The locality of subcategorization: a case for underspecified category

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1 Introduction: revisiting subcategorization

- This talk will examine the selectional mechanism that underlies verb-argument pairs like (1).

  (1) a. depend [$_{PP}$ *on* ...]
      b. wonder [$_{CP}$ *whether* ...]

  – Today, we might call this *l-selection*, following Pesetsky (1982); Merchant (2019), but we tell our undergraduates that it's *subcategorization*.

  (2) **Subcategorization Principle** (what we teach our undergraduates, based on Chomsky 1965)
  Heads subcategorize for the heads of their sisters.

  (3) Subcategorization frames from (Chomsky, 1965, p.104, ex.44)
      a. V $\rightarrow$ CS/_ α, where α is a string such that Vα is a VP (general rule)
      b. V $\rightarrow$ CS/_ *that* S′ (example for a verb like *say*)

- **Observation:** we see these highly specific kinds of head-head selectional requirements mainly in two places:

  1. Functional sequence
  2. Selection of prepositions and complementizers

     (4) Verbs l-select for certain prepositions
         a. **depend** *on*
         b. **bristle** *at*

     (5) Verbs l-select for certain complementizers
         a. **wonder** *whether*/**for*...
         b. **say** *that*/**for*...

- In other words, this kind of selectional relationship regulates **head-complement pairs**.
  - **What about specifiers**?
    - Do heads ever l-select/subcategorize for the heads of their specifiers?
  - **Possibly not:**
    - Heads can select for a *feature* of their specifiers...

      (6) Transitive v selects for a DP specifier (selection for [D])
    - ...but heads don't seem to select for particular heads of their specifiers the way they do with complements.

      (7) No v head specifically selects for a DP headed by *some*.

      (8) No PP subjects where the choice of preposition is conditioned by the verb (Neeleman, 1997).
- Can we find a uniform treatment of Merge that captures the unique locality profile of subcategorization?

- **Puzzle to be explained**: head-head selection like (1) only arises between heads and the heads of their complements.
- **Proposal**: all merge is feature driven, but the features driving it differ in specificity
  - More specific c-selectional features have more flexibility with respect to when they have to be checked (can be used to introduced complements or specifiers).
  - Less specific c-selectional features must be checked earlier – always introduce complements.
- **Consequences:**
  - A feature-based approach to the asymmetry can help us understand distributional differences between DPs and non-DPs...
  - which can also help us understand puzzles about the locality of A-movement, like the existence of symmetric passives in many languages.

2 Selection in detail

- The properties of (1) that I'm curious about:
  1. The specificity of the relationship: head 1 demands that a *particular lexical item* be head 2.

2. The locality profile of the relationship: head 2 heads the *complement* of head 1.

- These properties aren't perfectly picked out by Pesetsky's (1982) notion of l-selection.

  (9) L-selection
  "L-selection does not use the vocabulary of syntactic categories like N, V, A, P, I, C or D. Instead L-selection makes reference to subcategories of syntactic categories — in the limiting case, to individual words and, additionally (perhaps) to features like [+finite]." (Pesetsky, 1991)

  - Pesetsky's l-selection brings selection for a feature and selection for a lexical item under the same definition.
    - It is not immediately apparent to me that they have the same locality profile. (to be considered in future work)
      - We often see heads select for *features* of their specifiers, where some of those features might be subcategories.
      - We don't see heads select for *lexical items* as the heads of their specifiers.

- Narrowing our focus to just selection for lexical items:
  - What sorts of heads can select for a lexical item?
    - Not limited to verb-argument pairs

      (10) Complementizer *for* l-selects for *to*
      a. Wallace arranged **for** [Gromit *to* meet Wendy].
      b. *Wallace arranged **for** [Gromit *will/can/has* meet/met Wendy].

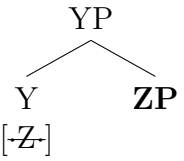
      (11) Functional sequence:
      a. Verbal heads like *Cause/Appl/Init/Res/...* are lexical items, selected in sequence.

    - An aside: Neeleman (1997); Merchant (2019) only consider l-selection for P heads, and thus conclude that only category heads (not functional) heads can do this kind of selection for a lexical item.
      - A consequence of their proposal: no such thing as l-selection for multiple PPs (defended by Neeleman 1997).
      - The present proposal might be more flexible than that: even if V can't select for two PPs headed by particular lexical items (because only one can be a complement), a higher head could select for a PP in addition to V, such that two PPs end up l-selected.

