# Prosodic Greed

Dan Brodkin; UCSC
Syntax Brown Bag; NYU; December 9, 2022

The Question: What is responsible for determining the linear 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).
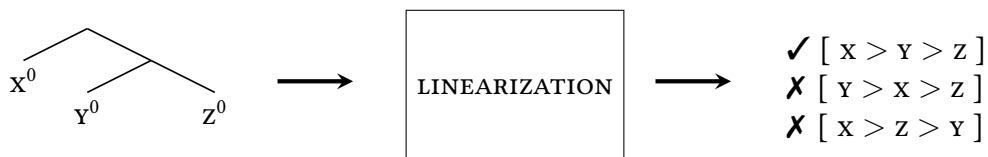
An alternative: *Indirect Linearization*   (Berwick & Chomsky 2011)
- Linearization translates relationships of dominance to relationships of precedence,
- ...but precedence can be altered by operations that sit outside of the syntax proper.
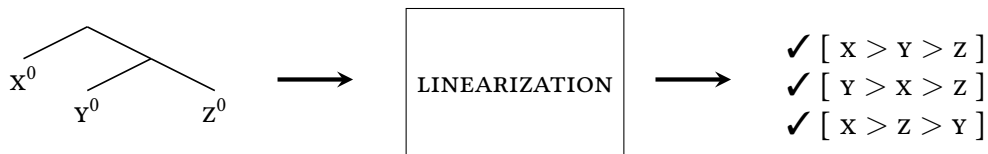
Much work has argued for *Indirect Linearization* (*e.g.,* Halpern 1995, Embick & Noyer 2001, Kim 2010, Bennett et al. 2016), but this move raises conceptual, theoretical, and empirical concerns:

- Duplication: we already have tools for structure-building and displacement in syntax.

- Mystery: we know little about the postsyntax- what kind of structure postsyntactic movement might reference, what constraints might hold over it, and how it might be driven.

- Non-Necessity: it may be empirically avoidable, too (cf. Kayne 1998 on movement at LF).

Nevertheless: today I will argue that it exists in Mandar (South Sulawesi, Austronesian).

The Roadmap:

1. There's a class of elements that move right, but not in the syntax.

2. These elements move in the phonology to be right-aligned with the intonational phrase.

3. This movement is driven by prosodic constraints on phonologically minimal words.

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 vP; 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 $\boxed{\text{o/*\_\_\_}}$.
     That book

     "That book."

And they are not obligatory in the presence of other demonstratives, like *iting* "that (far away)":

(4) **Iting** buku.
   That book

     "That book (far away)."

N.b: this split doesn't correlate with semantic/pragmatic factors: all demonstratives are typically destressed, and all can be focused and used with overt deixis, but this doesn't affect the pattern.

1.2: Lexical Selection

Claim: the relationship between demonstratives and reinforcers is one of DP-internal selection.

- The demonstrative originates in a specifier position in the DP   (Brugè 2002)
- The demonstrative selects the reinforcer   (Roehrs 2010)
- DP-internal word order: set aside for now.

(5)   *Demonstratives select Reinforcers*
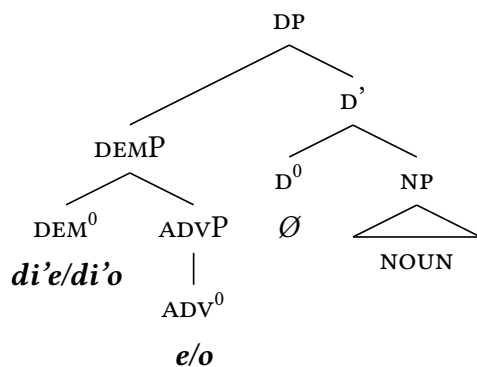
The selectional analysis immediately captures the core properties of this relationship:

1. AUTONOMY: the reinforcers can be seen outside of this context, so they're lexical items.

2. OBLIGATORINESS: the reinforcers are obligatory after *di'e* and *di'o*, so they're not adjuncts

3. LEXICAL IDIOSYNCRACY: the reinforcers are only obligatory after these demonstratives. They're not required after morphologically similar locative adjuncts (*dini* "here," *dio* "there," *diting* "over there") or temporal adjuncts (*dite'e* "now," *digena'* "earlier," *diolo'* "way earlier").

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

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

4. IDENTITY RESTRICTION: the reinforcers can't be replaced with each other or other locatives.

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

1.3: Separation

At first blush, the DP-internal analysis seems like it can also give us a handle on word order.

