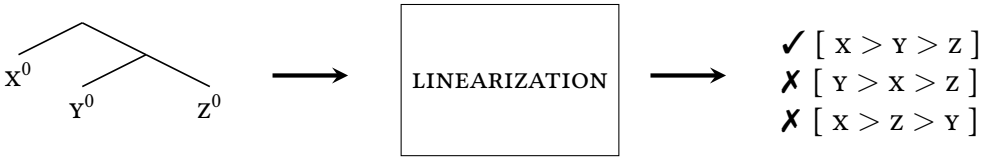
Prosodic Greed in Mandar

Dan Brodkin; TripleAFLA; July 1, 2022

A longstanding question in generative theory:
What is responsible for determining the linear order of syntactic constituents in a string?

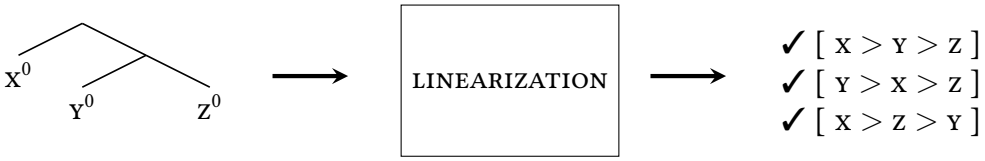
One answer: *Direct Linearization* (Kayne 1994)

- 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).



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.



Much research has argued that *Indirect Linearization* is an analytical necessity:

- Halpern 1995, Embick & Noyer 2001, Kim 2010, Bennett et al. 2016, Potsdam 2021...

But this raises theoretical questions that do not come up in a Direct Linearization world:

1. What type of structure does non-syntactic movement reference?
2. What motivates it?
3. How does it fit into the architecture of the theory of syntax?

Today's talk will investigate a case of post-syntactic displacement in Mandar. I argue that:

1. There is a class of elements that undergo **displacement in the phonology**,
2. They move to a particular position within the **prosodic structure of the clause**, and
3. This movement is driven by **prosodic constraints on phonologically minimal words**.

Mandar: Quick Facts

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

The language shows a surface profile that is typical of South Sulawesi: (Brodkin 2020, 2021…)

- VSO word order (but allows VOS)
- Voice system: AV, PV, LV, CV, PASS
- Agreement: the pivot is indexed with an absolutive enclitic.

This talk will focus on something new in the language: the demonstrative system.

Data come from two sources: descriptive literature and ongoing work (2018-) with Jupri Talib, a young adult from the town of Ugibaru (occasionally supplemented with work with others).

Today's Talk

The phenomenon: a **demonstrative-reinforcer construction** (Bernstein 1997, Roehrs 2010) Mandar has two demonstratives that are invariably followed by locative "reinforcers."

(1) a. **di'e** … **e**
this … here

b. **di'o** … **o**
that … there

The demonstrative and reinforcer typically bracket the associated DP:

(2) Apa sangan-na [$_{DP}$ **di'e** kappung **e**] ?
what name-3GEN this village here
'What's the name of this village here?' Friberg & Jerniati 2000; 207

But under some circumstances, the reinforcer surfaces **quite far away**:

(3) [$_{DP}$ **Di'e** muane-na] ma-kikkir sanna' **e**.
This man-3GEN STAT-miserly very here
'This husband of hers was truly a pinchpenny. Pelenkahu et al. 1983; 172

The Puzzle: How can we capture the dependency **and** the position of the reinforcers?

Roadmap:

1. The Basic Syntax
2. The Prosodic Generalization
3. The Phonological Solution

1: The Basic Syntax

This construction recruits a pair of locative adverbs that typically adjoin to the VP.

(4) a. [$_{VP}$ Buai=a' mating **e**] !
LV.open=1ABS for.me here
"Open up for me here!" Pelenkahu et al. 1983; 9

b. Apa=digena' [$_{VP}$ di-uwa **o**]?
what=just PASS-say there
"What was just said there?" Friberg & Jerniati 2000; 24

The reinforcers are obligatory in the presence of these two demonstratives.

