Joint selection

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Subcategorization/selection

= a way of ensuring that the right things go together

   (1)   We rely {on / *in} him.

   (2)   #Sincerity may admire the boy.

   (3)   *rely*, V, [_ [$_{PP}$ on ...]]

   (4)   *rely*
$\begin{bmatrix} \text{cat} & [V] \\ \text{infl} & [...] \\ \text{sel} & [on] \end{bmatrix}$
or *rely*
$\begin{bmatrix} \text{cat} & [V] \\ \text{infl} & [...] \\ \text{sel} & [\text{Pform} : on] \end{bmatrix}$

   (5)   `rely::` =on -ϕ V

Subcategorization/selection

(6) Merge(α, β)

For any syntactic objects α, β, where α bears an unchecked selectional feature F, and β bears a matching categorial feature F′, call α the head and

a. let $\alpha = \{\ \gamma, \{\ \alpha,\ \beta\}\}$
   call γ the label (or projection), and

b. let F be checked (written <F>), and

c. let $\gamma = \alpha \cap \overline{\mathfrak{I}}$, where $\overline{\mathfrak{I}}$ is the set of all unchecked non-inflectional features
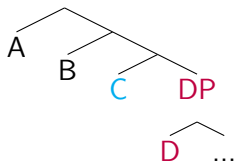
Subcategorization/selection

(7) Merge(α, β)
For any syntactic objects α, β, where α bears a nonempty selectional list $\ell = <F_1, ..., F_n>$ of selectional features, and β bears a categorial feature F' that matches F_1,
call α the head and

a. let $\alpha = \{ \gamma, \{ \alpha, \beta\}\}$
call γ the label (or projection), and

b. if n > 1, let $\ell = <F_2, ..., F_n>$, else let $\ell = \emptyset$, and

c. let $\gamma = \begin{bmatrix} \text{cat} & [cat(\alpha)] \\ \text{sel} & [\ell] \end{bmatrix}$

Locality of selection
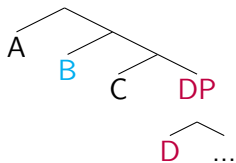
Selector ... Selectee

Selection OK:

Locality of selection
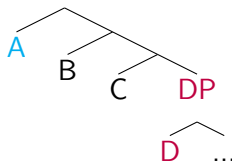
Selector ... Selectee

Selection not OK:

Locality of selection

Selector ... Selectee

Selection not OK:

One of the greatest discoveries of 20th c. science
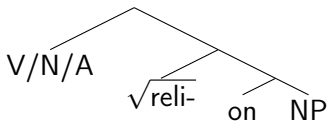
Grammatical relations are **local** in their own domain:

1. agreement
2. case assignment
3. concord
4. A-movement (valence/argument-changing dependencies)
5. A'-movement ('unbounded' dependencies)
6. head-movement
7. vowel harmony (and other assimilatory and dissimilatory processes, sandhi, etc.)

There is no real 'action at a distance'

Cross-categorial uniformity of selection

(8)   a.   They rely **on** oil.

       b.   Their reliance **on** oil is well-known.

       c.   They are reliant **on** oil.

(9)   a.   The compound reacted **to** light.

       b.   The compound's reaction **to** light was expected.

       c.   The compound was reactive **to** light.

(10)   a.   He envies our success.

       b.   His envy **of** our success is obvious.

       c.   He is envious **of** our success.

(11)

$$\sqrt{\text{reli-}} \quad \text{V/N/A} \quad \text{on} \quad \text{NP}$$

(12) $\sqrt{\text{reli-}}$ $\begin{bmatrix} \text{cat} & [\sqrt{\ }] \\ \text{sel} & [< \text{Pform} : on >] \end{bmatrix}$

(13)   a. $\sqrt{\text{reli-}} \rightarrow$ rely / V _
       b. $\sqrt{\text{reli-}} \rightarrow$ reliance / N _
       c. $\sqrt{\text{reli-}} \rightarrow$ reliant / A _

"the fact that selectional restrictions remain in force across the nominal/verbal divide ... suggests that whatever low category is sister to the internal argument is not specific to the nominal extended projection. The acategorial root meets this description perfectly" (Harley 2014:22–23 fn 22).

