

Prosodic Displacement in Mandar

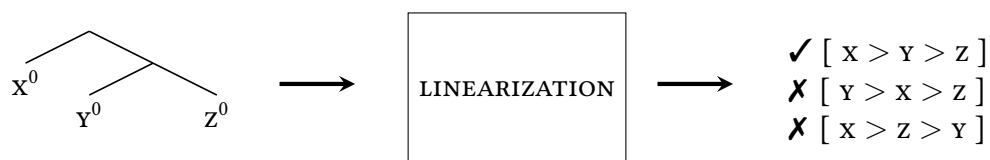
Dan Brodkin; Linguistics at Santa Cruz; March 12, 2022

A longstanding question in generative theory: what are the systems responsible for determining the linear order of syntactic constituents in a phonological string?

One answer: *Direct Linearization*.

Kayne 1994, Fox & Pesetsky 2005

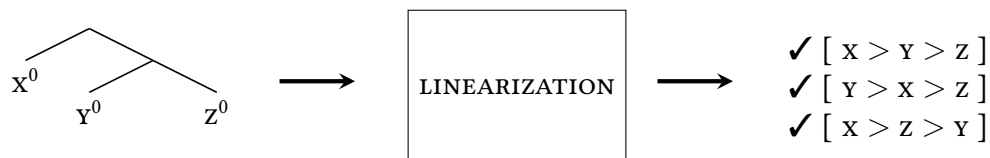
- The syntax encodes relationships of dominance between syntactic objects (c-command).
- As syntactic objects are converted into phonological strings, relationships of dominance (x c-commands y) are strictly converted into relationships of precedence (x precedes y).
- The linear order of constituents directly reflects their arrangement in the syntax.



An alternative: *Indirect Linearization*.

Berwick & Chomsky 2011

- Linearization *typically* translates relationships of dominance to those of precedence,
- ...but it can be altered by operations that sit outside of the syntax proper:
 1. Morphological requirements Embick & Noyer 2001
 2. Constraints on syllable structure Hargus & Tuttle 1997
 3. Constraints on prosodic organization Bennett, Elfner, & McCloskey 2016
- The linear order of constituents does **not** always reflect their arrangement in the syntax.



The Debate is both empirical and theoretical:

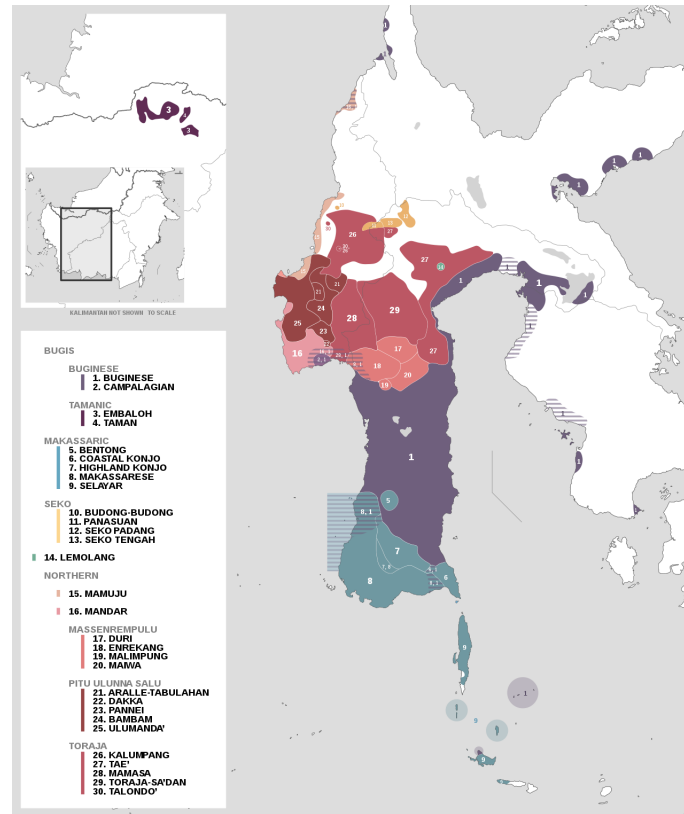
- *Direct Linearization* is a “simpler” theory, because it restricts the manipulation of order to a single component of the grammar and forces it to operate in a single set of terms.
- But there are many cases in which *Indirect Linearization* seems to have the empirical edge...
- And these raise questions about the seemingly non-syntactic reorderings that we observe: where do they arise, what do they target, how are they constrained, and why do they occur?

