

A Theory of the Distribution of English *that*-clauses

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The Goal of this Talk

- 1 To show that the distribution of English *that*-clauses shows a movement paradox.
- 2 To demonstrate that the best way to resolve this paradox in a motivated manner is a **grammatical construction**.

Cf. Chomsky 1993, 4:

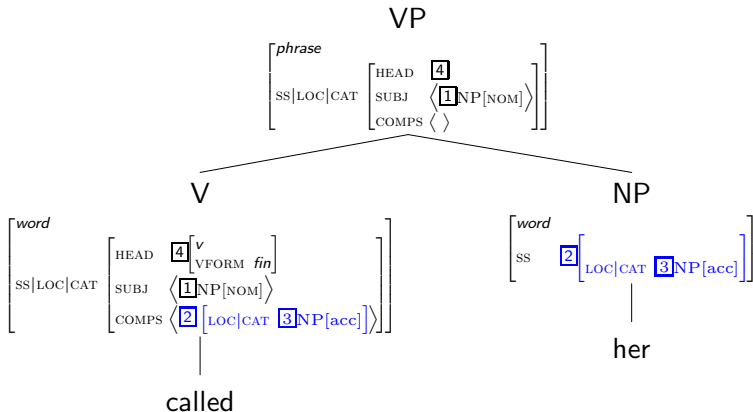
In a Principles and Parameters approach *“the notion of **grammatical construction** is eliminated, and with it construction-particular rules.”*

- 3 Conclusion: Traditional grammar got it right: there **are** constructions and hence **the most promising theory of grammar is constructional!**

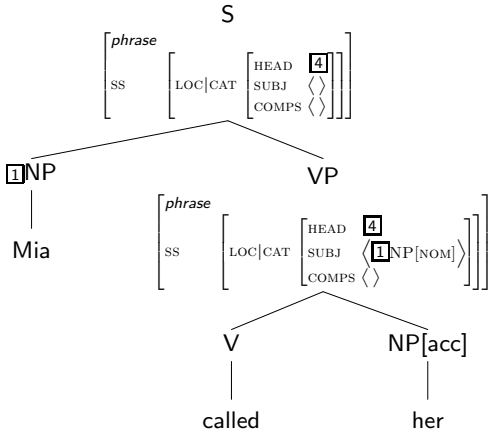
Filler and gaps: category matching

- (1) a. Sue prefers [NP coffee]
b. * Sue prefers [PP to coffee]
c. [NP What]_i does Sue prefer [NP t]_i?
d. * [PP To what]_i does Sue prefer [PP t]_i?
- (2) a. Sue depends [PP on Jill]
b. * Sue depends [NP Jill]
c. [PP On whom]_i does Sue depend [PP t]_i?
d. * [NP Who(m)]_i does Sue depend [NP t]_i?
- (3) a. She will [VP buy a car]_i?
b. ... and [VP buy a car]_i she will [VP t]_i?
c. * ... and [AP very quick]_i she will [VP t]_i?

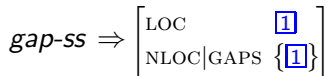
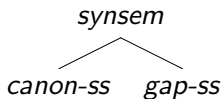
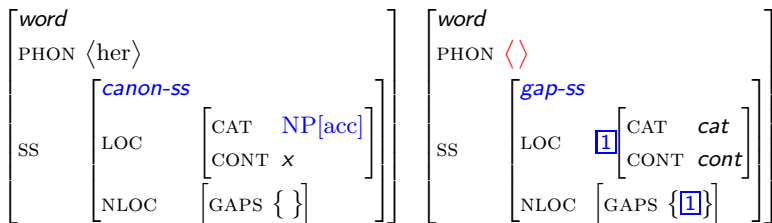
Mia called her vs. Her Mia called t