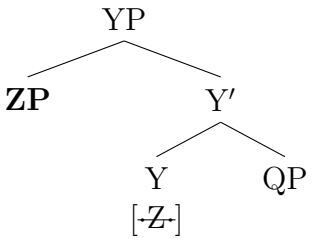
        (12) Wallace counted [*on* Gromit] [*for* help].

- **Question**: does the theory help us understand this locality profile of selection for lexical items?
  - The principle of subcategorization stipulated that it was a relationship between heads and complements (but also allowed for multiple complements) – no such stipulation in the definition of l-selection.
  - **Feature-driven Merge**: Merge with a head or a projection of a head is sufficient to check a selectional feature

    (13) Checking a feature via complementation

    (14) Checking a feature via specifier formation

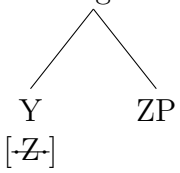
- A possible direction from Chomsky (1995): only movement (i.e. specifier-formation) is feature-driven; external Merge (which includes complementation) is not (and thus subject to other principles).
  - This proposal doesn't actually capture a complement/specifier asymmetry:
    1. External Merge can form specifiers too, so it doesn't uniquely pick out complements.
    2. It's a bit puzzling on the view that internal and external Merge are both essentially the same operation: Merge.

2.1 Selection for lexical items vs. c-selection

- **Observation**: selection for lexical items is not driven by features
  - An apparent contradiction in a feature-driven framework: selected elements must check a feature in order to be merged (based on Pesetsky and Torrego; Müller's 2006; 2010 extension of Chomsky's Last Resort Principle)

    (15) **Last Resort** (Chomsky, 2000, 2001)
    α can only target K if a feature of either α or K is checked by the operation

(16) ZP merges in order to check [·Z·] on Y



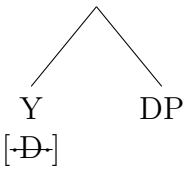
– **Proposed solution**: non-c-selected elements check a *non-specific* merge-inducing feature

- **The proposal in detail**:
  - Merge operations that are driven by specific syntactic features:
    - C-selected elements check categorial merge-inducing features...
    - Wh-moved elements check Ā-features...
  - These kinds of selectional relationships have the locality profile of c-selection: feature-checking can produce either complements or specifiers.
- **Consequence**: anything that merges for reasons that are non-syntactic is licensed by a kind of *elsewhere* feature (Newman, 2024b).

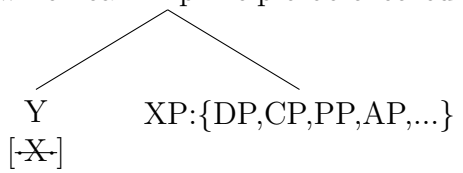
  - **Preserves modularity**: s-selection is enforced by semantic rather than syntactic typing
    - On this view, the syntax is blind to semantic types – but Merge is still driven by features.
  - **Preserves characteristic "filtering" property of syntactic selection**: syntactic processes identify syntactic properties of lexical items and use those to instruct the derivation, ignoring irrelevant characteristics
    - Selection for a particular lexical item does not have this property: there is no abstract feature of a lexical item that is selected, but rather the lexical item itself

- **Summary:**
  - An underspecified feature is a dummy feature that ensures that Merge happens.
    - Where the interfaces are in charge of selection, they filter out derivations where [·X·] was used to introduce the wrong thing.

(17) C-selection for DPs governed by the distribution of [·D·]



(18) L/S-selection for other things governed by the distribution of underspecified [·X·], which can in principle be checked by anything



- Do we have independent evidence for an underspecified feature?
  - Chomsky (2005): underspecified *edge* features
  - Meta-restrictions on selection:
    - Can't have more than two non-DP arguments per verb root.
    - All non-DP categories lumped together.
  - **Conclusion**: there is a non-homogeneous class of elements that are not introduced according to their category – cannot be introduced by a specific feature. And yet they are restricted in their distribution – a reflex of the distribution of features.
    - Another way of thinking about this is to say there is no syntactic [·P·] feature capable of c-selecting a PP. This would be compatible with a view where there is actually no such thing as a P category (Zeijlstra, 2020).

