On Coalescence, phrasal movement, and probe competition

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1. Goals

I will aim to do a few things in today's presentation:

- Overview key claims of the Coalescence paper.
- Address common questions, questions from Tommy's presentation, and open issues.
- Preview some new work on probe competition (aka "unrestricted edge feature") patterns.

This handout is currently available on my website's main page: http://hsub.web.unc.edu

Sections:

2. Dominance, recessiveness, Coalescence
    2.1 Prominence-based licensing in head bundling
    2.2 Determining dominance vs. recessiveness
3. Interactions between bundling and phrasal movement
    3.1 Delayed gratification effects
    3.2 Against a cyclic linearization alternative
    3.3 EPP on T and *do*-support in English
4. Bundling and probe competition
    4.1 "Unrestricted edge feature" effects
    4.2 Probe competition and blocking
    4.3 Challenges in current movement theories
    4.4 Harmonic Grammar analysis

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2. Dominance, recessiveness, Coalescence

2.1 *Prominence-based licencing in head bundling*

The paper has a few proposals, mostly around the generalization that some syntactic structures and their variation can be explained in terms of **prominence-based licensing**.

- Some features are grammatically expressed only when associated with a *prominent position* of some kind.

- A common way to understand phonological patterns: Some vowels licensed only in stressed syllables, consonants licensed only in onsets, etc. (Itô 1988; Goldsmith 1990; Steriade 1995; Walker 2011; a.o.), less often applied in syntax.

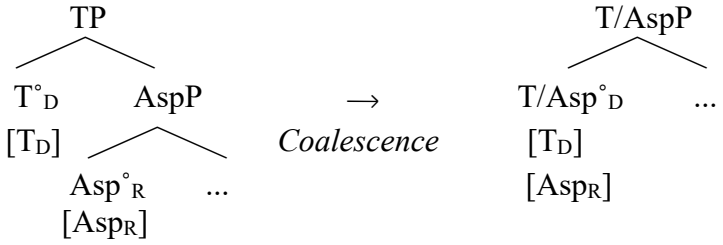
Key generalizations about **feature scattering** and **head movement** patterns can be understood as a contrast between "prominent" and "nonprominent" features.

- Feature Scattering (Giorgi & Pianesi 1997): Some features cannot be realized on a standalone heads, but share a head with other features (typically independent of movement.)
    - Languages seem to share hierarchically ordered features (Rizzi 1997; Cinque 1999), while varying in the **number of projections** that instantiate them.
- Head movement: features of the target projection are grammatically expressed only after concatenation with a moved lower head.
- Both bundling patterns share a **locality restriction**: Bundling only targets **hierarchically contiguous features/projections**.

Proposal: Bundling patterns are generated by a syntactic operation Coalescence, whose application depends on a featural contrast between **dominant** vs. **recessive category features.**

- *Category feature*: a feature whose selection triggers external Merge (Svenonius 1994; Julien 2002; Matushansky 2006; Di Sciullo and Isac 2008).
- Each category feature is first Merged separately, but recessive features must be on the same head as a dominant feature before the end of the derivation (the DOMINANCE CONDITION).
- Languages can vary in whether a particular feature is dominant [X_D] or recessive [X_R]
    - There may be independent substantive principles (semantic properties, associated features, agreement, etc.) that determine the status of particular category features.
- Coalescence applies in a **head-adjacency configuration** where a head with a dominant feature c-commands a head that lacks a dominant feature:
    - Coalescence preceded by external Merge:

(1)



- Coalescence preceded by internal Merge (Last Resort):

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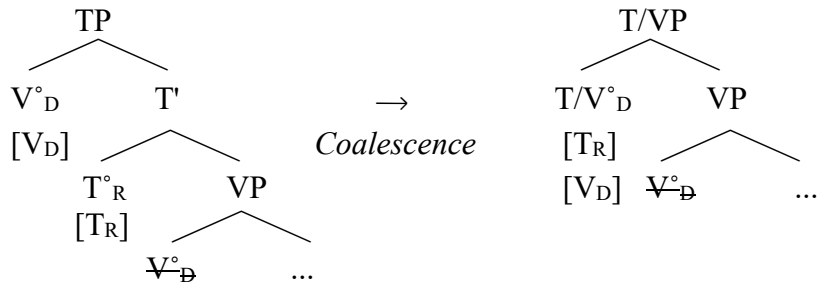


- Some open questions:
  - Why must the dominant head c-command the recessive one? This is needed to compel movement of the lower head in head movement. I don't yet know if there is a deeper reason for this - suggestions are welcome.
  - How long can the grammar wait before a Last Resort head movement is triggered? We might expect the Dominance Condition to apply at phase boundaries, but this requires some variation to be explained as differences in which projections are phases (Abels 2003; discussion in Citko 2014 ch. 6).