(5) ***Di'e** buku ___.
This book
"This book." JT: 11.3, 27

The reinforcers are only obligatory with certain demonstratives.

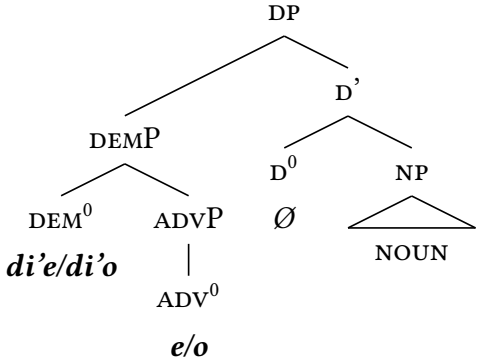
(6) **Iting** buku.
That book
"That book." JT: 11.3, 29

The reinforcers have to "match" the demonstratives that appear.

(7) ***Di'e** buku o.
This book there
"This book." JT: 11.3, 31

Proposal: this syntactic dependency involves Lexical Selection (Merchant 2019)
- The demonstrative originates in a specifier position in the DP (Brugè 2002)
- The demonstrative selects the reinforcer (Roehrs 2010)
- DP-Internal Word Order: linked to DP-internal movement (Paul & Potsdam 2022)

(8) *Demonstratives select Reinforcers*



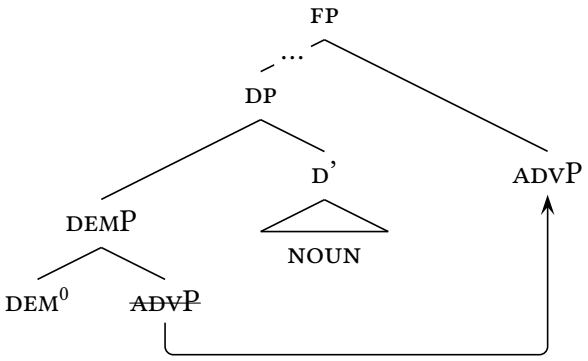
1.5: Dealing with Separation

Puzzle: the reinforcer invariably appears at the right edge of the clause.

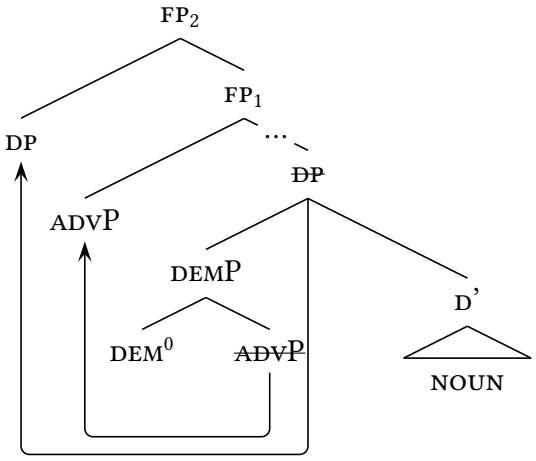
(9) Map-pesta=i toAmerika [$_{DP}$ **di'o** allo] map-pake baraccung **o**.
AV-celebrate=3ABS Americans that day AV-shoot fireworks there
"Americans celebrate on that day by shooting fireworks." JT: 9.13, 19

Within the syntax, we could try to capture this pattern in a number of ways:

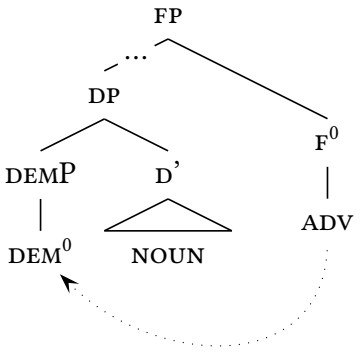
1. RIGHTWARD MOVEMENT of the reinforcers:



2. LEFTWARD MOVEMENT of everything else:



3. BASE-GENERATION of the reinforcers at the right edge:



1.5: Dealing with Separation

Syntactic accounts face two empirical challenges.

Problem One: the domains that host the reinforcers are syntactically heterogeneous.

