's final word, *tunu-ʔ*, also has a heavy syllable, but its appearance is derivational and semantically motivated (i.e. light-to-heavy syllable alternation as discussed earlier). That is, the noun *tunu-ʔ* is a property noun as depicted by the free translation, and it is functionally the predicate of the RC.

- (20) [koki_s]_{NP}, [koki]_N [mana tunu-ʔ]_{RC}
 cake cake REL roast-N?
 'Cake, cake [which are baked].' [YNHN1.25]

However, a complication arises when another adjunct exists in an NP string with an RC. Dela deals with this issue by splitting the NP into two prosodic phrases and postposing the RC's heavy unit outside the NP. Consider the pair in (21). The NP (21a) is pronounced as a single prosodic phrase with both the noun head (*tou*) and the first adjunct (*lasi*) appearing with light syllables. This light syllable marking provides support that the two adjuncts belong to the same/single NP. Furthermore, the prosodic property provides empirical support for clear correspondence of units in the phonology-syntax interface (i.e. NP=PhP). In contrast, (21b) consists of two prosodic phrases. A heavy syllable marks the first one at its right edge (*lasi-ʔ*); that is, no deletion of the syllable coda-nominaliser -ʔ occurs. Syntactically, this heavy syllable marks the following RC as a non-adjunct in the same NP unit. The noun head *tou* remains with a word-final light syllable because it is the head noun followed by an adjunct. The retention of the suffix -ʔ in the adjunct *lasi-ʔ* (together with the H*L prosody) marks the absence of the following adjunct and the right boundary of NP. In other words, the RC is not a syntactic adjunct within the NP, and (21b) therefore consists of two NPs, with the RC being a headless appositive RC (captured by the PS rule; see [23c.i]).

- (21) a. [tou]_N [lasi]_N [mana ŋgo~ŋgo-ʔ]_{RC}=a
 male old REL RDP~senile-N? =DEF
 'The senile old man,' [YB9.92E]
- b. [tou lasi-ʔ]_{NP}, [mana seo ʔuʔu]_{RC}=a, ana mate ena
 male old-N? REL sell fish =DEF 3SG.NOM die PFV
 'The old man who sells fish, he has passed away.'

4 LFG analysis

Our LFG analysis consists of three components: (i) lexical entry specification, (ii) phrase structure and prosodic structure rules regulating syntactic (s-) string and prosodic (p-) string respectively, and (iii) the alignment mechanism of s- and p-strings. Each of these components of analysis is discussed in order.

4.1 Lexical entry

Building on previous works in LFG (Dalrymple and Mycock 2011, Mycock and Lowe 2013, Dalrymple, Lowe, and Mycock 2019, Bögel 2015), we include *p(rosodic) form* information relevant in the lexical entry, in addition to the *s(yntactic)-form* information relevant for a syntactic string (c-structure). However, our simplified approach does not strictly follow theirs, and points of difference will be briefly outlined as necessary. For example, the (simplified) lexical entries for *anin* 'wind' and *oe* 'water' are given in (22i-ii), representing the pairing of FORM and MEANING. The form side consists of a string of

segments, which are organised (and labelled) differently.⁸ Its s-form (22.i.a) says that it is a morphosyntactic word, precisely a noun (N) root. This grammatical information is relevant for morphosyntactic string manipulation both within morphology (e.g., word formation) and in the morphology-syntax interface. Its p-form (22.i.a) says that it is also a phonological word (PW), with syllable properties (in this case, two syllables with syllable boundaries indicated by a dot [.]). This information is relevant for p-string manipulation. Both properties are essential in the lexical phonology-morphology interface and the post-lexical prosody-syntax interface when accounting for the word-final C deletion and insertion (or retention) in the head-adjunct nominal structure in Dela.⁹