General predictions: Broadly, two aspects of variation captured in terms of the number of dominant features in a language.

- More dominant features > More functional projections, fewer potential head movements.
- In principle, a language can have as many projections as the total number of category features (all category features are dominant), or any number below that.
- *Assuming that all category features are first Merged in a universal order*, Coalescence is restricted in the types of structures that can be built (in line with Giorgi & Pianesi 1997):
  - Hypothetical ex. with left-peripheral category features [Topic]>[Focus]> [Subject].

(3)

a.	[TopP	[FocP	[SubjP …
b.	[Top/FocP		[Subj …
c.	[TopP		[Foc/SubjP …
d.	[Top/Foc/SubjP		…
f.	*[Top/SubjP		[FocP …
g.	*[FocP		[Top/SubjP …

  - Coalescence can only bundle *hierarchically contiguous* features.

2.2 *Determining dominance vs. recessiveness*

Early versions of the project (Hsu 2016a;b) proposed that dominance vs. recessiveness of a feature is determined by phonological criteria:

(4) A category feature [F] is dominant if:
a. A head containing only [F] has a non-null exponent in its phonological representation.
OR
b. A head containing only [F] can trigger phrasal movement to its specifier.
Otherwise, [F] is recessive.

Reviewers and commenters have noted this to be infeasible for a few reasons:

- Verbs seem to be universally dominant - they license specifiers (Baker 2003) in their base and moved projections, but verb roots are bound morphemes in some languages (ex. Spanish *habl-*)

- The criteria in (a), (b) refer to different types of surface properties.

My current conclusion is that **dominance vs. recessiveness is a purely formal property***, even if often correlated with phonological properties*.

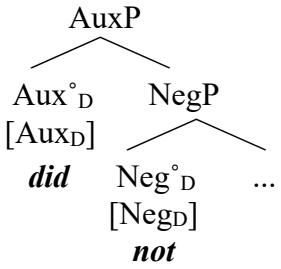
This point is relevant to a comment on the English contracted negation analysis:

- Only contracted sentential negation *n't* moves with auxiliaries in inversion contexts.

(5) a. *Didn't* Lindsay ___ host the gala? (cf. **Did not* Lindsay host the gala?)
b. *Did* Lindsay ___ *not* host the gala? (cf. **Did* Lindsay *n't* host the gala?)

- The paper proposes that *n't* is the exponent of [Neg_R], *not* is the exponent of [Neg_D].

(6)



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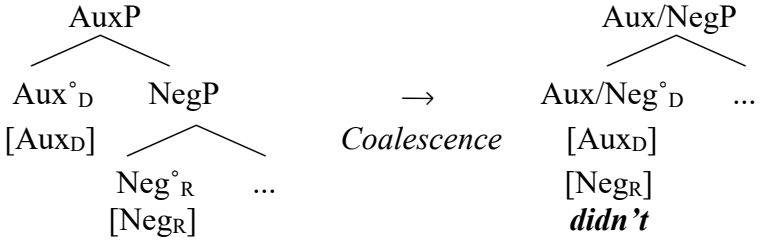

It was noted that there might be variation on the availability of (non)contraction, suggested by some Googled examples:

(8) Why did not John know it was Jesus, Son of God? (2019)
(9) Why did not John DeCamp come back to Ohio? (1905)

- My reasons for skepticism: the sources are written text, and one of them is in a specialized, biblical register.

- Even so, a dialect with these pronunciations is not a counterexample. Recessive heads often seem to be unpronounced or affix-like, but this is not strictly required.

    - It is possible for a language to have a recessive feature whose exponent is a separate phonological word from the exponent of its dominant host.

Next sections: Interactions between bundling and phrasal movement, **delayed gratification** and **probe competition patterns**, suggest some additional proposals about the EPP property, in relation to dominance and recessiveness.

Both are primarily illustrated with verb second (V2) effects, but neither pattern is unique to V2.