Today’s talk will investigate one such process in Mandar (Austronesian) and argue that:

- There is phonological displacement that targets the edge of the intonational phrase, and
- It is driven by *prosodic constraints on the distribution of phonologically minimal constituents*.

Background: Mandar

Mandar is an Austronesian language that is spoken on the Indonesian island of Sulawesi (16).



From a syntactic perspective, it has many of the properties that are typical to the region:

- Verb-initial word order
- Ergative-absolutive alignment

An example sentence:

- (1) Ka'bal=i di'o tomauweng o.
 invincible=3ABS that grey.one there
 "That old dude is invincible."

Sikki et al. 1987; 541

This talk will focus on the structure of the Mandar noun phrase (NP).

The data come from three sources:

1. Field notes from Sulawesi January-July 2019
2. Elicitation with three speakers, Jupri Talib, Anchu Mansur, and Nabila Haruna. 2018-
3. Descriptive literature on the language; compiled into a searchable corpus. www.kratylos.org

Demonstratives and Reinforcers

We will be looking at a *demonstrative-reinforcer construction*. Bernstein 1997, Roehrs 2010
 In many languages, there are locative adverbs that typically occur in the verb phrase (VP)...
 ...but surface inside of the noun phrase (NP) in the presence of a demonstrative (like “this, that”).

- (2) a. She [_{VP} stood **here**].
 b. [_{NP} This book **here**].

Mandar has two of these “demonstrative-reinforcer pairs.”

1. **di'e** ... **e**
 this ... here
2. **di'o** ... **o**
 that ... there

They recruit locative adverbs that can surface in the VP:

- (3) [_{VP} Buaia' mating **e**]!
 open.up! for.me here
 “Open up for me here!”

Pelenkahu et al. 1983; 9

And they typically bracket the associated NP.

- (4) Apa sangan-na [_{NP} **di'e** kapping **e**]?
 what name-of this village here
 ‘What’s the name of this village here?’

Friberg & Jerniati 2000; 207[↓]

In the presence of these demonstratives, the reinforcers are obligatory.

- (5) a. ***Di'e** buku
 This book
 “This book.”
- b. ***Di'o** buku
 that book
 “That book.”

JT: 11.3, 27

JT: 11.3, 28

And this requirement is specific to *di'e/di'o*, not general to all demonstratives in the language.

- (6) **Iting** buku.
 That book
 “That book.”

JT: 11.3, 29

NP-Internal Selection

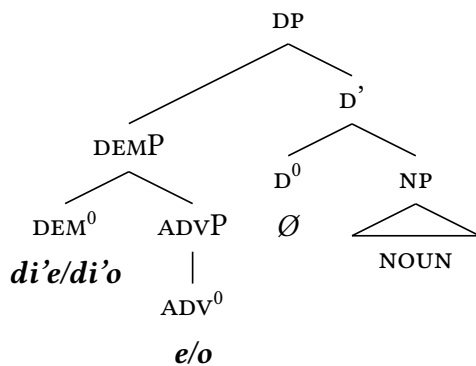
There is a tight syntactic relationship between *di'e/di'o* and *e/o*.

Proposal: *lexical selection*

cf. **rely + on**; Merchant 2019

- The demonstrative is a specifier in the NP. Brugè 2002, a.o.
- The demonstrative selects the reinforcer. Roehrs 2010, a.o.

(7) *Demonstratives select Reinforcers*



The Results:

1. OBLIGATORINESS: *e/o* are required in the presence of *di'e/di'o*. (*on* is required with “rely.”)
2. IDIOSYNCRACY: this isn't a general requirement of all DEMS. (not all verbs require *on*.)

A Puzzle: Separation

This analysis is clean in cases where the reinforcer directly follows the demonstrative and NP.

But very often, it does not:

- (8) Mappesta=i toAmerika **di'o** allo mappake baraccung **o**.
 celebrate=3ABS Americans that day shooting fireworks there
 “Americans celebrate on that day by shooting fireworks.” JT: 9.13, 19[↓]

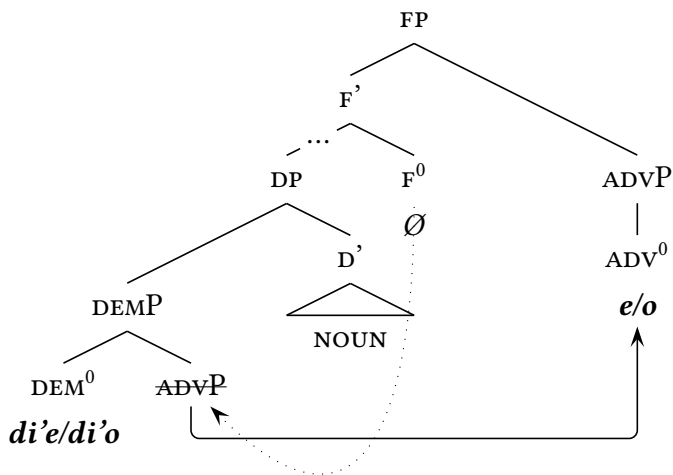
Generalization: “the REINFORCER invariably surfaces at the right edge of some constituent.”
 ...no matter the position of the DEM-NP sequence.