1. 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-of   this   village   here
     'Do you know the stories of this village?'   Friberg & Jerniati 2000; 207

2. In these cases, we might attempt to link the surface word order to movement in the DP.

   - Plausible idea: the NP and demonstrative both raise, stranding reinforcers.
   - Schematic derivation: [_FP2 DEM [_FP1 NP [_DP [_DEMP ~~DEM~~ ADV] ~~NP~~]]]

Problem: the reinforcer is strictly right-aligned in a domain that is often larger than the DP.

- Whenever the associate is non-final in a prosodically-integrated clause, the reinforcer surfaces at the right edge of that domain- no matter the distance between the two.

(10) 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."

- There are very few constraints on the amount or identity of intervening material:

  1. The demonstrative and reinforcer can be separated by both arguments and adjuncts:

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

  2. They can also be split by the predicate, if the associate undergoes focus movement.

(12) [_DP **Di'e** muane-na   ] makikkir sanna' **e**.
      This   husband-3GEN   miserly   very   here
      'This husband of hers was very miserly.   Pelenkahu et al. 1983; 172

We can summarize the observations that we have made so far, then, as follows:

1. The reinforcers must originate inside of the DP, in light of the facts of selection,

2. But they must also make their way out of it, as they are (roughly) right-aligned in the CP.

1.4: Dealing with Separation

This state of affairs raises a number of immediate questions on the behavior of 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?

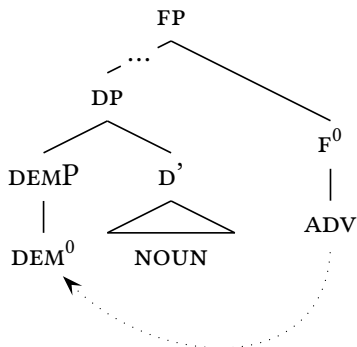Thinking syntactically, there are a number of analyses that suggest themselves:

1. RIGHTWARD MOVEMENT (cf. Heavy NP-Shift, Extraposition, R-Tous (Kayne 1975)):
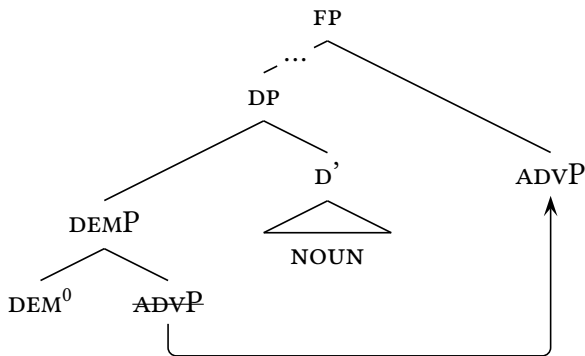
2. STRANDING (cf. Quantifier Float):
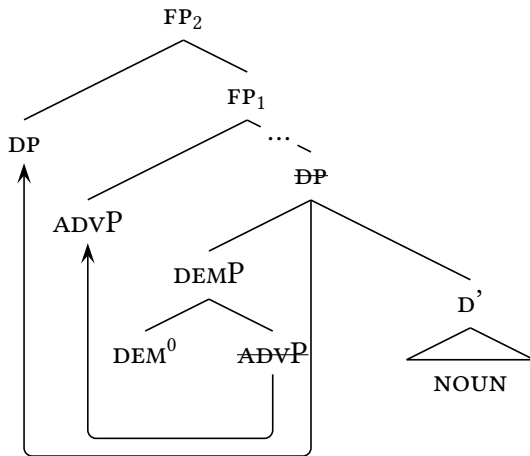
3. BASE-GENERATION ("Reinforcers as Agreement")

5

1.5: Rightward Movement in the Syntax?

As a starting point, we might imagine that the reinforcers move rightward in the syntax, by means of a process that resembles Heavy NP-Shift, such as the following rule.

(13) **Reinforcer Postposing**:   [CP? ... [DP DEM __ [NP N]] ... REINFORCER]

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

(14)   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)

But beyond this success, it breaks down in important respects:

1. Movement of the reinforcer is obligatory and lexically restricted, unlike HNPS.

2. The reinforcers can move across embedded clauses,

   (15)   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.'