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3. Interactions between bundling and phrasal movement

3.1 *Delayed gratification effects*

Some phrasal movements can only occur if head movement to the same projection also takes place (Den Dikken 2007; Kandybowicz 2009; Gallego 2006, 2010):

- In verb second patterns, movement to Spec, CP is available if C is filled by head movement, not if C filled by externally Merged complementizer.

(10) *German*

a. Er sagte [dass$_C$ er morgen kommt$_T$]
   He said that he tomorrow comes

b. Er sagte [er kommt$_{T+C}$ ~~er~~ morgen ~~kommt~~]
   He said he comes tomorrow

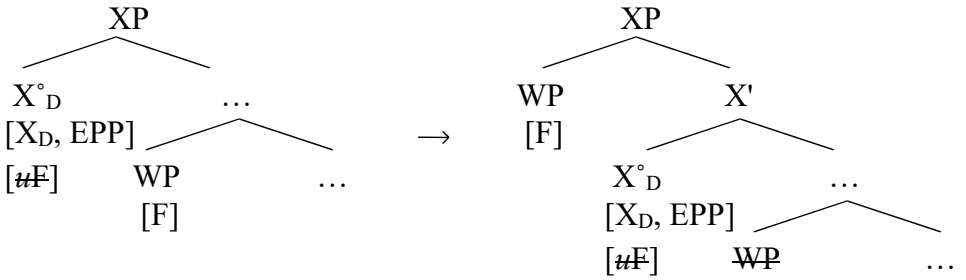
c. *Er sagte [er dass$_C$ ~~er~~ morgen kommt$_T$]
   He said he that tomorrow comes
   'He said that he is coming tomorrow.' (Holmberg 2015 after den Besten 1983)

- Such patterns are unexpected if head movement and phrasal movement involve non-overlapping features, or if head movement does not occur in syntax (Dékány 2018).

Proposal: Phrasal movement, like head movement, depends on dominance vs. recessiveness:

- Only dominant heads (but not all dominant heads) can have the [EPP] property.
- I analyze [EPP] as the *ability* for a head to license a specifier in its projection, rather than a requirement.
- [EPP] can associate with multiple probes during a derivation, and is not deactivated.
- Conditions on phrasal movement:
    - A specifier can be Merged in a projection iff.
      (i) its head participates in probe-goal agreement [uF] … [F] with a phrase, and (ii) its head has [EPP].

(11)



- In V2 patterns, a dominant verb or auxiliary first moves to the C-domain and triggers Coalescence. A probe on C then triggers phrasal movement in association with [EPP].
    - Illustrated with a topic probe on C (Sec. 4 discusses other C probes that trigger movement in V2)

(12) a. *Agreement*

$[_{CP}$ C_R $[C_R, \textit{u}\sout{\text{Top}}]$ $[_{T/VP}$ T/V_D $[V_D, EPP]$ … XP [Top]

b. *Head movement, Coalescence*

$[_{C/T/VP}$ $C/T/V_D$ $[C_R, \textit{u}\sout{\text{Top}}]$ $[V_D, EPP]$ $[_{T/VP}$ $\sout{T/V_D}$ … XP

c. *Phrasal movement*

$[_{C/T/VP}$ XP $C/T/V_D$ $[C_R, \textit{u}\sout{\text{Top}}]$ $[V_D, EPP]$ $[_{T/VP}$ $\sout{T/V_D}$ … $\sout{\text{XP}}$

- In embedded clauses with a complementizer (non-V2 in German), C_D is dominant, and head movement need not occur. C probes are checked by agreement, but do not trigger phrasal movement if C lacks [EPP]

(13) [$_{CP}$ C_D [$_{T/VP}$ T/V_D … XP
[C_D, ~~*u*Top~~] [V_D, EPP] [Top]

- This does not rule out the possibility for other languages to have dominant complementizer heads with [EPP] – Spec,CP can be filled without the need for head movement to C.

(14) *Bulgarian* (Krapova and Karastaneva 2002)
Ivan misli [kniga-ta če Marija ja e kupila]
Ivan think-3SG book-the that Mary it.CL has bought
'Ivan thinks that the book, Mary has bought.'

3.2 Against a cyclic linearization explanation

A recently proposed alternative (Arregi and Pietraszko 2020): Delayed gratification patterns result from **cyclic linearization** (Fox and Pesetsky 2005) rather than head displacement itself. In brief,

- Syntactic structures are linearized in each spell-out domain, creating *ordering statements*.
- Spell-out in of higher domains can create new ordering statements, as long as they do not contradict ordering statements of previous domains.
- In this view, delayed EPP patterns follow from restrictions on postsyntactic linearization, not syntactic operations.