2.2 Meta-restrictions on selection

- **Observation**: The number of arguments in the verbal domain is limited to at most four (Hale and Keyser, 1993, 2002; Marelj, 2002; Juarros, 2003).
- Of the maximally four arguments, there are restrictions on their categorial composition:
  - At most two can be DPs. (adding a third DP requires the addition of functional structure)
  - At most two can be non-DPs.

    (19) (DP) V (DP) (XP) (XP)

- **Conclusion**: the distinction between DPs and non-DPs is important to the factors that constrain verbal phrase structure.
  - Distinctions among non-DP categories are not important to the factors that constrain verbal phrase structure.

(20) Clauses with 2 or fewer DPs don't need extra functional structure:
  a. Jo laughed. (1 DP)

b. Jo enjoys fruit. (2 DPs)

(21) Clauses with more than 2 DPs need extra functional structure:

a. Amy gave [$_{ApplP}$ Jo] a book. (2 DPs + 1 ApplP)

b. Beth showed the painting to Laurie. (2DPs + 1 PP)

c. Meg wants Amy to eat carrots. (2 DPs + 1 TP)

d. Amy told Beth that Marmie likes carrots. (2 DPs + 1 CP)

- The normal verbal structure allotted to clauses (V+v) is enough to license at most two DPs.
- Additional DPs require additional functional structure. (Baker, 1988; Larson, 1988; den Dikken, 1991; McGinnis, 2001; Pylkkänen, 2008)

- **Observation**: the additional functional structure that one can add also has limits
  - At most two non-DP arguments can be selected by a single verb.

(22) Some clauses with 1 non-DP:

a. Amy turned blue. (1 DP + 1 AP)

b. Marmie thinks that Amy should eat carrots. (1 DP + 1 CP)

(23) Some clauses with 2 non-DPs:

a. Jo relies on Laurie for support. (1 DP + 2 PPs)

b. Meg counted on Jo to help. (1 DP + 1 PP, 1 TP)

c. Amy heard from Beth that Marmie likes carrots. (1 DP + 1 PP, 1 CP)

d. Jo bet against Laurie for a new bike. (1 DP + 2 PPs)

e. Laurie bet [$_{ApplP}$ Jo] his allowance that Amy would want to come. (2 DPs + 1 ApplP, 1 CP)

(24) Can't have 3 (or more) non-DPs

a. *Meg counted on Jo for support to help.
intended reading: Meg counted on Jo for support and help

b. *Lauri bet against Jo for a new bike that Amy would want to come.
intended reading: Laurie bet Jo a new bike that...

- Strikingly, these restrictions seem to be *categorial* rather than semantic.
  - **Justification**: Thematic roles are not uniquely tied to particular categories.

(25) Prepositional 'direct objects'

a. Meg objected to Amy's mischief.
cf. *Meg denounced Amy's mischief.*

b. Beth complied with Marmie's orders.
cf. *Beth followed Marmie's orders.*

(26) Thematic roles realized as multiple categories
   a. Agent: DP or *by*-phrase
      i. Sue ate a strawberry.
      ii. The strawberry was eaten by Sue.
   b. Propositional arguments: CP or DP
      i. Laurie said that Amy likes carrots.
      ii. Laurie said something.
   c. Recipient: *to*-phrase or ApplP
      i. Meg gave Marmie a present.
      ii. Meg gave a present to Marmie.

- *Bet* can clearly assign three internal argument theta-roles, where those roles can sometimes alternate between DP/non-DP formats.
- ...but the arguments can't all take their non-DP forms at the same time.

2.3 Returning to the complement/specifier asymmetry

- **Observation from before:**
  - Many selected elements can be complements or specifiers,
  - while selection for a particular lexical item must be satisfied by complements.
- **Proposal** (again): these arguments are not selected according to a specific syntactic feature (category, subcategory)
  - And yet they must check a feature in order to be merged, must be non-specific.

(27) Proposed argument-introducing features (Newman, 2024b)
   a. [·D·]: can be checked by DPs
   b. [·X·]: can be checked by anything

3 Deriving complement/specifier asymmetries

- Suppose we have a verb that takes two arguments:
  - E.g. *introduce* c-selects a DP and l-selects a *to*P.