3. and they can escape embedded clauses, in violation of the Right Roof Constraint (Ross 1967)

   (16)   Ma'-uang=o [CP mua' na-pole=i   **di'o**   tau   marondong] dionging **o**.
          AV-say=2ABS   that FUT-come=3ABS that   guy   tomorrow   yesterday there
          'You said that guy will come tomorrow yesterday.'

4. as well as all other kinds of islands, including coordinate structures and complex NPs:

   (17)   Laccar=i   lukisang-u   anna' poto-na kama'-na **di'e** nanaeke   su'ung   **e**.
          throw-3ABS painting-my and   photo-of father-of this   kid   out   here
          "Throw out my paintings and the photos of the father of this kid.'

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**.

- This establishes a point of difference with syntactic processes like HNPS, Extraposition, and Right-Node Raising, which are still subject to certain island constraints like the CSC (Sabbagh 2007) even if they are able to escape some others (Culicover & Rochemont 1990).

- 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**.

1.6: Stranding?

In light of this conclusion, we might instead wonder if the reinforcers could simply be stranded in their base positions in a derivation where everything else persistently moved to the left.

- For instance: "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]]]]

An advantage of this view: a simple analysis of cases where the associate moves overtly.

(18) Ndat to=i   **di'o**   tallang tongang   ___   **o**.
      Not even=3ABS that   drown honestly   there
      'He didn't even really drown.'   Pelenkahu et al. 1983; 2.26

A challenge: stranding is actually impossible with overt preposing of embedded CPs.

(19) [$_{CP}$ 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.'

A second challenge: the same constraint arises with Topicalization

1. Mandar has a process of topicalization which obeys all the standard constraints on movement-it can't escape adjunct clauses, coordinate structures, complex NPs, and the like:

   (20) 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 that ___ came.'

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

   (21) **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. This is a striking constraint, as topicalization and other types of Ā-extraction strand other elements quite liberally, both in Mandar and at large (McCloskey 2000, Fitzpatrick 2006).

   (22) **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**.

1.7: 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).

Such an approach faces three immediate challenges:

1. The probe would have to target two demonstratives and ignore others. It's unclear what kind of agreement might discriminate for lexical items in this way, and how it would differ from non-local selection (especially if selection is feature-driven: Svenonius 1994).

2. The probe would have to appear (1) at the right edges of matrix CPs and (2) in fragments (presumably surviving clause-sized ellipsis: Merchant 2005), as well as (3) preposed embedded CPs and topics, but (4) not the edges of embedded CPs in-situ or fronted foci.

3. The relevant probe would have to be able to look deep into complex NPs and coordinate structures (17), and would also need to be able to target adjuncts (10).

And an apparent success turns into a serious problem:

1. In clauses that contain both *di'e* and *di'o*, only one reinforcer appears.
   This seems to be a vindication of an analysis that treats the reinforcer as agreement:

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

2. But the demonstrative which "wins" is always the rightmost, even if it is not the highest target in the clause (24)– and even when it is explicitly embedded in another target (25):

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

   (25) Bemme=i **di'e** poto   sola-na kindo-na **di'o**   nanaeke naung **o**.
         fall=3ABS this   photo friend-of mother-of that   child   down there
         "This photo of the friend of the mother of that child fell down."

3. The result is that "competition between reinforcers" appears to be resolved through a calculus which is fundamentally distinct from AGREE, which is standardly taken to be subject to constraints on syntactic minimality (e.g., Attract Closest; Rizzi 1990, Chomsky 1995, 2000).

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

2: Towards an Analysis

Summing up the results so far, then, we have seen that the reinforcers:

- Originate within the DP as selected arguments of particular 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.

Here, then, are the criteria that a proper analysis should meet.

1. It must provide a unified and exclusive characterization of matrix CPs, fragments, preposed CPs, and topics (as against non-preposed embedded CPs and foci) as domains for placement,

2. It must explain why the reinforcers violate syntactic constraints as they move to its edge,

3. It must explain how this competition can be resolved with reference only to linear distance,

4. and, if possible, it should connect all of these explanations to the interaction between the reinforcers and independently-visible properties of the grammar.

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

- **The leading intuition**: the reinforcers are positioned in the phonology.

- The domains for their placement are the constituents that form *intonational phrases*: phonological constituents of the largest size in the prosodic hierarchy (Nespor & Vogel 1986).

- There is a phonological process which positions them at its edge- R-REINFORCER- and it ignores syntactic locality domains because it operates over prosodic constituent structure.

- This process is restricted by a phonological constraint on displacement that makes reference to linear order alone, yielding a preference for movement of the rightmost reinforcer.