- They include matrix and embedded clauses, both finite and non-finite:

  (10) [$_{CP}$ Mau tanda=i **di'e** paket **e**], ndappa=i u-buai.
  though arrived=3ABS this package here not.yet=3ABS PV.1ERG-open
  'Though this package came, I haven't opened it yet.' JT; 11.12; 29.

- Clause-initial topics (but not foci):

  (11) [$_{DP}$ **Di'o** wattu **o**], na=mamba=i s-um-obal.
  that time there FUT=AV.go=3ABS AV-sail
  'At that time, he was going to sail.' Pelenkahu et al. 1983; 2

- And fragment answers.

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

Problem Two: when demonstratives compete, the winner is chosen without reference to height.

- When clauses contain **two** demonstratives, only the **rightmost** is matched.

  (13) Na-alli=i [$_{DP}$ **di'e** tau] [$_{DP}$ **di'o** buku] **o** .
  PV.3ERG-buy=3ABS this person that book there
  'This person bought that book.' JT; 3.5, 154

- … even when the rightmost DP is obviously lower in the syntax.

  (14) Bemme=i [$_{DP}$ **di'o** tau] [$_{PP}$ non **di'e** passauang] **e** !
  fall=3ABS that person down this well here
  'That person fell down this well!' JT; 3.5, 169

Result: the correct analysis…

1. Cannot take the reinforcers to sit in a consistent position (e.g., C^0),
2. Cannot take their associates to move to a consistent position (e.g,. SPEC,TP),
3. And cannot treat the reinforcers as a type of (Locality-Sensitive) Agreement (e.g., in C^0).

2: The Prosodic Generalization

The key to understanding the distribution of the reinforcers lies in **prosodic organization**.

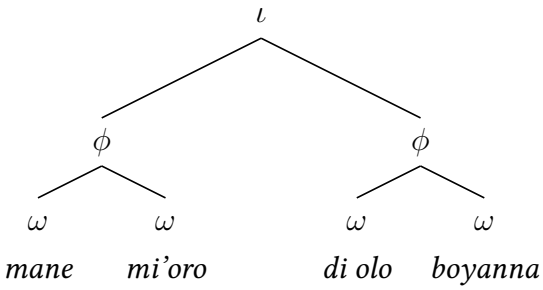
Phonological strings have their own constituent structure (Selkirk 1984; Nespor & Vogel 1986)

1. Grounded in, but distinct from, syntax (Nespor & Vogel 1986, Selkirk & Elordieta 2011)
2. Made up of prosodic categories with distinct phonological properties (tones, lengthening…)
3. Assumed inventory: word, phrase, intonational phrase (ω, ϕ, ι) (Itô & Mester 2009)