Semi-productivity, and psych predicates

(14)   a. (I anger him.) (*He angers at me.)

      b. He is angry at me.

      c. His anger at me is baffling.

(15)   a. (Jazz interests me.) (*I interest in jazz.)

      b. I am interested in jazz.

      c. My interest in jazz has never flagged.

(16)   a. (His intransigence surprised me.) (*I surprise at his intransigence.)

      b. I'm surprised at his intransigence.

      c. My surprise at his intransigence counts for nothing.

Problems in rootland

(17) a. She prides herself on her thoroughness.
      b. She is proud of her thoroughness.
      c. Her pride in her thoroughness is understandable.

(18) a. I rarely concern myself about/*for his presence.
      b. I am quite unconcerned about/*for his presence.
      c. My rare concern about/for his presence is understandable.

(19) a. Buckley attacked liberalism.
      b. *Buckley attacked on liberalism.
      c. *Buckley's attack of liberalism was scathing.
      d. Buckley's attack on liberalism was scathing.
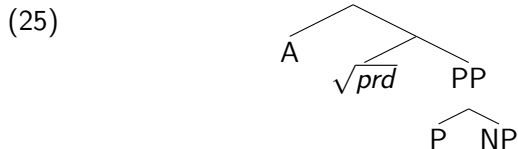
(20)   a. I desire chocolate.

b. My desire for/??of chocolate knows no bounds.

c. I am desirous of chocolate.

(21)   a. $\sqrt{\text{desir-}} \rightarrow$ desire / V _

b. $\sqrt{\text{desir-}} \rightarrow$ desire / N _

c. $\sqrt{\text{desir-}} \rightarrow$ desirous / A _

(22) $\sqrt{\text{desir-}}$ $\begin{bmatrix} \text{cat} & [\sqrt{\ }] \\ \text{sel} & [< \{N, \text{Pform} : \textit{for}/\textit{of}\} >] \end{bmatrix}$

Allomorphic variation?

P is an allomorph subject to span-conditioned allomorphy:

(23)   a.   I am proud of my son.

         b.   My pride in my son is understandable.

(24)   a.   P → of / A+$\sqrt{prd}$ __

         b.   P → in / N+$\sqrt{prd}$ __

(25)

```
                      /\
                     /  \
                    /    \
                   A     /\
                  / \   /  \
                 /   \ /    \
              √prd      PP
                       /  \
                      /    \
                     P     NP
```

Allomorphic variation?

Doesn't work for *desir-*, where an NP alternates with a PP:

(26)   a. $\sqrt{desir}$: :   =P V
       b.   P → of / A+$\sqrt{desir}$ _
       c.   P → in / N+$\sqrt{desir}$ _
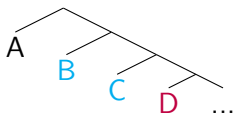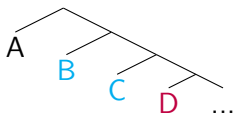
(27)
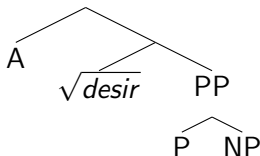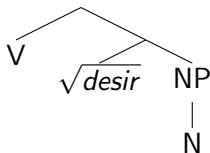
Joint selection

1. We need *joint selection*: Selection by a combination of the root and the category-determining node

<div align="center">

Selector(s) ... Selectee

</div>

Selection OK:

Joint selection

1. We need *joint selection*: Selection by a combination of the root and the category-determining node

<div align="center">

Selector(s) ... Selectee

</div>

Selection OK:

2. Or simply, selection by the derived word, with a theory relating the subcat frames of derived words, with overrides of the default?

Lexicalism redux?

"Regularities involving only selectional features might in principle be stated as redundancy rules of the lexicon"

Lexicalism redux?