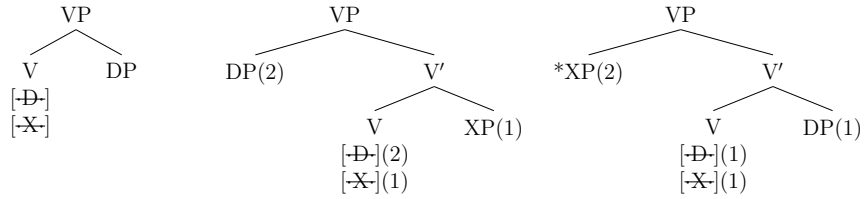
(28) Wallace introduced Gromit to Wendy.

  - *Introduce* must have two features: {[·D·],[·X·]}, corresponding to each instance of Merge it must induce.
- An economy constraint on feature-checking:

(29) **Feature Maximality/Free Rider condition**
Given a head H with features $[F_1]...[F_n]$, if XP discharges $[F_i]$, XP must also discharge each $[F_j]$ that it is capable of (Chomsky, 1995; Pesetsky and Torrego, 2001; Rezac, 2013; van Urk and Richards, 2015; Longenbaugh, 2019).

- What this means:
  - Merging a DP with *introduce* can in principle check either/both [·D·] or [·X·].
  - If DP merges at a time when both [·D·] and [·X·] are unchecked, (29) requires it to check *both* features.
- **Consequence:** if DP merges first (i.e. as a complement), it bleeds the possibility of merging the *to*P.
  - **Result:** *to*P must merge first (as a complement) if it is to be licensed at all.

(30) *The non-DP first theorem*: if V merges with a non-DP, the non-DP must merge first.



- **Summary:**
  - Since selection for a lexical item is not driven by specific features, their only option for merging into the structure is to check an underspecified feature.
  - If the l-selected element doesn't check [·X·] before something else does, it doesn't get to merge at all → must be a complement.
- Some puzzles to consider for future research...
  - What if an l-selected element acquires another feature that the syntax cares about, e.g. a wh-feature? Does the ability to check [·wh·] obviate the requirement to be a complement?
  - What about s-selected elements? They are predicted to have the same structural restrictions as l-selected elements, (though what about s-selected DPs?).

3.1 What about merging VP?

- What we have seen so far:
  - How to derive complementation requirements for verb-argument pairs like (1).
- What we are about to do:
  - Figure out how to build the clause, based on what we said about argument-introduction.

– To keep it small, we will focus on the relationship between just three heads: v, Appl, V.

- **Proposal**: v (optionally) l-selects Appl, but c-selects VP.
  - I take v to be the head responsible for introducing the external argument.
    - v merges with a VP to acquire a verb root and internal arguments, etc.
  - The logic of the relationship between v and V is one of c-selection:
    - A v that is positively specified to introduce an external argument can merge with a range of VPs:

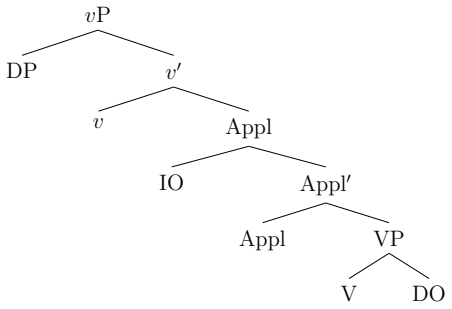
      (31) Verbs that take external arguments with a variety of internal structures/roots
      a. Wallace laughed. (VP = [laugh])
      b. Wallace saw Gromit. (VP = [see Gromit])
      c. Wallace depended on Gromit. (VP = [depend on Gromit])
      d. ...

    - Similarly, a v head that does not take an external argument can merge with a variety of VPs.

      (32) Verbs that don't take external arguments with a variety of internal structures/roots
      a. Weather verbs (VP = [V])
      b. Unaccusatives (VP = [V DP])
      c. Ditransitive unaccusatives (VP = [V DP PP/CP])

  - To describe the selectional properties of any v head, we can't be more specific than "VP" – a characteristic of c-selection.
  - The relationship between v and ApplP in, for example, a high applicative structure is different:

    (33) High applicative structure



    - When v selects for ApplP, it wants a phrase headed by *Appl* – a specific lexical item.
    - This is not c-selection, and thus must be licensed by [·X·].

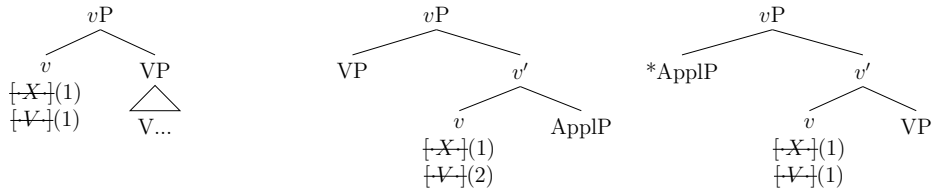
– **Summary of v's properties**:

* v can optionally select for either a regular transitive environment or a ditransitive environment.
* In the first case, it only merges with VP.
* In the second case, it merges with ApplP, which merges with VP.

