Adjunct islands aren't real, you're just projecting

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1 Introduction

- In a nutshell:
  - Theories of adjunct islands leave much to be desired: cases where adjuncts are transparent for extraction (see Truswell 2007 for a host of examples) tend to be problematic.
  - We develop a theory of adjunct islands that leads us to expect some adjuncts to be transparent, but not others.
  - This accounts for, among other things, the fact that extraction from adjunct control clauses is sensitive to the OC/NOC distinction.
  - We then discuss two extensions of the theory to otherwise recalcitrant locality facts.
- **Roadmap**:
  - The basic problem
  - A theory of locality
  - Correspondent transparency effects
  - Extensions
  - Recap and conclusion

2 The basic problem

- The classic *Condition on Extraction Domains* accounts for, among other things, the fact that adjuncts are hard to extract from

(1) **CED**:
Movement may not cross a barrier XP, unless XP is a complement

- There are, of course, counterexamples.

(2) a. *Who did Anne speak to Walter [before Frederick saw ~~who~~]?
b.✓ Who did Anne drive Walter crazy [waving to ~~who~~]?

- Subsequent minimalist attempts to derive (1) fall into one of two camps.
- *The "special rule" camp*:
  - Adjuncts are introduced to the structure differently than complements and specifiers (Stepanov 2001; Chomsky 2004; Hornstein 2009, a.o.).
  - They are opaque for subsequent syntactic processes as a consequence.
- *Why not?:*
  - From a minimalist perspective, it seems undesirable for a theory to have more than one structure-building mechanism.
  - Generally challenged by variable islandhood: seems to be an all-or-nothing proposition.
- *The "configurational constraint" camp*:
  - Whether or not something is opaque for extraction is determined by whether or not its sister is a head (Uriagereka 1999; Sheehan 2013; Privoznov 2021, a.o.).
  - Adjuncts (and specifiers) don't have such sisters, so they're opaque for extraction.
- *Why not these?:*
  - Begs the question: what makes complements to heads special?
  - Variable islandhood is either a true challenge, or forces you into an unusual analysis.
- Our proposal: a generally different way of thinking about locality, rooted in the notion of a *path*. Along with it:
  - Adjunct islands
  - And their variability

3 A theory of locality

- **Proposal**:
  Some element B is only local to A if there is a *path* from A to B.

(3) **Path**:
There is a path from A to B if A's sister bears a feature checked by B.

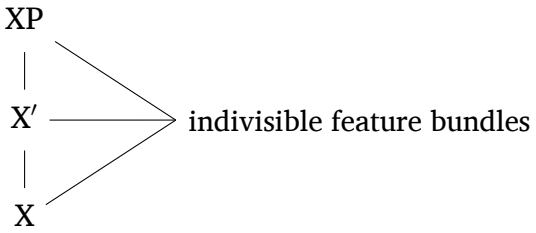
- **Crucial aspect of the theory**: checked selectional features are stored throughout the computation rather than deleted – they project according to the condition in (4)

(4) **Feature projection**
A feature bundle [•F•] on a maximal projection may project iff its sister is an *indivisible feature bundle*. (assumption: ALL features project, checked or unchecked)

(5) **Indivisible feature bundle**:

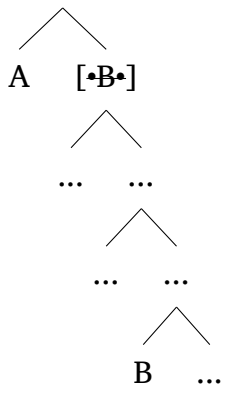
a. a feature bundle that comes straight from the lexicon
→ e.g. a terminal node (Matushansky 2006), OR

b. a feature bundle that has projected to a node from only one daughter
(a consequence of Chomsky 1995a's proposal that projections of a head are equivalent to the head)

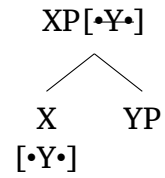


- Allowing features to project past maximal projections allows the existence of long-distance dependencies, as in (6).

(6) A long-distance path from A to B



- Consequence: the syntactic derivation contains a quasi-record of selection
  - When a head X selects for some YP, the feature involved in the selection of YP projects up to the maximal XP, and potentially beyond.