- (22) (i) FORM: anin oe
 a. s-form: [anin]_{N.ROOT} [oe]_{N.ROOT}
 b. p-form: [a.nin]_{PW} [o.e]_{PW}
- (ii) MEANING (f-info): (↑PRED)= ‘wind’ (↑PRED)= ‘water’
- (iii) s-string: p-string:
- | | |
|--|--|
| $\left[\begin{array}{ll} \text{FM} & [\text{anin}] \\ \text{L} & \{\text{N.ROOT}\} \\ \text{R} & \{\text{N.ROOT}\} \end{array} \right]$ | $\left[\begin{array}{ll} \text{FM} & [[\text{a}]_{\text{L},\sigma} [\text{nin}]_{\text{R},\sigma}] \\ \text{STRESS} & \text{L}\sigma \\ \text{L} & \{\text{PW}, \text{F}\} \\ \text{R} & \{\text{PW}, \text{F}\} \end{array} \right]$ |
|--|--|

The same information can be alternatively represented in an attribute-value matrix (AVM) as in (22.iii). The advantage of an AVM representation is that it explicitly captures the left (L)/right (R) element in the relevant hierarchical s- and p-strings. For example, at the most basic level of the morphosyntactic string

⁸ The segments are phonological in spoken language or graphical in written language. The dot in (22b) indicates the syllable boundary.

⁹ The specification of prosodic information in the lexical entry as seen in (22.i.b) highlights the difference between our approach and the approach adopted by Dalrymple, Lowe and Mycock. In our analysis, the status of PW is not wholly inherited from the p-structure after the word is inserted into it. This is just like the availability of the categorial information of N in s-form and c-structure, which, for example, allows for a proper lexical item’s insertion to c-structure. Thus, relevant PW information (e.g., syllabification or stress) is available at the levels of the lexical entry and p-structure. We assume a hierarchical p-structure as captured by the p-structure rule in (24) (cf. Selkirk 1986). The p-information coming from the lexical entry interacts in a dynamic way with the prosodic information from other PWs in the p-structure, and is also subject to phonology-syntax interface constraints, which is captured by the rules in (25). This will result in the final prosodic (PW/PhP) properties (e.g., whether the PW also carries the phrasal prosodic peak, as in the rule 25.c.ii, and as further discussed in section 4.3). The specification of PW information in the lexical entry is also motivated by the fact that words must have their proper prosodic properties even when they are pronounced in isolation (i.e., without a larger context of p-structure or c-structure).

registered in the lexical entry, the form (FM) *anin* is a N root. Hence, its L and R value is ‘N.Root’. Its corresponding p-string at this basic level is a prosodic word (PW) that is also a foot (F) consisting of two syllables, with the stress falling to its (L) syllable.¹⁰ We demonstrate the significance of this explicit information in sections 4.3-4.4.

4.2 *Phrase structure and prosodic structure rules*

Phrase structure (PS) rules that capture Dela’s internal nominal structure are given in (23). The nominal is analysed as a DP (23a), which can have a quantifier phrase (QP) before or after the NP as in (23b). Crucially, it can have multiple adjunct XPs (where $XP = \{PP|NP|VP\}$) in one of two positions: outside the NP and structurally adjoined to the NP (23c.i) or within the NP and immediately following the head noun (23c.ii). The two adjuncts are called ‘NP-external’ and ‘NP-internal’ adjuncts, respectively. The NP-external adjunct is the position of the appositive RC, as in example (21b).

- (23) a. $DP \rightarrow QP D$
 b. $QP \rightarrow Q, NP$
 c. $NP \rightarrow \left\{ \begin{array}{l} \text{i. NP} \\ \text{ii. N} \end{array} \right. \left. \begin{array}{l} XP^* \\ \downarrow \in (\uparrow ADJUNCT) \\ XP^* \\ \downarrow \in (\uparrow ADJUNCT) \end{array} \right\}$

The important point to note is that the prosodic word-final marking involved in the C-deletion/retention alternation only applies to the NP-internal adjunct relation domain, and is captured in (23c.ii) (cf. [15]). To capture the word-final C deletion/retention involved in NP-adjunct marking at the (morpho)syntax-phonology interface, we also need prosodic phonological rules, given in (24).