- And this step of movement occurs to place the reinforcers in a position where a constraint on word-minimality is exceptionally lifted, licensing the possibility of a monosyllabic word.

The core of this proposal is the following phonological rule:

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

2.1 Prosodic Organization

The starting point of this proposal is an investigation of **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

(27) 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

(28) *Prosodic Structure*
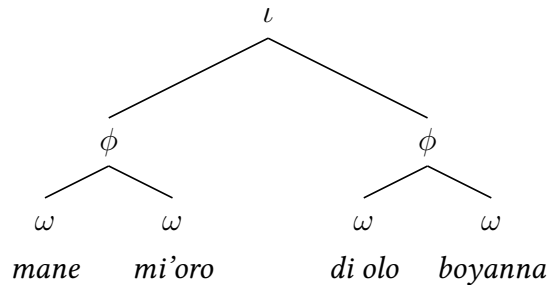
(29) *Pitch Track: Example (27)*

2.2 The Intonational Phrase

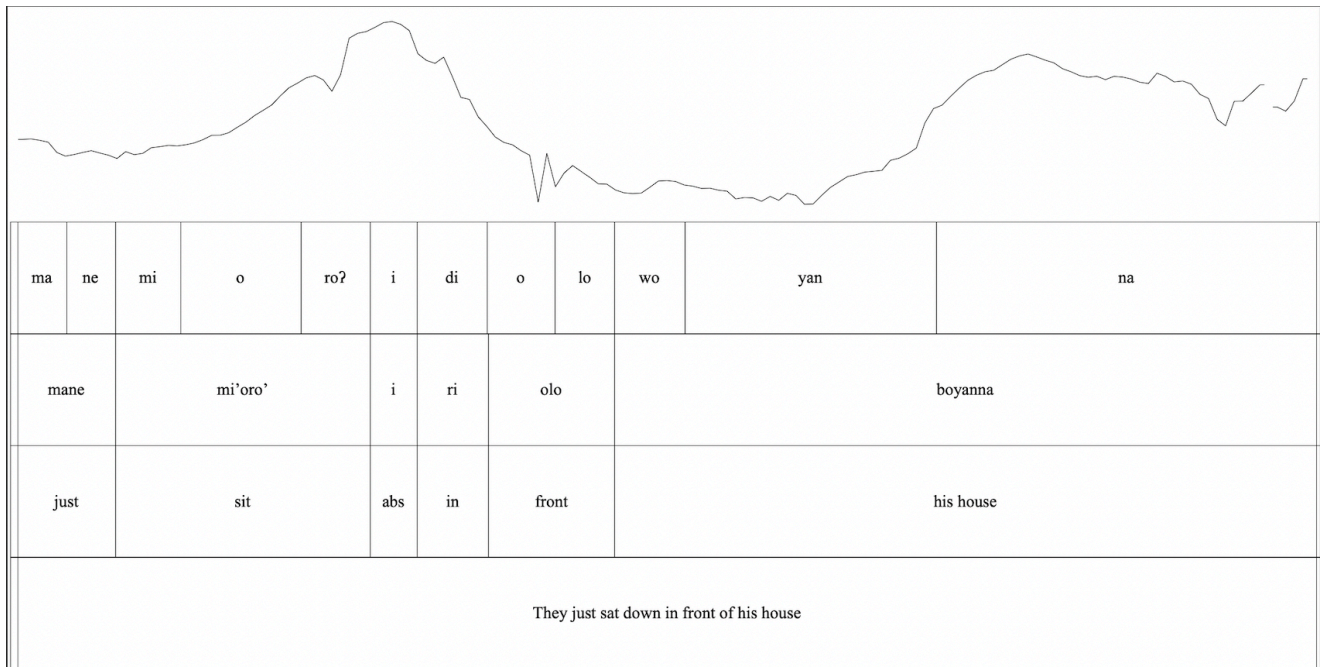The largest constituent in the prosodic hierarchy is the **intonational phrase** (ιP).

- This constituent can be detected through a range of phonological diagnostics:

    1. FINAL LENGTHENING: the final syllable of the intonational phrase is lengthened.

    2. NO DENASALIZATION: in Mandar, coda nasals denasalize before voiceless obstruents across word- and phrase-boundaries (sing songs → sis songs), but this is blocked between intonational phrases (though he sang, she left → *though he sash, she left)

These diagnostics suggest that the domains that host the reinforcers **always form ιPs**:

1. Fragments and matrix clauses form ιPs trivially.

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

2. Clause-initial topics:

    (31) Tallipong kaiyyang, tarrus=i   laku   →   { $_\iota$ tallipo**k** kaiyya:**ng** },...
          phone   big   always=3ABS sell
          '{ $_\iota$ Big phones }, those always sell.'