– **A solution**: we can say that v c-selects for VP and optionally l-selects for ApplP: must have both features [·V·] and [·X·].

- **Prediction:** ApplP *must* merge as a complement to v, while VP might merge as either a complement or a specifier.

(34) vPs: a non-DP/non-VP must merge first → makes VP a specifier.



– Combining Appl's selectional requirements to merge with a VP helps us derive smuggling derivations.

3.2 Smuggling

- **The puzzle of symmetric passives:**

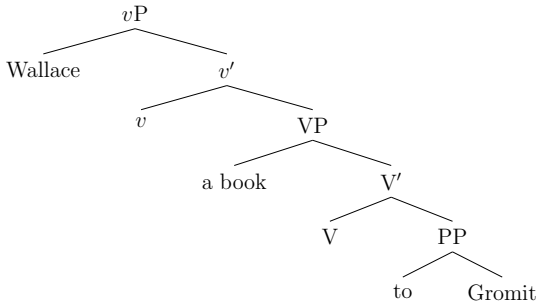
– Recall the dative alternation:

(35) a. Wallace gave a book to Gromit. (prepositional dative construction)
b. Wallace gave Gromit a book. (double object construction)

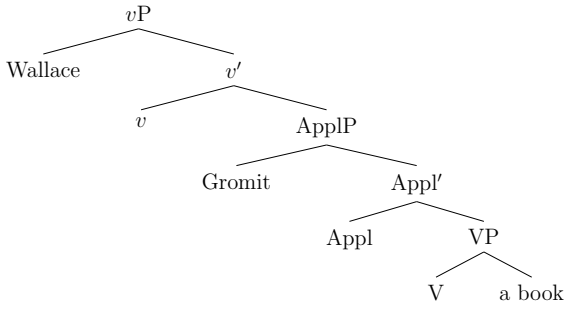
(36) Norwegian ditransitives (Anderssen et al., 2012, ex.2)
a. Jon ga [$_{DO}$en bok] [$_{IO}$til Marit].
Jon gave a book to Marit
'Jon gave a book to Marit.' *prepositional dative construction*
b. Jon ga [$_{IO}$Marit] [$_{DO}$en bok].
Jon gave Marit a book
'Jon gave Marit a book.' *double object construction*

– The two structures commonly given for each variant of the dative alternation have an asymmetric c-command relationship between the two arguments.

(37) Prepositional dative constructions

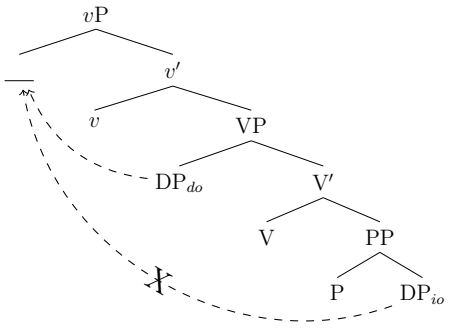


(38) Pylkkänen (2008)'s high applicative structure for double object constructions

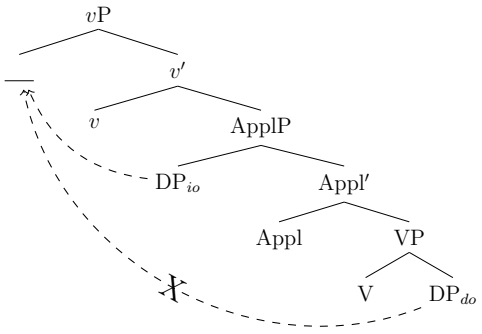


- **Prediction:** based on the locality of A-movement, we expect passives of each construction to only license raising of the higher argument.

(39) In a passive of a prepositional dative construction, the direct object should always raise



(40) In a passive of a double object construction, the indirect object should always raise



(41) Predicted passives for each structure

a. A mouse was given to Sue. (cf. **Sue was given a mouse to.*)

b. Sue was given a mouse. (cf. **A mouse was given Sue.*)

- **Problem:** passives of double object constructions often license raising of either argument

(42) *Norwegian symmetric passives of double object constructions* (Haddican and Holmberg, 2015, ex. 2, p. 146)

a. Jeg ble gitt _ Paralgin Forte.
I was given Paralgin Forte
'I was given Paralgin Forte.'

b. Lånet ble gitt meg _.
the.loan was given me
'The loan was given to me.'