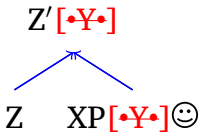


  - If the selectional feature checked by YP is projected past XP, YP becomes available for operations external to XP

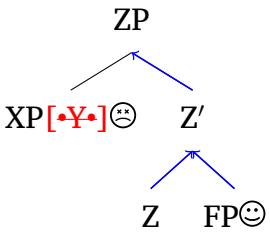
→ Whether XP projects the feature checked by YP to higher nodes is determined by properties of XP's sister – a sister that has projected too many feature bundles renders XP opaque

(7) Consequences of (4) schematized: (☺ = projects; ☹ = cannot project)

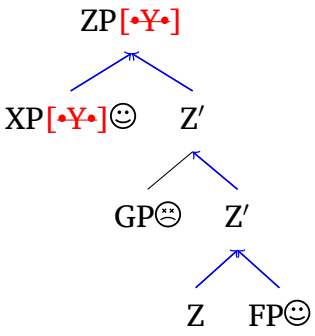
a. XP projects [•Y•] to a higher node if it is a complement



b. XP does not project [•Y•] to a higher node if it is a first specifier



c. XP projects [•Y•] to a higher node if it is a *second* specifier



- **Prediction**: both complements and specifiers have the features involved in their selection projected at least as high as the phrase that selected them

- *However*, complements and specifiers can only project features involved in their *construction* if their sisters are indivisible feature bundles.
  - **Result**: complements and specifiers are often accessible to higher operations, but their contents might not be
    - → complements and second specifiers should be transparent for higher operations, while first specifiers should be opaque

4 Correspondent transparency effects

- We now have a theory that predicts that adjuncts may be transparent in certain configurations (for instance, when adjoined to a phrase that already has a specifier).
- In this section, we discuss two cases of what we term *correspondent transparency effects*, which the theory captures neatly.
- These are cases where the transparency of a domain for one sort of dependency corresponds with transparency for another sort of dependency.
- Some adjuncts allow both obligatory control and non-obligatory control readings

(8) a. The flower$_i$ is open [PRO$_i$ to attract passing pollinators]
b. The door$_i$ is open [PRO$_{arb}$ to listen to confessions]

  - Non-agentive inanimates are compatible only with obligatory control …
  - … while the presence of arbitrary control is compatible only with non-obligatory control.

- A *correspondent transparency effect*: if there's a trace of Ā-movement in a control adjunct, only an *obligatory control* reading is available.

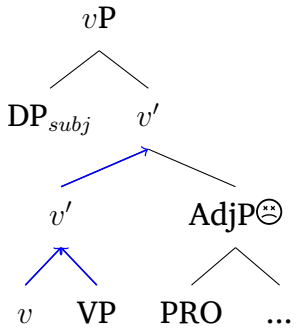
(9) a. What is the flower$_i$ is open [PRO$_i$ to attract ____]?
b. *What is the door$_i$ is open [PRO$_{arb}$ to listen to ____]?

- Appealing to a clause-type difference (e.g. phasal status) is undesirable here.
- See also Green (2019) for discussion of how a number of other phasehood diagnostics fail to line up with the OC/NOC distinction for adjuncts.

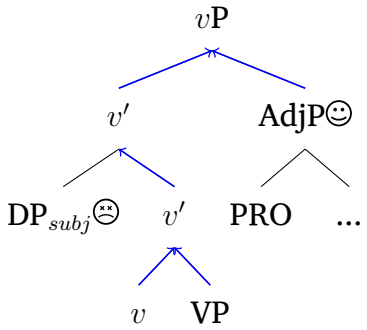
4.1 Adjunct islands

- Assumption: Controlled adjuncts typically attach somewhere in vP (see e.g. Landau 2021 for recent discussion)
  - Unspecified: whether they attach above or below the subject
  - **Prediction**: when the adjunct attaches below the subject, it cannot project; when it attaches above the subject, it can project

(10) Two attachment sites for adjuncts in vP Below the subject: sister projects from two daughters – adjunct can't project



