

Finding Fundamental Operations: Feature-Merging, Feature-Splitting, Feature-Command, and Abstract Agreement

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Review:

- a. Formal Features = semantic, pragmatic, syntactic

Core ideas:

- a. Feature Merge => new node
- b. feature-command= do-insertion
- c. feature-splitting= causative
- d. feature-triggers = pragmatics

Abstract Agreement: INFL/PP

Feature Merge

I. UG goals: seek Fundamental Operations => Visible in acquisition

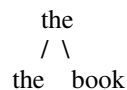
- A. Set of UG grammars > set of actual grammars
 1. Child G => known or unknown G in possible setClaim: Child G => unique examples of Formal Feature operations
General principle: Maximize Formal Features
=> meets learnability/reality requirements

B. Question: How abstract are the structures children use?

1. Earlier theories => project categories
<NP, VP, CP, IP, DP>
2. Claim: No category projections => only Features
Word + <+nominal, +verbal>
3. Merge = Fundamental Operation in Grammar
(see also: Categorical Grammar)
A + B =>



..The operation Merge, then, is asymmetric, projecting one of the objects to which it applies, its head becoming the label of the complex formed.....we have only:



Possibility variation across languages:

"Suppose that the label for $\{\alpha, \beta\}$ happens to be determined *uniquely for α, β in language L* (my italics); we would then want to deduce the fact from properties of α, β , from L ; or, if it is true for α, β in language generally, from properties of the language faculty. Similarly, if the label is uniquely determined for arbitrary α, β, L as may be the case." (Chomsky 1995)

Thrainsson (1996) "Clausal architecture is determined by UG in the sense that UG defines the set of functional categories $\{F_1, \dots, F_n\}$ that languages "select" from"

C. Connections:

1. Extension of concept of abstract operations in acquisition:
[Tavakolian, Lebeaux, Vainikka, Roeper and deVilliers]
2. A new version of underspecification:
[Radford, Rizzi, Hyams, Hoekstra and Hyams]

Hypothesis: Child never projects PS categories, only Formal Features:

*CP	Word [+CP, + [selectional features], etc]
/ \	/ \

Is there Difference: PS-theory =>

- NP V NP => 1) a. *love did hopefulness
b. *"kick gives foot"

New theory: a. Unique Maximal Projections
b. Complement => very specific, very abstract

Six predictions: 1. Lexical item projects and subcategorizes (why go)
2. Lexical item has no clear traditional PS label (yes)
3. Complement is very specific (saw wood)
4. Complement is very abstract (more eat)
5. Lexical item = morphological affix (-er)
6. How does child generalize?
From word to Formal Feature
[=X-bar = Feature Complex] (*sing never)

Functional Categories => lexically specific (that, if, etc)
a. limited set (e.g. that, whether, if)
b. [+PRAGMATIC FEATURES]
Lexical Categories => abstract (Direct Object = [+NP])

II. Evidence for pure Merge: IP-[+NP,+Adv]

A. Brennan (1991) Adjunct PP's = NP's, Argument PP's = PP's

- 2) Adjuncts:
we colored crayon (=with)

Shirley get meat dinner (=for)
 I cut it a knife (=with)
 Richard bring snack Shirley (=for)
 I went party (=to)
 feed baby fork (=with)
 Shirley cut fork (=with)
 I sleep big bed (=in)
 Save some later (=for later)

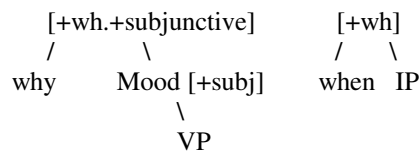
3) Arguments:

I played with Joan
 Jim was at Cooperstown
 putting Daddy in wagon

46 prepositions => Arguments, and only
 3 => adjuncts for three children.
 For "3 of 4 children studied"

III. Specific Lexical Items Project and Subcategorize:

A. Theoretical arguments: why go/*when go



B. Hale and Keyser (1993): laugh = I do a laugh => object raises => I laugh

1. could not be do NP => raises => I did time in jail => *I timed in jail

C. Children's Unique Word Projects: Word + complement (=IP)

- | | |
|---------------------------------------|---------------------|
| 4) "are you put this on me" | |
| "are you get this down" | "are you help me" |
| "are you know Lucy's name is" | "are you want one" |
| "are you got some orange juice" | "are this is broke" |
| "are you don't know Sharon's name is" | "are you sneezed" |

Modality (are+don't), tense (are+got) and agreement (are+this)
 the word are,

information is not being carried by

5) No + complement

No the sun is shining (Bellugi)
 no my play my puppet
 no lamb have it
 no dog stay in the room
 No Leila have a turn
 No Mommy doing
 No have it Mommy (Deprez and Peirce (1992))
 See Drozd (1993) for categorial analysis
 => invariably no, not not

[Question: are there root infinitive nouns? (Drozd pc)
 "no more milk" = [IP there is ["no more milk"]]

= invisible expletive?]