– This isn't a rare phenomenon – in fact it is typologically more common for the direct object to be able to raise than the indirect object, given that the indirect object might be marked with an oblique case.

– A (non-comprehensive) list of some symmetric languages from a recent survey by Holmberg et al. (2019): Norwegian, North-West British English, Zulu, Lubukusu, Xhosa (Visser, 1986), Swati (Woolford, 1995), Haya (Duranti and Byarushengo, 1977), Fuliiru (Van Otterloo, 2011), Sotho (Morolong and Hyman, 1977), and Tswana (Creissels, 2002)

- So how does the direct object get past the indirect object?

– *Smuggling* (Newman, 2024a)

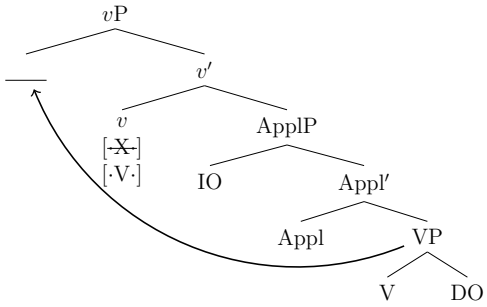
– Recall the features that v must have in order to merge with ApplP/VP alternately.

(43) A feature bundle for a v that generally c-selects for VP and sometimes l-selects for ApplP: [·X·] (for ApplP), [·V·] (for VP), (and [·D·] for the external argument)

– When ApplP merges, it checks [·X·] but not [·V·].

– The unchecked [·V·] can be checked by movement of VP to Spec vP, which *smuggles* the direct object above the indirect object.

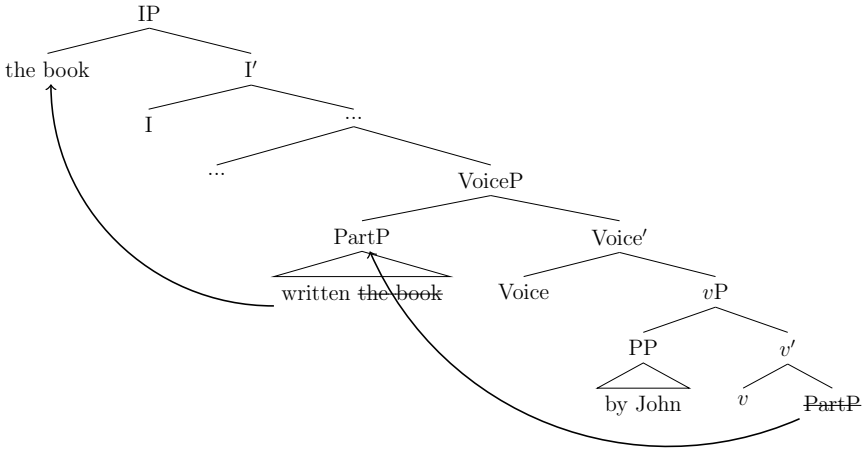
(44) VP smuggling in a ditransitive



- This proposal is inspired by Collins (2005, 2024), though the details are different.

  – According to Collins, passives are generally derived by smuggling, with the following structure/derivation.

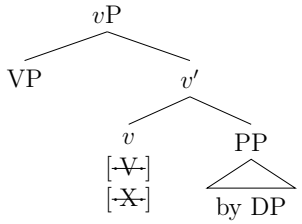
  (45) Collins (2005, 2024): Smuggling derived by movement of PartP to edge of VoiceP



  – The present proposal predicts smuggling to occur (on Collins' other assumptions about phrase structure) from the logic of feature checking.