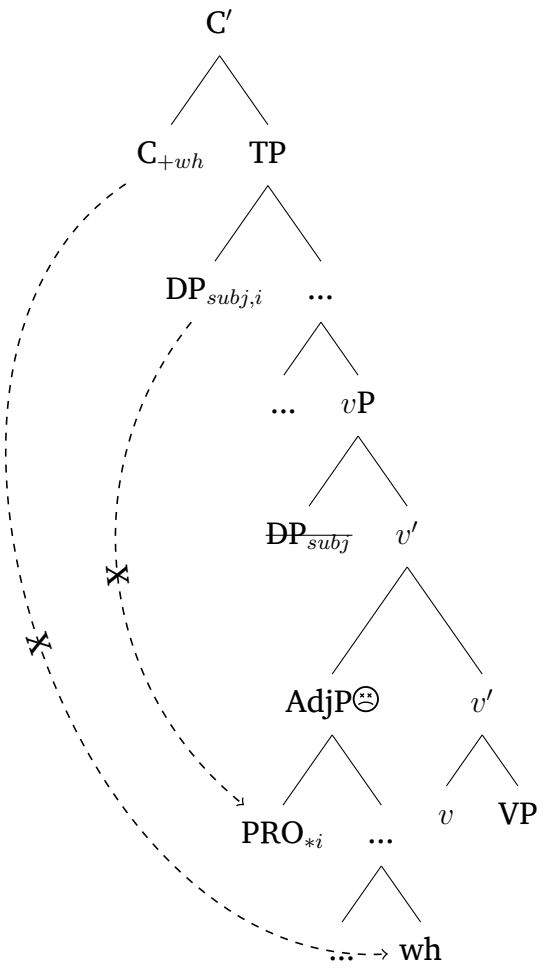
(11) Above the subject: sister projects from one daughter – adjunct can project



- Recall now our puzzle: OC control and *wh*-movement correlate.
- We suggest that OC control and *wh*-movement are subject to our locality condition:
  - There must be a *path* between PRO and its controller for OC to arise (NOC could be thought of as a sort of repair, when no such path exists, see McFadden and Sundaresan (2018) for some discussion).
  - There must be a path between interrogative C and a *wh*-phrase for movement to be triggered.

- In a nutshell: if there's a path into the adjuncts we've been looking at for one dependency, there'll be a path into these adjuncts for the other.
- Looking for paths from controllers to PRO and from C to wh-elements...
  - Assuming subjects move to Spec TP, the rest of the clause in both cases are in (12-13)
  - The sisters of C and the matrix subject need to bear features projected by the adjunct to probe into it.

(12)



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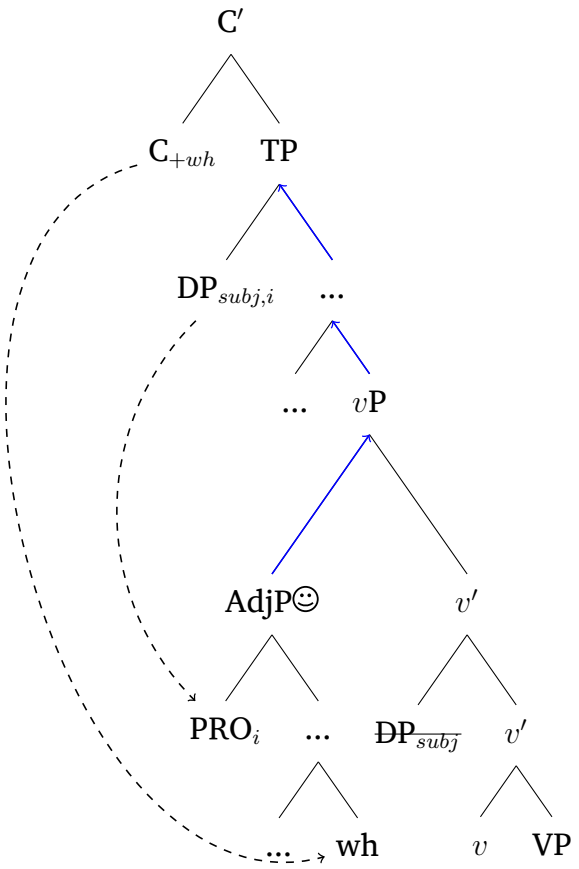
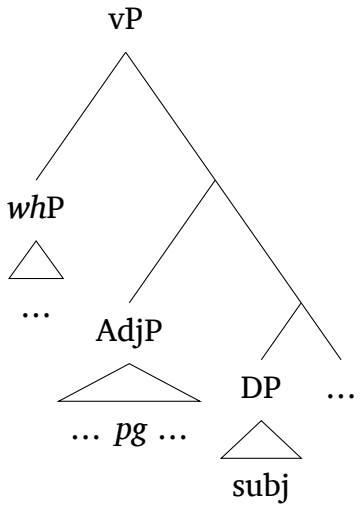