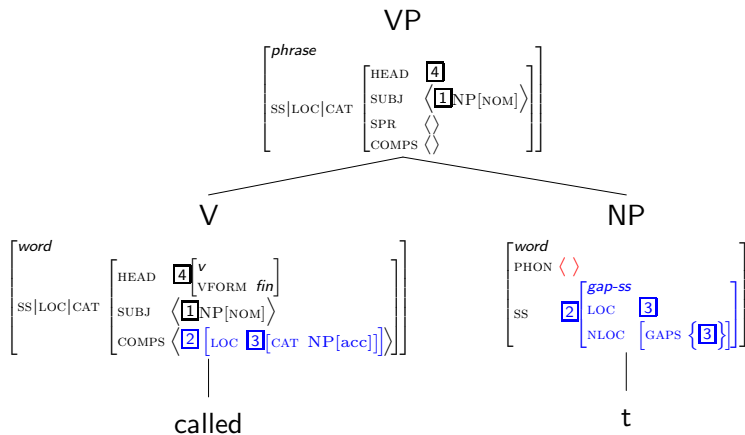
Mia called her vs. Her Mia called t



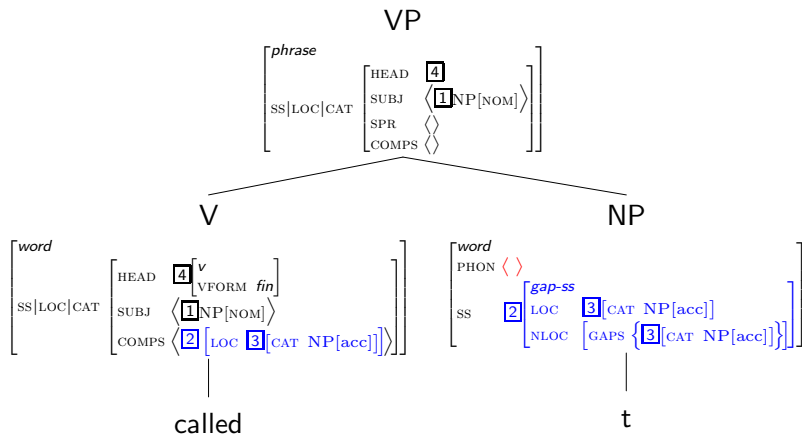
The Gap



called t, with generic gap information



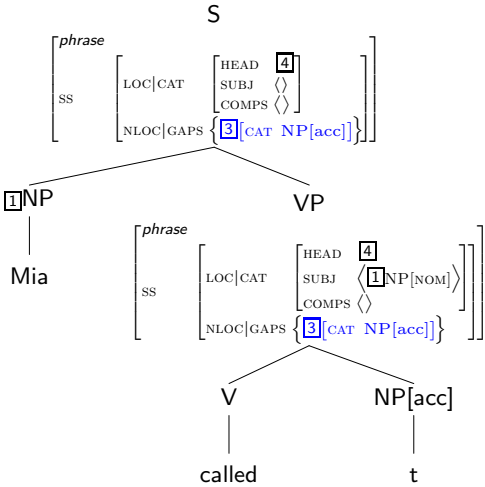
called t, with information from local context



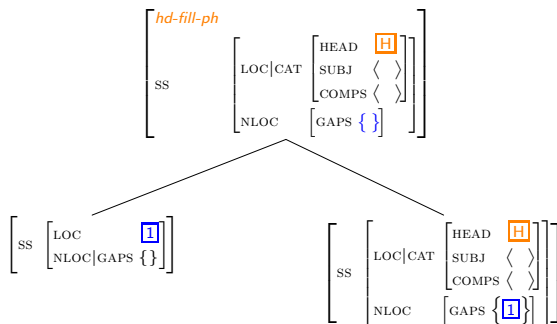
The Gap Principle

$$\text{*canon-ph*} \Rightarrow \left[\begin{array}{l} \text{SS|NLOC|GAPS } \cup(\mathbf{1}, \dots, \mathbf{n}) \\ \text{DTRS} \quad \langle [\text{SS|NLOC|GAPS } \mathbf{1}], \dots, [\text{SS|NLOC|GAPS } \mathbf{n}] \rangle \end{array} \right]$$

