The Prosody of Binding: Reflexive Voice and Default Sentential Stress*

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1. Introduction

Default Sentential Stress (DSS) is the **Nuclear Stress of a sentence in an out-of-the-blue context**, which can be elicited by questions like *what happened?* (Zubizarreta and Vergnaud 2006)

↳ In many cases, **DSS tends to fall on the rightmost word** of an English sentence:

(1) Q: What happened at work today?
A1: Mark told Maxine about *Sára*.
A2: #Mark told *Maxíne* about Sara.

(2) Q: Tell me something about each of the characters on this show.
A1: Ms. Adler likes *Ráven*.
A2: #Ms. Adler *líkes* Raven.

↳ But **reflexive anaphors of English seem to behave differently**, at first glance:

(3) Q: What happened at work today?
A1: #Mark told Maxine about *himsélf*.
A2: Mark told *Maxíne* about himself.

(4) Q: Tell me something about each of the characters on this show.
A1: #Ms. Adler likes *hersélf*.
A2: Ms. Adler *líkes* herself.

The big question:
What determines this exceptional behavior by reflexives?

↳ Data like (3)–(4) **have been said to be simple exceptions to the calculation of stress** on the part of reflexives (e.g. Bresnan 1971, Kahnemuyipour 2009, or Zubizarreta 1998)

↳ However, these generalizations cannot account for the full range of data

*I'd like to thank everyone who has given me their time in helping me work through this problem. Special thanks to my advisors, Dominique Sportiche and Sun-Ah Jun. Further thanks to Natasha Abner, Daniel Büring, Elsi Kaiser, Laura Kalin, Hilda Koopman, Robyn Orfitelli, Masha Polinsky, Craig Sailor, Tim Stowell, Maziar Toosarvandani, Matt Tucker, Michael Wagner, Lauren Winans, the audiences of the UCLA syntax/semantics seminar, the UCSC s-circle, WCCFL 29, the Parallel Domains Workshop, ETAP2, NELS 42, as well as anyone who has lent their voices, ears or judgments.

- ↳ Reflexives **only behave exceptionally in certain syntactic conditions**, implicating a syntactic analysis
- ↳ The syntactic analysis that I present supports the claim that the distribution of stress is the result of **direct syntax-prosody mapping** (e.g. Cinque 1993 *et seqq.*), **without stipulations** on the behaviors of certain (classes of) words

2. Data

2.1. Methods

To answer this, data was experimentally gathered by having native speakers read short scripts

- ↳ The contexts are set up so that **everything in the test sentence is new information**, in hopes of eliciting broad-focus on the whole sentence (the context for DSS)
- ↳ The test conditions were set up so that **reflexives, R-expressions and pronouns were all tested in the same context**, to allow for comparison between the three types of DP
- ↳ Participants silently read the entire script first, to fully understand the context, and then read the script aloud (two repetitions)
- ↳ Here is a **sample script with the test sentence is underlined**:

(5) A: What a day! I'm tired.
B: I bet you are! How are you liking your job here at the camp?
A: It's a lot of fun, but the kids are a little rowdy.
B: Yeah. What was all that commotion in the crafts room yesterday?
A: **Moira was gluing Noah to herself**. It was in good fun, though.
B: As long as everyone's having a good time!

- ↳ Each test sentence is to be prosodically labelled following the conventions of MAE_ToBI (Beckman and Hirschberg 1994)
- ↳ If the reflexive bears the final pitch accent of the prosodic phrase (iP), it is deemed as bearing the DSS

2.2. Patterns

Consider the two minimal triplets below – the reflexive must not bear the DSS, even though an R-expression in the same position must

- ↳ DSS seems to be assigned "exceptionally" in the cases with reflexives:

(6) Q: What happened in the kitchen?
A1: Remy accidentally *búrned* himself. ✓*exceptional DSS*
A2: #Remy accidentally burned *himsélf*. #*normal DSS*
A3: Remy accidentally burned *Maríe*. ✓*normal DSS*

(7) Q: What was all that commotion in the crafts room yesterday?
A1: Moira was gluing *Nóah* to herself. ✓*exceptional DSS*
A2: #Moira was gluing Noah to *hersélf*. #*normal DSS*
A3: Moira was gluing Noah to *Wéndy*. ✓*normal DSS*

The data is more complex than any reflexives-as-exceptions analysis would allow; **reflexives' exceptional behavior** is constrained in three ways:

↳ Reflexives behave as R-expressions **when not bound by the subject**

(8) Q: What happened at work today? **Subject Binder**
A1: Mark told *Maxíne* about himself. *exceptional DSS*
A2: #Mark told Maxine about *himsélf*.
A3: Mark told Maxine about *Sára*.

(9) Q: What happened at work today? **Non-Subject Binder**
A1: #?Mark told *Maxíne* about herself.
A2: Mark told Maxine about *hersélf*. *normal DSS*
A3: Mark told Maxine about *Sára*.

↳ Reflexives behave as R-expressions **in passives**

(10) Q: What happened at work today? **Active Clause**, *(8) repeated*
A1: Mark told *Maxíne* about himself. *exceptional DSS*
A2: #Mark told Maxine about *himsélf*.
A3: Mark told Maxine about *Sára*.

(11) Q: What happened at work today? **Passive Clause**
A1: #Maxine was *tóld* about herself.
A2: Maxine was told about *hersélf*. *normal DSS*
A3: Maxine was told about *Sára*.

↳ Reflexives behave as R-expressions **when the reflexive is in an island**

(12) Q: Tell me something new. **No Island**
A1: Ms. Adler *líkes* herself. *exceptional DSS*
A2: #Ms. Adler likes *hersélf*.
A3: Ms. Adler likes *Ráven*.

(13) Q: Tell me something new. **Reduced Relative-Clause Island**
A1: #Ms. Adler likes people *líke* herself.
A2: Ms. Adler likes people like *hersélf*. *normal DSS*
A3: Ms. Adler likes people like *Ráven*.

(14) Q: What happened in the kitchen? **Coordinate Structure Island**
A1: #Remy accidentally burned *Maríe* and himself.
A2: Remy accidentally burned Marie and *himsélf*.[1] *normal DSS*
A3: Remy accidentally burned Marie and *Wárren*.

[1]The DSS falls on the final conjunct in cases like (14A2), even if the conjunct order is switched. The appropriate

(15)

Q:	What happened in the lobby?	**Adjunct Island**
A1:	#Lucie counted five tourists *besídes* herself.	
A2:	Lucie counted five tourists besides *hersélf*.	*normal DSS*
A3:	Lucie counted five tourists besides the American *téachers*.	

The big questions:
What determines this exceptional behavior by reflexives?
Why is this exceptional behavior constrained as it is?

The data in (8)–(15) are **strong evidence against** the claim that anaphoric elements cannot bear DSS (Bresnan 1971), as well as the claim that functional elements can't (Zubizarreta 1998).[2]

2.3. Brief Interlude: Unstressed Reflexives ≠ Unstressed Pronouns

It may seem that unstressed reflexives are a sub-case of unstressed pronouns, like (16)

(16) Q: What will happen at the party?
A1: Ken will try to *embárrass* you.
A2: Ken will try to *embárrass* himself.

