Prosodic Greed

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The Main Question: What is responsible for determining the order of syntactic constituents?

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 translates relationships of dominance to relationships of precedence,
- ...but precedence can be altered by operations that sit outside of the syntax proper.

The Second Question: what are the driving forces of movement?

- Greed: the needs of the moving element. Lasnik 1995, Bošković 1995, 2002
- Altruism: the needs of attracting X^0s. Chomsky 2000, 2001
- Push Factors: different kinds of pressure that force things out of certain positions (Woolford 1999, Moro 2000, Stroik 2009; Chomsky 2013, Bošković 2018).

The goal of today's talk: to address these questions in Mandar (South Sulawesi, Austronesian).

The Roadmap:

1. A Puzzling Displacement: there's a strange sort of movement to the right.
2. A Phonological Hope: this step shows the signature of phonological movement.
3. Prosodic Greed: It's driven by an independently-visible need of the moving elements.

1.0: Mandar

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

Key Properties:

- Strict VSO word order (S,O remain in the *v*P; v^0 moves to *voice*^{0})
- Austronesian voice system: Agent Voice (AV), Patient Voice (PV)…

Today's focus: a **demonstrative-reinforcer construction** (Bernstein 1997, Roehrs 2010).

The data will come from elicitation with Jupri Talib, a young man from Polewali, but the patterns of interest can be seen in descriptive work and the core judgments are stable and uncontroversial.

1.1: Demonstratives and Reinforcers

The first goal of the talk is to reach a syntactic understanding of some facts of lexical idiosyncracy.

Mandar has a pair of demonstratives that are invariably followed by locative "reinforcers."

(1) a. **di'e** … **e**
this … here

b. **di'o** … **o**
that … there

The reinforcers are locative adverbs that can surface on their own, plausibly as adjuncts to VP:

(2) Urang=i **o**.
rain=3ABS there
'It's raining there.'

But they are strictly obligatory in the presence of the demonstratives in (1):

(3) **Di'o** buku o/*____.
that book
"That book."

The reinforcers are never obligatory in the presence of any other demonstrative.

(4) **Iting** buku.
that book
"That book (out of sight)."

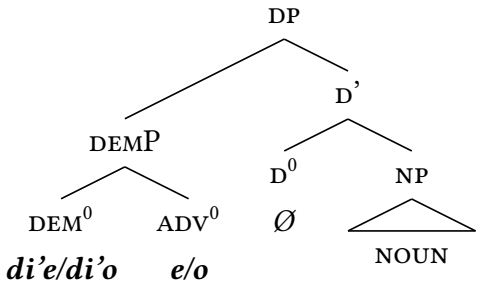
The co-occurrence requirement is autonomous and unaffected by other properties of the DEMS, like their phonological status (stressed/unstressed) or their pragmatic force (deictic/anaphoric).

1.2: Lexical Selection

Starting Proposal: the relationship between demonstratives and reinforcers is one of selection.

- The demonstrative originates somewhere in the DP. (possibly a specifier; Brugè 2002)
- The demonstrative selects the reinforcer. (Roehrs 2010)

(5) *Demonstratives select Reinforcers*



The selectional analysis captures four key properties of this relationship:

1. AUTONOMY: the reinforcers exist outside of this context and have independent meanings.
2. OBLIGATORINESS: the reinforcers are obligatory in this context, so they're not just adjuncts.
3. SPECIFIC TARGETS: the reinforcers can't be replaced with each other or with other locatives.

   (6) **Di'e** buku e/*o/*dini.
   This book here/there/here
   "This book (here)."

4. SPECIFIC TRIGGERS: the reinforcers are only obligatory after these demonstratives. They're not required after morphologically similar locative and temporal adjuncts (*dini* "here," *dio* "there," *diting* "over there"; *dite'e* "now," *digena'* "earlier" ...).

   (7) Urang=i **dini** (e).
   rain=3ABS here (here)
   "It's raining here."

   (8) Urang=i **dite'e** (e).
   rain=3ABS now (here)
   "It's raining now (here)."

1.3: The Problem

At first, it seems like the DP-internal analysis has no problem with word order.

- In many cases, the demonstrative and reinforcer bracket the associated DP (the "associate").

(9) Di-issang=i carita-nna [$_{DP}$ **di'e** kappung **e**] ?
2ERG-know=3ABS story-3GEN this village here
'Do you know the stories of this village?' Friberg & Jerniati 2000; 207

- There are many ways to derive this word order within the DP.
  - One view: the demonstrative is a head; the reinforcer is in a rightward specifier.
  - Alternatives: XP-movement within the DP, X^0-movement of N^0... (Cinque 2005)

The Analytical Challenge: the reinforcers are right-aligned in a larger domain.

- Whenever the associate is non-final in the clause, it is separated from the reinforcer.

(10) Bawa=i [$_{DP}$ **di'o** kado] mai **o**.
bring=3ABS that present to here there
"Bring that present here."

There's no syntactic limit on the amount or identity of the intervening material.

- In VSO clauses, the reinforcer can be split from its associate by the O and VP-adjuncts.