4.2 Parasitic gaps

- We've seen that the theory captures variable transparency of OC and NOC adjuncts as a consequence of adjunction position relative to other specifiers of vP.
- Supporting evidence for this comes from parasitic gaps.
- Nissenbaum (2000) provides a comprehensive analysis of parasitic gaps.
- For independent reasons, Nissenbaum argues that parasitic gap containing adjuncts must appear in a very specific position, namely: above any arguments in spec,vP, but below the trace of *wh*-movement that licenses the parasitic gap.

(14) **Nissenbaum's parasitic gap licensing structure**



- In other words: in just the position we propose that gap-containing control adjuncts must appear.
- Given the assumption that parasitic gaps involve some sort of null operator movement that must enter into a syntactic dependency with their licensor (Browning 1987), we should expect similar correspondence effects when a control adjunct contains a parasitic gap.
- This seems to be correct:

(15) a. [What direction]$_i$ was the flower$_j$ opened to ~~what~~
[OP$_i$ PRO$_j$ in order to attract passing pollinators from ~~OP~~]?

b. * [What sort of person]$_i$ was the door$_j$ opened to ~~what~~
[OP$_i$ PRO$_{arb}$ in order to listen to confessions from ~~OP~~]?

- The story here is the same as above:
  - For the null operator to be bound, the adjunct that contains it must be able to project its features, so that a path exists between the operator and its binder.
  - If this is indeed the case, then there will also be a path between PRO and the subject, giving rise obligatorily to an OC configuration.
- Note! If Nissenbaum (2000) is on the right track, these facts pose a real challenge for other configurational accounts on the market.
- These adjuncts cannot be complements, and must be adjoined in a particular position if the gap within them is to be licensable on Nissenbaum's theory.

5 Extensions

- We present here two additional sets of facts that highlight advantages of our theory.
- The first case clearly shows that the same argument standing in the same set of grammatical relationships may be opaque or transparent depending on the syntactic configuration local to it.
- The second case shows that the presence of an adjunct may render the phrase it is adjoined to opaque in certain circumstances.
- These are things our theory can do that, to our knowledge, others can't.

5.1 Melting (Müller 2010)

- A key feature of our theory is that transparency for extraction is contextually determined.
- By altering the context around a given argument, we expect to be able to alter whether or not it is transparent for extraction.
- Müller 2010 observes a striking class of exceptions to the subject island condition that he calls *Melting* effects.
- In German and Czech, local scrambling to certain positions relative to a complex subject obviate the CED for that subject.
  - In (16), notice how a complex subject in German is opaque for extraction when the direct object is in situ, but transparent for extraction when the direct object scrambles out of vP. (see Appendix for similar Czech data)

(16) *German* (ex.36)

a. *Was$_1$ haben [$_{DP3}$ t_1 für Bücher] [$_{DP2}$ den Fritz] beeindruckt?
what have for books.NOM the Fritz.ACC impressed
intended: "What kind of books impressed Fritz?"

b. Was$_1$ haben [$_{DP2}$ den Fritz] [$_{DP3}$ t_1 für Bücher] t_2 beeindruckt?
what have the Fritz.ACC for books.NOM impressed
"What kind of books impressed Fritz?"