However, **unstressed reflexives and unstressed pronouns have different distributions**

↳ First, unstressed reflexives occur in places that unstressed pronouns cannot:

(17) Q: Maria showed herself to Bob.
A: No, she showed *Jóhn* herself.

(18) Q: Maria$_j$ showed her$_k$/it to Bob.
A: *No, she$_j$ showed *Jóhn* her$_k$/it.

↳ Moreover, unstressed pronouns occur in places that unstressed reflexives cannot:[3]

(19) Q: What happened in the kitchen?
A1: Remy accidentally burned *Maríe* and me.
A2: #Remy accidentally burned *Maríe* and himself.

Whatever derives pronouns' avoidance of stress **is not entirely the same** as whatever derives reflexives' avoidance of stress

stress is *Remy accidentally burned himself and **Maríe*** – not *Remy accidentally burned **himsélf** and Marie.*

[2]The fact that these generalizations seem to be hitting at some truth is something I do not fully address here. However, perhaps Bresnan's generalization on anaphoric elements can be captured by a depth-of-embedding analysis of phrasal stress (Cinque 1993), given an analysis like Wagner 2006 whereby all given material moves to a higher position in the syntactic structure. (Though some issues remain, e.g. when a non-given reflexive anaphor doesn't bear stress, and when pronouns are in islands don't bear stress [Wagner p.c.]). Zubizaretta's generalization may perhaps be derived if functional elements are not merged as low as has been traditionally thought (see e.g. Sportiche 2005). This analysis of Zubizaretta's generalization has some empirical advantages – namely it predicts that functional elements like Ps will sometimes bear phrasal stress (e.g. in swiping *Who **wíth**?* and in certain verb-particle constructions *After passing **oút**, John came **tó***).

[3]It has been proposed that weak pronouns move, deriving their prosodic weakness (Cardinaletti and Starke 1999, Wagner 2006). Given island data like (19A1), this could not predict all cases of stress-avoidance by pronouns.

3. Analysis

3.1. Deriving DSS

In order to understand this DSS data, **we need a model of phrasal stress**

↳ Chomsky and Halle (1968) propose that the appropriate model is based on linear order:

(20) **Nuclear Stress Rule** (English): The rightmost primarily-stressed vowel in a domain receives the highest stress

If we assume the NSR is correct, it must parametrizable as left-/right-most to account for some of the cross-linguistic variation we see

↳ Assuming specifiers can be initial/final, and heads can be initial/final as well...

↳ Then we expect eight possible kinds of languages

↳ NSR parameter should have no relation to other parameters

	Spec-Initial		**Spec-Final**	
Head-Initial	NSR-L	NSR-R	NSR-L	NSR-R
Head-Final	NSR-L	NSR-R	NSR-L	NSR-R

↳ This predicts languages that don't exist (e.g. NSR-L in an SVO language)

↳ And fails to predict languages that do (e.g DSS on the O in an SOV language)

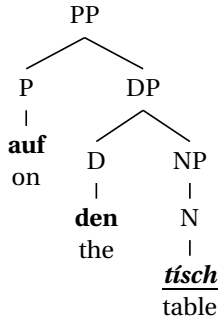
↳ Instead **the object (more embedded than the verb) bears DSS regardless of headedness** (e.g. Donegan and Stampe 1983)

	DSS on Object	**DSS on Verb**
VO-language	✓	×
OV-language	✓	×

↳ Regardless of whether the specifier is initial or final, and whether the head is initial or final, **the DSS is stable across languages**, always falling on the object in clauses with just a subject, object and verb

↳ Similarly, in PPs, **the complement always bears the stress**, regardless of whether the PP is head-final or head-initial, even **within-language** (e.g. German, Cinque 1993)[4]

(22)



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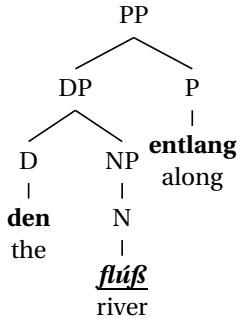


[4]Of course for this question to be relevant, it must be the case that Ps may independently bear DSS in German. Biskup et al. (to appear) shows that Ps can bear DSS in particle Vs:

(21) Er setzt den Wanderer *über*
he set the wanderer across
'He is ferrying over the wanderer.'

Since the **NSR does not account for the data**, we need another theory of phrasal stress

↳ We need one that **depends on the structure** – I assume a principle like (24), from Cinque 1993:

(24) **Null Theory of Phrasal Stress**: The most deeply embedded[5] constituent in the structure receives the phrasal stress.

↳ (for further work in this vein, see Zubizarreta 1998, Kahnemuyipour 2009, a.o.)

↳ Importantly, **movement can feed prosody in this syntactic model**, as Cinque (1993:251) exemplifies with German Object Shift data:

(25) a. ... daß Bruno oft den Kinderen sein *Géld* gab
... *that Bruno often the*.DAT *children*.DAT *his money gave*

b. ... daß Bruno [sein Geld]$_i$ oft den *Kínderen* t_i gab
... *that Bruno his money often the*.DAT *children*.DAT *gave*
"... that Bruno often gave his money to the children"

↳ But **not all movements feed prosody** (going back to at least Bresnan 1971) – namely A′-movement does not affect previously calculated stress:[6]

(26) a. Helen left directions for George to *fóllow* (her) (Bresnan's example (6))
b. Helen left *diréctions*$_i$ for George to follow t_i

↳ More specifically, **movement within a phase will feed DSS calculations**, but movement to a phase edge will maintain previously calculated DSS

↳ Correctly predicts that passive/unaccusative subjects bear DSS (Legate 2003)[7]

↳ Also makes correct predictions about which post-verbal adverbs bear DSS (Stowell and Ahn *in progress*)[8]

Placement of DSS:
(i) is based on structural depth of embedding, **(ii)** is calculated at fixed intervals, and **(iii)** is fed by A-movement within those intervals

[5]The notion of "most deeply embedded" must make reference to the spine – something Cinque achieves with notions of "main" and "minor" paths.

[6]I assume A′-movement to be movement to the edge of a phase (Sportiche 2011). Thus any movement to the edge of the phase, should not feed DSS calculation; and whatever accent it gains within the phase will be maintained.

[7]This means that, if "defective phases" exist, they still require movement to their edge. This requires the A′-movement to the edge of the phase can feed the A-movement to subject position; so improper movement (Chomsky 1986b) must not be an operative derivational constraint. See also Sportiche 2011.

[8]See Appendix F.

3.2. Movement and Reflexives

Constituents **inside of syntactic islands** are ineligible for movement operations (Ross 1967)

↳ Recall the data in which the reflexives bear DSS in an island:

(27) a. Ms. Adler likes people like *hersélf* *(13A2), repeated*
b. Remy accidentally burned Marie and *himsélf* *(14A2), repeated*
c. Lucie counted five tourists besides *hersélf* *(15A2), repeated*

↳ *people like X*, *Marie and X*, and *tourists besides X* **independently behave like islands**:

(28) a. *Who does Ms. Adler like people like ____?
b. *Who did Remy accidentally burn Marie and ____?
c. *Who did Lucie count five tourists besides ____?