Recall in section 3 that the word-final C-deletion alternation applies to the N head in the presence of a following adjunct. It also applies to a non-final adjunct in NPs with multiple adjuncts, which is captured by the notation XP^* in the rule (23c.ii) above. The addition and retention of a word-final consonant nominaliser (e.g. $\text{-}2$ in example 15b) applies to the rightmost adjunct, or the right edge of the NP (23c.ii). This is a complex outcome of a constraint at the morphology-phonology-syntax interface: the suffixation of a stem that results in a property N (i.e. morphology) is structurally required in an attributive position within the NP

¹⁰ Note that we introduce the feature STRESS in our analysis. This information is handled by a TONE feature and a separate SYLLSTRESS, as in Dalrymple et al. (2019). We opt for a simple approach to stress, which is a trochee in Dela. Hence, its value is $L\sigma$ (i.e., a metrical foot consisting of a stressed syllable, L, followed by an unstressed syllable, R).

(i.e. syntax). Crucially, in the phonology-syntax interface, the C-coda/suffix is retained because it is part of the N rightmost adjunct, in which case the light syllable marking does not apply.

The simplified and informal prosodic phonological rules in (24) regulate p-string from the internal structure of a phonological word (PW) to the higher units of a phonological phrase (PhP) and intonational phrase (IntP).¹¹ The notations of IntP⁺ and PW⁺ mean that IntP⁺ and PW⁺ consist of at least one PhP and one PW, respectively.

- (24) a. IntP → PhP⁺
 (RB_TONE=[H*L]_F)
 b. PhP → PW⁺
 c. PW → (σ) [σ_L σ_R]_F (σ)
 (L=H)(R=L)

Crucially in the PhP, the rightmost PW word must carry the PhP's prosodic peak of H*L tone melody (with H* marking the prosodic peak, or nuclear tone). This right boundary tone melody (RB_TONE for short) is informally represented as having the value [H*L]_F in (24a). The notation [H*L]_F refers to the prosodic property of PW and is similar to the one shown in (24c) where its prosodic prominence (i.e., stress) falls on the left syllable of the foot (F), which is also the morphological root (cf. section 2.1). The only difference between (24a) and (24c) is that (24a) specifies that the syllable stress is the most prominent syllable (i.e. the peak) at the level of PhP. This rule captures the empirical point that PhP in Dela is characterised by this salient prosodic melodic feature of the rightmost PW in PhP, and that the syllable carrying H* is also the one associated with the PW's stress.

4.3 *Aligning c-structure and p-structure*

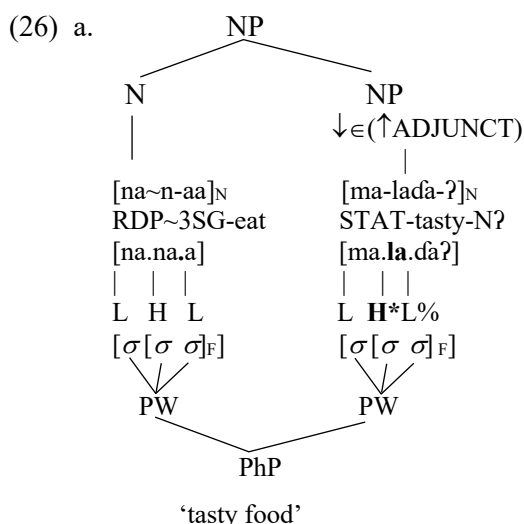
The basic idea of the c-string and p-string alignment in Dela NP-internal adjunct marking is to formulate a mechanism to capture two properties: (i) unit-alignment of NP (syntax) with PhP (prosody), and (ii) prosodic/phonological marking that gives rise to the heavy/light alternations discussed in section 3. These properties can be informally schematised in (25a, b), and are equivalent to Selkirk's Match Theory (Selkirk 2011; Bögel forthcoming). The s-string (25a) is the syntactic adjunct-head domain and applies the associated phonological

¹¹ We do not discuss this complexity and its representation in this paper. Nonetheless, it will suffice to say that a more precise representation will need relevant arrows, and possibly more rules, in line with the ideas discussed by Dalrymple et al. (2019:422). This would ensure that the prosodic melody at the right edge is [H*L]_F, and that the syllable being H* is also the one that is lexically assigned stress.