- Müller cites evidence from Grewendorf 1989 suggesting that the subject of a psych verb like *beeindrucken* 'impress' is a regular external argument in German.
- The nominative DP here is never VP-internal, and subextraction in (16b) is thus a true counterexample to the CED.

- This pattern is expected on our theory, with the following assumption:

(17) **Successive cyclicity**:
Movement out of vP (either A or $\bar{A}$) must stop at the edge of vP
(Chomsky 1986, for $\bar{A}$-movement) (Legate 2003; Sauerland 2003; Longenbaugh 2019, for A-movement)

- When no scrambling takes place, the external argument is the only specifier of vP

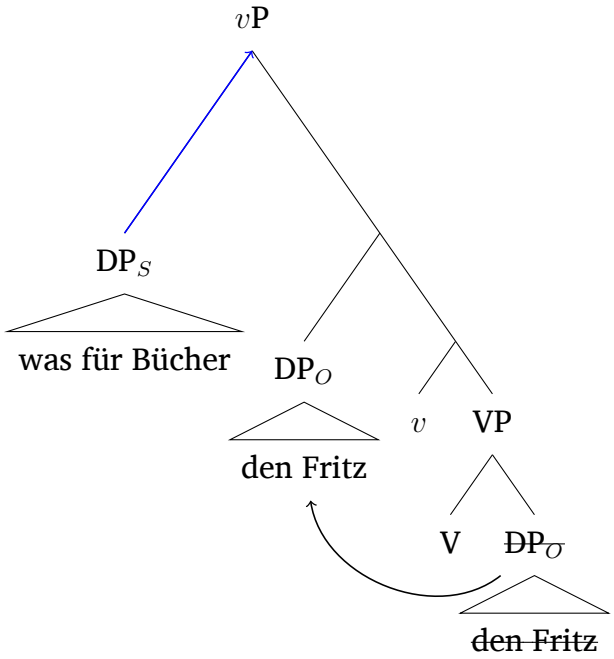
  → First specifiers don't project and are thus opaque for extraction

- When the object scrambles out of vP, there is a stage in the derivation when vP has two specifiers: the external argument and the scrambled object

  → Second specifiers *do* project and are thus transparent for extraction

  – As long as the object can scramble to first specifier position, the external argument can become the second specifier, permitting subextraction in (16b).

(18) A moving object can make the external argument a second specifier of vP, licensing (19)



(19) [$_{CP}$ Was$_1$ haben [$_{DP2}$ den Fritz]$_2$ [$_{vP}$ [$_{DP3}$ t_1 für Bücher] t_2 [$_{VP}$ t_2 beeindruckt]?

- The facts here are not straightforwardly accounted for on standard theories of locality.
- Our theory captures them in a fairly straightforward fashion, so the data here provide empirical support for the overall proposal.

5.2 Balkar converbs

- Privoznov (2021) discusses a set of facts from Balkar (Turkic; Russia) that support our analysis.
- Balkar has a class of *converb clauses*, which allow PRO as a subject, as in (20a), or an overt subject, as in (20b).

(20) a. Aslan$_i$ [PRO$_1$ zɨr-la zɨr-laj] šorpa ete-j e-di
A. song-PL sing-CONV soup make-CONV AUX-3SG

"Aslan was making soup while singing songs."

b. [zaščiq tabaq-la keltir-e] Fatima stol-ʁa azia sal-a edi
boy plate-PL set-CONV F. table-DAT food put-CONV AUX-3SG

"Fatima was setting the table while the boy was bringing plates."
Privoznov (2021, 7a, 8a p. 48)

- Both are (in principle) transparent for long-distance scrambling, as shown below.

(21) a.✓ [$_{\text{matrix}}$ X [$_{\text{embedded}}$ [$_{\text{converb}}$ PRO … ~~X~~ …]]]

ol zɨr-ni Fatima [Kerim$_2$ zol-da [PRO$_2$ ____ zɨr-laj] bar-a
that song-ACC F. K. road-DAT sing-CONV go-CONV
e-di] de-gen-di
AUX-3SG say-PST-3SG

"Fatima said that Kerim$_2$ was walking down the road PRO$_2$ singing that song."