German cases:

- 6) Nein ich putt mache (no I break)
- Nein Auto kaput (no car broke)
- Nein dieser Messer auaua (no this knife hurt)
- Nein Btasch hunger (no uncle hungry)
- Nein dick Baby (no fat baby)

IV. More Early Evidence of Merge: Non-initial cases

A. "auch" [Tracy, Penner, Weissenborn 1994]

stage 1: X auch ("toto auch". "ich auch", "hauschen auch")

Stage 2: subj AUCH DO "stephanie AUCH Nase"
 adv AUCH subj "das auchn Rüssel"
 subj AUCH adjective
 Subj AUCH DO
 Subj AUCH V-infin "nina o cho" = Nina auch come

Stage 3: X V-fin AUCH Y "klebe das auch noch klebt "
 "macht des auch macht"

Dutch (Powers (1996): 7)"pappa ook zitten dar" (papa also sits there)
 "papa ook eten" (papa also eats)
 "ik ook sokke uit" (I also socks off)

- a. v-2 => category free
- b. lexical HEAD of MP != adult-spec => root infinitive
 by misanalysis, not by truncation

```

AUCH
 / \
spec AUCH
    / \
    auch VP
  
```

- c. auch => head; later auch => Spec of ADV
- d. auch in HEAD => BLOCKS V-2 => verb stays infinitive
 ["root infinitive"]
 Weverink (1990), Schaeffer (1991), Wexler (1991))

V. Complement Projection => Word

Nygren (1972). Action and Object don't mix:

- 8)Can you file wood with a saw
- "No because you cannot file wood"
- Noun prime: Can you saw cheese with an ax
- " No you must saw cheese with a saw"
- 6yr olds: strong bias: saw wood with a saw

Generalization: saw wood => saw [+NP, +concrete]

VI. Lexical Items without Phrasal Category:

- 9) No clear PS label: All in grammars of 2yr-olds
 yes ,no, well, but, so, and
- 10) a. "OK, night-night, lemme, upsiedaisy,
 b. "well but they red like those" (Adam).
 c. well, I can
 d. *I can well
 e. *John has a hat but
 f. but John has a hat

Case Study of "yes" in English and Spanish and German

A. Assume: CP AFFP IP

1. AffirmationPhrase => indeed => yes

- 11) Adult : I sure can/I indeed can *I yes can/*I uhhuh can
 sure, indeed => [+stress]; yes, uh-huh => [-stress]

2. if Categorial => should generalize

3. if lexical => should not generalize

(13a) lexical

the
/ \
the N

(b) semantic

specificity
/ \
the N

(c) syntactic

D
/ \
the NP

A parallel set exists for the Affirmative Phrase (Laka (1991)):

(14a) sure
/ \
sure IP

(b) emphatic stress
/ \
sure IP
indeed
*yes

(c) AFFP
/ \
sure IP
indeed
*yes/*uh-huh

- B. English: 15) a. yes I can/I know that he can
 b. *I yes can/*I know that yes he can
- Spanish: c. yo si.... (I yes...)
 d.que si (that yes....)

C. Prediction: no generalization if word-based

Generalization: if child assumes word-class shares Formal Features
 e.g. Transitive Verb => Subject-Verb-Object (rationale clause), etc.

D. Input and first uses: (data from A. Perez)

- *PET: it's yes its is [!!] going away .
 *PET: beaver # yep # it's a beaver # yes that's right there a eaver #
 *PET: maybe yes .
 *MOT: I'll go for a while # yes .
- *PAT: oh yes he will # in about five minutes !
 *PET: yes # hear that noise ?
 *PET: in here yes I wan(t) (t)a play with them again.

