

From Exclamation to Proposition to Presupposition to
Implicature: the path to deductive reasoning

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How do propositions emerge?

Are they an innate aspect of how we see the world?

When do they play a role in Explicit reasoning?

[Deduction, False Belief]

Classic Syllogism: John is a man, men are mortal, therefore

John is mortal

Our argument: Propositions are present in four ways:

Entailments

Assertions

Presuppositions

Implicatures

Entailments are automatic, unconscious aspects of language:

John has a big car entails John has a car

Assertions => distinct from Exclamations, Questions,

Imperatives

Hypothesis: innate and immediate, but not conscious

Exclamations: you fool!, you idiot!, you jerk!

1) !=you are a jerk

(1) a. Cannot be cancelled

b. Contain no verb, no article

[Potts and Roeper (2005)]

Children: “it big”, “dat here” “Mommy sock”

These seem to be: Pre-propositional Stage

= Exclamatives, small clauses, Events

What is the difference between small clause and proposition?

Hard to capture:

- a. I consider John happy
- b. I consider John to be happy

But:

- c. *I made him out happy
- d. I made him out to be happy.

(d) Introduces a proposition:

1. I made him out to be happy, but he isn't =
made others believe the proposition: he is happy.

2. #I found him happy, but he isn't.
perception of state or Event.

Claim: small clauses are not propositions for adult or child.

Child begins with small clauses like “he big”, which are not
Propositions

Can we show when children grasp propositions?

Laureate Learning, Burlington Vermont is developing

Materials to promote this distinction.

Can a child discriminate between:

Event Perception

Propositional Report

Event = small clause

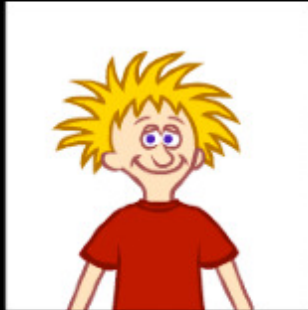
Proposition = Tensed clause with potential

truth value

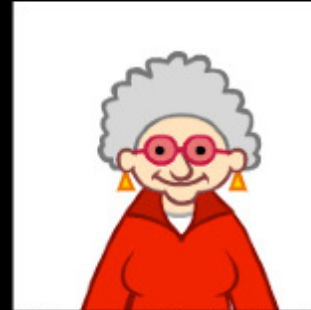
*Amy heard Jack play the trumpet in his room.
Amy told Grandma that Jack played the trumpet in his room.*



Who heard Jack play the trumpet in his room?



Foil



Who heard that Jack played the trumpet in his room?

*Lori heard the raccoon knock over the trash can.
Lori told Dad that the raccoon knocked over the trash can.*



*Who heard the raccoon
knock over the trash can?*



Foil



*Who heard that the raccoon
knocked over the trash can?*

Pilot results: 6 children between 4-6 yrs (some with SLI)

All six correct: hear him play the trumpet

5/6: get hear that he plays the trumpet 50%

Deviation, predictably: 100% toward Event perception

0% toward proposition

Goal: when do children clearly perceive an explicit

proposition as neither true nor false?

Prior Stage: Entailed proposition

Default assumption of truth

Schulz (2003), on Acquisition of Factivity:

Kermit went shopping and he was supposed to buy eggs.

Then in the evening. He got really hungry, but he said “I have nothing to eat in the house” He didn’t remember the eggs.

Did he forget to buy eggs? => no

Did he forget that he bought eggs => yes

Children: 12 4yr olds, 14 5 yr olds, 12 6yr olds

Results: “younger children treat factive verbs as non-factive” => “yes” [forget that = forget to]

Claim: children cannot handle presupposition failure

Story:

Grover called Ernie on the phone and said “I got a new game of marbles and I want to play it with you” First they played Hide-and-seek. Tbut they didn’t paly with marbles, because Grover didn’t remember about the new game. Then it was time for Grover to go home and he went home.