"Regularities involving only selectional features might in principle be stated as redundancy rules of the lexicon"
–Chomsky 1970, 'Remarks on nominalization', p. 213

(31) a. $X_V \leftrightarrow X_A$
      b. $X_V \leftrightarrow X_N$
      c. $X_N \leftrightarrow X_A$

(32) Elsewhere case:
      $$X_\alpha \qquad\qquad \leftrightarrow \qquad X_\beta$$
      $$[\text{sel}[< F_1, ..., F_n >]] \qquad [\text{sel}[< F_1, ..., F_n >]]$$

(33) Pre-empted by more specific entries:
      a. desire_V, $[\text{sel}[< N >]]$
      b. desire_N, $[\text{sel}[< for >]]$
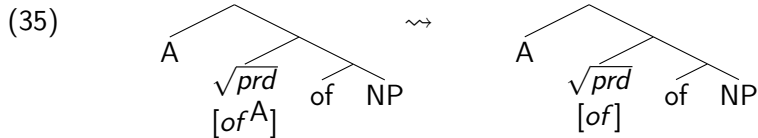   c. desirous_A, $[\text{sel}[< of >]]$

See Bowers 2010:ch.5 for why this isn't the right path.

Conspiracy of structure

A higher node *activates* a (selectional) feature on a lower node:

(34) $\sqrt{prd}$, $\left[\mathrm{sel}[\{of^A, in^N\}]\right]$

(35)

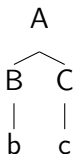(36) **Activate(X,Y;F)** (read: 'X activates F on Y') $=_{def}$
For any syntactic objects X and Y in a phrase marker, where X bears a category feature c and Y bears an inactive feature F^c, and X closest c-commands Y,

a. let $F^c = F$

Subcategorization/selection

This formulation spares us the necessity for an atemporal interpretation of Merge (phrase-marker licensing vs building)

(37)

```
        A
       /\
      B  C
      |  |
      b  c
```

(38)   PS-rules:

   a.   B → b / _ c

   b.   C → c / b _

A case study in *lust*

Some roots can select more than one preposition:

(39)   They lust for/after chocolate.

A case study in *lust*

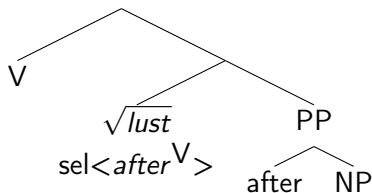$$\frac{lust_V \; for}{lust_V \; for + lust_V \; after} \qquad (1)$$

Figure: Relative frequency of **verbal** *lust for* vs *lust after*

Stochastic selectional features

A higher node *activates* a (selectional) feature on a lower node *stochastically*:

(40) $\sqrt{lust}$, $\left[\text{sel}[\{after^V[0.6], for^V[0.4]\}]\right]$

(41)

Stochastic selectional features

A higher node *activates* a (selectional) feature on a lower node *stochastically*:

(42) $\sqrt{lust}$, $\left[\text{sel}[\{after^V[0.6], for^V[0.4]\}]\right]$

One implementation of a probabilistic CFG: ($G = (N, T, S, R, p)$) with subcategorization: p is a parameter for each rule $A \rightarrow \beta \in R$, such that for each $A \in N$:

$$\sum_{A \rightarrow \beta \in R(A)} p(A \rightarrow \beta) = 1$$
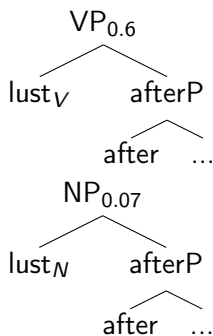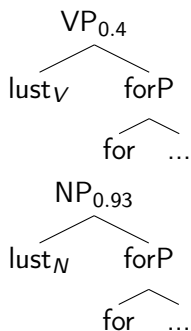
A case study in *lust*

(43)   a.   They lust for/after chocolate.

      b.   Their lust for/*after chocolate was insatiable.

A case study in *lust*

Figure: Relative frequency of **nominal** *lust for* vs *lust after*

Conspiracy of structure

(44) $\sqrt{lust}$,
$\left[\text{sel}[\{\textit{after}^V[0.3], \textit{for}^V[0.2], \textit{after}^N[0.465], \textit{for}^V[0.035]\}]\right]$