Conclusion: obscure input/no generalization to internal position
[Note: *"me yes want" (Frazier (pc))]

- *NIN: Oscar si pea = Oscar yes peels
- *NIN: Oscar si pea .
- *NIN: que si # que no = that yes that no (that=comp)
- *NIN: no # eso si mio = no that yes mine
- *NIN: ahora si
- *Nin: porque si = because yes
- *Nin: a ese si = to that - one yes
- *Nin: oyee si hay monos alla alla elo no hay monos
= Listen yes there-are monkeys there.....
- *NIN: a en miro si = to him look yes 'I do look at him'
- *NIN: mira mira si saco todo = Look look yes take out-1Sg all
- *NIN: y ya vienen ardillas # a que si .
and already squirrels come#"a que si" = to that yes,
- *Nin: yo si puedo ja he comido lechuga = I yes can, already have
- *Nin: de pequeno si a que si = when little yes, you will see

Spanish: swift recognition of non-initial potential for "si"
Assumption: +AFF Feature linked to SI
Generalization: all positive phrases can be internal

CONCLUSION: Child starts with lexical item, identifies Formal Feature =>
FF = phrase head => limited generalization

German: ja appears adverbially, but not in second position:
a. ich kann ja singen = I can yes sing
b.* ich ja kann singen

Why: particular positions for different adverbs (Cinque (1977))

Simone:

- *SIM:=09ich puste mal ja -' .
- *SIM:=09ja ich zeig xxx .
- *SIM:=09ich teile ja .
- *SIM:=09ja ein lokotive xxx .
- *SIM:=09ich tu das da drauf mama # ja .

Most of the "ja" come after the sentence, but a few before:

- *SIM:=09da -' gucke mal -_ fliege angucke -' ja -' gucke mal -' ja -'=20
gucke mal fliege
=09angucke -' .
- *SIM:=09bonbon habe xxx ja -' .
- *SIM:=09saft habe -_ ja -' saft habe -' saft habe -' .

in the middle:

- *SIM:=09geht ja gar nicht -_ husch husch eisebahn -' .

between verb and object:

- *SIM:=09hat ja nun kein # .
- *SIM:=09hat ja nun kein Hnschen mehr # .

*SIM:=09aber mama weinet sehr hat ja nun kein [/] .

*SIM:=09doch der kann ja eine nuss essen -‘ .

*SIM:=09das ist zu wenig -_ das ist ja viel zu wenig -‘ das xxx noch

VII. FORMAL FEATURE THEORY

A. More abstract Object (Powers (1996)):

more
/ \
more X (=N,V,A)
*NP
*word (milk)
*"milk" (phonetic object)

16)

more hot, more cereal, more read, more sing, more high, more walk (Braine 1976)

Hypothesis: more word => more [+NP] => more [+AP] => more [+XP] (unseen)
more [+NP,+AP => XP]

B. Learning Hypothesis: Pragmatics directly Fix formal Features

"more high" => more [+event, +endpoint]

=child want to be pushed up high again in the swing

Chomsky (pc) "most formal features will be pragmatic"

FF => feature on word, position in tree, possibly "property of construction"

a) which features are checkable => entail scope, chain (like Tense)

Pragmatic observeables: progressivity, completion, intention, POV (for here)

falsity, negativity (head shake), imminence ("don't (unspecified))

Social pragmatics: POV, pronouns (I, you),

VIII. Morphological Node Head: -er Affixation

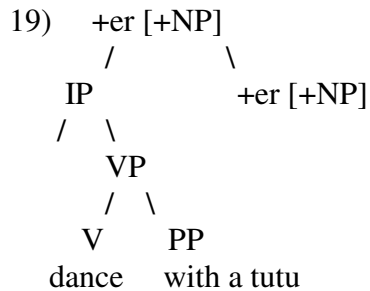
Aecdotal evidence for [VP+er]:

17) "I'm not too much a player with him" [(play with him) -er]

"there's a bike-rider with no hands" [(ride bike with no hands)-er]

Randall (1983) 82% => VP construal

- 18) a. a chef with a fork
[chef uses a fork/chef has a fork]
b. a writer with a candybar
[writes with a candybar/ has a candybar]
c. a ballerina with a tutu
d. a dancer with a tutu => only one dancing, not wearing tutu



IX. Big Question: Lexical item => seek Formal Feature
What triggers generalization?
Claim: Semantic + syntactic Feature Complex