Notice that there is a correlation between immovability and ability to bear DSS

↳ no syntactic island, no DSS on the reflexive:

(29) Q: Tell me something new. *(12), repeated*
A1: Ms. Adler likes *Ráven*.
A2: #Ms. Adler likes *hersélf*
A3: Ms. Adler *líkes* herself

↳ syntactic island, DSS borne by the reflexive:

(30) Q: Tell me something new. *(13), repeated*
A1: Ms. Adler likes people like *Ráven*.
A2: Ms. Adler likes people like *hersélf*
A3: #Ms. Adler likes people *líke* herself

This **implicates movement** as the cause for "DSS-avoidance"

↳ Since object reflexives and R-expression objects in a given sentence bear the same theta role, they must originate in the same position[9] (UTAH; Baker 1988)

↳ Since R-expressions will bear DSS, they must sit in the most embedded position

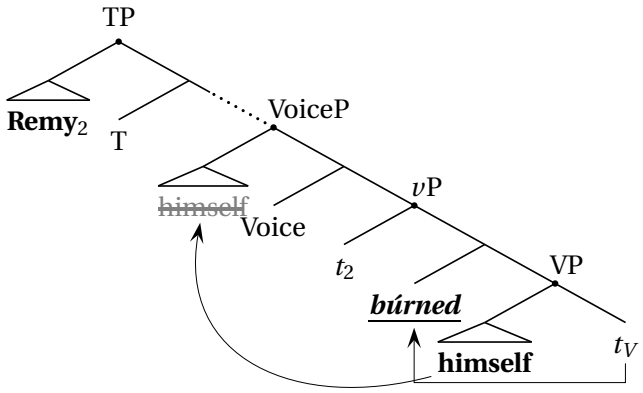
↳ When reflexives don't bear DSS, they **must have evacuated that most embedded position**, by movement:[10]

[9]This assumes that reflexives in a language like English are theta-role-bearing arguments, as is widely assumed (Chomsky 1981, 1986a, Pollard and Sag 1992, Reinhart and Reuland 1993, Hornstein 2001, among many others).

[10]Since reflexive movement feeds DSS calculation, this **must be A-movement**; supported by the fact that, for example, reflexive movement doesn't license parasitic gaps:

(31) a. This is [$_{CP}$ what you kicked ~~what~~ before seeing ~~what~~]
A′-mvt
b. *You [$_{VoiceP}$ ~~yourself~~ kicked yourself before seeing ~~yourself~~]
A-mvt

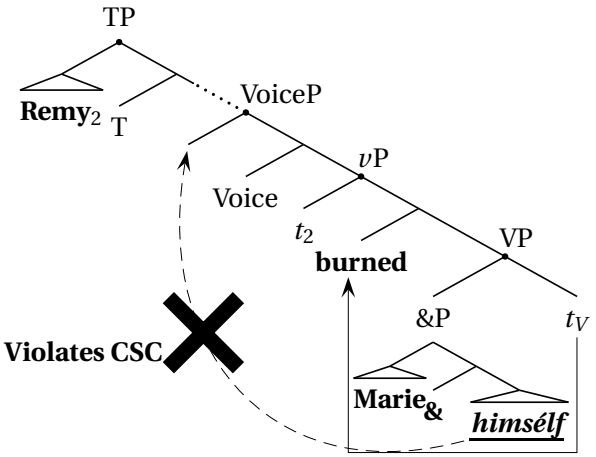
(32)



↳ This is movement to VoiceP – we will discuss VoiceP in the next section

When movement is blocked by an island, the reflexive cannot move and will stay in situ; thus (like the R-expression) **it will bear DSS:**

(33)



This movement must take place **in the narrow syntax to feed prosody**[11]

↳ If it took place in the interpretative component (at LF), the prosodic component (PF) would not consider the reflexive to have moved

↳ In either a traditional Y-model or a cyclic spell-out

But it **doesn't look like it has left its thematic/case position**, with respect to linearization

↳ Thus I argue this movement is "covert overt movement": **spell-out of a lower copy**[12]

↳ Just like QR, whose properties Bobaljik 2002 aims to capture with this mechanism[13]

Reflexives that do not bear DSS have moved to a higher position

[11] It must also be within the phase that contains the thematic/case position of the reflexive. I therefore assume the phase head to be somewhere between T and Voice, and that *v* is not a phase head.

[12] Though I argue this to be the type of movement involved, the analysis does not crucially rely on this. See Appendix A for more discussion.

[13] Perhaps this movement underlies the focus movement discussed in Wagner 2006. It remains to be seen which properties unify reflexive movement, QR and focus movement – it may be for reasons of cyclic linearization repairs (Fox and Pesetsky 2005) or Shape Conservation (Williams 2003). See Appendix A.

4. Giving Reflexivity a Voice

4.1. What is VoiceP?

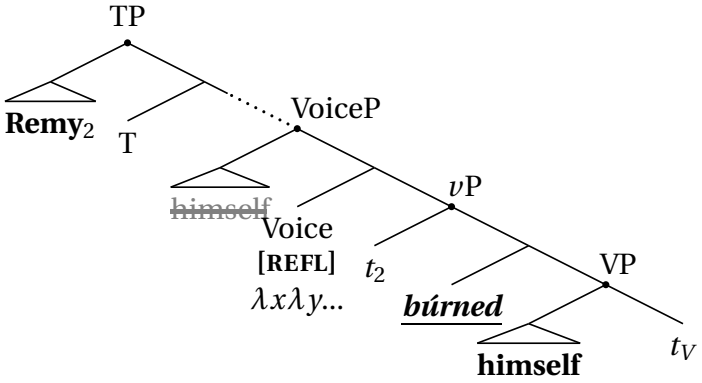
In the structures above, the reflexive moves to a VoiceP – **what is this VoiceP**?

- ↳ Voice^0 is an "argument structure" head (Sailor and Ahn *in progress*)
  - ↳ It takes the v/VP (and thus all the arguments of the clause) as its complement
  - ↳ It is the "pivot" which **determines a surface structure of the clausal arguments**
  - ↳ This is **distinct** from the way VoiceP is used in, for example, Kratzer 1996, Alexiadou et al. 2006
- ↳ Thus, we have at least Active, Passive and Middle Voice^{0}s (e.g. Collins 2005, Ahn and Sailor *to appear*)
  - ↳ This allows identical underlying argument structure for all these grammatical voices
  - ↳ This is highly desirable, given a principle like UTAH

Moreover, **there is another Voice^0: Reflexive**

- ↳ The REFL Voice^0 is responsible for the **compositional interpretation of reflexive clauses**
  - ↳ A **reflexivizing function** with two arguments that it co-identifies
    - ↳ I abstract away from the details of this function in this talk (see Ahn In Progress)
- ↳ **The REFL Voice^0 syntactically requires an anaphor to move to VoiceP**
  - ↳ **This allows the reflexive to be an argument of REFL**, with normal rules of semantic composition
  - ↳ (Reuland 2011 has a similar movement operation, but the motivations are quite different)
- ↳ REFL's second argument, in a transitive clause, will always be the external argument, again based normal rules of semantic composition:

(34)



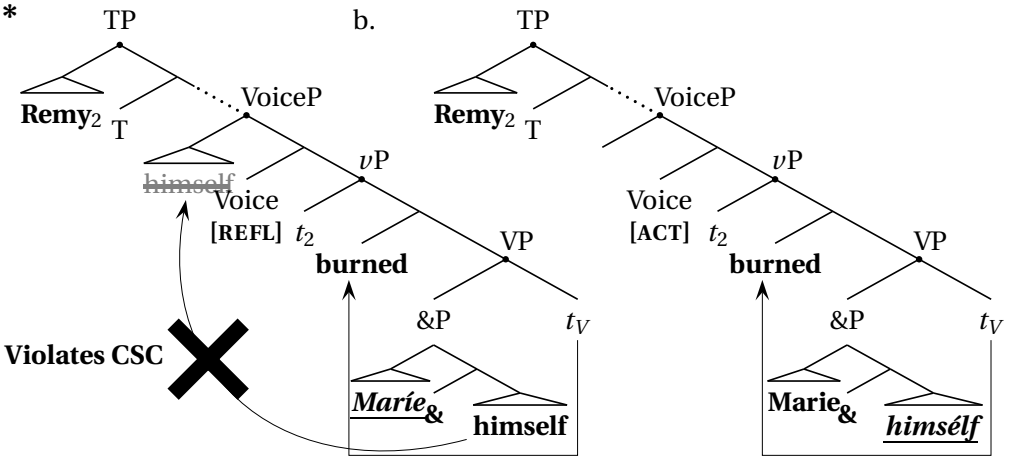
Reflexive Voice^0 merges with the complete predicate as the semantic reflexivizer, and attracts the anaphor to its specifier

4.2. Voice-Derived Constraints

The three constraints on DSS-avoidance that we have seen are: **only when subject-bound, not in passives, and not in islands**

- ↳ The subject-orientation of these stress-avoiding reflexives, (8)–(9), is derived based on the structural height of the Voice^0
  - ↳ The second argument of the reflexivizing function will only ever be the external argument subject
- ↳ If REFL is a Voice^0, then the passive-constraint, (10)–(11), falls out because reflexive Voice^0 and passive Voice^0 are in complementary distribution[14]
  - ↳ If reflexives only move to Spec,VoiceP for reflexive Voice, a passive Voice^0 will block this
- ↳ When movement is blocked by an island, (12)–(15), the Voice must not be REFL, and the reflexive will stay in situ and it (like the R-expression) will bear DSS
  - ↳ If REFL is merged in Voice, the derivation will crash (35a); *himself* has no reason to move[15]

(35) a. * b.



- ↳ The fact that *himself* is licit without REFL Voice^0 in (35b), shows that reflexives can be licensed without REFL Voice – implicating a second binding mechanism
  - ↳ This is actually predicted given that many languages formally distinguish subject-bound and non-subject-bound reflexives
  - ↳ See footnote 15 and Appendix D

[14] Schäfer (2011) discusses examples that look, in German, like reflexives occurring in the passive voice. The properties of these reflexives need to be investigated vis-a-vis the facts discussed here before we can understand the predictions that this approach has on the data with reflexives in a passive. For example, it is possible that these reflexives in the passive behave like the un-moved reflexive, like we see in English *He was introduced to himself*.

[15] This requires that there be a second binding mechanism – one that does not involve movement to a reflexive VoiceP. Why it should be that there are two ways of achieving binding is not clear at this point – but it must be, given that language after language has two reflexive forms. E.g. French *se* and *lui-même*, Italian *si* and *se stesso*, Finnish *-UtU-* and *itse-ään*, Swahili *ji-* and *mw-enyewe*, etc. See Appendix D for a brief discussion of when each binding mechanism is applied.

This analysis **does not require a valency-reducing operation** on the verb (Partee and Bach 1980, Keenan 1988, Szabolcsi 1992, Schlenker 2005, a.o.)

- ↳ Such an operation relies on a notion of "predicate" that is abandoned under a neo-Davidsonian syntax/semantics
- ↳ Even if we were not in a neo-Davidsonian framework, we couldn't predict subject-orientation facts with these Voice/movement-related anaphors

5. Conclusion

5.1. Summary of the Findings

What determines this exceptional behavior by reflexives?

- ↳ Despite first impressions, **reflexives are not prosodically exceptional**
- ↳ Any analysis that would require such a stipulation of exceptionality is inadequate

Why is this "exceptional" behavior constrained as it is?

- ↳ Movement to VoiceP is required for a reflexive to "avoid" DSS
- ↳ Thus **structural factors** (such as island-hood and the clause's Voice) and **normal rules of phrasal stress** alone determine the distribution of stress on reflexives

This analysis provides further **evidence that DSS is determined structurally**

- ↳ Supporting existing research (e.g. Cinque 1993, Zubizarreta 1998, Kahnemuyipour 2009)
- ↳ Moreover, syntactic movement of reflexives, like other A-movements, feeds DSS prosody (cf. §3.1)

The mapping from syntax to prosody is entirely systematic (e.g. Kratzer and Selkirk 2007, Selkirk 2011)

5.2. Extending the Analysis

First, we now see that **English has subject-oriented reflexives** as a formally distinct category (despite segmental homophony)

- ↳ Like most (all?) other languages
- ↳ e.g. **Czech** (Slavic; Toman 1991), **Dutch** (Germanic; Koster 1987), **Hixkaryana** (Carib; Derbyshire 1985), **Italian** (Romance; Burzio 1986), **Japanese** (Altaic; Katada 1991), **Kannada** (Dravidian; Lidz 2001), **Norwegian** (Scandinavian; Safir 2004), **Russian Sign Language** and **Sign Language of the Netherlands** (Signing; Kimmelman 2009), **Tsez** (Caucasian; Polinsky and Comrie 2003)

In fact, **all of the constraints we have seen** on these reflexives that move are shared by Romance clitics (Kayne 1975, Burzio 1986, Sportiche 2010) – see Appendix B for more discussion

(36)

	DSS-Avoiding *himself*	French *se*
a. Can be Direct Object	✓	✓
b. Can be (Prepositional) Indirect Object	✓	✓
c. Can be generated in an island	×	×
d. Can have a non-subject antecedent	×	×
e. Can occur in passives	×	×

Second, this Voice-analysis has further independent support in that it can explain the following complex phenomena rather simply:

- ↳ Focused reflexives (unexpectedly) seems to yield **alternatives on the subject**, but only **when there can be movement to REFL Voice**

(37) Pete didn't beat **HIMSÉLF** up.[16]

⇒Someone else beat Pete up. ✓*Subject Focus*

⇒Pete beat someone else up. ✓*Object Focus*

(38) Pete didn't beat someone like **HIMSÉLF** up.