This is plausible for German verb-second due to the head-final nature of its VP. – In these examples, assume that the relevant ordering statements are between O and Aux.

- After T-to-C movement, object movement to Spec,CP is permitted, since it mains the O < Aux ordering established earlier.

(1) *German* (Vikner 2010)

a.		Dass$_C$	die Kinder	diesen Film	gesehen	haben	**O < Aux**
		That	the children	this film	seen	have	
b.	Diesen film	haben$_{T+C}$	die kinder	____	gesehen	____	**O < Aux**
	This film	have	the children		seen		

However, the cyclic linearization account does not clearly extend to languages like Icelandic, with head-initial VP:

(2) *Icelandic* (Vikner 2010)

a.		að$_C$	börnin	hafa	séð	þessa	mynd	**Aux > O**
		thatt	he.children	have	seen	this	picture	
b.	þessa mynd	hafa$_{T+C}$	börnin	____	séð	____		**O > Aux**
	this film	have	the.children		seen			

- Object movement after T-to-C movement creates an O > Aux ordering statement, contradicting Aux > O established lower in the clause.

- T-to-C movement is not expected to facilitate object movement, contrary to fact.

A cyclic linearization explanation does not suffice for all delayed gratification patterns – suggesting that syntactic head movement is necessary to license these phrasal movements.

3.3 *EPP on T and do-support in English*

At first glance, the EPP property of English T is surprising in this theory, specifically in clauses without an auxiliary:

(15) [$_{TP}$ Lucille T [often [$_{VP}$ sees George]

- Because Spec,TP is always filled, at the end of the derivation [Tense] is on a dominant head with [EPP].

- When auxiliaries are present, the highest Aux moves to T, suggesting that T_R is recessive when first Merged.

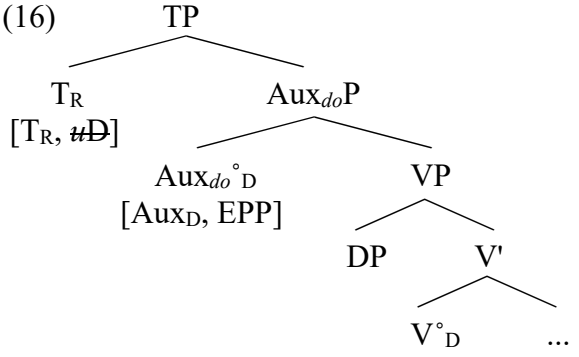
- So what happens in cases like (15), where no overt auxiliary is present?

Proposal: All English clauses contain a dominant auxiliary that is sometimes null, and sometimes pronounced as *do*, depending on its final configuration.

- Aux_{do} is Merged above *v*/VP but below all other auxiliary heads (Prog, Perf, Mod, etc.); Aux_{do} moves to T only when no other (dominant) auxiliaries are present.

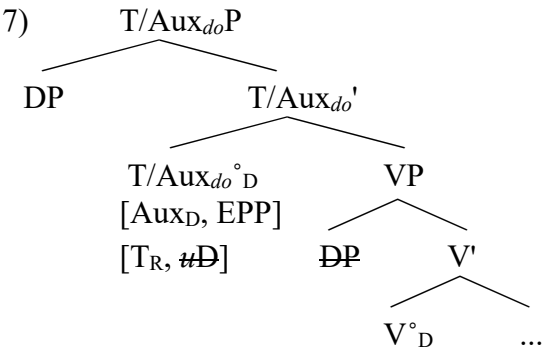
- If $Aux_{do}{}^{\circ}{}_{D}$ is the only dominant auxiliary, it will move to T and undergo Coalescence (17), and its [EPP] triggers subject movement in association with [~~*u*D~~].