Tamanji (1997): 20) "I can do it real fast"/"*I fast can do it"
"I never seed a funny man"/"*I seed a funny man never"
Conclusion: [+Adv, +Mood] != {+adv,+VP}

Feature Command

I. Economy Principle: Move Minimal Amount (Pied-Piping)

21) "F carries along just enough material for convergence" p.262

A. Pied-Piping => forced by extraneous factors (morphology/PF)

- 22) a. whose did you see book
b. whose book did you see =
c. wh ['s book] = wh- and 's are non-separable

B. Acquisition Evidence: Children minimize Pied-Piping

23) a. "How am I big"

b. "keek eens hou ik groot ben"

[look how I big am]

c. hoe huppelt Bert vaak naar Ernie

[how hops Bert often to Ernie]

d. How_i did Grover ask BB to paint [t_i many times] ? Until he gets it right/Seven times.

e. See also Snyder, Das, Wexler (Japanese) (1993]

Chomsky system for Pied-Piping: "we have to have an elementary way to determine the features of alpha and K that enter into this checking relation no matter how deeply embedded these are in alpha and K" p. 268 = **Seek Sublabel**

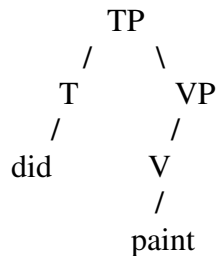
24) "F enters into a checking relation with a sublabel of K as a result of the operation (move)"

p. 264 "Pied-Piping might in principle depend as well on factors that constrain movement: barriers, ECP, Minimal Link Condition, that requires "shortest move" or whatever turns out to be right... does it allow the derivation to crash or converge as deviant.../Thus if Pied-Piping is forced by the need to satisfy some principle P, we conclude that violation of P causes the derivation to crash to that it does not bar less economical derivations without Pied-piping--for example, the Principle P that sometimes bars preposition stranding."

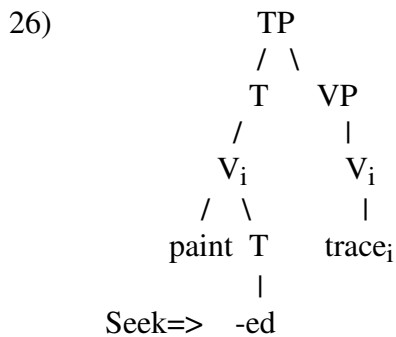
"There are strong empirical reasons for assuming that Move F automatically carries along FF(LI), the set of Formal Features linked to a Lexical Item.This much Pied-Piping is automatic."

C. Economy = Morphological c-command (Hollebrandse and Roeper96)

25) A Tense domain has to be c-commanded by a Tense Morpheme



Claim I: Seeking-Sublabel is less economical than direct morphological c-command



Evidence:

- 27) a. *John wondered [a picture of whom] he saw (Johnson pc)
b. John wondered who he saw a picture of
c. who did you see a picture of
d. "harder": a picture of whom did you see

28) did = Direct Spellout of Tense (Lasnik pc)

do-insertion (English and Dutch): (Davis (1987), Roeper (1993))

- 29) "Jenny did left with Daddy"
"I did rode my bike"
"I did catch that bee"
"I did jump in"
"I did put it on"
"I did jump"
"I did turn it off"
"I did scare a kitty away"
"I did paint this one and I did paint this one and
I did paint this one"

See also Much-support arguments (Moore and Roeper (1998))

Feature-Splitting

I. Learnability Argument:

A1. Maximize Formal Features =>

Subset Theory => Maximize Falsifiability (Williams)

2. Project all possible FF's for a given projection:

3. the [+def, +masc, +acc]

/ \

the man

(masc) (masc)

30)a. I saw the man

the => the [+def,+masc, + accusative]

b. Ich sah den Mann

den => [+def, +masc, +accusative]

4. Splitting Principle: All Spec-Head Agreement features
can be split.

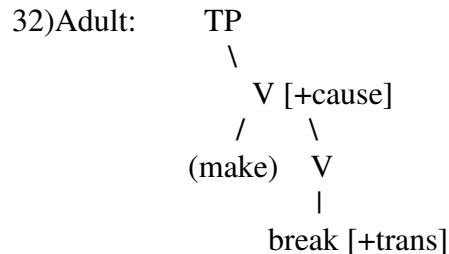
5. Language Specific acquisition:

Feature Bundles split into independent

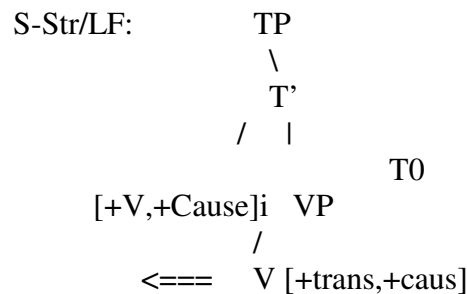
Functional Projections when evidence arises.