Puzzle: how can we capture the *dependency* between *di'e/di'o* and *e/o* **and** the position of *e/o*?

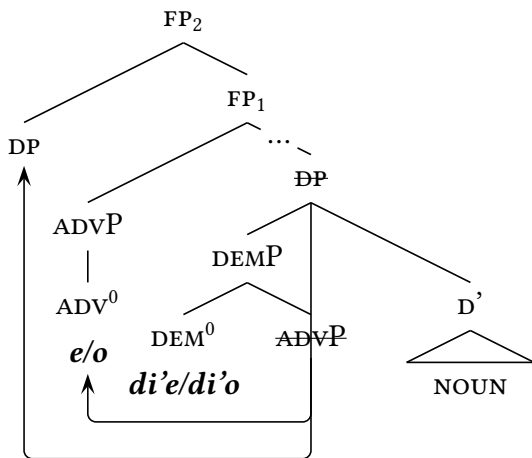
A Syntactic Account?

There are a number of ways that we could try to capture this pattern in the syntax:

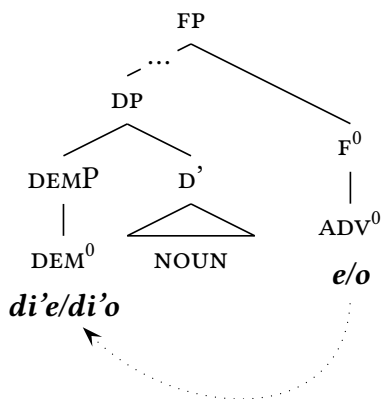
1. RIGHTWARD MOVEMENT of *e/o*:



2. LEFTWARD MOVEMENT of everything else:



3. BASE-GENERATION of *e/o* at the right edge:



Two Puzzles

Syntactic accounts face a challenge: *e/o* are not positioned in a consistent syntactic domain.

1. They appear at the right edges of matrix and embedded clauses,

(9) [_{CP} Mau tandem=i **di'e** paket dionging **e**], ndappai u-buai.
 though arrived=3ABS this package yesterday here haven't 1ERG-open
 'Though this package came yesterday, I haven't opened it yet.' JT; 11.12; 29. ↓

2. The right edge of a clause-initial topic:

(10) [_{DP} **Di'o** wattu **o**], namamba=i sumobal.
 that time there will.go=3ABS sail
 'At that time, he was going to sail.' Pelenkahu et al. 1983; 2 ↓

3. The right edge of a fragment answer:

(11) [_{DP} **Di'o** kopi **o**].
 that coffee there
 'That coffee.' Heard in a coffee shop ↓

To capture these facts, a syntactic account would have to say:

- That *e/o* are positioned or generated within two distinct syntactic domains, CP and DP,
- ...and that they can remain within the DP under some circumstances (??) but not others (??).

And it would struggle with a second fact: changes in prosodic phrasing influence their position.

- Parenthetical clauses: change phonological organization of the utterance:

{_ι Mary heard the most unbelievable proposal } .
 {_ι Mary heard }, {_ι when she came to Santa Cruz }, {_ι the most unbelievable proposal}.

- And inserting these forces a change in the linear position of *e/o*.

(12) {_ι Mappesta=i toAmerika **di'o** allo mappake baraccung **o** } .
 celebrate=3ABS Americans that day shooting fireworks there
 "Americans celebrate on that day by shooting fireworks." JT: 9.13, 19 ↓

(13) {_ι Mappesta=i **di'o** allo **o** } , {_ι 4 Juli } , {_ι mappake baraccung } .
 celebrate=3ABS that day there July 4th shooting fireworks
 "{_ι They celebrate on that day } , {_ι July 4th } , {_ι by shooting fireworks } " JT: 9.13, 22 ↓

Prosodic Organization

The key to understanding the position of *e/o* lies in the prosodic organization of syntactic strings.

Phonological strings have their own constituent structure: Selkirk 1984; Nespor & Vogel 1986.