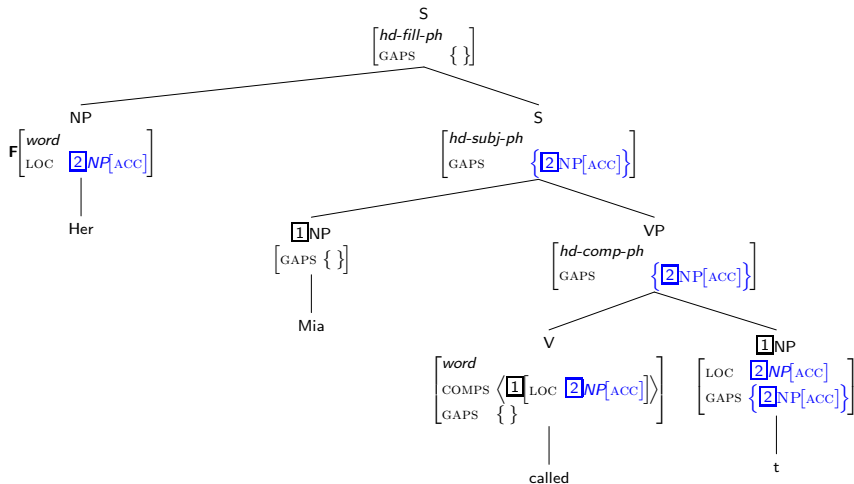
Mia called her vs. Her Mia called t



Head-Filler Phrases



Her Mia called t



Summary of the filler-gap mechanism

- 1 Distinction between *canon-ss* (for overt expressions) and *gap-ss*
- 2 the gap (identifies LOC and GAPS)
- 3 the Gap Principle
- 4 the Head-Filler Construction

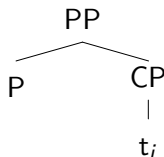
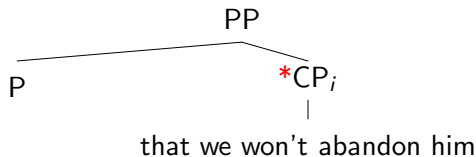
Predicted consequence:

- 1 The category and content features of fillers and gaps match.

Mismatches in the Distribution of Finite Argument Clauses

Higgins 1973, p. 17f:

- (4) a. * You may depend [PP upon [CP that we won't abandon him]].
b. [CP That we won't abandon him]_i; you may definitely depend [PP on t_i].



Generalization 1: *that*-clauses **cannot** appear in the complement position of prepositions.

Generalization 2: *that*-clauses **can** be preposed from the complement position of prepositions.

The distribution of finite subject clauses

Subject clauses:

(5) [_{CP} That John showed up] pleased me.

Pollard and Sag 1994, p. 150:

[CAT|SUBCAT ⟨S[*comp*],NP⟩]

The distribution of finite subject clauses

Kuno 1973 (following Ross 1967, Rosenbaum 1967):

(6) * Did [CP that John showed up] please you?

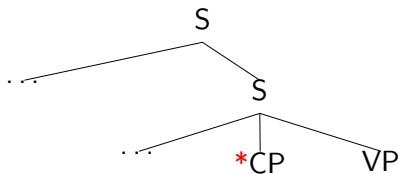
(7) ?* [That CP that John showed up] pleased her] was obvious.

(8) a. * I don't know [how well-known CP that the world is round] is].

Higgins 1973:

(9) a. * How likely is [CP that John will come]?

b. How likely is it [CP that John will come]?



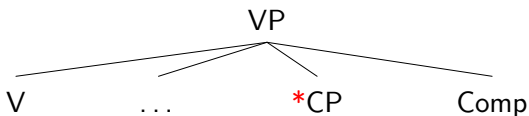
Generalization 3: Finite subject clauses cannot appear in non-initial positions.

The distribution of finite complement clauses

Kuno:

- (10) a. * I believe [_{CP} that the earth is round] **to be obvious to everyone**
b. * John called [_{CP} that Mary had left] **to my attention.**
- (11) a. John proved [_{CP} that the earth is round] **when he was fifteen.**
b. John said [_{CP} that he was angry] **with a sweet, tender voice.**

Generalization 4: Finite complement clauses can be followed by **modifiers** but not by other **obligatory complements** of the same verb:



Argument clauses can occur sentence-initially

Subject clauses:

(12) [_{CP} That John showed up] pleased me.

Complement clauses (Higgins 1973):

- (13) a. [_{CP} That he had solved the problem]_i we didn't really find **t_i** very surprising.
b. [_{CP} That we won't abandon him]_i you may definitely depend **on t_i**.