(11) Sita=i [$_{DP}$ **di'e** tau] iAli dio **e**.
meet=3ABS this person NAME there here
"This guy met Ali there."

- The reinforcer can be split from its associate by scrambled arguments, like the S in VOS:

(12) Na-ala=i [$_{DP}$ **di'e** wai] dio iAli **e**.
3ERG-take=3ABS this water there NAME here
"Ali took this water there."

- The reinforcer can even be split from the associate by an embedded complement CP.

(13) Ma'-uang=i **di'o** tau mai [$_{CP}$ mua' na-pole=i] **o**.
AV-say=3ABS that person to.me that FUT-come=3ABS there
'That guy said to me that he'd come.'

We can summarize these observations as follows:

- The reinforcers must originate inside of the DP, because they are selected by demonstratives,
- But they must also move out of the DP, as they are right-aligned in something like the CP.

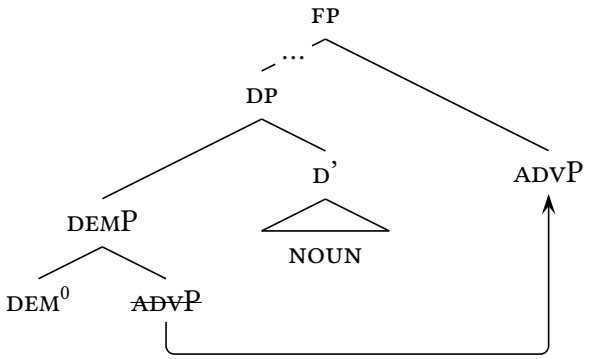
2.0: Dealing with Separation

This state of affairs raises three immediate questions about the reinforcers.

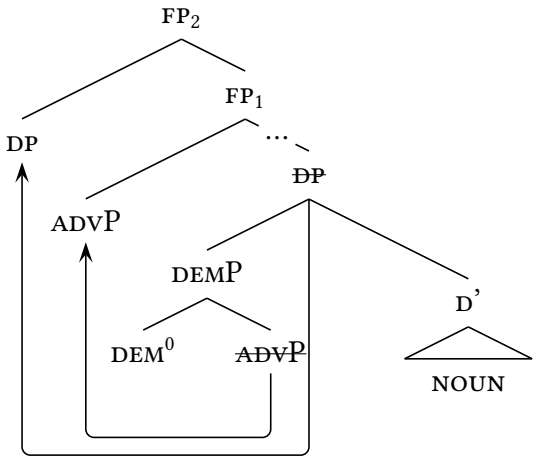
1. What's the right characterization of the domain that they're positioned in?
2. What's the right characterization of the position that they take?
3. What's the mechanism that places them there?

Thinking syntactically, a few possibilities suggest themselves:

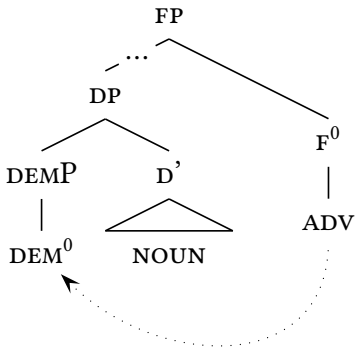
1. Rightward Movement of the reinforcer, to the right edge of the clause.



2. Stranding of the reinforcer, via leftward movement of everything else.



3. Base-Generation of the reinforcer, as an Agreeing head in the right periphery.



2.1: Rightward Movement in the Syntax?

Starting question: could the reinforcers move rightward in the syntax?

(14) **Reinforcer Postposing**: [$_{CP?}$ … [$_{DP}$ DEM __ [$_{NP}$ N]] … REINFORCER]

This analysis captures an important observation: the reinforcers must receive nuclear stress, just like the phrases which undergo Heavy-NP shift in English (Williams 2003).

(15) a. John gave to Mary all the money in the SATCHEL.
b. *John gave to MARY all the money in the satchel. (Williams 2003:34, ex.11)

Beyond this point, the analysis breaks down in three respects.

1. Movement of the reinforcer is lexically restricted and obligatory, unlike Heavy NP-Shift.
2. Movement of the reinforcer can violate the Right Roof Constraint. (Ross 1967)
   - Heavy NP-Shift can't move something out of an embedded clause and past an adjunct that sits in the matrix clause, but Reinforcer Postposing can.

     (16) *I saw [$_{CP}$ that John gave to Mary ___] on facebook all the money in the satchel.

     (17) Ma'ita=a' [$_{CP}$ mua' na-pole=i **di'o** tau] dini di facebook **o**.
     AV-see=1ABS that FUT-come=3ABS that guy here on facebook there
     'I saw that that guy will come here on facebook.'

3. Movement of the reinforcer can escape other kinds of islands, too.
   - Coordinate structures are islands for Heavy NP-Shift, plus Right-Node Raising.

     (18) Maria was waiting in ___, and reporters were trying to find ___, Joss' office.

     (19) [$_{\&P}$ *Josh was looking for the dean's office, Maria was waiting in ___, and reporters were trying to find ___,] Joss' office. (Sabbagh 2007:367, ex.54a)

   - But they can be freely evacuated by Reinforcer Postposing:

     (20) Sio=i [$_{\&P}$ **di'o** tau anna' iAli] mai **o**.
     send=3ABS that guy and NAME to here there
     "Send that guy and Ali here.'