The relevant unit for us: the *intonational phrase*

(14) {_ι this is the cat } {_ι that caught the rat } {_ι that ate the cheese } Chomsky & Halle 1968

This unit has a consistent phonological correlate in Mandar: final lengthening.

(15) {_ι Ma'balu'i diong di=maje'ne' muane-na }.
 sell=3ABS down in=PLACE husband-her
 'Her husband sells wares down in Maje'ne'.

NH: 6.10; 25



ma'	ba	lu'	i	di	on	di	ma	je'	ne'	mwa	ne	na
ma'balu'i				diong		di maje'ne'			muanena			
sells				down		in Maje'ne'			her husband			
Her husband sells wares down in Majene.												

The reinforcers **invariably** surface at the right edge of a domain that contains this lengthening.

- In matrix clauses (??), embedded clauses (??), topic positions (??), and in fragments (??).

Updated Generalization: “the REINFORCERS invariably surface at the right edge of the *ι*P.”

Phonological Movement

Proposal: *e/o* are positioned at the right edge of the intonational phrase.

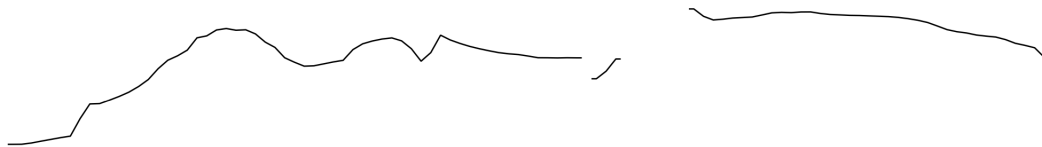
(16) **Reinforcer Postposing:** { ι ... (ϕ [ω DEM] — [ω NP]) ... ADV } \downarrow

This process serves to align them with the final lengthening at the right edge of the ι .

(17) { da=mu-ande iting o }.
 don't!=eat that there
 'Don't eat that!'

NH: 6.10; 30

(18) *Pitch Track:* *e/o* host lengthening



da	mu	an	de	i	tij	o
da muande				iting		o
don't eat				that		there
don't eat that!						

This step must occur in a component of the grammar where prosodic information is available.

- Standard assumption: this is *not* available in the syntax. Zwicky & Pullum 1986

Result: this is a case of *post-syntactic movement*.

- It joins the broader literature on parallel cases of post-syntactic reordering (Halpern 1995, Embick & Noyer 2001, Chung 2003, Harizanov 2011, Bennett, Elfner, & McCloskey 2016),

Surface Optimization?

We can state the requirement for this process through *prosodic subcategorization*: Inkelas 1990

- Lexical items are specified for how they interact with prosodic structure.

- (19) a. $\sqrt{\text{NUH-UH}} \rightarrow \{\iota \text{ ____}\}^{\text{HLH}}$
 b. “The lexical item *nuh-uh* has to be an ι that bears the contour Rise-Fall-Rise.”

- Formal statement: *e/o* are lexically specified to be at the right edge of the ι :

- (20) a. $\sqrt{\text{E}} \rightarrow \{\iota \text{ \dots ____}\}$
 b. $\sqrt{\text{O}} \rightarrow \{\iota \text{ \dots ____}\}$

But there is reason to believe that Reinforcer Postposing is deeper than a lexical requirement:

- It resolves a phonological problem that would arise if the reinforcers stayed in-situ,
- And it does so in a way that is consistent with the broader phonology of the language.

Word-Minimality

The starting point for this argument lies in *word minimality* McCarthy & Prince 1993

- In many languages, there is a size constraint that holds over the phonological word (ω).
- English: words must be *bimoraic* (cvc, cvv, *cv). *fit, bit, fee, bee, *fi, *bi*

Mandar: the ω must be disyllabic.

- Like English, Mandar typically requires P^0 s to form a single ω with following nouns.
 – Evidence: no stress or ω -accent on P^0 . $[\omega (' \sigma \sigma)]^H$
- **Key Pattern:** P^0 s are monosyllabic when phrased with N^0 (??) but disyllabic alone (??).

- (21) a. $[\omega \text{ Sun}] = \text{di} = (\text{'bo.yang})^H$
 out=of=house
 ‘Out of the house.’
 b. Pole=mi $[\omega \text{ ('su.'ung)}]$.
 come=PFV.3ABS out
 ‘He came out.’
 JT: 8.15, 28-29

- (22) a. They did it $[\omega \text{ fr/?? for}]$ Mary.
 b. Who’d you do it $[\omega \text{ ??fr/for}]$?