⇏Someone else beat someone like Pete up. ** Subject Focus*

⇒Pete beat someone like someone else up. ✓*Object Focus*

- ↳ See Ahn 2011b for details

- ↳ The **constraints on active/passive Voice-mismatch under ellipsis** (Kehler 2002, Merchant 2007, Tanaka 2011) **also constrain the availability of strict interpretation** (reflexive/active Voice-mismatch)

(39) ??The problem was solved by John, and then Bill did. (Kehler 2002:62)

(40) Henry $\emptyset_{\text{REFL}}$ defended himself, and then Anne did too.

⇒Anne $\emptyset_{\text{REFL}}$ defended herself. ✓*Sloppy*

⇏Anne $\emptyset_{\text{ACT}}$ defended Henry. *?? Strict*

- ↳ See Ahn 2011a for details

Third, a Reflexive Voice^0 analysis predicts languages should be able to mark reflexivity with some kind of verbal affix

- ↳ Finnish can utilize either an English-style DP or a verbal affix, as you would predict in this theory that has two types of reflexivity:

(41) a. Jussi puolusti **itse-ään**
Jussi defend.PAST.3SG ***self*-3.GEN**

b. Jussi puolusta-**utu** -i
Jussi defend -**REFL**-PAST
"Jussi defended himself."

- ↳ When the affix is used, only sloppy interpretations are available, like (40), **supporting the hypothesis that this affix is Voice**

Finally, to find further support for this analysis, **the extent to which the prosodic properties of the reflexive is cross-linguistically extendable** must be further explored

[16] Note that you lose the "subject-alternatives" interpretation when the reflexive occurs after the verb and its particle: *Pete didn't beat up* **HIMSÉLF** ⇏ *Someone else beat up Pete.* This fact is captured if the reflexive-movement spells out the lower copy in the chain, and the position between the V and the particle is the normal object position (Kayne 1985).

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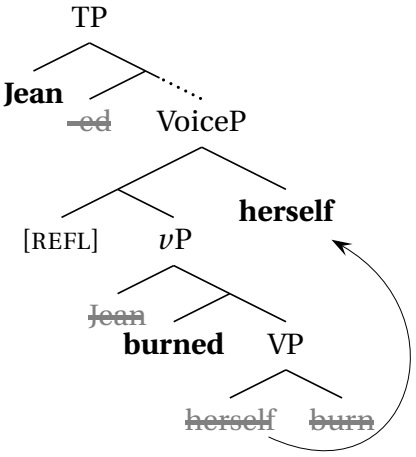
Appendices

Appendix A Types of Movement

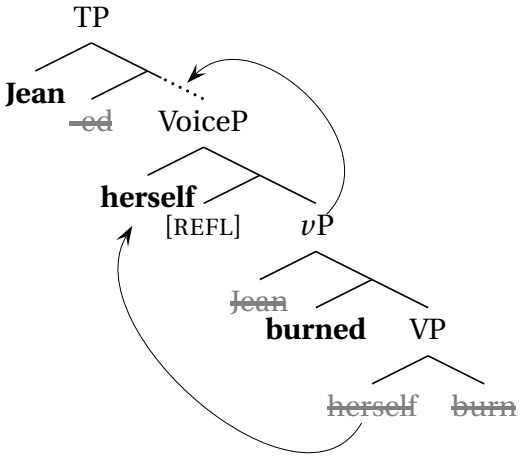
A.1 Choosing the Appropriate Derivation

Movement to VoiceP could be thought of in at least four ways:

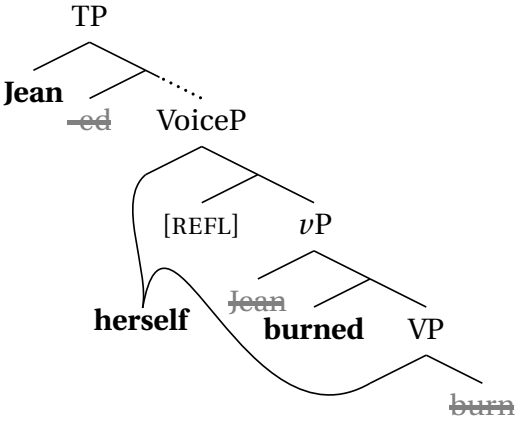
(42) a. Rightward Movement



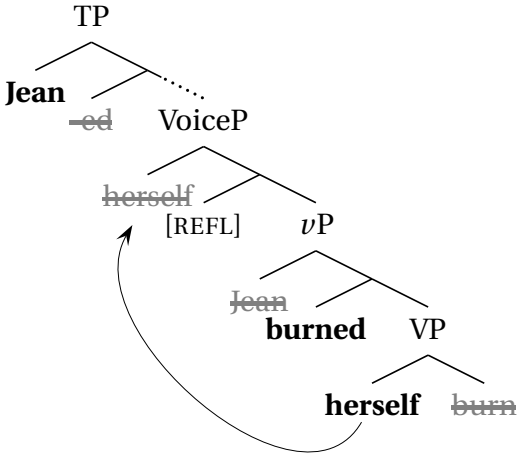
b. Remnant Movement



c. Multidominance



d. Spell-Out of a Lower Copy



- ↳ All of these derivations will yield the same prosodic effect: **the anaphor is considered no longer considered to be the most deeply embedded**
  - ↳ Because the grammar considers the anaphor to either be absent from the most embedded position (possible in (42a-b))
  - ↳ OR because the grammar considers the anaphor to be in two places, and therefore not the most deeply embedded
- ↳ English word order really makes it look like reflexives have not moved beyond the normal object position:

(43) a. Wesley looked Liz up on Google often.
b. Wesley looked himself up on Google often.

(44) a. Jack gave Liz a raise at the end of the year.
b. Jack gave himself a raise at the end of the year.

↳ Nothing can intervene between the verb and the anaphors in (43b) and (44b) – thus behaving like any other object, in terms of linearization

↳ The anaphors can bear REAFR focus, another property relegated to anaphors that move to VoiceP (Ahn 2011b):

(45) Q: Who looked Wesley up on Google often?
A: Wesley looked **HIMSÉLF** up on Google often.

(46) Q: Who gave Jack a raise at the end of the year?
A: Jack gave **HIMSÉLF** a raise at the end of the year.

↳ I thus assume a derivation like (42c) or (42d)

↳ But nothing explicitly rules out (42a) or (42b)

↳ There may be subsequent movements that will yield the appropriate word order and prosodic facts

A.2 More on Covert Overt Movement

The way to associate the anaphor with Voice **can't** be covert movement to VoiceP or probe-goal with Voice^0

↳ **Prosody would not be fed** by these non-overt-movement analyses

If it is the "covert overt movement" as in (42d), this movement will take place in the narrow syntax, without affecting word order[17]

↳ Why would this overt (narrow syntactic) movement be covert (not affect word order)?

↳ perhaps it's that this reflexive movement cannot be spelled out since it violates a previously established linearization (Cyclic Linearization, Fox and Pesetsky 2005)

↳ To comply with the conflicting demands of "move" and "don't create a new linearization", **the tail of the movement chain is spelled out**[18]

↳ similar to the phonological theory of QR, as in Groat and O'Neil (1996), Fox and Nissenbaum (1999), Bobaljik (2002)

↳ This will still derive the prosodic properties we've seen

↳ the reflexive is not most embedded; it's in two places ⇒ **DSS properties**

↳ the reflexive is in the specifier of REFL Voice ⇒ **REAFR properties** (Ahn 2011b)

[17] This discussion could be extended to a discussion of a multidominance approach, as well.