- 31) a. John broke the window", => [+caus, +agent]
 b. John made the window break" => split Features on break =>
 => +Causative node

(See Hale and Keyser(1992)/Hollebrandse and van Hout (1995) Chomsky(1995)).



33) Initial Child stage:



Conclusions:

1. Acquisition Evidence provides Evidence for Abstract Operations \neq Category Projections
 Feature-command, Feature-splitting
2. Deviations from Target Grammar are direct reflections of those Operations.

AGREEMENT

I. Can we define " Possible Disorder" in UG?

(Brain and Language (2001)Roeper, T. L. Abdul-karim, E. Ramos, H. Seymour)

1. Deficit = deviance unlike a Delay

2. Missed Formal Feature Hypothesis
 = Premature fixation of lexical item

A. Normal child: me do it/me want
 Disordered child: "me can do it"
 Why does normal child not say: " Me can do it"
 => learn Nominative => change to "I can do it"

B. Normal Child: Maximize Formal Features

1) I saw the boy => [the: +sing,+masc,+def,+acc]
 ich sah den Mann

- 2) The girls arrived => delete: ,masc,sing, acc
 German: no change (den => correct (idealized))

C . Normal acquisition of Modal:

can => modal meaning => Understood before used
 search for Tense, Agr, Case, Selection properties
 " John can sing" => no case information

1. Constraint on Normal Acquisition:

Do not insert item into grammar until all domains checked

D. Deficit Grammar: fix item in grammar without AGR (so -CASE)

•"categories lacking interpretability should be disallowed"(Chomsky (1998))

a. Conclusion: [-interpretable] => Formal Features (AGR, Case)

E. . General Hypothesis about disorders:

Fix lexical item without [-Interpretable features]

1. In productive grammar => No Retreat

(Clahsen, Vainikka, Eisenbeiss (1994))

2. Nodes are various and consist of Feature-bundles.

X = [+ or - Tense, + or - AGR, + or - Aspect features]

3. a) AGR is not a node but a Formal Feature or relation

b) it applies in Head-Complement and Spec-Head environments

c) it captures relations beyond person, number, gender

Questions:

A. Is the same Formal Feature absent under different nodes?

B. Is the same Formal Feature involved in different configurations?

C. Is a Formal Feature simultaneously absent in different structures?

D. Is a FF absent for a given individual in different structures?

II. Case-Study: Missed Formal Features

A. AGR = FF not a node

Hypothesis: missing in NP "two lobster"
 and IP at same time "Daddy like"

Munn (to appear, LI): Genitive = Agreement morpheme "them eyes"

B. JC 4.4-46yrs (Ramos and Roeper (1994))

3) That why them put a lot of sand in (Note: CP-why) Genitive (in NP-of):

4) Me Daddy like mustard

Me sister name Dawn
He family. He lost he family
He shovelled him truck
Them Mom could let them play outside

5) Nominative (in IP):

Me like ketchup
Me don't know
Me said me gotta hurry up
Her can cook something
Them have a party

6) Discourse: "Me sister name Dawne. Her give me Dad a lobster, a two lobster, Me Mom put in here, cook them, forgot to take them eyes out. and then it give it to Mom He say put it down. And then her say ahh, and then her put on the floor, and we scare her.. Her say, ahh it's moving, and then them cook them up, and it scared Mom, so we gonna put him to trouble. And then he be trouble....you can't eat eyes. Only you can eat skin. And me did eat it. "

Absence of agreement in both verbal and nominal contexts.