(16)



(not in the paper)

(17)

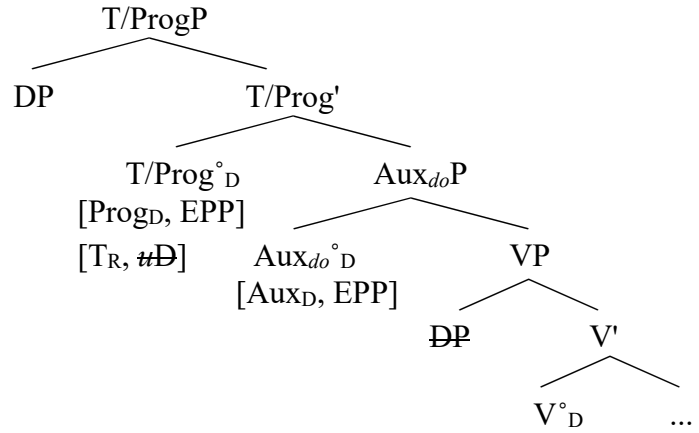


Based on Embick and Noyer's (2001) insight that occurrence of *do* depends on the configuration of T and V, the same criteria can be used to determine the pronunciation of Aux$_{do}$°.

(18) If VP is the complement of Aux$_{do}$°, pronounce all features of Aux$_{do}$° on V.
If VP is not the complement of Aux$_{do}$°, pronounce Aux$_{do}$° as *do*, with all of its included features as suffixes.

When other auxiliaries are present, Aux$_{do}$° is not pronounced; VP is the complement of Aux$_{do}$°.

(19)

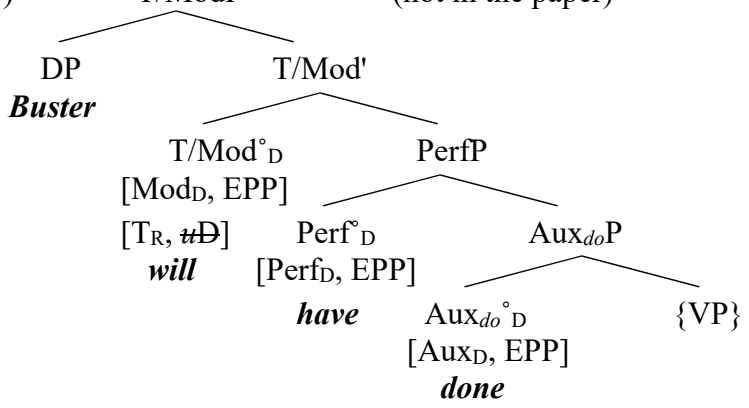


- An empirical advantage: dialects where *do*-support occurs with auxiliaries in ellipsis:

(20) George will have escaped to Mexico, and Buster will have done too.

- In this proposal, this pattern is generated if these dialects allow VP to be elided independently of Aux$_{do}$°$_D$, which is then pronounced because its complement is elided.

(21) T/ModP (not in the paper)



- This pattern is not predicted if *do* is inserted in T, à la Embick & Noyer (2003).

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4. Bundling and probe competition

4.1 *"Unrestricted edge feature" effects*

Bundling can put multiple "competing" probes in a head position – but only one can trigger phrasal movement to its specifier.

- These patterns offered early key evidence for the Feature Scattering bundling parameter (Giorgi and Pianesi 1997; Bobaljik and Thráinsson 1998).

Illustration in German V2 clauses: A variety of items can occupy Spec,CP. Each type of item can grammatically appear lower within InflP when another item is in Spec, CP.

(22) a. (*Aboutness shift) topic first*

Diesen	Posten	**hatte**	er	bis	zum	Ende	von	Cheneys	Amtszeit …
This	post	had	he	until	to.the	end	of	Cheney's	tenure

'He had this post until the end of Cheney's tenure ...'

b. *Contrast first*

Den Roman Anayurt Oteli	**veröffentlichte**	er	1973	nach	einer	8-jährigen	
The novel Anayurt Oteli	published	he	1973	after	a	8-year	
Schaffenspause.							
creation.pause							

'After a break of 8 years he published the novel Anayurt Oteli in 1973.'

c. *Frame-setting adverbial first*

Bis 1750	**besuchte**	er	fünf	Jahre	lang	die Volksschule	des	Ortes.
Until 1750	attended	he	five	years	long	the elementary.school	of.the	town

'Ending in 1750, he went for five years to the elementary school.'

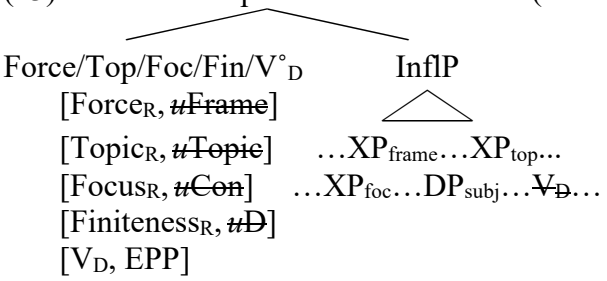
d. *Subject first*
Peter Albright **wächst** in einem Waisenhaus auf.
Peter Albright grows in an orphanage up
'Peter Albright grows up in an orphanage.' (Bader 2020)

- The flexibility makes it difficult to attribute all movements to a single probing feature on C (Fanselow and Lenertová 2010).