[18] Alternatively, perhaps it's that there are multiple levels of structure, which want to be as isomorphic as possible (Shape Conservation, Williams 2003). In this system, perhaps reflexive-movement is only done in prosodic structure (and not surface structure) minimizing shape distortion between surface structure and, for example, theta and case structures.

Covert overt movement could derive prosody in other domains

- ↳ Quantifier/negation scope also has visible effect on the prosody without change in the word order
  - ↳ Hirotani (2004) proposes that the scope of any element should not extend beyond the prosodic phrase containing it
    - ↳ Given isomorphism between syntactic and prosodic phrasing (Selkirk 2011), Hirotani's proposal can be accounted for by an covert-overt movement analysis of QR
- ↳ Givenness has been argued to require movement that feeds prosody
  - ↳ Wagner 2006 shows rather convincingly that movement happens even in English, despite the fact that Given material doesn't seem to always move (unlike many languages which require movement for Topicality, e.g. German, Japanese)
  - ↳ Thus, perhaps **this movement is covert overt movement**
- ↳ Similarly, Focus must involve movement in many languages (e.g. Hungarian)[19]
  - ↳ To account for the fact that movement seems not to be occurring in English(in terms of linear order), maybe **this, too, is covert overt movement**

In other words, there seems to be **a family of movements that are done whose derivations proceed like this** in English

- ↳ Focus, Givenness, QR, and Reflexive movements all feed the prosody without affecting word-order
  - ↳ If we assume that prosodic information encodes structural relationships only from syntax and phonology (i.e. not any post-syntactic semantic representation; e.g. Selkirk 2011), there needs to be a syntactic account for this
  - ↳ Perhaps is QR, like the semanticists have always told us, but QR is always in the narrow syntax, allowing it to feed prosody

As **a consequence of covert overt movement**, PF-theories of islands (e.g. Merchant 2001, Fox and Lasnik 2003) face problems[20]

- ↳ Imagine that the a reflexive moved to Spec,VoiceP from inside an adjunct island. This would result in the (infelicitous) prosody of (47):

  (47) # Lucie [$_{\text{VoiceP}}$ ~~herself~~ counted five tourists *besídes* herself].

- ↳ In other words, this movement is island-sensitive, even though you spell-out the tail of the chain
  - ↳ There is no gap/trace/unpronounced-copy within the island; therefore, there should be no violation of a PF-theory of islands
  - ↳ Thus, a PF-theory of islands would incorrectly predict that (47) to be grammatical – putting into question whether such a theory of islands is appropriate

[19] Wagner would treat this sort of phenomena also as the result of movement as the result of something else being Given. I remain agnostic as to this – either way, what appears to be displacement of Focused things would be derived by overt movement, which may be covert (in English).

[20] Thanks to Norbert Hornstein, for bringing this to my attention.

Appendix B More Romance Data/Analysis

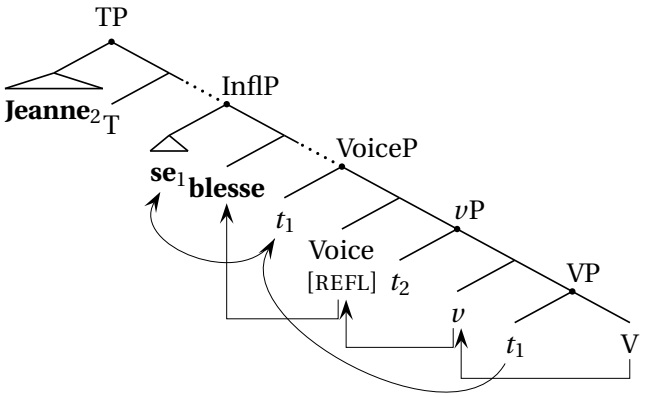
Sportiche (2010) motivates the need for phrasal movement of *se*, not unlike the movement of *himself* argued for here

↳ I have adopted his structure into one more like the one proposed here

French demonstrates the need for slightly more structure (for language-specific properties)

↳ assuming the verb moves beyond VoiceP (to, for example, Infl), the clitic must move beyond the specifier of VoiceP[21]

(48)



↳ Note that aside from the independent differences of V-to-I and clitic-climbing, the structure at VoiceP for French is identical to the English structure argued for here

Due to the derivational similarities, the patterns shared by English and French are predicted:[22]

(49) a.

Can occur...	DSS-Avoiding *himself*	French *se*
a. ...as a Direct Object	✓	✓
b. ...as an Indirect Object	✓	✓
c. ...in an island	×	×
d. ...with a non-subject antecedent	×	×
e. ...in a passive	×	×

b.

Can occur...	DSS-Bearing *himself*	French *lui-même*
a. ...as a Direct Object	×	×
b. ...as an Indirect Object	×	×
c. ...in an island	✓	✓
d. ...with a non-subject antecedent	✓	✓
e. ...in a passive	✓	✓

↳ These properties are discussed for French (in part) by Burzio 1986 and Sportiche 2010

↳ Data exemplifying these constraints are given below:

[21] Alternatively, the verb may not move beyond Voice and the *se* may not either, if remnant movement of VoiceP is employed rather than separate movements of the verb and its clitics. In fact, this would seem preferable, so that the subject could be the closest DP for movement to subject (assuming that *se* and other clitics are interveners of the relevant type).

[22] French disallows *se* in some places that English allows the DSS-avoiding *himself*: e.g. when the anaphor is the object of certain (strong) prepositions. This is likely due to French disallowing P-stranding (unlike English).

Islands

Subject-oriented reflexive clitics in Romance languages island-bound

(50) Intended: "Jean injured Scott and herself"

a. ?Jeanne a blessé Scott et lui-même.
Jean PERF-AUX *injure Scott and himself*

b. *Jeanne s' est blessé(e) Scott et lui-même.
Jean SE PERF-AUX *injured Scott and himself*

c. *Jeanne s' est blessé(e) Scott et.
Jean SE PERF-AUX *injured Scott and*

d. *Jeanne a/est blessé(e) Marie et se/soi.
Jean PERF-AUX *injured Scott and* SE

(51) Intended: "Lucie counted five tourists besides herself."

a. Lucie a compté cinq touristes en dehors d' elle-même.
Lucie PERF-AUX *counted five tourists in outside of herself*

b. *Lucie s' est compté(e) cinq touristes en dehors d' elle-même.
Lucie SE PERF-AUX *counted five tourists in outside of herself*

c. *Lucie s' est compté(e) cinq touristes en dehors.
Lucie SE PERF-AUX *counted five tourists in outside*

d. *Lucie a/est compté(e) cinq touristes en dehors de se/soi.
Lucie PERF-AUX *counted five tourists in outside of* SE

(52) Intended: "Ms. Adler likes intelligent people who are like herself."