7)Me can have this
her can cook something
it don't have a mouth
then me no have to go bath
it can poke somebody
me don't have a cat on a bed
Only you can brush your teeth very good
No her can put up here
I see he shadow....I can make see my shadow
me can't get home to go shopping

Raising over Negation:

8) Me never have them real big
Me never take a shower

CP-level phenomena:

9) When me go outside to play, me go like that
that because them Mom don't let them
that why them put a lot of sand
Why him don't have eyes
when him crack tiny pieces up, and then put (unintelligible)
why her need this
what's I talking about
I don't know where her can cook

Reflexivization:

10) her standing and her see herself

Wh-movement and Operator-movement:

11) lobster to eat for lunch
I don't know what he saying
What's I talking about

General view: Multiple grammars (Roeper (1999) Yang (1999 (see historical(Kroch and Taylor (1993)=> presence of some agreement elsewhere

12) 10 weekly recordings:

- a. 386 instances had "me" as possessive in 56% of cases,
- b. "them" 100%
- c. "he" 60%, "him" 40%.

13) Comprehension experiment: Choose

[picture of me painting] [picture of my bucket of paint]

"the girl saw me paint"

"the girl saw my paint".

5/10 instances, "me paint" interpreted as "my paint"

C. Prediction: If "can" = [-case]], Nom => [-case]

a. Anecdotal Evidence: "I sure" or "I" = default (T. Wyatt)

Background: Abdul-Karim (1994) "who has a hat"

=> me (2yrs)

=> "I do" (2 3/4 yrs)

=> *"I" never

b. Symmetry: can=> does not project Case

I => does not receive Case

D. Conclusion:

1. not simply mispronunciation of "my" as "me"
2. Not a Choice of AGR or Tense (Wexler (1998) for normals)
3. Supports Chomsky's semantic view of categories
4. AGR = a FF in NP and IP
5. Deficit: fix FF of lexical items without [-interpretable] FF
(see deVilliers and Johnson (1999))

III. Theoretical Representation:

Chomsky (1998) outlines the following system to capture Agree:

14) 1. "Probe and Goal. must both be active for Agree to apply."

2. "Matching of Probe Goal features apply, eliminating uninterpretable features that activate them"

3. "feature identity" is "identity of choice of feature, not value" (1998:41))

Chomsky suggests that one should :

4. "Maximize Matching Effects"

15) spec head
 | |
 John run
 [+sing] [unspecified number] } => -s
 [+AGR] [<=+AGR]
 Goal Probe

In effect, the [+AGR] feature imposes singular on the verb's number feature, which then selects -s as the expression of that feature, and deletes the uninterpretable [+AGR] feature.

Head-Complement Agreement:

"The selector F for Merge is analogous to the probe for Agree. ...Take say transitivity of a verb V, If the property is implemented in terms of theta-grids, then a feature of V selects the object.....there is substantial evidence that G must be in the complement of the Probe P, not its specifiers." (1998:51)

[Note: no movement implied. Is "Mark" an operation distinct from Select?]

16) V
 / \
 V DP
 | \
 sing songs
 [TH] [Role: unspecified]
 Probe Goal

Head of the complement (e.g. accusative), => Head-Head agreement

17) Pierre Cardin's men's clothing

Munn (1993) represents this form of selection as follows (we simplify slightly):

18) Poss
 / \
 [+pl] Poss
 {agr}_i / \
 's NP
 / \
 NP NP
 | |
 <===== men_i hats
 [+number] [+pl]
 Goal Probe

Further Agreement within the Possessive:

- 19) they {+poss} => their
- he [+poss] => his

Therefore the Possessive => Agreement Feature

IV. Searching for AGR: Relational PP as Deletable AGR-element

Disordered: (Seymour and Roeper (1994))

Subjects: 17 Disordered Children

- 1. How did the mother decide to sweep?

 "with a broom" 121 cases

 "broom" 26 cases

Normal children: rare deletion of "with"

A. Lexical level => Compounds

Incorporation => Relational Prep deletion (Roeper and Siegel (1978))

- 1. made at home => home-made
- 2. made by hand => hand-made
- 3. made in a factory => factory made
- 4. eaten by moths => moth-eaten
- 5. eaten with a fork => *fork-eaten

- 6. swept with a broom => broom-swept (instrument "with")

Compare: swept with a friend => *friend-swept (accompaniment "with")

Lexical Prepositions:

- 1. go through tunnel => *tunnel-gone
- 2. found around flowers => *flower-found
- 3. stand beside the barn => *barn-stood