Conditions on the Preposability of Finite Argument Clauses

- (14) a. He was unhappy [CP that Sue was late again].
b. * He was unhappy **about** [CP that Sue was late again].
- (15) a. [CP That Sue was late again] he was unhappy **about** t
b. * [CP That Sue was late again] he was unhappy t
- (16) a. Mary informed Bill [CP that Sue was late again].
b. * [CP That Sue was late again] Mary informed Bill t

Based on Stowell 1981: Raising verbs vs. raising adjectives

- (17) a. It **is likely** [CP that John is guilty].
b. It **seems** [CP that John is guilty].
- (18) a. [CP That John is guilty] **is likely**.
b. * [CP That John is guilty] **seems**.

Which *that*-clauses can be preposed?

Higgins' Generalization (1973): *that*-clauses can only be preposed from positions in which NPs can occur.

Generalization 5: *that*-clauses can only be preposed from positions in which proposition-denoting NPs can occur.

Prototypical proposition-denoting NP: the demonstrative pronoun *that*:

- (19) a. [_{CP} That I tried to cheat]^{prop} is true.
b. A: [_S You tried to cheat]_p. B: [_{NP} That]_p is true.

Which *that*-clauses can be preposed?

Subject clauses:

- (20) a. [CP That John showed up] pleased me.
b. A: [S John showed up]_p. B: [NP That]_p pleased me.

Complement clauses:

- (21) a. [CP That he had solved the problem]_i we didn't really find
t_i very surprising.
b. A: [S He had solved the problem]_p. B: We didn't really find
[NP that]_p very surprising.
- (22) a. [CP That we won't abandon him]_i you may definitely depend
on t_i.
b. A: [S We won't abandon him]_p. B: You may definitely depend
on [NP that]_p.

Which *that*-clauses can be preposed?

- (23) a. [_{CP} That Sue was late again] he was unhappy
about t
b. A: [_S Sue was late again]_P. B: He was unhappy
about [_{NP} that]_P.
- (24) a. * [_{CP} That Sue was late again] he was unhappy t
b. * A: [_S Sue was late again]_P. B: He was unhappy [_{NP} that]_P.
- (25) a. * [_{CP} That Sue was late again] Mary informed Bill t
b. * A: [_S Sue was late again]_P. B: Mary informed Bill [_{NP} that]_P.

Which *that*-clauses can be preposed?

- (26) a. * [CP That John is guilty] seems.
b. * A: [S John is guilty]_p. B: [NP That]_p seems.
- (27) a. [CP That John is guilty] is likely.
b. A: [S John is guilty]_p. B: [NP That]_p is likely.

Generalization 5: *that*-clauses can only be preposed from positions in which proposition-denoting NPs can occur.

Complementizer drop

Based on Rosenbaum 1967, 38:

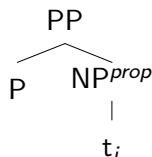
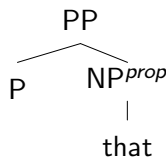
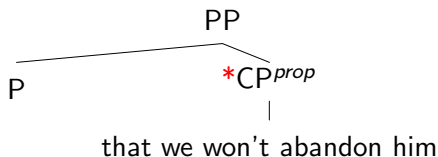
- (28) a. I doubt [(that) John came yesterday] quite seriously.
b. I convinced Bill [(that) John was not so bad].

Webelhuth 1992, 84f:

- (29) a. [***(That)** John left] is a pity.
b. [***(That)** he has done that]_i; I can't believe t_i.

Generalization 6: The complementizer *that* **cannot** be dropped in sentence-initial subordinate clauses.

Capturing the Generalizations: Generalization 1



Generalization 1: *that*-clauses cannot appear in the complement position of prepositions.

This is a language-specific constraint on the possible argument structures of lexemes:

Swedish: Andersson 1974: 7 (cited in Dalrymple and Lødrup 2000):

- (30) Jag väntade [PP på [CP att hon skulle komme]]
I waited for that she should come
'I waited for her to come'

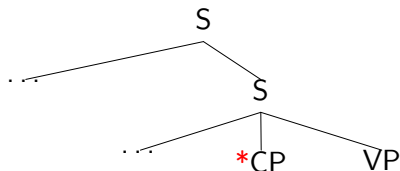
Capturing the Generalizations: Generalization 1

- (31) [PP Before [S (*that) we start to cook]], somebody needs to go shopping.