Did Grover forget to play marbles with Ernie?

Did he forget that he played marbles with Ernie?

What are the micro-steps toward propositional reasoning?

Stage 1: no clear proposition

Stage 2: propositions as necessarily true

Stage 3: propositions are not necessarily true

Stage 4: propositions can be presupposed

Stage 5: propositions as implicatures are weaker
than logical implicatures.

When is the proposition presupposed?

Questions: what did you buy? => “nothing” possible

what is it that you bought => presupposes

you did buy something (Percus)

Other cases where propositions are presupposed, even inside opaque contexts:

a) John thinks that the hat that is on the table is one the floor.

True presupposition: hat is on the table

Wilder (2001): true proposition extracted from opaque context:

a. John thinks he is taller than he is.

==> b. [he is x tall] John thinks he is taller t

Like typical quantifier-raising:

c. Everyone likes someone

=> there is someone₁ everyone likes t₁

<=====

If extraction needed, it might require acquisition.

Legere: Semi-factives (know) => speaker presupposition, while

True factives => Universal presupposition

(glad, make him out to be a liar).

1a. She is happy that she has a hat

b. She isn't happy that she has a hat => she has a hat

2. She knows she has a hat. (could be wrong)

Universal presupposition

precedes speaker-link:

[Experimental results]

<i>To be happy</i> <i>1a,b</i>	<i>To know</i> <i>2</i>	Age group
92.5%	65%	Kinderg arten

Chomsky (2005) argues that transfer of interpretation
Occurs at each Phase (clause).

If this is a universal, what does the child Transfer?

Claim: the child transfers the notion of a true proposition
for all Tensed sentences.

Consequence: This means that the child does
not have adult propositionality which
is open about truth.

Claim: Proposition = [+ or - presupposed truth]

Assertion = statement of truth

What is: Transfer of Interpretation?

Long-Distance counter-example:

what did Mom say [phase t she bought t]

what she said => != the truth

Children's productions:

What did she say [what she bought]]

Hypothesis: Unmarkd = +factive = TRUE

[deVilliers , deVilliers, and Roeper (2007,
forthcoming,) references therein]

A. How did Mom say what she baked => “a cake”

B. How and what did Mom say t she baked

A = presupposes “she baked something”

= TRUE or [+factive] in some sense

B= opaque (she could have lied)

How about really “opaque” verbs that do not

Presuppose truth?

Prediction: If sentence disallows subordinate wh-, then it avoids this presupposition. English does:

- a. *John thought what Bill baked
- b. *John pretended how Mary sang
- c. *John expected who Bill loves
- d. John knew who Bill loves,
what he bakes.

If [-true = -presupposed] => must move higher

- e. What did John think__Bill baked.

What is the role of phonological “visibility” in Interpretation? => imposes Transfer and Truth

Why is it impossible to say:

*John thought what Bill did

But possible to say:

What did John think t Bill did t

No transfer occurs at the point of the trace, but

Children spontaneously pronounce
medial wh-

“What did she say what she wants”

Thornton (1990)

“which animal did she say which animal
she got”

=> children assign true proposition to lower
clause.

What feature gets checked that forces non-movement beyond lower clause

Logic of Transfer:

Interpretation Feature: visible wh- =>
[+presupposed]

deVilliers and Roeper (Lingua to appear):

Prediction: spontaneous grammars, dialect, SLI, “Substandard” grammars carry this interpretation

Claim:

Child must learn to project

[- Presup (= -factivity)]

=/= default assumption of truth

Predicted by locality of Transfer

Conclusion: Children cannot generate opaque contexts because they are marked in UG.

Conclusion is too strong.

Note: subjunctives ARE STILL true

John knows that Fred could be at the door.

John knows that Fred couldn't be at the door.

Existence of factive complements that do not refer to facts must be confusing for children.