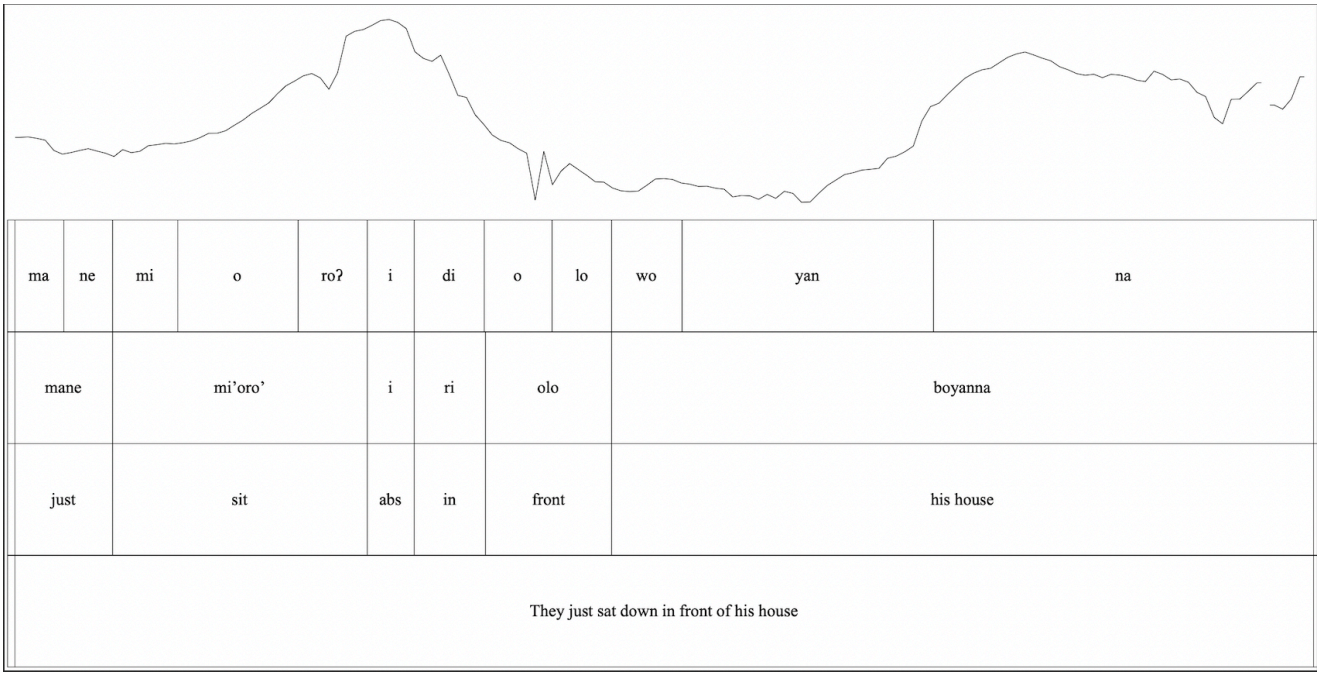
Illustration: Prosodic Organization

(15) Mane mi'-oro=i di olo boyan-na.
just AV-sit=3ABS in front house-3GEN
'They just sat in front of his house.'
JT: 6.30, 1

(16) *Prosodic Structure*



(17) *Pitch Track: Example (15)*



2.5: The Prosodic Generalization

The crucial unit here: the **intonational phrase**.

- The largest constituent in the prosodic hierarchy.
- Prosodic Diagnostic: final lengthening at the right edge.

Prosodic Generalization: the reinforcers always surface at the right edge of an ιP.

(18) **Reinforcer Placement**: $\{_{\iota}$ … $(_{\phi}$ $[_{\omega}$ DEM $]$ __ $[_{\omega}$ DP $]$ $)$ … $\boxed{\text{ADV}}\}$

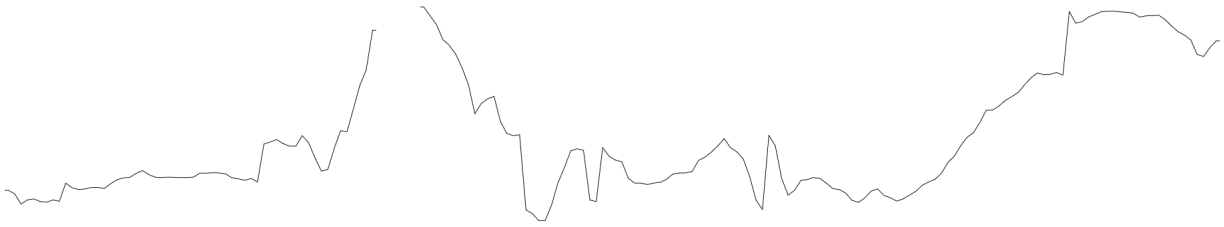
This captures their surface distribution:

- Fragments $\rightarrow \iota$
- Clause-initial topics $\rightarrow \iota$
- Matrix clauses, preposed embedded clauses $\rightarrow \iota$

Illustration: the reinforcers surface in positions where they receive final lengthening.

(19) Mane u-saka=i di'o manu' di boyang o.
Just PV.1ERG-catch=3ABS that bird in house there
'I just caught that bird in the house.' JT: 6.30, 2

(20) $\{_{\iota}$ $(_{\phi}$ Mane usakai) $(_{\phi}$ di'o manu') $(_{\phi}$ di boyang) $\boxed{\text{o}}\}$



	ma	ne	u	sa	ka	i	ri?	o	ma	nu?	ri	wo	ya	ŋo
	mane		usaka			i	di'o		manu'		di	boyang		o
	just		PV.1.catch			abs	that		bird		in	house		there
	'I just caught that bird in the house.'													