Proposal: Each type of moved XP is the goal of a corresponding C-domain feature (Rizzi 1997; Benincà and Poletto 2004).

- After Coalescence with a dominant V_D or Aux_D, each C-domain probe can potentially associate with [EPP] on the moved head, and compel phrasal movement of its goal.

(23) Force/Top/Foc/Fin/VP (modified version of (53) in *LI* paper)



- Each probe is checked by Agree when its recessive head is Merged, prior to Coalescence with V_D.

- Theoretical benefit: The inventory of probes is identical, regardless of which element moves – This is expected in some theories where interpretable features must also be licensed by Agree (Sigurðsson 2011; Kalin 2019).

Next: Some new work that addresses further issues not discussed in the *LI* paper.

4.2 *Probe competition and probe blocking*

At some point, the grammar must determine which probe "wins" to associate with [EPP] in clauses with more than one potential first-position item. I will call this **probe competition**.[1]

Similar patterns with different target positions, moved phrase types:

- Spec, TP in Finnish (Vilkuna 1995; Holmberg and Nikanne 2002; Doner 2019)
  - Potentially filled by DPs of any case (unlike "subject position" EPP patterns), referential adverbs (*now*, *here*)

[1] This differs from the use of this term in Oxford (2015), which refers to a pattern where one nominal expression is the goal of two separate probes.

- Spec, AspP in Gungbe (Aboh 2009)
    - Potentially filled by objects, reduplicated adverbs, or gerunds. According to Aboh, a maximal category not necessarily case- or theta-marked.

- Any other suggestions welcome!

How is the choice of winning probe determined in German? It is possible to identify *relative preferences*, but they are crucially *probabilistic*.

- Speyer (2008) identifies corpus sentences where the 4 types of potential first-position items can be separately labeled, and notes which item is in Spec,CP.

- Across conditions (combinations of available goals), results converge on a single (transitive) preference hierarchy:

(24) *frame-setter* > *contrast* > *topic* > *subject*

	Contrast first	Topic first	Subject first	Total
Number	20	9	3	32
Percent	63%	28%	9%	100%

Table 1: Topic + Contrast (from Speyer 2008; Table 1)

	Frame-setter first	Topic first	Subject first	Total
Number	25	4	0	29
Percent	86%	14%	0%	100%

Table 2: Contrast+ Frame-setter (from Speyer 2008; Table 2)

	Frame-setter first	Contrast first	Subject first	Total
Number	12	3	1	16
Percent	75%	19%	6%	100%

Table 3: Contrast+ Frame-setter (from Speyer 2008; Table 3)

	Frame-setter first	Contrast first	Topic first	Subject first	Total
Number	6	1	0	0	7
Percent	86%	14%	0%	0%	100%

Table 4: Topic + Contrast+ Frame-setter (from Speyer 2008; Table 4)

Information-structure based movement preferences can be **blocked** by separate factors.

- Bader (2020): While there is preference for non-subject topics to move to Spec,CP, only demonstrative pronoun topics but not personal pronoun topics move.

- Corpus results for sentences with subject pronoun *er* and an object pronoun[2]:

	Dem. pronoun	Personal pronoun
Object pron. in first position	76%	2%
Object pron. not in first position	24%	98%

Table 5 (from Bader 2020; Table 2.2)

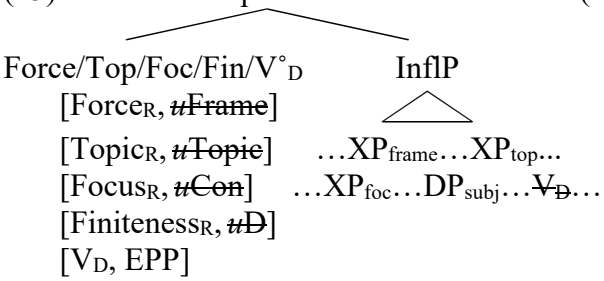
- The pattern suggests that topic movement is blocked if it would put a non-subject personal pronoun in Spec,CP.