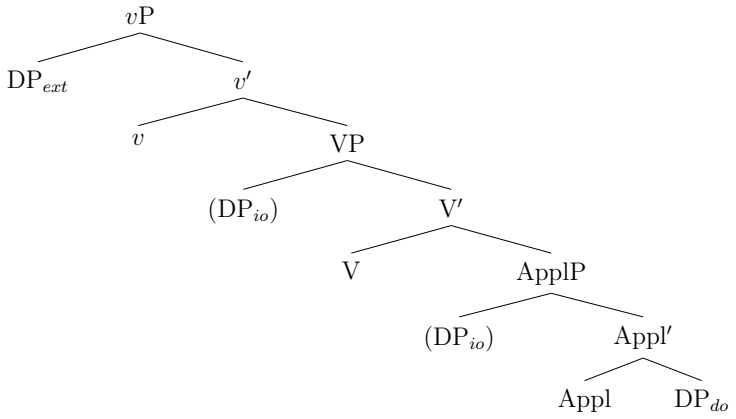
    * Collins needs v to l-select for a *by*-phrase.
    * If v also generally c-selects for a VP, then they should merge in the following way:

(46) A passive v that l-selects a *by*-phrase and c-selects a VP generates a smuggled structure



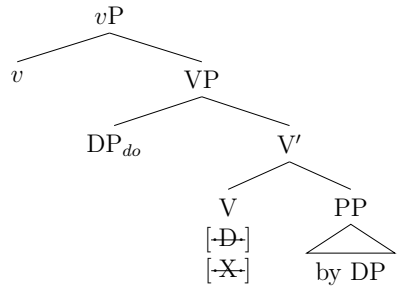
- **Summary**:
  - When higher heads l-select for optional phrases (and otherwise c-select for VP), smuggling is predicted to occur in the presence of those optional phrases.
  - Those phrases must be complements to the heads that l-selected them, leaving [·V·] unchecked, which can attract VP specifier by movement (or external Merge).
  - Usual locality conditions on A-movement are circumvented, which might otherwise prevent a direct object from moving past an intervening indirect object (or external argument).
- Puzzles to think about:
  - What about languages without symmetric passives of double object constructions?
    - Maybe these languages have low applicatives? In that case, Appl would merge too low to disrupt V-v locality.

      (47) A low applicative structure for a double object construction (Pesetsky, 1995; Pylkkänen, 2008)



  - Are all passives derived by smuggling?
    - The idea that v introduces the *by*-phrase is controversial...
    - But suppose it is introduced by V instead (Bowers, 2010): in that case, it will be generated below the direct object with no smuggling necessary (or possible).

(48) If V l-selects a *by*-phrase



4 Conclusion

- Starting observation:
  - Different kinds of selection may come with different locality requirements.
    - Selection for a feature can be satisfied by complements or specifiers.
    - Selection for a lexical item can only be satisfied by complements.
  - I proposed a feature distinction underlying each kind of selection:

    (49) C-selected elements are introduced by specific category features: [·D·], [·V·]

    (50) Other elements are introduced by a non-specific feature: [·X·]
  - The distribution of [·D·], [·V·], and [·X·], as diagnosed by different selectional requirements, predicts:
    1. Complement/specifier asymmetries between DPs and non-DPs, and
    2. Smuggling whenever an optional functional element is merged into the structure.

References

Anderssen, Merete, Paula Fikkert, Roksolana Mykhaylyk, and Yulia Rodina. 2012. Dative Alternation in Norwegian child language. *Nordlyd* 39:24–43.

Baker, Mark. 1988. *Incorporation: a theory of grammatical function changing*. University of Chicago Press.

Bowers, John. 2010. *Arguments as relations*. Cambridge, MA: The MIT Press.

Chomsky, Noam. 1965. *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.

Chomsky, Noam. 2000. Minimalist inquiries: The framework. In *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, ed. R. Martin, D. Michaels, and J. Uriagereka, 89–155. MIT Press.

Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. Michael Kenstowicz, 1–52. Cambridge, MA: MIT Press.

Chomsky, Noam. 2005. Three factors in language design. *Linguistic Inquiry* 36:1–22.

Collins, Chris. 2005. A smuggling approach to the passive in English. *Syntax (Oxford, England)* 8(2):81–120.

Collins, Chris. 2024. *Principles of argument structure: A Merge-based approach*. Linguistic Inquiry Monographs. Cambridge, MA: MIT Press.

Creissels, Denis. 2002. Valence verbale et voix en Tswana. *Bulletin de la Société de Linguistique de Paris* 97:371–426.

den Dikken, Marcel. 1991. Particles and the dative alternation. In *Leiden Conference of Junior Linguists 2 Proceedings*.

Duranti, Alessandro, and Ernest R. Byarushengo. 1977. On the notion of "direct object". In *Haya grammatical structure*, ed. Ernest R. Byarushengo, Alessandro Duranti, and Larry M. Hyman, 45–71. Los Angeles: University of Southern California, Department of Linguistics.