These facts suggest that if the reinforcers are positioned by a rule of rightward movement, it must **ignore all syntactic boundaries between the associate and the edge of the matrix CP**.

- Accepting this as an argument against an analysis that posited rightward movement in the syntax, I'll conclude that the reinforcers **undergo no syntactic movement to the right**.

2.2: Stranding?

Second Option: could the reinforcers be stranded in a derivation where everything moves left?

- On this view: "violations of the RRC" would involve movement of the embedded CP to the left, followed by movement of the matrix CP, with both steps stranding the reinforcers.
- Schematically: [$_{FP2}$ MATRIX CP [$_{FP1}$ EMBEDDED CP [$_{CP}$ ~~M.CP~~ [$_{CP}$ ~~E.CP~~ REINFORCER]]]]

This analysis captures exactly one thing: movement usually doesn't reposition the reinforcers.

(21) [$_{DP}$ **Di'e** muanena] makikkir sanna' ___ **e**.
This man miserly very here
'THIS MAN was very miserly. Pelenkahu et al. 1983; 172

But it faces a serious challenge: "stranding" is impossible with overt preposing of CPs.

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

Another challenge: "stranding" is also impossible with Topicalization

1. Mandar has a process of topicalization which obeys the usual constraints on movement.

   (23) a. iAli, u-olo'i.
   NAME 1ERG-like
   'Ali, I like.'
   b. *iAli, sannang=a' apa' pole=i ___.
   NAME happy=1ABS because come=3ABS
   'Ali, I'm happy because ___ came.'

2. But like CP-preposing, it's absolutely unable to strand reinforcers.

   (24) **Di'o** cadangang **o**, ndang tongang=i mala u-tarima ___.
   that proposal there not truly=3ABS can 1ERG-accept
   'That proposal, I truly cannot accept.'

3. ...even though topicalization strands other kinds of elements quite liberally in Mandar.

   (25) **Di'e** gollossor **e**, ndang=i barani u-ola **naung** ___.
   this slide here not=3ABS brave 1ERG-go down
   'This slide, I'm not brave enough to go down.'

I'll conclude from this that **the stranding approach is ultimately not what we want**.

2.3: Agree?

In a final attempt, we might consider the possibility that the reinforcers do not move at all, and actually spell out agreement in a right-peripheral head in the matrix CP.

- This analysis may account for the cases of apparent movement out of islands, on the view that the locality conditions on Agree can be different from those of Move (Bošković 2007).

Three immediate challenges:

1. The probe would have to target two demonstratives and ignore others. It's unclear what kind of Agree might discriminate lexically, and how it would differ from non-local selection.
2. The probe would have to appear in a weird set of contexts: the right edges of matrix CPs, fragments, preposed embedded CPs, and topics, but not foci or embedded CPs in-situ.
3. The probe would have to be able to look deep into coordinate structures and embedded CPs.

Even worse: an apparent success turns into a serious problem:

- In clauses that contain both *di'e* and *di'o*, only one reinforcer appears.

(26) Sita=i **di'e** tau **di'o** tau dio **o**.
meet=3ABS this person that person there there
"This guy met that guy there."

- This might look like a vindication of an analysis that treats the reinforcer as agreement,…
- But the demonstrative which "wins" is always the rightmost, even if it's not the highest.

(27) Bemme=i **di'o** nanaeke non di **di'e** passauang **e**!
fall=3ABS that child down into this well here
"That child fell down this well!"

- …even when the rightmost DEM is embedded inside of a DP that contains another DEM:

(28) Ala=i **di'e** poto-na sola-nna **di'o** tau naung **o**.
Take=3ABS this photo-GEN friend-3GEN that person down there
"Take down this photo of that guy's friend."

The result: reinforcer competition is insensitive to C-command, just like reinforcer placement is insensitive to island constraints. This suggests that competition is resolved by a mechanism that's distinct from AGREE, which is usually taken to be sensitive to C-command (Chomsky 1995).

- Zooming out, then, I'll conclude that an Agree-based analysis is **not the right fit**.

3: Towards an Analysis

Taking stock of our results so far, we have seen that the reinforcers…

- Originate within the DP as selected arguments of specific demonstratives,
- Surface at the right edges of matrix CPs, fragments, preposed CPs, and topics,
- Move to this position in a process that can escape syntactic islands and violate the RRC,
- And compete in a manner that is sensitive to linear distance, not depth of embedding.

Looking forward, we can stake out a set of desiderata for an analysis of these facts.

- It must offer a unified and exclusive characterization of the domains of reinforcer placement (matrix CPs, fragments, preposed CPs, and topics), and offer the means to distinguish those from the domains from which reinforcers must escape (foci, embedded CPs in situ),
- It must explain why the reinforcers ignore syntactic locality domains en route to the edge,
- It must explain how reinforcer competition is resolved without reference to C-command,
- and, if possible, it should connect the central impulse for movement to a deeper interaction between independently-visible properties of the reinforcers and properties of the grammar.

The following sections represent an attempt to develop an account that meets these desiderata.