3: The Phonological Account

Proposal: the reinforcers are positioned at the right edge of the intonational phrase.

(21) **Reinforcer Postposing**: $\{_{\iota} \ \ldots \ (_{\phi} \ [_{\omega} \ \textsc{dem} \ ] \ \_\_ \ [_{\omega} \ \textsc{dp} \ ] \ ) \ \ldots \ \textsc{adv} \}$

This step must occur in a component of the grammar where prosodic information is available. This information is *not* available in the syntax, on standard assumptions (Zwicky & Pullum 1986)

Result: this is a case of post-syntactic displacement that occurs in the phonology.

The Next Question: why does it occur?

Starting Formalization: Prosodic Subcategorization (Inkelas 1990)

- Lexical items can be prespecified for the way in which they interact with prosodic structure.

(22) a. $\sqrt{\textsc{nuh-uh}} \rightarrow \{_{\iota} \ \_\_\_ \ \}^{\textsc{hlh}}$
b. "The lexical item *nuh-uh* has to be an ι that bears the contour Rise-Fall-Rise."

- Formalism: the reinforcers are lexically specified to surface at the right edge of the ι:

(23) a. $\sqrt{\textsc{here}} \rightarrow \{_{\iota} \ \ldots \ \_\_\_\}$
b. $\sqrt{\textsc{there}} \rightarrow \{_{\iota} \ \ldots \ \_\_\_\}$

Schematic Analysis: Optimality-Theoretic Formalization (Prince & Smolensky 1993/2004)

- Constraint Set:
  1. SubCat: assign one violation (aov) for every input x^0 that does not satisfy its prosodic subcategorization frame in surface prosodic structure cf. respect: Bonet 2006
  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: SubCat > Linearity
- Initial Tableau:

$[_{\textsc{cp}}$ *...di'e* **e** *buku ...*]	SubCat	Linearity
☞ a. $\{_{\iota}$ ... $[_{\omega}$ *(di'e)*] $[_{\omega}$ *(buku)*] ... $[_{\omega}$ (**e**)] }		*
b. $\{_{\iota}$ ... $[_{\omega}$ *(di'e)*] **e** $[_{\omega}$ *(buku)*] ... }	*!	

3.5: The Phonological Account

Proposal: Reinforcer postposing is deeper than static idiosyncracy: it is phonology.

The basic motivation lies in *word minimality* McCarthy & Prince 1993

- Mandar imposes a size constraint on the prosodic word (ω): **it must be disyllabic.**
- This can be seen clearly in the system of functional elements:
  - Functional heads do not form independent ωs before complements. (Selkirk 1995)
  - In that context: many functional elements in Mandar are monosyllabic.
  - When those functional heads surface in isolation, they become disyllabic.

(24) a. [$_\omega$ **Sun**=di=(ˈbo.yang)].
out=of=house
'Out of the house.'

b. Pole=mi [$_\omega$ **(ˈsu.'ung)**].
come=PFV.3ABS out
'He came out.'
JT: 8.15, 28-29

(25) *Short-Long Alternations*

HEAD	SHORT	LONG	GLOSS
P^0	lo	lao	to
	so	sau	over to
	nong	naung	down to
Σ^0	sung	su'ung	out of
	da	da'a	don't!
	ndang	andiang	not

Key Pattern: this constraint is lifted at the right edge of the ι.

- The right edge of the ι can optionally host a special type of focal accent
- This accent triggers a change in the ω-level stress of its host: penultimate → **final**.

(26) {$_\iota$ Melo=a' [$_\omega$ mac-co(ˈwa)] }
AV.want=1ABS AV-try
'I want to TRY.'

- When they receive focal accent, **functional words can remain monosyllabic**:

(27) {$_\iota$ [$_\omega$ **(ˈSung)!**] }
out
'Out!'

Key Observation: the reinforcers "suck up" the focal accent at the right edge of the ι.

- In the presence of a reinforcer, the preceding word cannot receive focal accent.