4.4 Demonstration of the analysis

Now that the relevant properties have been outlined, we are in a position to demonstrate our analysis and account for typologically unusual cases at the (morpho)syntax-phonology interface in Dela. In particular, we consider how the syntactic marking of NP adjuncts accesses lexical phonology via the PW's internal structure. Consideration is given to two types of morphemic material involved in the removal of the consonant coda of word-final syllables: morphemic material (e.g. the nominaliser =?) and non-morphemic segmental material (e.g. *anin* → *ani* 'wind'). We also demonstrate how syntax and post-lexical phonology interact with one another via the PhP's right edge and H*L prosodic contour (25c.ii). We illustrate these facts with reference to the examples in (18a, b) since they provide crucial evidence on how different prosodic properties disambiguate syntax.

The s-string in (18a) is interpreted as an NP with a c- and p-structure analysis represented in (26) below. This example involves a single NP s-constituent whose top NP node corresponds to a single prosodic phrase (PhP). The node of the NP's/PhP's right daughter is occupied by [ma.la.da?]_{N=PW}. Its internal unit is comprised of [F(oot)=Root] and its prosody is characterised by the most prominent L syllable at the PW and PhP levels. Put differently, the R values of the AVMs, as shown in (26b.ii), correspond to s- and p-string units and contain the set {NP, PhP, N, PW, [1][H*L]_F}, which satisfies the constraint in (25c.i). Tag [1] in (26b.ii) means that the same melodic tone value of [H*L] at the foot level also marks RB tone melody for the NP=PhP alignment. Thus, [ma.la.da?]_{N=PW} becomes the rightmost word in the aligned NP=PhP unit. Note that the head N [na.na.a] does not carry the prosodic peak LH*L because it is a PW that is not at the right edge of PhP.



b. AVMs:

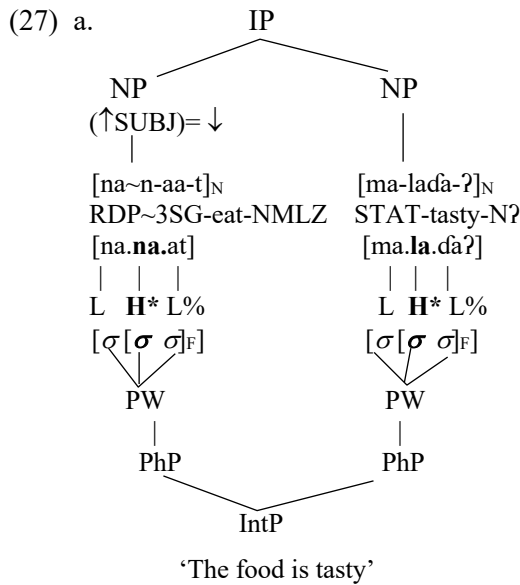
(i)	(ii)
s-string $\left[\begin{array}{l} \text{FM} \\ \text{L} \\ \text{R} \end{array} \quad \begin{array}{l} \textit{nanaa} \\ \{\text{NP}, \text{N}\} \\ \{\text{N}\} \end{array} \right]$	s-string $\left[\begin{array}{l} \text{FM} \\ \text{L} \\ \text{R} \end{array} \quad \begin{array}{l} \textit{malada?} \\ \{\text{N}\} \\ \{\text{IP}, \text{NP}, \text{N}\} \end{array} \right]$
p-string: $\left[\begin{array}{l} \text{FM} \\ \text{STRESS} \\ \text{L} \\ \text{R} \end{array} \quad \begin{array}{l} [\text{na}.\text{[na]}_{\text{L}}.\text{[a]}_{\text{R}}]_{\text{F}} \\ \text{P}_{[\text{na}]_{\text{L}}\sigma} \\ \{\text{PhP}, \text{PW}, \text{F}\} \\ \{\text{PW}, \text{F}, \text{light.syl}\} \end{array} \right]$	p-string: $\left[\begin{array}{l} \text{FM} \\ \text{RB_TONE} \\ \text{STRESS} \\ \text{L} \\ \text{R} \end{array} \quad \begin{array}{l} [\text{ma}][[\text{la}][\text{da?}]_{\text{F}}] \\ [1][\text{H}^*\text{L}]_{\text{F}} \\ \text{P}_{[\text{la}]_{\text{L}}\sigma} \\ \{\text{PhP}, \text{PW}, \text{F}\} \\ \{\text{IntP}, \text{PhP}, \text{PW}, [1][\text{H}^*\text{L}]_{\text{F}}\} \end{array} \right]$