My proposal consists of four interlocking claims:

1. The reinforcers are subject to a strict distributional generalization within the phonology: they necessarily surface at the right edge of the intonational phrase (Nespor & Vogel 1986).
2. The reinforcers move to this position in the phonology, positioned by the rule in (29). This rule ignores syntactic locality domains because it operates over prosodic structure.

   (29) **Reinforcer Postposing**: $\{_{\iota}$ … $(_{\phi}$ $[_{\omega}$ DEM $]$ __ $[_{\omega}$ DP $]$ $)$ … ADV $\}$

3. Competition between the reinforcers is resolved by a constraint on shortest movement. This constraint ignores C-command because it, too, operates over prosodic structure.
4. The reinforcers undergo this step of movement in response to a broader out conspiracy: monosyllabic words are banned in most positions in surface prosodic structure, but they are able to surface for their own phonological reasons at the edge of the intonational phrase.

The architectural perspective that emerges from this account is one on which:

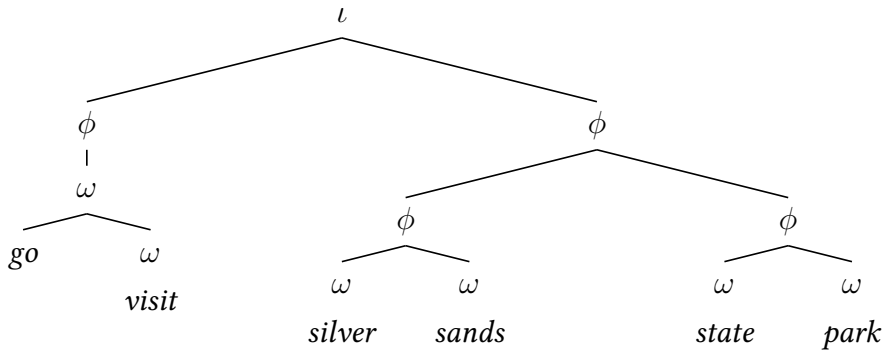
- The postsyntax— in particular, the phonology— can force movements of its own, and
- Phonological movements can be driven by the needs of the moving elements; this is Greed.

3.1 Prosodic Organization

The first step here is to set up a framework to understand high-level phonological organization.

- In the word, phonological constituents are organized into a layered hierarchical structure (segments > moras > syllables > feet > words). Prince & Liberman 1997
- **Prosodic Hiearchy Theory**: layered hierarchical organization extends above the word: words > phrases > intonational phrases. ($\omega > \phi > \iota$; Selkirk 1984, Nespor & Vogel 1986)

(30) *Phonological Organization above the Word*

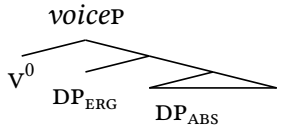


These higher-level constituents form domains for processes and constraints in phrasal phonology.

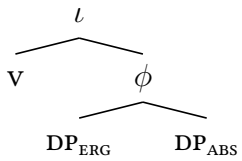
- They are drawn from a universal inventory of recursive categories. (Itô Ŕ Mester 2013)
- The ω and ϕ are built at the interface in a regular way: $X^0 \rightarrow \omega$, $XP \rightarrow \phi$. (Selkirk 2009)
- The highest constituent— the ι— is a bit different; it corresponds to propositions.

Under phonologically-optimal circumstances, prosodic structure = syntactic structure.

(31) *The Mandar VP: Syntax*

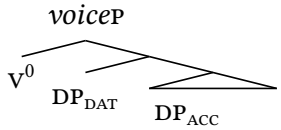


(32) *The Mandar VP: Prosody*

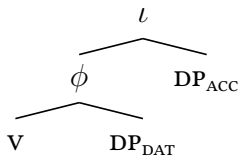


But when phonological constraints demand, the two can come apart.

(33) *The English VP: Syntax*



(34) *The English VP: Prosody*



3.2 The Intonational Phrase

The domain of placement for reinforcer postposing is the intonational phrase (ιP).

- In Mandar, this constituent can be detected with two reliable diagnostics:
  1. Final Lengthening: the final syllable of the intonational phrase is lengthened.
  2. No Denasalization: in Mandar, coda nasals denasalize before voiceless obstruents. This applies across word- and phrase-boundaries, but not across intonational phrases (sing songs → sis songs; **but**: though he sang, she left → *though he sash, she left)
- These diagnostics show that the distribution of ιs is pretty similar in Mandar and English:

(35) {$_\iota$ iAli mambenga:ng }, {$_\iota$ tania i tomanara:ng }, {$_\iota$ kandekande balao: }.
{$_\iota$ Ali gave }, {$_\iota$ and this wasn't smart }, {$_\iota$ crumbs to the mice }.

The domains for reinforcer postposing are always ιPs:

- Fragments and matrix clauses,
- Clause-initial topics,
- And preposed embedded clauses.