a. Mlle. Adler aime les gens intelligents qui sont comme elle-même.
Ms. Adler likes the people smart who are like herself

b. *Mlle. Adler s' aime les gens intelligents qui sont comme elle-même.
Ms. Adler SE *likes the people smart who are like herself*

c. *Mlle. Adler s' aime les gens intelligents qui sont comme.
Ms. Adler SE *likes the people smart who are like*

d. *Mlle. Adler aime les gens intelligents qui sont comme se/soi.
Ms. Adler likes the people smart who are like SE

Passive Clauses

Romance se/si cannot occur in passive clauses

↳ They cannot take a passive subject as their antecedent (a sub-case of derived-subject antecedent)

(53) a. Jean sera décrit à lui-même par sa femme (Kayne 1975:375)
John will.be described to himself by his wife

b. *Jean se sera décrit par sa femme
John SE *will.be described by his wife*
"John will be described to himself by his wife"

↳ But they also cannot take the by-phrase DP as their antecedent, **despite being a D-structure subject**:

(54) a. Marie sera présenté à lui-même$_k$ par Jean$_k$ (Sportiche 2010)
Marie will.be introduced to himself by John

b. *Marie se$_j$ sera présenté t_j par Jean$_k$ ($j = k$)
Marie SE *will.be introduced by John*
"Marie will be introduced by John to himself."

Non-Subject Antecedents

Romance *se*/*si* can be indirect objects:

(55) a. Jean présente Pierre à Marie
John introduces Peter to Mary
"John is introducing Peter to Mary."

b. Jean$_k$ se$_j$ présente Pierre t_j ($j = k$)
John SE *introduces Peter*
"John$_1$ is introducing Peter to himself$_1$."

However, just like the moving reflexives English, Romance *se*/*si* is out with a non-subject antecedent

↳ Sportiche points this out for French *se*, with data like (56):

(56) *Jean se$_j$ présente les enfants$_k$ t_j ($j = k$)
John SE *introduces the children*
Intended: "John is introducing the children to themselves."
(Sportiche 2010)

↳ Kayne has also pointed this out, noting that non-subject antecedents require *lui-même*:

(57) a. La psychiatrie a révélé Jean à lui-même. (Kayne 1975:371)
The psychiatry has revealed John to himself.

b. *La psychiatrie s' est révélé Jean.
The psychiatry SE *is revealed John.*
"Psychiatry has revealed John to himself"

↳ Burzio points this out for Italian, noting that non-subject antecedents require *se stesso*:

(58) a. Questa situazione metterà Giovanni contro **se stesso** (Burzio 1986:430)
this situation put-will Giovanni against himself

b. *Questa situazione **si** metterà Giovanni contro
this situation SI *put-will Giovanni against*
"This situation will put Giovanni against himself"

Appendix C Voice inside NPs?

In a case like (59), we see that a DSS-avoiding reflexive or DSS-bearing reflexive can be employed

↳ This pitch accent placement difference corresponds to an interpretational difference

(59) Marie found some notes to herself.

a. Marie found some *nótes* to herself. ⇒ Marie wrote the notes.

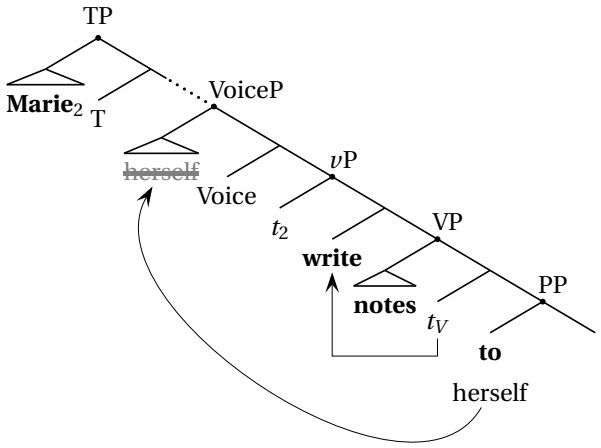
b. Marie found some notes to *herself*. ⇒ ?? wrote the notes.

Perhaps what this indicates is that, at least in cases like (59a), what looks like an NP is somehow like a relative clause with a silent predicate[23]

↳ That is, we would like to relate the structure of the bracketed NP in (60) to the clausal structure in (61)[24]

(60) Marie found some [$_{NP}$ *nótes* to herself]

(61)



This leaves open the question of the derivation for (59b)

↳ Perhaps it is the more standard story of an NP in which 'notes' takes a PP complement

↳ In such a story, without the REFL Voice, *herself* would be the most embedded element, just as other objects of a PP complements

In other words, **the string in (59) is structurally ambiguous**

↳ in one, the NP is clause-like in structure, corresponding to the interpretation/prosody in (59a)

↳ in the other, the NP is an N with a PP complement, corresponding to the interpretation/prosody in (59b)

[23] This is very similar to proposals that assert that all NPs are clausal (Bach 1968, Campbell 1996, Koopman 2003, 2005, among others).

[24] It can't be the case that the TP in (61) is embedded in the NP, since a relative clause with this much structure would predict adverbial (and not adjectival) modifiers and other clausal properties (e.g. ACC/NOM case). It thus seems that (60) is like a clause that has been nominalized low, akin to "of-ing" nominalizations (Abney 1987). Additionally, lack of TP would correctly predict that reflexive clitics of the Romance type, which (must) move to the IP/TP region, should not be derivable inside of DPs.

Appendix D As Much Voice As Possible

There are **two binding mechanisms** – **one that involves movement** (reflexive Voice) and **one that does not** (perhaps Principle A [Chomsky 1981, *et seqq.*]) – and the latter applies as an elsewhere case

- ↳ Why should the more constrained option – reflexive Voice – ever be used?
- ↳ Why should reflexives ever move?

To ask a more concrete question, why is (62) unavailable in out-of-the-blue contexts?

(62) John $\emptyset_{\text{ACT}}$ [$_{\text{vP}}$ kicked *himsélf*] (# focus-neutral reading, ✓contrastive focus on refl.)

- ↳ Without the reflexive Voice, *himself* has no reason to move in (62), and can still be bound via the non-movement binding mechanism

Perhaps the answer is like Grodzinsky and Reinhart (1993)'s Rule I (also as Büring (2005)'s Coreference Rule), which limits the distribution of (accidental) coreference:

(63) Rule I α cannot corefer with β if an indistinguishable interpretation can be generated by replacing α with a bound variable, γ, bound by β.

- ↳ As a consequence of this rule, bound variables should be used as much as possible.

To extend this to the current problem, I propose a modification to this rule:

(64) Rule I′
- i) α cannot corefer with β if an indistinguishable interpretation can be generated by replacing α with a bound variable, γ, bound by β.
- ii) γ must be bound via REFL Voice^0, wherever possible.[25]

This raises the question: why Rule I′?

- ↳ This seems to be part of a larger pattern in syntax:

(66) The more constrained derivation is utilized as much as possible.