C1: The Definition of Complementizing Preposition Lexemes:

$$\text{compl-p-lxm} \Rightarrow \left[\text{ARG-S} \left\langle \text{NP}, \left[\begin{array}{l} \text{canon-ss} \\ \dots | \text{HEAD S} \end{array} \right] \right\rangle \right]$$

Capturing the Generalizations: Generalization 3



Generalization 3: Finite subject clauses cannot appear in non-initial positions.

C2: The Subject Expression Constraint:

$$word \Rightarrow [\dots |_{\text{SUBJ}} \langle \rangle \vee \langle \text{NP} \rangle]$$

(Koster's Generalization [Koster (1978)], also see Bresnan 2001, 20)).

Capturing the Generalizations: Generalization 3

Evidence that the *The Subject Expression Constraint* is language-particular:

Spanish: Plann 1986, 342 (LI):

- (32) Aunque [_{S'} que Luisa ha ganado] está/parece claro, no
although that Luisa has won is/seems obvious not
quieren reconocerlo
want-III-pl to recognize it

This constraint goes against long-standing practice in HPSG

C2: The Subject Expression Constraint:

$$word \Rightarrow \left[\dots |SUBJ \langle \rangle \vee \langle NP \rangle \right]$$

Pollard and Sag 1994, p. 150:

bother

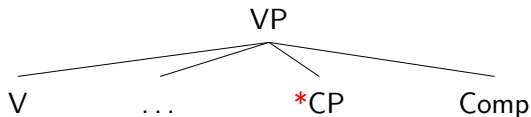
CAT SUBCAT	$\langle S[comp]:\boxed{1}, NP\boxed{2} \rangle$						
CONTENT	<table><tr><td>RELATION</td><td><i>bother</i></td></tr><tr><td>BOTHERED</td><td>$\boxed{2}$</td></tr><tr><td>SOA-ARG</td><td>$\boxed{1}$</td></tr></table>	RELATION	<i>bother</i>	BOTHERED	$\boxed{2}$	SOA-ARG	$\boxed{1}$
RELATION	<i>bother</i>						
BOTHERED	$\boxed{2}$						
SOA-ARG	$\boxed{1}$						

Sag, Wasow, and Bender 2003, 341:

In chapter 8, we proposed a constraint on the type verb-lme requiring that the first member of the ARG-ST list be an NP. This constraint needs to be revised in light of the CP subjects we see in the a-examples of (15)-(21) ...

Capturing the Generalizations: Generalization 4

Generalization 4: Finite complement clauses can be followed by modifiers but not by other obligatory complements of the same verb:



C3: The CP-Linearization Constraint (cf. Kim and Sag 2005)

Complement \prec CP

Capturing the Generalizations: Generalizations 2, 5, and 6

Generalization 2: *that*-clauses can be preposed from the complement position of prepositions.

Generalization 5: *that*-clauses can only be preposed from positions in which proposition-denoting NPs can occur.

- (33) a. [CP That we won't abandon him]_i; you may definitely depend [PP on t_i].
- b. [S We won't abandon him]_ρ. You may definitely depend [PP on [NP that]_ρ].

⇒ Generalization 5 entails Generalization 2!

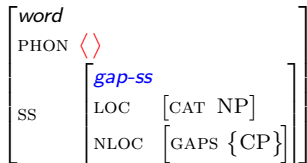
Generalization 6: The complementizer *that* cannot be dropped in sentence-initial subordinate clauses.

Capturing the Generalizations: Generalizations 5, and 6

- (34) a. He was unhappy (*about) [_{CP} that Sue was late again].
b. [_{CP} That Sue was late again] he was unhappy *(about) t

Proposals in the literature (among others):

- Bouma, Malouf, and Sag 2001: "dishonest" trace approach: too weak.



The Verbal Category Preposing Constraint

Gazdar et al. 1982, p. 603:

- (35) a. * ...and **went** he
b. ...and **go** he will
c. ...and **going** he is
d. ...and **gone** he has
e. ...and **taken** by Sandy he was
f. * ...and **to** go he is
g. * ...and **to** go he wants

C4: The Verbal Category Preposing Constraint:

$$\left[\begin{array}{l} \textit{preposing-cl} \\ \text{NON-HD-DTR|SS|LOC|CAT [HEAD verbal]} \end{array} \right] \Rightarrow \left[\dots \text{CAT [HEAD [VFORM synth-non-fin} \right]]$$

Theorem: Preposed constituents in Preposing Clauses cannot be CPs!