(36) a. **Iting buku** → {$_\iota$ itim buku: }
that book
{$_\iota$ That book }.

b. **Tallipong kaiyang**, tarrus=i laku → {$_\iota$ tallipo**k** kaiyya:**ng** },...
phone big always=3abs sell
'{$_\iota$ Big phones }, those always sell.'

c. **Mau kaiyang**, tam-macoa=i → {$_\iota$ mau kaiyya:**ng** } ...
though big not-good=3abs
'{$_\iota$ Though big }, it's no good.'

The constituents which cannot form domains are always not ιPs:

- Fronted foci (cf. Aissen 1992)
- Embedded clauses in-situ (cf. Ishihara 2019)

(37) a. **Itim boyang** kaiyang sannal. → {$_\iota$ itim boya**k** ...}
this house big very
'That house (out of sight) is really big!'

b. Ma'-uang=i **mua' ma'-alli tallipong** lo iAli. → {$_\iota$ ...tallipo**l** lo...}.
av-say=3abs that av-buy phone to name
'{$_\iota$ He said he's buying a phone to Ali }.'

3.3: Evidence for the Prosodic Generalization

The distribution of the reinforcers can be captured exactly by this phonological generalization:

(38) **Reinforcer Placement**: $\{_{\iota}$ … $(_{\phi}$ … DEM … $)$ … $\boxed{\text{ADV}}\}$

This step sets up two important pieces of the overall analysis:

- It resolves our first goal: "to offer a unified and exclusive characterization of the domains of reinforcer placement and distinguish them from the domains that reinforcers must escape."
- It sets up a line of attack on the second and third: "to explain why the reinforcers ignore syntactic locality domains and how they compete without reference to C-command."

Before moving forward, I'd like to reinforce the generalization with one further point:

- It's possible to disrupt prosodic organization without altering the syntax (Kubozono 1989)
- **When we adjust the boundaries of the ι, the position of the reinforcers will change.**

Strategy One: Parentheticals

- Parentheticals form ιs, and when they split clauses up, they force a disjunctive phrasing.
- In this context, the reinforcers always surface in the smaller ι that contains the DEM.

(39) a. $\{_{\iota}$ Mappesta=i **di'o** allo mappake baraccung **o** $\}$.
celebrate=3ABS that day shooting fireworks there
"They celebrate on that day by shooting fireworks."

b. $\{_{\iota}$ Mappesta=i **di'o** allo **o** $\}$, $\{_{\iota}$ 4 Juli $\}$, $\{_{\iota}$ mappake baraccung $\}$.
celebrate=3ABS that day there July 4th shooting fireworks
"$\{_{\iota}$ They celebrate on that day $\}$, $\{_{\iota}$ July 4th $\}$, $\{_{\iota}$ by shooting fireworks $\}$."

Strategy Two: Metrical Line Breaks

- Metrical lines of poetry form independent ιs.
- When line breaks split clauses, the reinforcers surface in the line that contains the DEM.

(40) a. $\{_{\iota}$ Yamo **di'o** disanga lopi pattonda roppong **o** $\}$
is that called boat ferrying grass there
"$\{_{\iota}$ That's called a boat ferrying grass $\}$."

b. $\{_{\iota}$ Yamo **di'o** disanga **o** $\}$ // $\{_{\iota}$ lopi pattonda roppong $\}$
is that called there boat ferrying grass
"$\{_{\iota}$ That's called $\}$ $\{_{\iota}$ a boat ferrying grass $\}$." Muthalib & Sangi 1991, 374

3.4: Phonological Displacement

Proposal: the reinforcers reach their surface position through the following phonological rule.

(41) **Reinforcer Postposing**: $\{_{\iota}$ … $(_{\phi}$ DEM … __) … ADV $\}$

The architectural position of this process gives rise to the properties above.

- Reinforcer postposing ignores the factors that govern movement in the syntax:
  - Syntactic locality domains (coordinate structures; complex NPs; the right roof)
  - Syntactic constraints on movement (C-command-based intervention)
- …and it is sensitive to types of information that are not available in the syntax:
  - High-level phonological phrasing, which is built at the interface. (Selkirk 2009)
  - Linear order, which is established after the syntax (Kayne 1994; Fox & Pesetsky 2005)
- **N.b.**: these are exactly the properties which phonological movement should show.
  - They fit into a strictly modular grammar, where phonology is absent from the syntax and syntactic information disappears as phonology begins. (Zwicky & Pullum 1986)

The force of these findings is to suggest that there is such a thing as phonological movement.

- This contributes to a line of work which argues for postsyntactic movement, from second-position phenomena (Halpern 1995) to postposing of minimal elements (Bennett et al. 2016)
- The basic conclusion, in turn, opens up the possibility that syntax may be more restrictive than it would seem on theories that handled all displacement in that module (Kayne 1994).
- It also furthers, indirectly, a program which seeks to minimize cross-linguistic differences in the syntax and relegate divergence to the demands of externalization (Chomsky 2001).

Concretely: I propose that this step of movement occurs in a parallel and global phonological calculus which begins at the moment where the syntactic derivation is passed off to the phonology.