The left daughter's word $[\text{na}.\mathbf{na}.\mathbf{a}]_{\text{N}=\text{PW}}$ contains a light syllable (i.e., no C-coda)¹³ and has the underlying form-meaning representation of *nanaat* 'food' (not V 'eat'). The surface form *nanaa* signals the deletion of a final coda suffix nominaliser (-t) and flags the presence of ADJUNCT in the NP via a heavy-to-light syllable alternation. This satisfies the ADJUNCT constraint stated in (25c.i).

In contrast to (18a), the string in (18b) is parsed as two NPs. This is represented by the c- and p-structures in (27). There are two prosodic features that are critical to note. First, the left word N $[\text{na}.\mathbf{na}.\mathbf{at}]$ 'food' contains a heavy syllable via a C final coda/nominaliser. Consequently, the following N $[\text{ma}.\mathbf{la}.\text{da?}]$ cannot be an adjunct otherwise it would violate the NP Adjunct constraint in Dela (25.c.i). Second, the string contains a melodic H*L in addition to its word-final heavy syllable. This makes it a single PW/PhP that is aligned with NP. The resulting AVM values include R with the value of $\{\text{NP}, \text{PhP}, \text{N}, \text{PW}, \text{F}, \text{H}^*\text{L}\}$ as in (27b.i). Likewise, the right N $[\text{ma}.\mathbf{la}.\text{da?}]$ is a single NP/PhP as seen in the L values of (27b.ii). In short, the top node is a syntactic unit of (sentential) IP and consists of two NPs that correlate with two PhPs.

We have demonstrated how p-structure properties serve as a marker in Dela syntax in the same way as agreement in morphosyntax (e.g. a prefix on the verb marks the presence of SUBJ). Thus, Dela data points captured by (25c) support the idea of a direct connection between p-structure and c-structure, which is consistent with the idea of 'transfer of structure' in Bögel (2015).

¹³ Note that we also adopt an approach where syllables are units of p-string as seen in (26.a). The notation of 'light.syl' in (26b.i) is an informal shorthand of a feature-value pair [SYLL light].



b. AVM:

<p style="text-align: center;">(i)</p> <p>s-string</p> <table style="border: none;"> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">FM</td> <td style="padding: 2px;"><i>nanaat</i></td> </tr> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">L</td> <td style="padding: 2px;">{IP, NP, N}</td> </tr> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">R</td> <td style="padding: 2px;">{NP, N}</td> </tr> </table> <p>p-string:</p> <table style="border: none;"> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">FM</td> <td style="padding: 2px;">[na.[na]_L.σ[at]_R.σ]_F</td> </tr> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">RB_TONE</td> <td style="padding: 2px;">[1][H*L]_F</td> </tr> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">STRESS</td> <td style="padding: 2px;">P_{[na]Lσ}</td> </tr> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">L</td> <td style="padding: 2px;">{IntP, PhP, PW, F}</td> </tr> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">R</td> <td style="padding: 2px;">{PhP, PW, [1][H*L]_F, heavy.syl}</td> </tr> </table>	FM	<i>nanaat</i>	L	{IP, NP, N}	R	{NP, N}	FM	[na.[na] _L .σ[at] _R .σ] _F	RB_TONE	[1][H*L] _F	STRESS	P _{[na]Lσ}	L	{IntP, PhP, PW, F}	R	{PhP, PW, [1][H*L] _F , heavy.syl}	<p style="text-align: center;">(ii)</p> <p>s-string</p> <table style="border: none;"> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">FM</td> <td style="padding: 2px;"><i>maladāʔ</i></td> </tr> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">L</td> <td style="padding: 2px;">{N}</td> </tr> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">R</td> <td style="padding: 2px;">{IP, NP, N}</td> </tr> </table> <p>p-string:</p> <table style="border: none;"> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">FM</td> <td style="padding: 2px;">[ma][[la][dāʔ]_F]</td> </tr> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">RB_TONE</td> <td style="padding: 2px;">[1][H*L]_F</td> </tr> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">STRESS</td> <td style="padding: 2px;">P_{[la]Lσ}</td> </tr> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">L</td> <td style="padding: 2px;">{PhP, PW, F}</td> </tr> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 2px;">R</td> <td style="padding: 2px;">{IntP, PhP, PW, [1][H*L]_F}</td> </tr> </table>	FM	<i>maladāʔ</i>	L	{N}	R	{IP, NP, N}	FM	[ma][[la][dāʔ] _F]	RB_TONE	[1][H*L] _F	STRESS	P _{[la]Lσ}	L	{PhP, PW, F}	R	{IntP, PhP, PW, [1][H*L] _F }
FM	<i>nanaat</i>																																
L	{IP, NP, N}																																
R	{NP, N}																																
FM	[na.[na] _L .σ[at] _R .σ] _F																																
RB_TONE	[1][H*L] _F																																
STRESS	P _{[na]Lσ}																																
L	{IntP, PhP, PW, F}																																
R	{PhP, PW, [1][H*L] _F , heavy.syl}																																
FM	<i>maladāʔ</i>																																
L	{N}																																
R	{IP, NP, N}																																
FM	[ma][[la][dāʔ] _F]																																
RB_TONE	[1][H*L] _F																																
STRESS	P _{[la]Lσ}																																
L	{PhP, PW, F}																																
R	{IntP, PhP, PW, [1][H*L] _F }																																