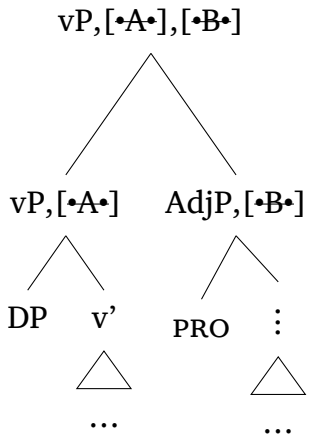
b.✓ [$_{\text{matrix}}$ X [$_{\text{embedded}}$ [$_{\text{converb}}$ DP$_{\text{subj}}$ … ~~X~~ …]]]

qart ana-sɨ-na men [[Kerim ____ boluš-a] zol-da ol alaj
old mother-3SG-DAT I K. help-CONV road-LOC 3sg thus
bar-ʁan] sun-a-ma
go-NZR think-PRS-1SG

"I think that with Kerim helping the old lady$_1$, she$_1$ was walking down the road." Privoznov (2021, 16a, p. 52; 14d, p. 51)

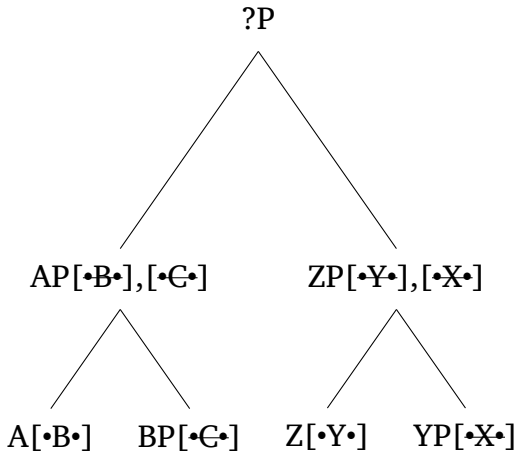
- This would suggest that both are able to project their features, creating a path between the scrambled element and the head which triggers scrambling.
- We follow Privoznov in assuming distinct adjunction positions for the two types of converb:
  - Overt subject converbs adjoin to CP
  - PRO subject converbs adjoin to vP
- For PRO subject converbs, the analysis we provided for English adjunct islands extends: adjoining the converb in a position that allows control of PRO renders it transparent more generally.

(22)



- As for overt subject converbs, we suggest that they instantiate a case like the following.
  - When two spec-less phrases are merged, the configuration underdetermines feature projection.

(23)



- Projection in such cases is obligatory, but the choice of bundle is arbitrary.
- Expectation: when such a converb is transparent for extraction, the clause it is adjoined to should be opaque, and vice-versa.

  (An aside: we will generally need PRO to occupy the edge of a transparent adjunct that contains it. See Heim and Kratzer (1998) and Landau (2015) for some discussion of PRO undergoing movement to positions lexical subjects may not.)
- Balkar allows multiple long-distance scrambling, allowing us to test this prediction.
- The facts (presented here schematically, see Appendix for full data):
- PRO subject converbs allow multiple long-distance scrambling where one scrambled element originates in the converb and the other in the embedded clause.

(24) a.✓ [$_{\text{matrix}}$ X [$_{\text{embedded}}$ … Y … [$_{\text{converb}}$ PRO … ~~X~~ …]]]
b.✓ [$_{\text{matrix}}$ Y [$_{\text{embedded}}$ … ~~Y~~ … [$_{\text{converb}}$ PRO … X …]]]
c.✓ [$_{\text{matrix}}$ X Y [$_{\text{embedded}}$ … ~~Y~~ … [$_{\text{converb}}$ PRO … ~~X~~ …]]]

- Overt subject converbs allow long-distance scrambling from either the embedded clause or the converb, but not both at once.