- To capture the persistent and total lack of opacity, I assume that the full derivation is spelled out at once, with no intermediate stages for *v*Ps and embedded CPs (Cheng & Downing 2016)
- At this stage, linearization occurs in tandem with the rest of phrasal phonology: prosodic structure-building, markedness-based rebalancing, and phonological displacement.
- The step is forced by a ranking of the pressure to move over the pressure for linearization to track C-command, in the terminology of Optimality Theory. (Prince & Smolensky 1993)

$[_{CP}$ …*di'e* DP **e** …]	MOVE	DON'T MOVE
☞ a. $\{_{\iota}$ … *di'e* DP … **e** $\}$		*
b. $\{_{\iota}$ … *di'e* DP **e** … $\}$	*!	

4.0: The Driving Force for Phonological Movement

At this point, it would be possible to end the investigation with a descriptive proof of existence.

- The operation of Reinforcer Postposing is a step of prosodic movement par excellence, and
- It can be formally described in terms of Prosodic Subcategorization: (Inkelas 1989)
  - Lexical items can be prespecified for the way they interact with prosodic structure.

    (42) a. $\sqrt{\text{NUH-UH}} \rightarrow \{_{\iota}\ \_\_\_\ \}^{\text{LHLH}}$
    b. "The root *nuh-uh* must be an ιP that bears the contour Rise-Fall-Rise."

  - Descriptively: the reinforcers can be lexically specified to surface at the ι edge:

    (43) a. $\sqrt{\text{HERE}} \rightarrow \{_{\iota}\ \ldots\ \_\_\_\}$
    b. $\sqrt{\text{THERE}} \rightarrow \{_{\iota}\ \ldots\ \_\_\_\}$

My goal in this section is to press farther in pursuit of our final analytical goal:

- To derive this movement from an interaction with independent properties of the grammar.

In this investigation, a straightforward analytical path will lead us to an interesting result:

- There is a phonological motivation for both movement and deletion of reinforcers in-situ,
- and the core of postposing lies in the need to resolve a phonological problem of minimality.

The starting point of this final arc lies in the distribution of nuclear stress.

- Mandar, like English, requires the main prominence of the ι to fall at the right edge.
- The default placement of sentential stress is marked with caps in the following example:

  (44) U-bengan=i buku lo iALI.
  1ERG-give=3ABS book to NAME
  "I gave books to ALI."

The distribution of nuclear stress makes the right edge of the ι an attractive place to be.

- Many types of constituents are drawn to this position when they receive focus.
- This licenses certain orders which are impossible without focal stress, such as VDO.

  (45) U-bengan=i lo iAli BUKU.
  1ERG-give=3ABS to NAME book
  "I gave to Ali BOOKS." (impossible without focus on *books*)

- **N.b.**: this process is distinct from Reinforcer Postposing; it obeys the Right Roof Constraint.

4.1: Minimality at the Edge

The relevance of nuclear stress lies in its interaction with a constraint on Word Minimality.

Mandar imposes a particular constraint on ωs at the right edge of the ϕ:

(46) **The Positional Word Minimality Constraint**: $(_{\phi}$ … $[_{\omega}$ *(σ)])

This constraint drives a broad conspiracy of repairs for monosyllabic x^0s in ϕ-final positions.

- Some roots show Vʔ-epenthesis:

(47) a. $(_{\phi}$ **Sun** di boyang).
out of house
'Out of the house.'

b. Bemme=i $(_{\phi}$ **su'ung**) gena'.
fall=3ABS out earlier
'It fell out earlier.'

- Others roots supplete.

(48) a. $(_{\phi}$ **Ndang** ngoa).
not open
'Not open.'

b. Diang ngoa; iting $(_{\phi}$ **andiang**).
some open that not
'Some are open; THAT is not."

Key Pattern: the positional ω-minimality constraint is suspended under ι-final nuclear stress.

(49) a. $\{_{\iota}$ $(_{\phi}$ **SUNG!**) }.
out
'Out!'

b. $\{_{\iota}$ $(_{\phi}$ **NDANG!**) }.
no
'No!'

There's a sensible way to understand this network of interactions in the phonology:

- The positional ω-minimality effect follows from routine constraints: words must contain feet, and in prominent positions, feet must contain two syllables (McCarthy & Prince 1993).
- Under nuclear stress, this constraint is relaxed and the ϕ-final foot can be monosyllabic.

(50) $\{_{\iota}$ $(_{\phi}$ (Mé.lo') (sán.nal)) a' $(_{\phi}$ macco(wá)) }.
want really 1ABS try
'I really want to TRY.'

- This tracks a second generalization: many prosodic restrictions are loosened at the edges of large domains (and especially at the right edges of those domains; Kager 1996).
- It also explains why ωs can be monosyllabic at the right edge of the ϕ under nuclear stress: in that position, they can host well-formed feet and don't need to show the usual repairs.

4.2: Constraint and Repair

The next step is to note that the reinforcers run into trouble with Minimality.

- At the interface, the reinforcers are in a good position to be mapped to ϕs.
  - They're both minimal and maximal in the syntax, so they might be treated as XPs.
  - Also note: specifiers are generally parsed into ϕs, if that's what the reinforcers are.
- In the phonology, it's exceptionally clear that the reinforcers do form ϕ.
  - The right edge of the ϕ is marked with a high boundary tone (marked ^{H}).
  - The reinforcers invariably carry one of these boundary tones $\rightarrow$ they're ϕs.