Haddican, William, and Anders Holmberg. 2015. Four kinds of object asymmetry. In *Complex visibles out there: proceedings of the Olomouc Linguistics Colloquium 2014: Language use and linguistic structure*, ed. Ludmila Veselovská and Markéta Janebová, 145–162.

Hale, K., and S. J. Keyser. 1993. On argument structure and the lexical expression of syntactic relations. In *The view from Building 20: Essays in honor of Sylvain Bromberger*, ed. K. Hale and S. J. Keyser. Cambridge, MA: MIT Press.

Hale, Ken, and Samuel Jay Keyser. 2002. *Prolegomenon to a Theory of Argument Structure*. Cambridge, MA: The MIT Press.

Holmberg, Anders, Michelle Sheehan, and Jenneke van der Wal. 2019. Movement from the Double Object Construction is not fully symmetrical. *Linguistic Inquiry* 50:677–721.

Juarros, Eva. 2003. Argument structure and the lexicon/syntax interface. PhD Thesis, University of Massachusetts Amherst.

Larson, Richard. 1988. On the Double Object Construction. *Linguistic Inquiry* 19:335–392.

Longenbaugh, Nicholas. 2019. On expletives and the agreement-movement correlation. PhD Thesis, MIT, Cambridge, MA.

Marelj, Marijana. 2002. Rules that govern the cooccurences of theta-clusters in the 'Theta-System'. *Theoretical Linguistics* 28(3):357–373.

McGinnis, Martha. 2001. Phases and the syntax of applicatives. In *Nels 31*, ed. Minjoo Kim and Uri Strauss, 333–349. Amherst: University of Massachusetts, GLSA.

Merchant, Jason. 2019. Roots don't select, categorial heads do: Lexical-selection of PPs may vary by category. *The Linguistic Review* 36:325–341.

Morolong, Malillo, and Larry M. Hyman. 1977. Animacy, objects and clitics in Sesotho. *Studies in African Linguistics* 8:199–218.

Müller, G. 2010. On deriving CED effects from the PIC. *Linguistic Inquiry* 41(1):35–82.

Neeleman, Ad. 1997. Pp-complements. *Natural Language & Linguistic Theory* 15:89–137.

Newman, Elise. 2024a. The order of operations and A/Ā interactions. *Natural Language & Linguistic Theory* URL `https://doi.org/10.1007/s11049-023-09611-3`.

Newman, Elise. 2024b. *When arguments merge*. Cambridge, MA: MIT Press.

Pesetsky, David. 1991. Zero syntax. Vol. 2, Infinitives. MIT.

Pesetsky, David. 1995. *Zero Syntax*. Cambridge, MA: The MIT Press.

Pesetsky, David, and Esther Torrego. 2001. T-to-C movement: Causes and consequences. In *Ken Hale: A life in language*, ed. Michael Kenstowicz, 355–426. Cambridge, MA: MIT Press.

Pesetsky, David, and Esther Torrego. 2006. Probes, goals and syntactic categories. URL `https://linguistics.mit.edu/user/pesetsk/`, MIT.

Pesetsky, David Michael. 1982. Paths and categories. PhD Thesis, MIT, Cambridge, MA.

Pylkkänen, Liina. 2008. *Introducing arguments*. The MIT Press.

Rezac, Milan. 2013. Case and licensing: evidence from ECM+DOC. *Linguistic Inquiry* 44(2):299–319.

van Urk, Coppe, and Norvin Richards. 2015. Two components of long-distance extraction: Successive cyclicity in Dinka. *Linguistic Inquiry* 46(1):113–155.

Van Otterloo, Roger. 2011. *The Kifuliiru language. Vol. 2, A descriptive grammar*. Dallas, TX: SIL International.

Visser, Marianna. 1986. Cliticization and Case theory in Xhosa. *South African Journal of African Languages* 6:129–137.

Woolford, Ellen. 1995. Why passive can block object marking. In *Theoretical approaches to African linguistics*, ed. Akinbiyi Akinlabi, 199–215. Trenton, NJ: Africa World Press.

Zeijlstra, Hedde. 2020. Labeling, selection, and feature checking. In *Agree to Agree: Agreement in the Minimalist Program*, ed. Johannes Mursell and Katharina Hartmann, 31–70. Berlin: Language Science Press.