(25) a.✓ [$_{\text{matrix}}$ X [$_{\text{embedded}}$ … Y … [$_{\text{converb}}$ DP$_{\text{subj}}$ … ~~X~~ …]]]
b.✓ [$_{\text{matrix}}$ Y [$_{\text{embedded}}$ … ~~Y~~ … [$_{\text{converb}}$ DP$_{\text{subj}}$ … X …]]]
c. * [$_{\text{matrix}}$ X Y [$_{\text{embedded}}$ … ~~Y~~ … [$_{\text{converb}}$ DP$_{\text{subj}}$ … ~~X~~ …]]]

- As far as we know, there aren't any other theories of adjunct islands out there on the market that are able to capture facts like these, other than that proposed by Privoznov (2021).
- Privoznov's theory, in turn, isn't able to account for the range of cases we discussed earlier.

6 Conclusion

- Summing up: we've developed a theory of locality that makes reference to the notion of *path*, and hopefully convinced you that such a theory is worth pursuing further.
- Checked selectional features project through the syntactic structure, and the rules for projection determine whether or not two elements will be local to one another.

- This allows us to account for the correspondence between *wh*-movement and obligatory control in otherwise ambiguous adjuncts.
- We saw that this furthermore allows us to account for cases where the context that a phrase appears in determines its transparency.
- One lingering conceptual question:
  - Why don't checked selectional features get deleted?
  - Lead to a possible answer: there's an old distinction for Chomsky (1995b) between *deletion* (invisible for the interfaces but visible for the computation) and *erasure* (really, truly gone).
  - Selectional features might be subject to *deletion*, but not erasure …

  … or selectional features are subsequently utilized by the interfaces, and thus not subject even to deletion.
- An open question for further work: why do transparent adjuncts often behave like Weak Islands in permitting subextraction of a DP but not of an adjunct?

(26) a. Q: How is the flower open to attract passing pollinators?

b. A: ✓ It has an opening mechanism that is triggered by sunlight.
*With its scent.

Thanks!

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7 Appendix

7.1 Additional melting data

(27) *Basic Czech paradigm* (Müller 2010, ex.42)

a. *Stará$_1$ neudeřila [$_{DP3}$ žádná t_1] Petra$_2$.
old.NOM hit no.NOM Petr.ACC
intended: "No old one hit Petr."

b. (?)Stará$_1$ neudeřila Petra$_2$ [$_{DP3}$ žádná t_1] t_2.
old.NOM hit Petr.ACC no.NOM
"No old one hit Petr."

(28) *German PP extraction* (ex.37)

a. *[$_{PP1}$ Über wen] hat [$_{DP3}$ ein Buch t_1] [$_{DP2}$ den Fritz]
about whom has a book.NOM the Fritz.ACC
beeindruckt?
impressed
intended: "About whom did a book impress Fritz?"

b. [$_{PP1}$ Über wen] hat [$_{DP2}$ den Fritz] [$_{DP3}$ ein Buch t_1] t_2
about whom has the Fritz.ACC a book.NOM
beeindruckt?
impressed
"About whom did a book impress Fritz?"

(29) *Czech PP extraction* (ex.44)

a. *[$_{PP1}$ O starých autech] oslovila [$_{DP3}$ kniha t_1] Petra$_2$.
about old cars fascinated book.NOM Petr.ACC
intended: "A book about old cars fascinated Petr."

b. (?)[$_{PP1}$ O starých autech] oslovila Petra$_2$ [$_{DP3}$ kniha t_1] t_2.
about old cars fascinated Petr.ACC book.NOM
"A book about old cars fascinated Petr."

7.2 Balkar multiple scrambling contrast

(30) a. zol-da ol zir-nı̇ Fatima [Kerim _ [PRO _ zirla-j bar-a
road-LOC that song-ACC Fatima Kerim sing-CONV
edi] de-gen-di]
go-CONV AUX.3SG
"Fatima said that Kerim was walking by the road, while Kerim was singing that song."

b. ešik-ni üj-ge men [[Fatima _ bezgi-ler-in-den teš-ip]
door-ACC house-DAT I F. hinge-PL-3-ABL take.off-CONV

Kerim tešek-ni ____ kijir-di] de-di-m
K. bed-ACC carry-PST.3SG say-PST-1SG

“I said that, Katima having taken the door off its hinges, Kerim carried the bed into the house.” Privoznov (2021, 16c, p. 55; 18c, p. 56)