(51) Di-issang^{H} i carita-nna^{H} **di'e** kappung^{H} ($_{\phi}$ **e**^{H}) ?
2ERG-know 3ABS story-3GEN this village here
'Do you know this village's stories?' Friberg & Jerniati 2000; 207

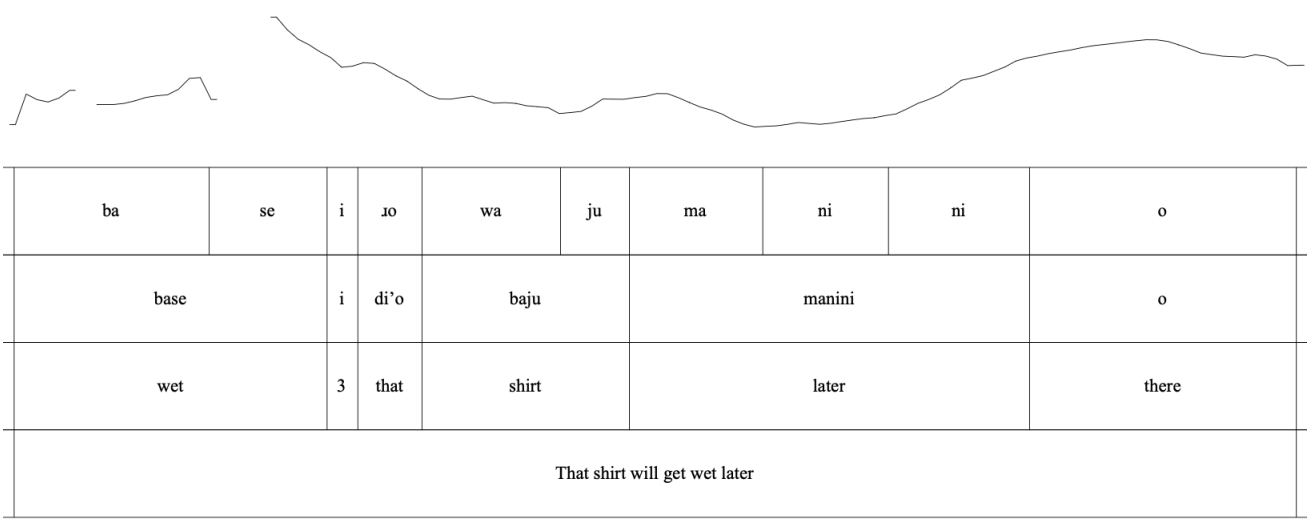
Pressing further, we can see that they are rescued in their surface positions by nuclear stress.

- They block the preceding ω from taking nuclear stress and hosting a monosyllabic foot.

(52) {$_{\iota}$ Base^{H} i **di'o** baju^{H} ma(ní.ni)^{H} ($_{\phi}$ [$_{\omega}$ **(ó)**^{H}]) }
wet 3ABS that shirt later there
BAD: "That shirt will get wet LATER."

- In the same vein, they host nuclear stress themselves.

(53) *Pitch Track: Example (52)*



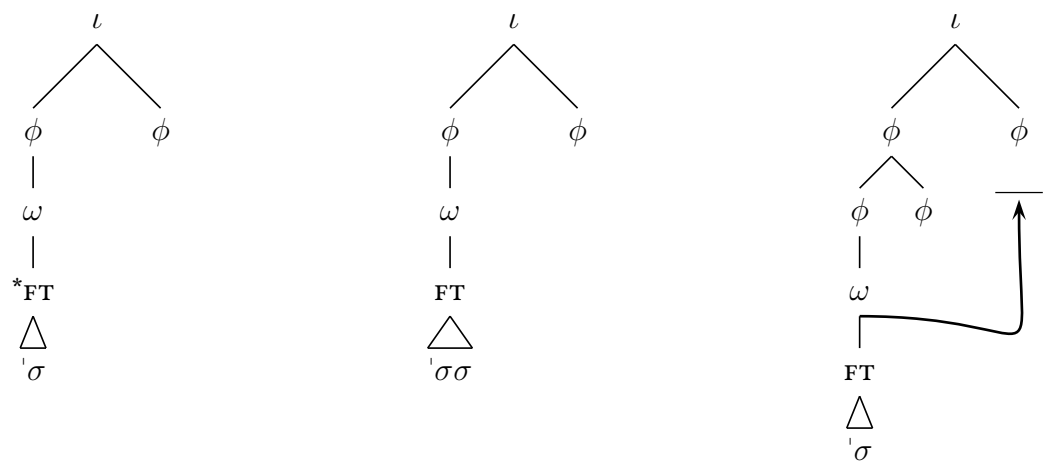
4.3: Prosodic Greed

This network of observations sets up a straightforward account of Reinforcer Postposing:

- The reinforcers face a broad phonological problem in their base positions: they're too small.
- If they stay in those positions, they'll be forced to undergo a regular repair, like epenthesis.
- To avoid this fate, they opt to move to the edge of the ι and pick up nuclear stress.