5 Similar patterns from neighbouring languages

Phrase-medial and phrase-final alternations in NPs are a feature of both Austronesian and non-Austronesian languages in the Timor region (Culhane 2018:82; Tamelan 2021:241–246). However, the alternation is not a unitary phenomenon as it is marked differently across languages. Parallel forms and functions to Dela nominal alternations are found in a number of languages in the region. Some languages, including Amarasi (Edwards 2020), Helong (Balle 2017), Leti (van Engelenhoven 2004) and Mambae (Grimes et al. 2014) mark the nominal alternation by metathesis. Examples are given from Amarasi in (28). These examples show that non-final nominals in NPs undergo metathesis (open syllable → closed syllable, e.g. *afu* → *auf*), whereas final

nominals do not. This distribution of unmetathesised and metathesised nouns is similar to that of consonant-final and vowel-final alternation in Dela.

(28) Attributive nominal phrases in Amarasi (Edwards 2020:272)

Noun (citation)	Modifier	NP	Gloss
<u>afu</u> ‘earth’	<i>meʔe</i> ‘read’	→ <u>af</u> <i>meʔe</i>	‘red earth’
<u>fatu</u> ‘stone’	<i>mutiʔ</i> ‘white’	→ <u>fa</u> <i>utiʔ</i>	‘white stone’
<u>bare</u> ‘place’	<i>koʔu</i> ‘big’	→ <u>ba</u> <i>er koʔu</i>	‘big place’
<u>kase</u> ‘foreigner’	<i>mutiʔ</i> ‘white’	→ <u>ka</u> <i>es mutiʔ</i>	‘European’
<u>rasi</u> ‘matter’	<i>reʔuf</i> ‘bad’	→ <u>ra</u> <i>is reʔuf</i>	‘evil matter’

Other languages, such as Amfo'an (Culhane 2018), Buru (Grimes 1991), Central Lembata (Fricke 2019) and Sawila (Kratochvíl 2014), mark nominal phrase-medial and phrase-final alternations by vowel and consonant final forms, respectively (i.e. phrase-medial=vowel, phrase-final=consonant), and are similar to the nominal alternation in Dela. Some examples from Amfo'an and Buru are given in (29) and (30). In these examples, the nouns with consonant and vowel alternation are underlined. Examples in (29) show that the consonant-final forms undergo consonant deletion before an attributive modifier. All nominals in Amfo'an have vowel-final and consonant-final forms.