(28) {$_\iota$ *Basse=i di'o bayu [$_\omega$ mani(ˈni)] o }
wet=3ABS that shirt later there
Impossible: "That shirt will get wet LATER." JT: 8.24, 376

3.5: The Phonological Account

These observations set up a deeper analysis of Reinforcer Postposing:

- The pattern targets a set of elements that violate a general constraint on Word Minimality,
- And it places them in a position where other monosyllables can satisfy that constraint.

This is displacement to resolve the prosodic needs of a reinforcer- a case of **Prosodic Greed.**

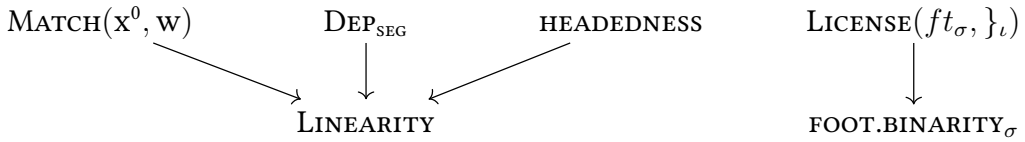
Claim One: monosyllabic words are licensed at the edge of the ι by a constraint on foot structure.

- HEADEDNESS: AOV for every ω that does not contain a metrical foot. Nespor & Vogel 1986
- FOOT.BINARITY$_\sigma$: AOV for every metrical foot that is not disyllabic. Itô & Mester 1993
- LICENSE(σ_{FT},}$_\iota$): AOV for every σ_{FT} that is not at the right edge of the ι. Kager 1996

Claim Two: the reinforcers undergo displacement to this edge in order to form licit words.

- MATCH(X^0, ω): AOV for every X^0 that does not correspond to a ω. Selkirk 2009
- DEP: AOV for every output segment that does not have a correpsondent in the input.
- LINEARITY: AOV for every relationship of precedence in the phonology that does not correspond to a relationship of dominance in the syntax. Grimshaw 1999

CONSTRAINT RANKING:



FINAL TABLEAU:

[$_{CP}$ ...*di'e* **e** *buku* ...]	MATCH	DEP	HEAD	LICENSE	FTBIN	LINEARITY
☞ a. {$_\iota$ ... [$_\omega$ *(di'e)*] [$_\omega$ *(buku)*] ... [$_\omega$ (**e**)] }					*	*
b. {$_\iota$ ... [$_\omega$ *(di'e)*] **e** [$_\omega$ *(buku)*] ... }	*!					
c. {$_\iota$ ... [$_\omega$ *(di'e)*] [$_\omega$ (**e'e**)] [$_\omega$ *(buku)*] ... }		*!				
d. {$_\iota$ ... [$_\omega$ *(di'e)*] [$_\omega$ **e**] [$_\omega$ *(buku)*] ... }			*!			
e. {$_\iota$ ... [$_\omega$ *(di'e)*] [$_\omega$ (**e**)] [$_\omega$ *(buku)*] ... }				*!	*	

4: Conclusions

Summing up, we've made some progress on the patterns that we set out to explain:

- The dependency between reinforcers and demonstratives turns on syntactic selection.
- The position of the reinforcers is forced by a prosodic requirement at the interface:
  1. The reinforcers are too small to form licit words in-situ,
  2. Monosyllabic words are exceptionally licensed at the right edge of the ι,
  3. The reinforcers postpose to the edge of the ι to satisfy the pressure to form words.

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

1. The **position** of the reinforcers must be described in terms of prosodic structure:
   - Syntactic analyses inadequately characterize their domains of placement,
   - …and they miss key generalizations about the relevance of prosodic phrasing.
2. And the **motivation for displacement** must be linked 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 fit neatly into a *parallel* and *global* theory of phonological 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 ιs.
- This is ruled out by theories that assume a cyclic model of Phonological Spell-Out, where word-level phonology is worked out before the construction of clause-level prosodic constituency. (e.g., Dobashi 2004, Selkirk & Kratzer 2008, Embick 2010, a.o.)
- But it follows neatly on theories that allow this to occur. Prince & Smolensky 1993/2004

Thank you!

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