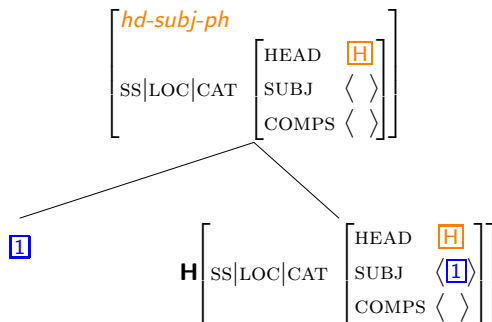
But now the grammar undergenerates

Generalization 5: *that*-clauses can only be preposed from positions in which proposition-denoting NPs can occur.

- (36) a. [CP That John left] is a pity.
b. [CP That he has done that]_i I can't believe t_i.

How can we solve this problem?

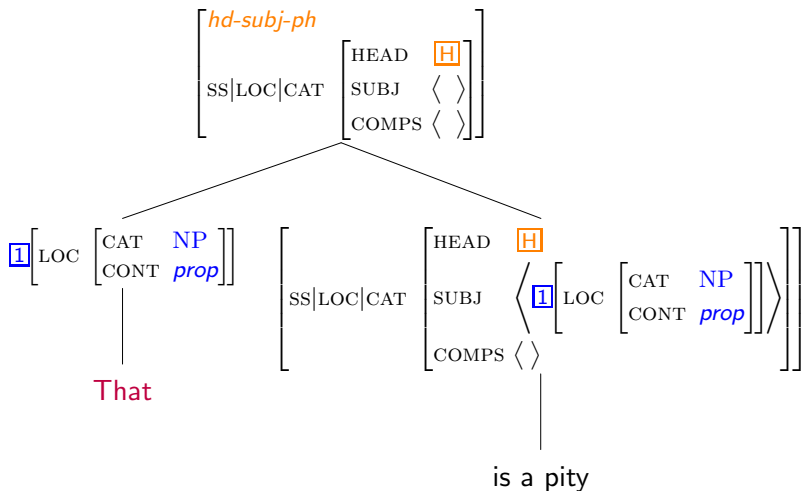
Head-Subject Phrases



C2: The Subject Expression Constraint:

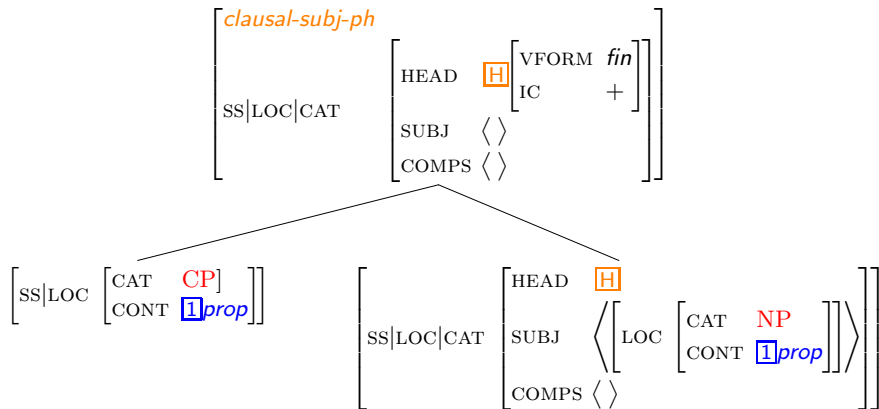
$$\text{word} \Rightarrow \left[\dots | \text{SUBJ } \langle \rangle \vee \langle \text{NP} \rangle \right]$$