(29) Consonant-final nominals in Amfo'an NPs (Culhane 2018:35)

Citation form	+	Modifier	Phrase	Gloss
<u>sisi</u> <i>ɟ</i> ‘meat’		<i>metoʔ</i> ‘dried’	→ <u>sisi</u> <i> metoʔ</i>	‘dried meat’
<u>asu</u> <i>g</i> ‘dog’		<i>anaʔ</i> ‘small’	→ <u>asu</u> <i> anaʔ</i>	‘small dog’
<u>kasel</u> ‘foreigner’		<i>mutiʔ</i> ‘white’	→ <u>kase</u> <i> mutiʔ</i>	‘white person’
<u>muʔi</u> <i>t</i> ‘animal’		<i>fuiɟ</i> ‘wild’	→ <u>muʔi</u> <i> fuiɟ</i>	‘wild animal’
<u>kua</u> <i>n</i> ‘village’		<i>tuaf</i> ‘person’	→ <u>kua</u> <i> tuaf</i>	‘village person’

Similarly in Buru, nouns can have consonant-final and vowel-final alternation through truncation of the head noun roots before attributive modifiers.

(30) Truncation of roots (Grimes 1991)

Noun	Modifier	NP	Gloss
<u>huma</u> ‘house’	<i>fatu</i> ‘stone’	→ <u>hum</u> <i> fatu</i>	‘stone house’
<u>huma</u> ‘house’	<i>hawa</i> ‘garden’	→ <u>hum</u> <i> hawa</i>	‘garden house’
<u>geba</u> ‘person’	<i>fehu-t</i> ‘young’	→ <u>geb</u> <i> fehut</i>	‘young person’

Comparatively, nominal alternation is marked differently across the languages in the region, however they all mark a head-adjunct relation. A summary of the different marking is presented in (31). For languages that have V-final and C-final alternation, such as Dela, Amfo'an and Buru, V-final nouns usually

mark NP-internal adjunct relations, and C-final nouns mark NP-external adjunct relations. On the other hand, languages like Amarasi that have metathesised and unmetathesised alternations usually mark NP-internal adjunct relations via metathesised nouns, and NP-external adjunct relations via unmetathesised nouns.

(31) Summary of nominal alternation in some languages of Timor

Language	Adjunct marking (word-final syllable)
Dela, Amfo'an and Buru	(a) light, no coda NP-internal
	(b) Heavy syll, NP-external adjunct related
Amarasi	Metathesis: CV->VC, heavy syll

A detailed LFG analysis for the patterns in (31) is beyond the scope of the present paper. However, we believe that our proposed Dela analysis can be straightforwardly extended to cases in Amfo'an and Buru. The analysis for Amarasi would be slightly more complex as it requires a non-segmental mechanism to deal with metathesis in the morphosyntax-phonology interface.

6 Conclusion

In this paper, we have described a syntax-prosody interface phenomenon as seen in the NP head-adjunct structure in Dela. We have argued for two key empirical points to account for its prosodically marked NP head-adjunct relation: 1) word-final syllable alternation (light vs. heavy) encodes the presence/absence of an adjunct close to the NP head; 2) unit alignment of NP and Phonological Phrase (PhP) with the prosodic peak at the right edge the NP/PhP is marked by H*L.

Our study contributes to the theoretical and typological research on the nature and function of prosody in grammar. We have demonstrated that LFG's modular model nicely captures the syntax-prosody phenomenon in Dela. LFG's modular architecture provides a natural framework to account for the lexical and post-lexical phenomena exhibited by the alternation of word-final C deletion/insertion in the NP's head-adjunct relation.

We proposed two conditional 'if-then' phonology-morphosyntactic interface rules in LFG, making use of left (L)/right (R) edge features to account for the prosodic head-adjunct marking in Dela. We have demonstrated how the proposed LFG analysis can capture intricacies of phonology-morphosyntax in Dela, in particular the role of prosody for correctly parsing and disambiguating the syntax of (almost) identical s-strings.

Similar phenomena exploiting phonological resources to mark NP adjuncts (e.g. final C-deletion/insertion and metathesis) were also encountered in other languages in the eastern Indonesian region. We believe our analysis can be

straightforwardly extended to these languages. Further research is needed to answer the following questions: 1) why are phonological resources only exploited between nominal units of an NP?; 2) what is special about an adjunct relation in contrast to other elements such as Q(uantifier) and D(eterminer) within the nominal?; 3) how common is this cross-linguistically? Since the phenomenon in Dela reveals that prosodic marking, such as word-final C-deletion, involves relational units closer to the head, we expect that much can be gained from further investigation into the mechanism and resources exploited in aligning lower equivalent units across domains in the hierarchical structure of phonology (prosodic word, prosodic phrase) and morphosyntax (morphological word and syntactic phrase).