- ↳ See also: weak/strong pronoun alternation (Cardinaletti and Starke 1999), object-shift-dependent specificity (Germanic, Adger 1994; Tagalog, Rackowski and Richards 2005), possessor raising (e.g. Nez Perce, Deal 2011; Hebrew and Romance, Landau 1999), etc., etc.[26]

[25] It would seem to be desirable to reduce part (i) of Rule I′ to being a consequence of part (ii), since REFL Voice^0 forces a bound-variable interpretation, as mentioned in §5.2. However, such an analysis faces some empirical issues, since it seems that bound variable interpretations can arise without REFL:

(65) Dr. Freud told Dora about herself before he did [~~tell~~] Little Hans [~~about himself~~].

[26] Preminger 2011 discusses object shift for specificity as always involving a single grammatical function, which desires movement as much as possible but which does not crash the derivation if movement does not occur. The same logic might extend to possessor raising, and possibly even English reflexive anaphors: do the extra movement as much as possible, but if not the operation that would motivate movement doesn't care if the movement fails. However, more would have to be said for phenomena in which different lexical items are used for moved and unmoved forms – for example, some languages like French may use different lexical items for both weak/strong pronouns (*me*/*moi*) and subject-oriented/non-subject-oriented anaphors (*se*/*lui-même*) . In such cases, Preminger's account would require the grammar would have to have a rule that dictates the choice lexical item, independent of the licensing operation. Alternatively, as I present here, it may be that there are two grammatical operations, each selecting different lexical items.

- ↳ Perhaps this is done to minimize vagueness/maximize pragmatic cooperation
  - ↳ "If you didn't use the more constrained derivation, you must have had a structural/interpretational reason not to"

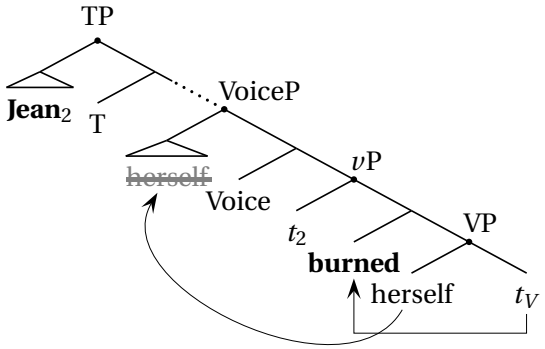
Appendix E Movement to VoiceP doesn't create binding violations

In a REFL Voice derivation, the reflexive ends up c-commanding a coindexed DP lower in the structure

↳ That is, if binding conditions are checked at every point in the derivation, *herself*$_i$ would bind (the lower copy of) *Jean*$_i$ in (67)

↳ But I am arguing that (67) is grammatical, so there must not be a condition C violation

(67)



Moreover, this is **not the only time** a reflexive doesn't create a condition C effect

↳ Also in raising over an experiencer:[27]

(68) a. It seems to him$_i$ that John$_{j/*i}$ is taller.
b. It seems to [every girl]$_i$ that John is taller than her$_i$ father.
c. John seems to [every girl]$_i$ ~~John$_j$~~ to be taller than her$_i$ father.

↳ It must be the case that the experiencer c-commands into the lower clause, given the Condition C effect in (68a), as well as the pronominal binding in (68b) and (68c)

↳ But then, a reflexive experiencer, like in (69), should c-command into the lower clause

(69) John$_j$ seems to himself$_j$ ~~John$_j$~~ to be taller.

↳ Note that there is no condition C violation in (69)

↳ We might expected a condition C violation in (69) if binding is evaluated at every merge

↳ namely at this point:

(70) [$_{T'}$ seems to himself$_j$ [$_{TP}$ John$_j$ to be taller]]

Instead, perhaps binding conditions need not be checked before the last A-movement (Sportiche 2011)

↳ In other words, the binding conditions need not be checked until *John* has raised (A-moved) to its case position

[27] This is also in the same spirit as movement of clitics or weak pronominals, which also do not introduce condition B/C violations. Assuming that this clitic/pronominal movement is phrasal movement, it is not clear to me why this should be.

Appendix F Post-verbal Adverbs: Movement Feeding/Preserving DSS

Adverbs provide additional evidence that DSS placement is calculated at fixed intervals

- ↳ Movements within that interval feed DSS; movements outside of it preserve DSS
- ↳ Consider the following data:

(71) Q: What's going to happen in the next episode?
A1: Mr. Wyngarde will (probably/usually/intentionally/unremorsefully) lie to his *énemies*.
A2: Mr. Wyngarde will lie to his enemies *inténtionally/unremórsefully*.
A3: Mr. Wyngarde will lie to his *énemies* probably/usually.
A4: * Mr. Wyngarde will lie to his enemies *próbably/úsually*.

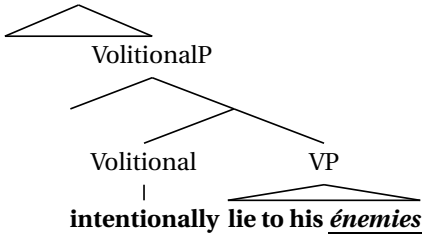
Assuming the null theory of phrasal stress, it **must** be that the adverb in (71A2) is the most embedded

- ↳ This seems at conflict with the fact that the adverb scopes over the VP
- ↳ Solution: movement of the predicate (as in Cinque 1999)[28]

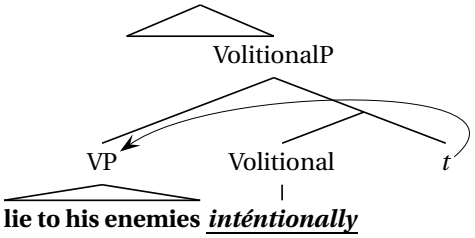
This means some movements feed DSS calculation

- ↳ Compare the location of DSS in (72) and (73):

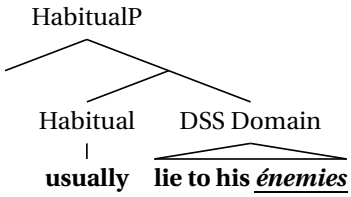
(72)



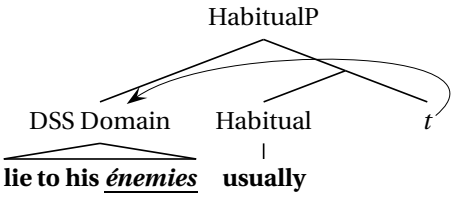
(73)



(74)



(75)



The most embedded element, **if moved within the DSS-domain**, is no longer the most embedded element

- ↳ Specifically, VP is the most embedded element in (72)
- ↳ but when it moves inside of that DSS domain in (73), *intentionally* is the most embedded

[28] Bobaljik (1999) argues that predicate fronting as in (73) is dispreferred on the grounds that you cannot know what has moved – is it the predicate that has moved, or is it the adverb? However, it is not the case that we cannot know – the prosody tells us what has moved. Assuming No Tampering (Chomsky 2008), the adverb cannot have lowered, but it must be the case that the adverb is the most embedded element (since it bears DSS). The only logical possibility is that the predicate has fronted, stranding the adverb as most embedded. In other words, DSS provides measurable evidence, in the linguistic signal, for predicate fronting to derive post-verbal adverbs.