Head-Subject Phrases

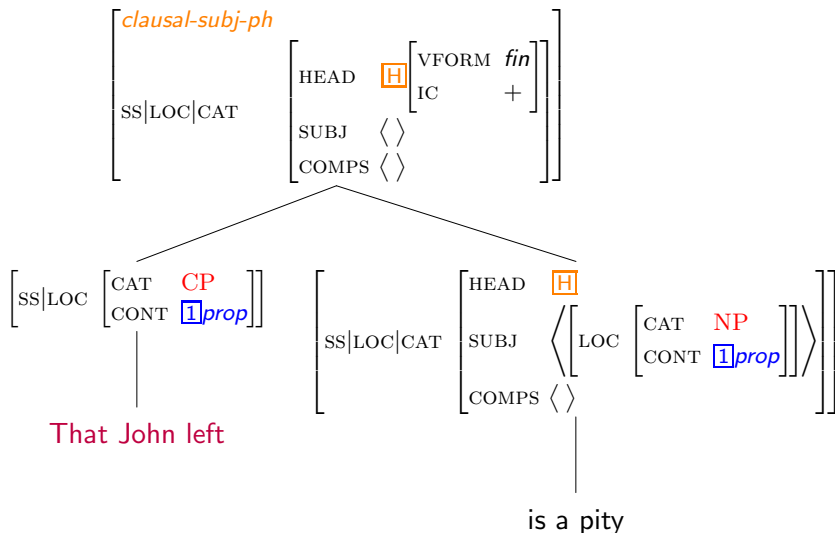


Target: $[CP \text{ That John left}]$ is a pity.

Phrasal Schemas: Clausal-Subject Phrases



Phrasal Schemas: Clausal-Subject Phrases



Independent Support for Clausal-Subject Phrases

Grimshaw 1982: there exist verbs which take clausal subjects only after having been passivized:

- (37) a. The grammar expresses $[_{NP}$ the fact that the rule is obligatory].
b. The rule is obligatory and the grammar expresses $[_{NP}$ that].
c. * The grammar expresses $[_{CP}$ that the rule is obligatory].

$$\begin{array}{ll} \textit{express}_{active} & \textit{expressed}_{passive} \\ \left[\text{ARG-S } \langle \boxed{1}\text{NP}, \boxed{2}\text{NP}_p \rangle \right] & \left[\text{ARG-S } \langle \boxed{2}\text{NP}_p, (\text{PP}_{by}) \rangle \right] \end{array}$$

The passive lexical rule:

$$\left[\begin{array}{l} \textit{trans-v-lxm} \\ \text{ARG-S } \langle \boxed{1}\text{NP}, \boxed{2}\text{NP} \rangle \oplus L \end{array} \right] \mapsto \left[\begin{array}{l} v\text{-lxm} \\ \dots | \text{HEAD } [\text{VFORM } \textit{pass}] \\ \text{ARG-S } \langle \boxed{2}\text{NP} \rangle \oplus L \oplus (\text{PP}_{by}) \end{array} \right]$$

- (38) a. $[_{NP}$ The fact that the rule is obligatory] is expressed by the grammar.
b. $[_{CP}$ That the rule is obligatory] is expressed by the grammar.

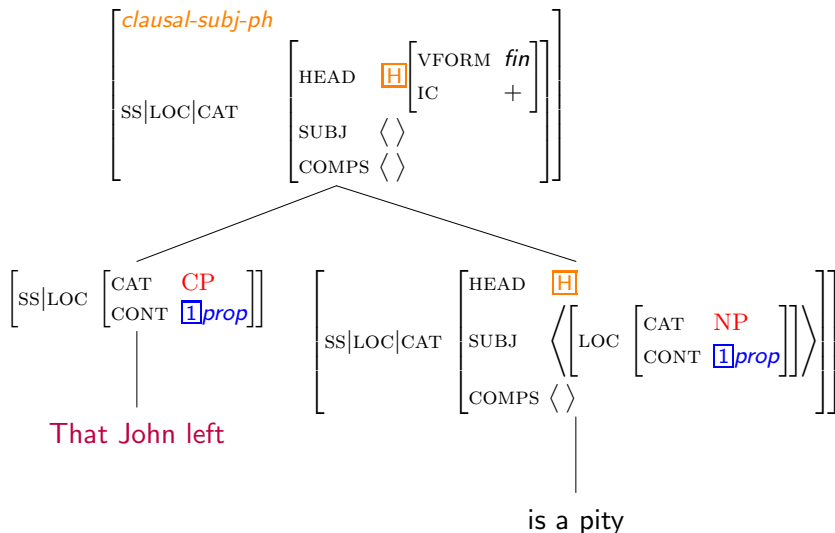
Independent Support for the Formulation of the Passive Rule

Grimshaw 1982: the verb *pray* only selects for a CP-complement and hence cannot be passivized