B. Discourse Level Deletion

- 1. Default case

- a. Who has a hat? Me
- *me has a hat

- 2. Prep deletion

- a. where do you live? San Francisco
- *I live San Francisco

- b. where are you going? Detroit
- *I am going Detroit

- c. when are you playing chess? noon

*I am playing chess noon

3. Non-deletable:

a. when did it seem odd to you? *night
at night

b. how are you playing? *bat
with a bat

c. How did you get to the other side of the river *tunnel
*I went to the other side the tunnel
through the tunnel

d. why was the game cancelled *accident
because of an accident

e. where does it hurt? *stomach
in my stomach
*in stomach

f. where did you put it? *arm
*on arm
on my arm

C. Bresnan (1989): Cross-linguistic arguments about unmarked locative
Klein (1992) Extensive study of L2 Prep-deletion

D. Conclusion: Discourse, Lexical levels => deletability
Syntactic level => non-deleteable

Explanation: syntax requires case-assigner
Lexical: incorporation requires no case
Discourse: not clear

V. Early Child Relational-Prep Deletion (Brennan (1991)

- A. we colored crayon (=with)
Shirley get meat dinner (=for)
I cut it a knife (=with)
Richard bring snack Shirley (=for)
I went party (=to)
feed baby fork (=with)
Shirley cut fork (=with)
I sleep big bed (=in)
Save some later (=for)

Some children will use argument PP's:

- B. I played with Joan
Jim was at Cooperstown
putting Daddy in wagon

46 prepositions for arguments,
 3 for adjuncts for three children.

Brennan:

"3 of 4 children studied, it was true that adjuncts never surfaced with PP's,"

Prediction for Disorders:

Case Study (JSC)

- 19) What beach you going (go to)
 Me go beach not far away (go to)
 then, he knocked him window (knock in)
 Then me no have to go bath (go to)
 some wake up middle of the night (wake up in)

Relational preposition (to, of, in) w predictable from the verb (go-to).

Other P's present:

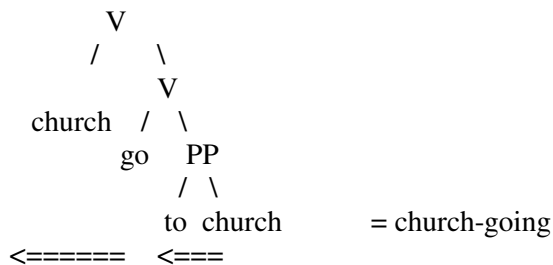
- 20) then dump into a truck again
 dirt is falling all over him

- C. Hypothesis: Verb carries LOC selection, Prep agrees with it
 a. John runs => NP[+sing] => V[+sing] via Agree
 b. Visible Prep => only in CASE assignment required

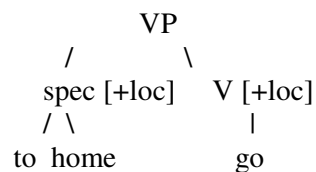
Relational Prep = Agreement between
 VERB PREP
 [+loc] [+Loc]

D. Representations:

Head-Complement Selection:



Kayne (1994) Adjuncts = Specs => Spec-Head Agreement



[+loc] is present on the verb itself=> Prep-loc = AGR marker, deleteable
= no reason to instantiate Prep-AGR marker

E. Watanabe (1993): wh- has FF and Lexical Features

what = wh+that
where = wh+here
how = wh+ ??

" how did she decide to sweep the room P
[+man]_i+NP_j [+man]_i / \
t_i NP_j

Child assumption: how = verb [man+] P[+man]
Agreement

VI. Conclusion on Agreement:

- a. Defend AGR as FF
- b. Unified theory of Agreement => Relational-Prep = Agreement
- c. Predicts: deletion of AGR in IP,DP, and VP

Appendix 1: other children

A. Case Normal Of the 10 normal language matches, only one (Kate, age 4;1) uses the accusative for nominative substitution, always "her" for "she" with agreement. She never used "she", which may suggest that her problem with this pronoun is at the lexical level. Here are her sentences: "her has her own"; "her was sleeping over"; and "her gets to be the big sister".

B. Case Disordered 5 SLI kids used accusative for nominative:

Justin (age 4-9): many instances with INFL, e.g. "him will mess the room up", "him was angry about it". He never used "she" or "they" and used "he" only twice: "He can say him a guy", and "he tripped on the tree"
Kyle (age 4-9): also many instances with INFL, including: "him know she's mad" and "what him doing?". Also never used "she" or "they",
and used "he" four times: "he go away"; "he can't take net"; "he may jump in the water"; and "him knows he's mad".