A case study in *lust*

Figure: Frequency of **nominal** *lust* as a percentage of total occurrences of **all** forms of *lust*
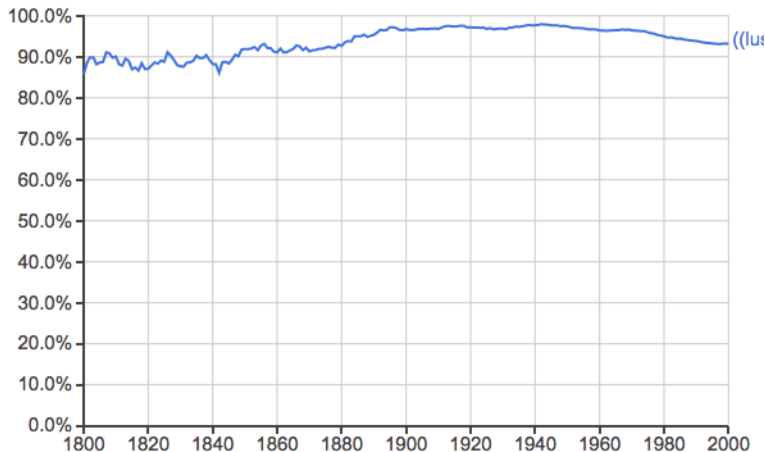
A case study in *lust*

Figure: Frequency of nominal *lust+after/for* as a percentage of total occurrences of all forms of *lust+after/for*: $((\text{lust}_{NOUN} \text{ after}) + (\text{lust}_{NOUN} \text{ for})) / ((\text{lust}_{NOUN} \text{ after}) + (\text{lust}_{NOUN} \text{ for}) + (\text{lust}_{VERB} \text{ after}) + (\text{lust}_{VERB} \text{ for}))$

Stochastic selectional features

Are there other conspiracies of structure, or could we just assign these properties to the lexicon?

- German diptotic prepositions
- nonlocal contextual allomorphy in Greek verbs
- pseudopassives vs. *pseudomiddles

Diptotic (two-way, bicasal) Ps in German

Location (dative) vs. direction (accusative)

(45) an 'at', auf 'on', hinter 'behind', in 'in', neben 'next to', über
      'over', unter 'under', vor 'in front of', zwischen 'between'

(46) a. Das Fahrrad stand **an der** Mauer.
         the bike   stood at the wall[dat]
         'The bike stood against the wall.'

      b. Sie stellte das Fahrrad **an die** Mauer.
         she placed the bike   at the wall[acc]
         'She put the bike against the wall.'

Diptotic (two-way, bicasal) Ps in German

(47) a. Anna verzweifelt **an der** Logik.
          Anna despairs   on the logic[dat]
          'Anna despairs of logic.'

      b. Die Verzweiflung **an der** Logik   ist weit verbreitet.
          the despair   on the logic[dat] is wide spread
          'Despair of logic is widespread.'

(48) a. Anna glaubt   **an die** Logik.
          Anna believes on the logic[acc]
          'Anna believes in logic.'

      b. Annas Glaube **an die** Logik   ist unerschütterlich.
          Anna's belief   on the logic[acc] is unshakable.
          'Anna's belief in logic in unshakable.'

Diptotic (two-way, bicasal) Ps in German

an

| +acc	+dat
s. erinnern 'remember'	s. erfreuen 'be happy about'
glauben 'believe in'	erkanken 'sicken from'
	leiden 'suffer from'
	verzweifeln 'despair of'
	zweifeln 'doubt'

Diptotic (two-way, bicasal) Ps in German

auf

| +acc	+dat
achten 'pay attention to'	basiern 'be based on'
an·kommen 'depend on'	beruhen 'rest on'
antworten 'answer'	bestehen 'insist on'
s. beziehen 'concern'	
ein·gehen 'go into'	
folgen 'follow'	
s. freuen 'look forward to'	
hoffen 'hope'	
kommen 'arrive at'	
Neid 'envy of'	
reagieren 'react to'	
s. verlassen 'rely on'	
verzichten 'do without'	
s. vor·bereiten 'prepare for'	
warten 'wait for'	

Diptotic (two-way, bicasal) Ps in German

(49) Anna glaubt **an die** Logik.
Anna believes on the logic[acc]
'Anna believes in logic.'