- (39) a. John prayed [_{CP} that Reagan would resign]
(*and I prayed [_{NP} that] too).
b. * [_{NP} That] was prayed by many people.
c. * [_{CP} That Reagan would resign] was prayed by many people.

pray
[ARG-S ⟨NP, CP⟩]

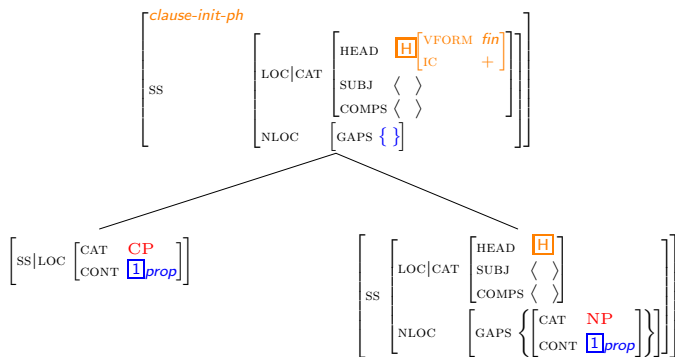
Phrasal Schemas: Clausal-Subject Phrases



The solution needs to be generalized to non-subjects

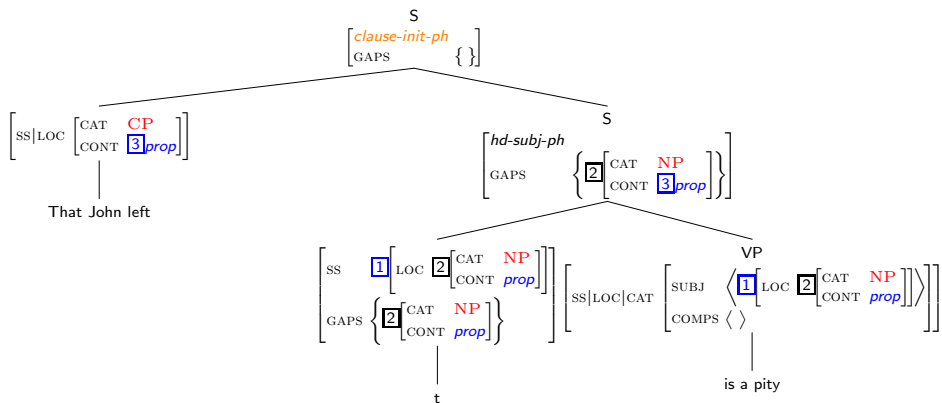
- (40) a. [CP That John left] is a pity.
b. [CP That he has done that]_i I can't believe t_i.

The Clause-initial Phrase Construction (*clause-init-ph*)



Note that the constraints on the category of the non-head daughter entail
 Generalization 6: The complementizer *that* cannot be dropped in
 sentence-initial subordinate clauses.

That John left is a pity



Summary of the Whole Talk and Theoretical Conclusion

- 1 This talk showed that the distribution of English *that*-clauses shows a movement paradox.
- 2 It argued that the best way to resolve this paradox in a motivated manner is through a **grammatical construction, the Clause-initial Phrase Construction** and four simple motivated grammatical constraints:
 - 1 C1: The Definition of Complementizing Preposition Lexemes
 - 2 C2: The Subject Expression Constraint
 - 3 C3: The S-Linearization Constraint
 - 4 C4: The The Verbal Category Preposing Constraint

Theoretical Conclusion:

The Principles and Parameters approach took a wrong turn by eliminating constructions, because traditional grammar and Construction Grammar got it right: there are constructions and hence the most promising theory of grammar is **constructional!**

Infomercial: next week: *it*-insertion

expect vs. *blame on*:

- (41) a. Nobody expected [_{NP} anything] of me.
b. I blame [_{NP} the case] on you.
- (42) a. * Nobody expected [_{CP} that you could be so cruel] of you.
b. * I blame [_{CP} that we can't go] on you.
- (43) a. Nobody expected (*it*) of you [_{CP} that you could be so cruel].
b. I blame *(*it*) on you [_{CP} that we can't go].

Question: Why is *it*-insertion obligatory with *blame*? (And is the reason compatible with today's theory of the distribution of English *that*-clauses?)

End of the talk