3. Preposed embedded clauses:

    (32) Mau   kaiyyang, tam-macoa=i   →   { $_\iota$ mau kaiyya:**ng** } ...
          though big   not-good=3ABS
          '{ $_\iota$ Though big }, it's no good.'

The same diagnostics show that non-hosts do not form ιPs:

- Embedded CPs (cf. Ishihara 2019 on Japanese):

    (33) Ma'-uang=i [$_{CP}$ mua' ma'-alli tallipong] sola-u   →   { $_\iota$ ...tallipo**s** solau:}.
          AV-say=3ABS   that AV-buy phone   friend-my
          '{ $_\iota$ My friend said that he's buying a phone }.'

- Fronted foci (cf. Aissen 1992, 2017 on Mayan):

    (34) **Di'e** boyang kaiyyang sannal **e**.   →   { $_\iota$ di'e boya**k** ...}
          this house big   very   here
          'This house is really big!'

2.3: Evidence for the Prosodic Generalization

The observations above suggest that the distribution of the reinforcers can be captured exactly by the following prosodic generalization, which is schematized in (35):

> The reinforcers surface consistently and exclusively at the right edge of an ιP.

(35) **Reinforcer Placement**: $\{_\iota$ ... $(_\phi$ $[_\omega$ DEM $]$ __ $[_\omega$ DP $]$ $)$ ... ADV $\}$

If this generalization is correct, then we predict that it should be possible to force changes in the positions of the reinforcers by manipulating the prosody- without changing the syntax.

- Prosodic structure is generally isomorphic to the underlying syntax (Elfner 2015), but

- At the sub-ιP-level, at least, it is possible to force changes in prosodic organization without changing the underlying syntax (e.g., via CLASH: Kubozono 1989, Selkirk & Elordieta 2011).

This prediction seems to be correct.

- **Observation one**: parentheticals force a change in the position of the reinforcers.

(36) a. $\{_\iota$ 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

   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 $\}$."

- **Observation two**: in traditional poetry, the distribution of metrical line breaks forces the reinforcers to appear in positions where they otherwise could not (e.g., splitting CPs).

(37) $\{_\iota$ Iamo **di'o** di-sanga   **o** $\}$ // $\{_\iota$ lopi pattonda roppong $\}$
         this   that   PASS-named there   boat escorting grass
      "$\{_\iota$ This is that which is called $\}$ $\{_\iota$ a boat escorting grass $\}$." Muthalib & Sangi 1991, 374

These observations provide further evidence that the reinforcers are positioned in the phonology.

- The relevant manipulations may not be entirely syntactically innocent, as it has been claimed that the constituents which follow clause-medial parentheticals are extraposed (Potts 2002).

- But they demonstrate a clear link between surface prosody and reinforcer placement, and they follow directly and with no further stipulations from the positional schema in (35).

3: The Phonological Account

What I would like to propose, then, is this:
The reinforcers move to the right edge of their containing intonational phrase.

(38) **Reinforcer Postposing**: $\{_\iota$ ... $(_\phi$ $[_\omega$ DEM $]$ ___ $[_\omega$ DP $]$ $)$ ...   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 displacement that must occur in the phonology.

3.1: A First Analysis

We can build a brute-force analysis in terms of Prosodic Subcategorization (Inkelas 1989)

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

  (39)   a. $\sqrt{\text{NUH-UH}}$ $\rightarrow \{_\iota$ ___ $\}^{\text{LHLH}}$
         b.   "The lexical item *nuh-uh* has to be an ιP that bears the contour Rise-Fall-Rise."

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

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

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

- TABLEAU:

$[_{\text{CP}}$ ...*di'e* **e** *buku* ...$]$	SUBCAT	LINEARITY
☞ a. $\{_\iota$ ... $[_\omega$ *(di'e)*$]$ $[_\omega$ *(buku)*$]$ ... $[_\omega$ **(e)** $]$ $\}$		*
b. $\{_\iota$ ... $[_\omega$ *(di'e)*$]$ **e** $[_\omega$ *(buku)*$]$ ... $\}$	*!	