(50)
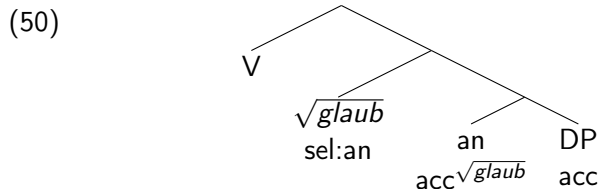
Diptotic (two-way, bicasal) Ps in German

(52)   Anna glaubt **an die** Logik.
        Anna believes on the logic[acc]
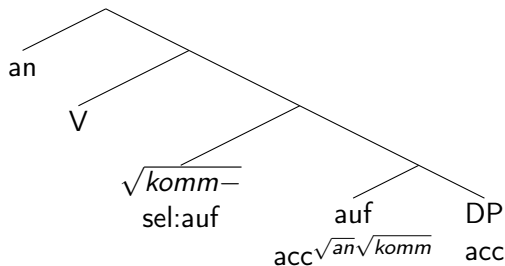   'Anna believes in logic.'

(53)

(54)
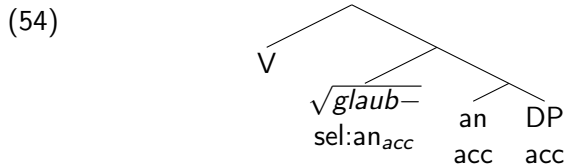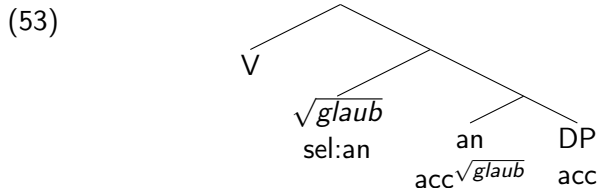
Diptotic (two-way, bicasal) Ps in German

Separable prefix verbs:

(55)   Das kommt **auf die** Logik   an.
       that comes   on   the logic[acc] at
       'That depends on the logic.'

(56)

Locality

There are limits on how much structure can be involved. In German, only the root+P determines the case, never the N/A/V+root+P.

Unattested pattern:

(57) a. Anna **glaub**-s an you(acc).
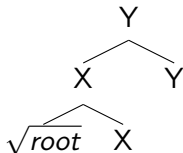   b. Anna's **Glaub**-ation an you(dat) is strong.

Locality in allomorphy

(58) Bobalijk 2012:

    a. $\alpha \ldots]_{X^0} \ldots \beta$

    b. *$\alpha \ldots]_{XP} \ldots \beta$

(59) Embick 2010:

Greek suppletive stem verbs

Voice and Aspect *jointly condition* the verb stem:

	imperfective stem	*active perfective stem*	*nonactive perfective stem*	*meaning*
(60)	tro(ɣ)-	fa(ɣ)-	faɣo-	'eat'
	vlep-	ð-	iðo-	'see'
	le(ɣ)-	p-	lex-/ipo-	'say'

(61) faɣo- θ- ik- a
     eat   pass perf past.1s
     'I was eaten'

Greek suppletive stem verbs

Voice and Aspect *jointly condition* the verb stem:

(62) a. $\sqrt{\text{EAT}} \rightarrow$ fa(ɣ) / _ Voice[+Act] Asp[+Perf]
 b. $\sqrt{\text{EAT}} \rightarrow$ faɣo / _ Voice[−Act] Asp[+Perf]
 c. $\sqrt{\text{EAT}} \rightarrow$ tro(ɣ)

(63) a. $\sqrt{\text{eat}}\frown$[Voice:−Act]$\frown$[Asp:+Perf]$\frown$[T:Past;ϕ:1s] →(Ins.*faɣo-*):
 b. faɣo$\frown$[Voice:−Act]$\frown$[Asp:+Perf]$\frown$[T:Past;ϕ:1s] → (Insert -*θ*-):
 c. faɣo$\frown$θ$\frown$[Asp:+Perf]$\frown$[T:Past;ϕ:1s]   ⟶ (Insert -*ik*-):
 d. faɣo$\frown$θ$\frown$ik$\frown$[T:Past;ϕ:1s]   ⟶ (Insert -*a*):
 e. faɣo$\frown$θ$\frown$ik$\frown$a   (*faɣoθika*)

Spanning

(64) Let T be an ordered n-tuple of terminal nodes $< t_1, \ldots, t_n >$ such that for all $t \in T$, $t = t_1$ or t is an element of the extended projection of t_1.

  a. For all $k = 1 \ldots n$, t_k is a span. (Every node is a trivial span.)

  b. For any $n > 0$, if t_k is a span, then $< t_k, \ldots, t_{k+n} >$ is a span.