- The blocking property (a combination of person, case features) appears to be **featurally unrelated** to the blocked probe (topic, contrast).

4.3 *Challenges in current movement theories*

While the previous proposals permit only only one probe to trigger phrasal movement in probe competition structures like **Error! Reference source not found.** (repeated), there is no explanation for which probe wins.

(25) Force/Top/Foc/Fin/VP (modified version of (53) in *LI* paper)



As a first attempt, some aspects of the pattern are captured if features on C are arranged in an **ordered stack** (Lahne 2010; Manetta 2011):

- Suppose that probes on C are ordered [*u*Frame]>[*u*Contrast]>[*u*Topic]>[*u*D] in the priority with which they can associate with [EPP].

- However, this does not account for:

  - Probabilistic nature of the preference hierarchy; preferences are not exceptionless.

  - Differences in the acceptability of ordering reversals of different feature pairs (e.g. *frame-setter* > *contrast* preference is more often maintained than *contrast* > *topic*).

The basic problem is not obviated in an analysis of V2 with an articulated CP structure:

[2] The information structure status of subjects vs. objects is not entirely controlled for in these examples. However, they are both discourse-given as they are pronouns, and there is a general preference for aboutness shift topic objects to occur in Spec, CP.

- Haegeman (1996): All left-peripheral fronting in some languages goes through Spec,FinP. Once one phrase has moved, all further movement through this position is blocked.

(26) a. $[_{\text{ForceP}}$ $[_{\text{TopicP}}$ $[_{\text{FocusP}}$ $[_{\text{FinP}}$ XP_i Fin [… ~~XP_i~~ … XP_j …]]]]]

- In this structure, competition takes place among the probes of distinct left-peripheral heads.
- There is an additional **look-ahead problem** if the first-position item moves to Spec,FinP before the higher heads with their probes have been Merged. In this sense, the probe competition problem is more easily resolved in the bundled structure.

No prior approach accounts for the blocking pattern, where [*u*Top] fails to move topics with personal pronoun features. However, "do something except when …" blocking patterns are a hallmark of constraint-based grammars.

4.3 *Harmonic Grammar analysis*

Proposal: These patterns are best understood in **a particular type of constraint-based syntactic grammar**:

- Syntactic structures are built derivationally from the bottom up. *At each derivational step*, the grammar looks at features and structures of the existing structure, and compares output candidates that apply different syntactic operations (Heck & Müller 2013).
- Constraint evaluation occurs in a Maximum Entropy Harmonic Grammar (MaxEnt: Goldwater and Johnson 2000; Hayes and Wilson 2008):
    - Constraints have numerical weights (Harmonic Grammar; Legendre et al. 1990), rather than strict rankings (Prince and Smolensky 1993).
    - Probabilities of output types are computed from their harmony scores. **Less well-formed candidates are not categorically banned, but they are less likely to surface.**

We restrict our attention to the derivational step that occurs after immediately after head movement and Coalescence, before movement to Spec, CP.

Heck & Müller (2013): Phrasal movement satisfies the MERGE CONDITION constraint. I propose multiple versions of this constraint, *each indexed to a distinct probe* and weighted separately.

(27) MERGE CONDITION (FRAME): For each [*u*Frame] and XP with matching [Frame], [*u*Frame] triggers Merge of XP.

(28) MERGE CONDITION (CONTRAST): For each [*u*Con] and XP with matching [Con], [*u*Con] triggers Merge of XP.

(29) MERGE CONDITION (TOPIC): For each [*u*Top] and XP with matching [Top], [*u*Top] triggers Merge of XP.

(30) MERGE CONDITION (SUBJECT): For each [*u*D] and XP with matching [D], [*u*D] triggers Merge of XP.

- As formulated, there is no violation of a given MERGE CONDITION constraint if no potential goal is present in the structure.

The input consists of the (bundled) C head with its probes. The grammar compares output candidates with each goal type moved to Spec,CP.

- Each output candidate violates MERGE CONDITION constraints for probes with matching goals that do not move.

- Sample constraint violation profiles illustrated in (31), in a structure where all 4 goal types are present. Actual constraint weights will be discussed below.