3.2: The Real Explanation

We can do better than this, since reinforcer postposing is deeper than lexical idiosyncracy.

I'll argue that it's real phonology, motivated by *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.

(41) a. $[_\omega$ $\boxed{\textbf{Sun}}$=di=('bo.yang)].
          out=of=house

          'Out of the house.'
     b. Pole=mi $[_\omega$ $\boxed{(\textbf{'su.'ung})}$].
          come=PFV.3ABS   out

          'He came out.'

          JT: 8.15, 28-29

(42) *Short-Long Alternations*

HEAD	SHORT	LONG	GLOSS
P^0	lo	lao	to
	so	sau	over to
Σ^0	da	da'a	don't!
	ndang	andiang	not
DEM^0	de'	di'e	this
	do'	di'o	that

The word-minimality constraint is lifted at the right edge of the ιP.
- 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 $\to$ **final**.

    (43) $\{_\iota$ Melo=a' $[_\omega$ mac-co('wa)] $\}$
               AV.want=1ABS   AV-try

          'I want to TRY.'

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

    (44) $\{_\iota$ $[_\omega$ $\boxed{(\textbf{'Sung})!}$] $\}$
                  out

          'Out!'

The reinforcers invariably carry the focal accent at the right edge of the ιP.
- They audibly bear this kind of accent, and

- In the presence of a reinforcer, the preceding word cannot show the same stress shift.

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

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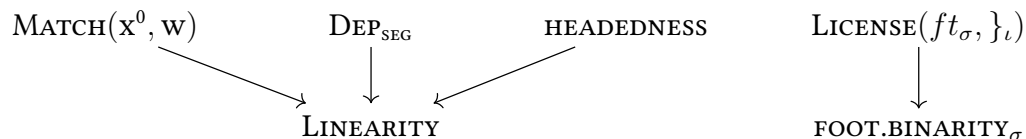
Claim One: monosyllabic words are licensed at the edge of the ι by a constraint on foot structure.

- 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($\sigma_{\text{FT}},\}_\iota$): 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:

$$\text{MATCH}(x^0, w) \qquad \text{DEP}_{\text{SEG}} \qquad \text{HEADEDNESS} \qquad \text{LICENSE}(ft_\sigma, \}_\iota)$$

$$\text{LINEARITY} \qquad\qquad\qquad \text{FOOT.BINARITY}_\sigma$$

THE TABLEAU:

[$_{\text{CP}}$ ...*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)*] ... $\}$				*!	*	

Final Ingredient: in cases of conflict, all non-rightmost reinforcers are deleted by a ranking of REALIZEMORPH (Kurisu 2001) beneath the constraints against alternative repairs to minimality.

4: Conclusions

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

- The dependency between reinforcers and demonstratives involves 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 struggle to characterize their domains of placement,
   - They fail to explain the irrelevance of syntactic locality to their movement,
   - ...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.

At the highest level, these conclusions fit well with a *parallel* and *global* theory of 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 should be 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!

- Jupri Talib, for his friendship, generosity, patience, enthusiasm, and real commitment to this work through the years. This project would not have materialized without his support.

- Sandy Chung, Ryan Bennett, Junko Itô, Armin Mester, Jaye Padgett, and Rachel Walker.

- Audiences at LASC 2022, TripleAfla, Universitas Katolik Atma Jaya, and Andrew Angeles, Nick Van Handel, Nick Kalivoda, Kate Mooney, Ross Rauber, Justin Royer, and Sören Tebay.

5: 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.

- Bernstein, J. B. (1997). Demonstratives and reinforcers in Romance and Germanic languages. Lingua, 102(2-3), 87-113

- 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

- Fitzpatrick, J. M. (2006). The syntactic and semantic roots of floating quantification (Doctoral dissertation, Massachusetts Institute of Technology).

- 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.

- Kayne, R. S. (1998). Overt vs. covert movements. Syntax, 1(2), 128-191.

- 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.

- Potts, C. (2002). The syntax and semantics of as-parentheticals. Natural Language & Linguistic Theory, 20(3), 623-689.

- Sabbagh, J. (2007). Ordering and linearizing rightward movement. Natural Language & Linguistic Theory, 25(2), 349-401.

- Svenonius, P. (1994). C-selection as feature-checking. Studia linguistica, 48(2), 133-155.

- Roehrs, D. (2010). Demonstrative-reinforcer constructions. The Journal of Comparative Germanic Linguistics, 13(3), 225-268. Williams 2003