7 References

- Balle, Misriani. 2017. *Types of reduplication in Helong, an Austronesian language in eastern Indonesia*. Master's thesis, Payap University
- Bögel, Tina. 2015. *The syntax-prosody interface in Lexical Functional Grammar*. PhD thesis, University of Konstanz.
- Bögel, Tina forthcoming. "Prosody and its interfaces." In Mary Dalrymple (ed.), *The Handbook of Lexical Functional Grammar (Empirically Oriented Theoretical Morphology and Syntax)*, Berlin: Language Science Press.
- Butt, Miriam and King, Tracy H. 1998. Interfacing Phonology with LFG. In Miriam Butt and Tracy H. King (eds.), *Proceedings of the LFG' 98 Conference*, Stanford: CSLI publications. <http://csli-publications.stanford.edu/LFG/3/butt-king/butt-king.html>.
- Culhane, Kirsten. 2018. *Consonant insertions: A synchronic and diachronic account of Amfo'an*. Honours thesis, Australian National University. <http://hdl.handle.net/1885/160794>.
- Dalrymple, Mary, Lowe, John J. and Mycock, Louise. 2019. *The Oxford Reference Guide to Lexical Functional Grammar*. Oxford: Oxford University Press.
- Dalrymple, Mary and Mycock, Louise. 2011. The Prosody-Semantics Interface. In Miriam Butt and Tracy H. King (eds.), *Proceedings of the LFG' 11 Conference*, pages 173–193, Stanford: CSLI Publications.
- Edwards, Owen. 2020. Metathesis and unmetathesis in Amarasi. *Studies in Diversity Linguistics* 29. Berlin: Language Science Press. <https://langsci-press.org/catalog/book/228>.
- van Engelenhoven, Aone. 2004. *Leti, a language of southwest Maluku*. Leiden: KITLV press.

- Fricke, Hanna L.A. 2019. *Traces of language contact: The Flores-Lembata languages in eastern Indonesia*. Ph. D.thesis, University of Leiden. <http://hdl.handle.net/1887/80399>.
- Grimes, Charles E. 1991. *The Buru language of eastern Indonesia*. PhD thesis,, The Australian National University. <http://hdl.handle.net/1885/10925>.
- Grimes, Charles E., Marçal, Carlos and Ferreira, Paolino. 2014. *Introductory dictionary of Mambae (Same): Mambae—English, English—Mambae, Mambae—Indonesia— Tetun Dili, Indonesia—Mambae, Tetun Dili—Mambae*. Darwin: Australian Society for Indigenous Languages.
- Kratochvíl, František. 2014. Sawila. In Antoinette Schapper (ed.), *The Papuan languages of Timor, Alor and Pantar Vol. 1*, pages 351–438. Berlin: De Gruyter Mouton.
- Mycock, Louise and Lowe, John J. 2013. The prosodic marking of discourse functions. In Miriam Butt and Tracy H. King (eds.), *Proceedings of the LFG' 13 Conference*, pages 440–460, Stanford: CSLI Publications. <http://csli-publications.stanford.edu/>.
- Selkirk, Elisabeth O. 1986. On derived domains in sentence phonology. *Phonology Yearbook* 3, pages 371–405. DOI: 10.1017/s0952675700000695.
- Selkirk, Elisabeth O. 2011. The syntax-phonology interface. In John A. Goldsmith, Jason Riggle and Alan C. L. Yu (eds.), *The handbook of phonological theory*, pages 435–484, Malden, MA: Blackwell. DOI: 10.1002/9781444343069.ch14.
- Tamelan, Thersia M. 2021. *A grammar of Dela: an Austronesian language of Rote, eastern Indonesia*. PhD thesis, The Australian National University. <http://hdl.handle.net/1885/250953>.