(31) *Constraint violation profiles of phrasal movement candidates*

$[_C\ [_{InflP}\ldots XP_{sub}\ldots XP_{con}\ldots XP_{top}\ldots$	MERGE (FRAME)	MERGE (TOP)	MERGE (CON)	MERGE (SUB)
$[_{CP}\ XP_{frame}\ [_C\ [_{InflP}\ldots$ (*frame-setter first*)		-1	-1	-1
$[_{CP}\ XP_{con}\ [_C\ [_{InflP}\ldots$ (*contrast first*)	-1	-1		-1
$[_{CP}\ XP_{top}\ [_C\ [_{InflP}\ldots$ (*topic first*)	-1		-1	-1
$[_{CP}\ XP_{subj}\ [_C\ [_{InflP}\ldots$ (*subject first*)	-1	-1	-1	

A set of constraint weights that accounts for the attested (probabilistic) preference hierarchy was identified using the MaxEnt Grammar Tool (Hayes et al. 2009) learner.

- The learner is supplied with tableaux consisting of (i) candidate output forms, (ii) their constraint violation profiles, and (iii) their frequencies.

- Concretely, the learner was given the data in each of the tables from Speyer (2018), paired with violation profiles of all candidates.

- The learner acquired a set of constraint weights that generates candidate probabilities that closely approximate the attested pattern.

- Two tables from Speyer (2008) are shown with corresponding tableaux, which crucially show the **learned constraint weights,** and **predicted probabilities** of output types.

(32) *Learned constraint weights and predicted probabilities corresponding to Table 1*

$[_C\ [_{InflP}\ldots XP_{sub}\ldots XP_{con}\ldots XP_{top}\ldots$	MERGE (TOP) w=1.28	MERGE (CON) w =2.01	MERGE (SUB) w =0	*H*	*P*
$[_{CP}\ XP_{con}\ [_C\ [_{InflP}\ldots$ (*contrast first*)	-1		-1	-1.28	.62
$[_{CP}\ XP_{top}\ [_C\ [_{InflP}\ldots$ (*topic first*)		-1	-1	-2.01	.30
$[_{CP}\ XP_{subj}\ [_C\ [_{InflP}\ldots$ (*subject first*)	-1	-1		-3.29	.08

	Contrast first	Topic first	Subject first	Total
Number	20	9	3	32
Percent	63%	28%	9%	100%

Table 1: Topic + Contrast (from Speyer 2008; Table 1)

(33) *Learned constraint weights and predicted probabilities corresponding to Table 4*

$[_C\ [_{InflP}\ldots XP_{sub}\ldots XP_{con}\ldots XP_{top}\ldots$	MERGE (FRAME) w=3.45	MERGE (TOP) w=1.28	MERGE (CON) w=2.10	MERGE (SUB) w=0.0	*H*	*P*
$[_{CP}\ XP_{frame}\ [_C\ [_{InflP}\ldots$ (*frame-setter first*)		-1	-1	-1	-3.3	.72
$[_{CP}\ XP_{con}\ [_C\ [_{InflP}\ldots$ (*contrast first*)	-1	-1		-1	-4.73	.17
$[_{CP}\ XP_{top}\ [_C\ [_{InflP}\ldots$ (*topic first*)	-1		-1	-1	-5.1	.08
$[_{CP}\ XP_{subj}\ [_C\ [_{InflP}\ldots$ (*subject first*)	-1	-1	-1		-6.83	.02

	Frame-setter first	Contrast first	Topic first	Subject first	Total
Number	6	1	0	0	7
Percent	86%	14%	0%	0%	100%

Table 4: Topic + Contrast+ Frame-setter (from Speyer 2008; Table 4)

How do we account for the probe blocking pattern with object personal pronouns?

- In a constraint-based grammar, this can be attributed to a constraint or group of constraints that collectively outweigh MERGE CONDITION (TOPIC).

- However, it is not yet clear to me which well-formedness principle(s) are violated by the movement of personal object pronouns, to the exclusion of demonstrative object pronouns. Suggestions are welcome!

The indexing of MERGE CONDITION constraints to individual probes is supported by variation among languages with V2 in the items that can move to first position, such as:

- Absence of initial foci in Swedish (Holmberg 2015).
- Dispreference against initial topics in Kashmiri (Manetta 2011).

Conclusions:

- Key characteristics of probe competition and probe blocking patterns are challenging to current movement theories, but highly amenable to a weighted constraint analysis.

- Probabilistic weighted constraint grammars have potential to expand the explanatory reach of syntactic theory: Some probabilistic patterns can inform proposed syntactic representations, and predictions can be made about variation and predicted probalities.

Questions and comments are welcome now, or later by email (hsub@email.unc.edu)

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