(65) **Spanning Insertion Hypothesis:** A *span* and only a span can be targeted for Vocabulary Insertion.

(66) **Span Adjacency Hypothesis:**
Allomorphy is conditioned only by an adjacent *span*.
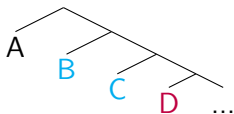
Spanning

(67)   troɣ- omun
       eat   pass.imperf.past.1s
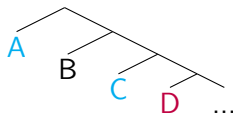   'I was being eaten.'
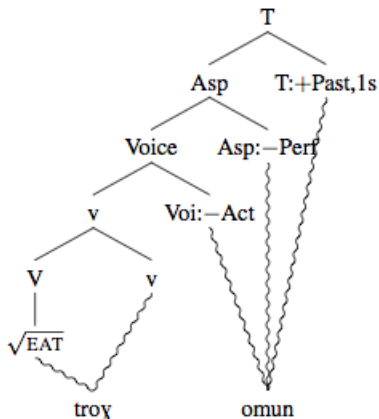
Joint selection

Selector(s) ... Selectee

Selection OK:

Not OK:

(68) **Joint Selection Hypothesis:**
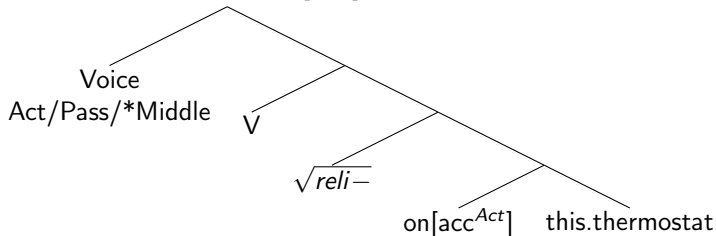Joint selectors must form a span

Pseudopassives vs. *pseudomiddles

(69) This thermostat can't be relied on easily.

(70) *This thermostat doesn't rely on easily.

(71) (Cf. This thermostat doesn't install easily.)

Conclusion: *on* assigns accusative case (or selects K[acc]P) only when embedded under a local Voice[Act].

Voice
Act/Pass/*Middle   V

$\sqrt{reli-}$
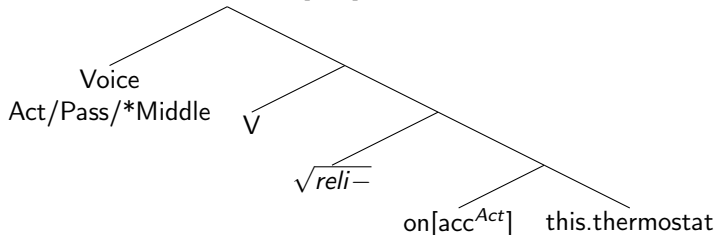
on[acc^{Act}]   this.thermostat

Pseudopassives vs. *pseudomiddles

(72) This thermostat can't be relied on easily.

(73) *This thermostat doesn't rely on easily.

(74) (Cf. This thermostat doesn't install easily.)

Conclusion: *on* assigns accusative case (or selects K[acc]P) only when embedded under a local Voice[Act].

Middle formation is lexical in a way that passive (including pseudopassive) is not.

Whither selection by roots?

Two possibilities:

1. Back to lexicalism; generalizations are over tokens; the *rely* $\sim$ *reliance* $\sim$ *reliant* relation is not to be captured in the syntax. Lexical items may be related by 'Lexical Relatedness/Redundancy Rules', but these have the status of post hoc learned generalizations

   - Semiproductivity shows that we need to list existing forms individually on the PF side. The fact that the resulting forms' meanings are not fully compositional shows the same thing on the meaning side.

2. Joint selection (and the activity condition) is rare; this simply reflects the distribution of such Activatable features across the lexicon

The end

Thank you!