Minimality Resolution

There is a type of phrasal stress that can fall at the right edge of the ι , (as in English), ...and it triggers a shift in ω -level stress: from penultimate to **final**.

- (23) $\{_{\iota}$ Melo=a' $[_{\omega}$ macco('wa)] $\}$
 want=1ABS try
 'I want to TRY.'

This pattern of stress allows for words to be exceptionally **monosyllabic**:

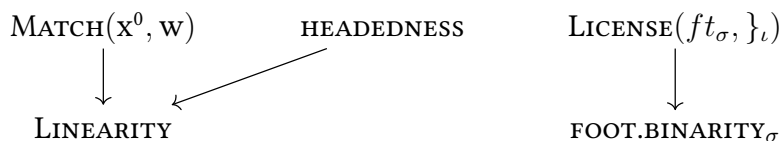
- (24) $\{_{\iota}$ $[_{\omega}$ (**Sung**)!] $\}$
 out
 'Out!'

Claim: the possibility for ω_{syll} at the edge of the ι follows from constraints on foot structure.

- HEADEDNESS: ω s must contain licit metrical feet. Nespor & Vogel 1986
- FOOT.BINARITY $_{\sigma}$: AOV the metrical foot must be disyllabic. Itô & Mester 1993
- LICENSE($ft_{\sigma}, \}_{\iota}$): ft_{σ} are only possible at the right edge of the ι . Kager 1996

Proposal: ...and e/o are positioned at this edge to satisfy constraints on the shapes of ω s.

- CONSTRAINTS:
 1. MATCH(x^0, ω): assign one violation (AOV) for every $x^0 \rightarrow \omega$ Selkirk 2009
 2. LINEARITY: AOV for every relationship of precedence in the phonology that does not correspond to a relationship of dominance in the syntax. Grimshaw 1999
- RANKING:



- TABLEAU:

$[_{CP} \dots di'e \mathbf{e} buku \dots]$	MATCH	HEAD	ALIGN	FtBIN	LINEARITY
☞ a. $\{_{\iota} \dots [_{\omega} (di'e)] [_{\omega} (buku)] \dots [_{\omega} (\mathbf{e})] \}$				*	*
b. $\{_{\iota} \dots [_{\omega} (di'e)] \mathbf{e} [_{\omega} (buku)] \dots \}$	*! W			L	L
c. $\{_{\iota} \dots [_{\omega} (di'e)] [_{\omega} \mathbf{e}] [_{\omega} (buku)] \dots \}$		*! W		L	L
d. $\{_{\iota} \dots [_{\omega} (di'e)] [_{\omega} (\mathbf{e})] [_{\omega} (buku)] \dots \}$			*! W	*	L

Architectural Conclusions

This analysis explains the range of patterns that we've observed:

- Syntactically, *e/o* surface alongside the demonstratives *di'e/di'o* because they are selected,
- And prosodically, they appear at the right edge of the ι because there they can form ω s.
 1. There's a pressure for syntactic heads to form ω s. Selkirk 2009
 2. These adverbs are too small to form good ω s in-situ, and
 3. The right edge of the ι allows them to host a monosyllabic foot and form licit ω s.

These results provide evidence for the theory of *Indirect Linearization*:

1. The **surface position** of *e/o* must make reference to prosodic structure:
 - Syntactic analyses struggle to characterize the domains in which they occur,
 - ...and they struggle to explain the influence of prosodic phrasing on their placement.
2. And the **motivation for displacement** is connected to ω -level phonology.
 - Phonological information about terminal nodes is not available within the syntax,
 - ...and the syntax has no way to link ω -minimality, footing, and the edge of the ι .

And they provide evidence for a *parallel* and *global* theory of syntactic Spell-Out:

- This analysis requires the linearization of syntactic terminals to be determined in parallel with the resolution of ω -level phonology and the organization of the clause into ι s.
- This type of interaction is ruled out by many theories that assume a cyclic-model of Spell-Out where the word-level phonology of terminal nodes is worked out before the construction of higher-level prosodic constituency. (Embick 2010, a.o.)
- But it follows neatly on theories that allow this to occur. Prince & Smolensky 1993/2004

This conclusion opens up the door to a broader investigation of the interaction between constraints on prosodic parsing and other phenomena that have been traditionally consigned to the syntax and morphology.

- Allomorph selection Mester 1994, Paster 2006
- Affix and Clitic Order Embick & Noyer 2001, Billings & Kaufman 2004
- Clause-level word order Inkelas & Zec 1990; Bennett, Elfner, & McCloskey 2016

Thank you!

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