Meghan (age 4-10): same thing, 6 instances of "he" always with INFL.

Vincent (age 5-1): same thing, 6 instances of "he", only 3 with INFL.

Amanda (age 5?): always "her" for "she", never with INFL, and 25 instances of "he", only 3 with INFL.

C. Genitive Disordered 7 SLI kids used nominative/accusative for genitive:

James (age 5-0): "on he head"; "in he boot"; "cause he want go back to he home"; "send him up in he room". 2 interesting exchanges: I said: "these toys are not mine", James: "who is them?" and I said: "whose boots are these?", James: "his" (only use of "his").

Clarissa (age 5-2): "he got the bucket on him head" (that's her only instance, she also used "his" correctly 4 times).

Amanda (age 5?): "he frog hop right there", (11 correct uses of "his")

Vincent (age 5-1): "on him head" (no instances of "his").

Carlton (age): "frog a jump on him head" (no instances of "his").

Justin (age 4-9): "but where's him mommy?" (no instances of his").

Kyle: (age 4-9): "on him head"; "only him puppy", "him mad at him puppy"; "him will jump in him bath", "cause him wanna sleep in him bed" (no instances of "his").

D. Preposition Disordered 4 SLI kids deleted prepositions:

Justin (age 4-9): "but where all them now?"; "him looking the ball" (looking for).

Steven (age 5-2): "one them tripped". (one of)

Kyle (age 4-9): "looking him shoe" (look for)

Clarissa (age 5-2): "looking the frog in his boot" (look for)

Appendix2: Lexical Phases in Wh-acquisition

Fundamental Operations Sequence

Claim 1: The first Operation is ATTACH

= Non-Headed Conjunction
 Parenthetical

- a. *where did John go why
- b. where did John go and why
- c. "what he bought"
 =what is it, he bought (something)

pro

Finer: "he's a little kid that he talks" (3;9)

"I hurt my finger that Thomas stepped on it"

"You are a tree and I'm a kid that I climb up
 on you"

"twenty numbers that we counted them"

Claim 2: A child (or L2-learner) then MERGES
Lexical Item with a Subcategorization

"what he can do"

```
what
 / \
what IP
   / \
   spec I
   |  |
   he can
```

Claim 3: new FORMAL FEATURES project: triggers =>

1) Feature-Checking/Agreement/Chain Formation

```
2)
      CP
     / \
    spec C
     /  | \
what (book)1 Q2 IP
                   / \
                   he I
```

/ \
 did₂ VP
 / \
 buy t₁

D₂ => Q₂ = Erase Q feature

- 3) What Triggers Q-feature? Many possibilities:
- a) wh- morphological analysis
 - b) variable interpretation of wh-
 - c) inverted input [what did you...]

VI. Early English wh-forms: Lexical Projection:

- 1) what that
 who that
 where Mommy

A. Subject and tense absent (from Adam): Merge: Q + VP

- 2) where go
 where go bye bye where zip it, huh
 where waving where put the sand shovel
 where button press

what hit
 what call it what dat put
 what watch huh what getting

why working
 why looking car why say right now
 why folding for Adam why say uh oh

B. Inversion and Subordination: Lexicon and Move-alpha in deVilliers (1991)

- 3) where small trailer he should pull
 where the other Joe will drive
 why he don't know how to pretend
 why the kitty can't stand up
 how he can be a doctor
 how they can't talk
 what he can ride in
 what he can do

overview: 3yr-olds no inversion with when where, how what and why,
 4yrs: what and where, then how
 5yr olds: no inversion with why

- 4) Subcategorization of indirect questions and Inversion co-occur
[Lexicon sees move-alpha output]

what-IP => ask [comp wh- [IP

- 5) Stage 1: a) NP object: ask John
b) No inversion: what he can sing

- Stage 2: a) Indirect Q complement: ask John what he wants
b) Inversion: what does he want

how around session 15,
what around session 20, and for
why session 55 in Adam.

The same holds roughly for five other children.

Conclusion: Lexical projection captures word-by-word growth.

Immediate assumption of a CP does not

[similarity to categorial grammar]

a. adult grammar same: why play baseball

*when play baseball