This account allows Reinforcer Postposing to be integrated into a general output conspiracy:

(54) a. *Constraint* b. *General Repair* c. *Special Repair*



Formally, this step of movement can be forced by the following set of constraints:

- MATCH: AOV for every x^0 or XP that's not mapped to a ω or ϕ — Selkirk 2009
- HEADEDNESS: AOV for every ω that does not contain a foot. — Nespor & Vogel 1986
- LICENSE: AOV for every ϕ-final σ_{FT} that's not final in the ι. — Kager 1996
- DEP$_{e/o}$: AOV for every output segment associated with the roots $\sqrt{\text{HERE}}$ and $\sqrt{\text{THERE}}$ that does not correspond to an input segment. — Pater 2009
- LINEARITY: AOV for every relationship of precedence in the phonology that does not correspond to a relationship of dominance in the syntax. — Grimshaw 1999
- MAX$_{e/o}$: AOV for every input $\sqrt{\text{HERE}}$ or $\sqrt{\text{THERE}}$ with no correspondent in the output.

When there's only one reinforcer, postposing is forced by the ranking of DEP > LINEARITY:

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

When there are two, the competition is resolved by the ranking of DEP, LICENSE > MAX.

5: Conclusions

Stepping back, this account provides reasonable answers to the questions we set out to explain.

- The reinforcers are obligatory in the presence of some DEMs because they're selected.
- They generally appear at the right edges of matrix CPs, fragments, topics, preposed embedded clauses, and metrical lines because they strictly move to the right edge of the ι.
- This step ignores syntactic locality domains and syntactically C-commanding interveners because it occurs in the phonology, at a stage without syntactic information, and
- It occurs to resolve a general phonological problem in an item-specific way: the reinforcers are too small to form words in-situ, and they shift to a position where their shape is ok.

The core of this analysis rests on two interlocking claims.

- First, there is movement in the phonology (of a very particular and well-defined sort), and
- Second, this movement can be driven by the needs of the moving element.
  - In other words, phonological movement can be driven by Greed.
  - It is not always "push movement," which forces monosyllabic elements out of prosodically prominent positions (Halpern 1995; Harizanov 2014; Bennett et al. 2016).

Beyond Mandar, these claims find support from a (micro)-typology of analogous cases.

- Many Mayan languages show a similar pattern: they have segmentally-small elements, associated with functional heads in the DP, which must appear at the right edge of the ι.
- In Tsotsil, Aissen 2017 argues that they move to this position to receive nuclear stress.

(55) {$_\iota$ Ch'och xa **li** k'ok' ok'ob ta Nibak **é** }
enter CLASSIFIER DET fire tomorrow in Ixtapa CLITIC
"The war will begin tomorrow in Ixtapa." Tsotsil; Aissen 2017;244, ex.14

In broader perspective, these results raise an important point about cross-modular parallelism.

- Greed has no place in the Attract/Labeling-based worlds of Chomsky 2001, 2013.
- But Greed may be useful in certain corners of syntax— especially the "substitution" set of head movements of Rizzi & Roberts 1989 (Fanselow 2004, 2009; Georgi and Müller 2010).
- If the workings of one module bear on another, then the facts of Reinforcer Postposing suggest that we may want to think again about the driving forces of movement in syntax.

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6: Selected References

- Bennett, R., Elfner, E., & McCloskey, J. (2016). Lightest to the right: An apparently anomalous displacement in Irish. Linguistic Inquiry, 47(2), 169-234.
- Bošković, Ž. (2007). On the locality and motivation of Move and Agree: An even more minimal theory. Linguistic inquiry, 38(4), 589-644.
- Chomsky, N. (1995). Language and nature. Mind, 104(413), 1-61.
- Chomsky, N. (2000). New horizons in the study of language and mind. Cambridge University Press.
- Elfner, E. (2015). Recursion in prosodic phrasing: Evidence from Connemara Irish. Natural Language & Linguistic Theory, 33(4), 1169-1208.
- Embick, D., & Noyer, R. (2001). Movement operations after syntax. Linguistic inquiry, 32(4), 555-595
- Halpern, A. (1995). On the placement and morphology of clitics. Center for the Study of Language.
- Kayne, R. S. (1994). The antisymmetry of syntax (Vol. 25). MIT press.
- Berwick, R. C., & Chomsky, N. (2011). The biolinguistic program: The current state of its development. The biolinguistic enterprise: New perspectives on the evolution and nature of the human language faculty, 19-41.
- Kim, Y. (2010). Phonological and morphological conditions on affix order in Huave. Morphology, 20(1), 133-163.
- Kubozono, H. (1989). Syntactic and rhythmic effects on downstep in Japanese. Phonology, 6(1), 39-67
- Kurisu, K. (2001). The phonology of morpheme realization. University of California, Santa Cruz.
- McCloskey, J. (2000). Quantifier float and wh-movement in an Irish English. Linguistic inquiry, 31(1), 57-84.
- Sabbagh, J. (2007). Ordering and linearizing rightward movement. Natural Language & Linguistic Theory, 25(2), 349-401.
- Roehrs, D. (2010). Demonstrative-reinforcer constructions. The Journal of Comparative Germanic Linguistics, 13(3), 225-268.