Suppose Child takes: think = implied subjunctive

John thinks Bill is at the door = “it might be true that”

\neq John thinks Bill is at the door \Rightarrow actually False

Consequence: identification of propositional force
is not elementary.

Claim: at some point the child realizes proposition and then
presupposed proposition.

Hypothesis => Contrastive relative clauses trigger
presupposition:

John thought that the candy that tasted bad
would taste good.

It may be linked to relative clauses inside clefts

(Heizmann (2007)):

it was the bush that popped up.

Where else is [-presup]?

Inversion lifts Presupposition:

- a. Why don't you go outside? No presupposition
- b. How come you don't go outside.

Presupposes you don't go outside

_____ Conroy (2006): Why would Joe eat?

How come Joe would eat?

[presupposes: he does eat]

c. Exclamations:

what nice clothes you are wearing

_____ Question: what nice clothes are you wearing

_____ => "none" possible = [-presupposition]

Tags only go on presupposed propositions:

a. Can she leave?

*Can she leave, can't she?

[-PRESUPPOSITION]

b. She can leave?

'She can leave, can't she?'

[+ PRESUPPOSITION]

Children seem to use exactly this contrast:

Presupposed:

“Why every day when I wake up the hall light isn’t on” 5.1

“Why some of your makeup I can’t use” (5.2)

Inversion => Non-presupposed:

“Daddy, why would I forget my name” Thornton

Conroy: “Children first assume *why* is factive. When children invert, they no longer think *Why* is factive”

Summary

Goal: child must grasp that a Proposition is an assertion
that is inherently neither true nor false

Hypothesis: Stage 1

Default: Tensed clauses assigned

true value = Entailment

Stage 2 Tensed clauses => Propositions

= + or - presupposition of truth

Presupposition status:

Subcategorization by higher verb know => +/- Presup

Prediction: if both verb and inversion are present
then rapid Triggering

African American Eng- dialect marks the difference:

a. I don't know can I do it = indirect Q

b. *I know can I do it

c. I know whether I can do it = presupposed

Mainstream AE: a. I don't know whether I can do it

b. I know whether I can do it

Green (2002), Roeper and Green (2008)

Prediction: AAE realizes [-factivity] first

DSLT (background for DELV) test:

Children: 590 children aged 4 to 9 years who had taken all of the language subtests from the DSLT. There were 298 girls and 292 boys. 352 were AAE speakers (of these, 42% LI) and 238 MAE speakers

RESULTS:

1. 4-5yr olds MAE and AAE:

33% answer second clause only with truth

ANOVA with the between subjects variables of age, clinical status and dialect revealed a highly significant effect of Age ($F(5,566)=5.0, p<.001, \eta^2 =.042$) and a significant effect of Clinical Status ($F(1, 566)= 22.9, p<.001, \eta^2=.039$).

2. dialect had no effect ($F(1,566,)=.88, p=.35, n.s.$), nor did age x dialect.

3. strong effect of Age ($F (5,951) =18.2, p<.001, \eta^2 =.087$) as well as Clinical Status ($F (1,951)= 26.8, p<.001. \eta^2 =.057$).

4. Children with LI persisted in answering the medial after age seven

Dialect facilitates acquisition of complex syntax:

MAE speaking children made many more medial answer errors and persisted in making the error to an older age than the AAE speaking children ($F(1,475) = 4.65, p < .03$).

Conclusion: inversion in one dialect

leads to realization of [-presupposition]

Interaction between: syntax and semantics

Prediction:

Languages with grammatical Partial
movement will resist opaque interpretations

Children: Romani Children learning Bulgarian
show more difficulty in recognizing
opacity in Romanian than in Bulgarian

[Kyuchukov, de Villiers Roper]

[what did she say she bought => untrue answer]

Suggests: interface of grammar/cognition

Final Stage:

Proposition as implicature = cancellable, not necessarily true.

1. John remembered to buy eggs. So let's eat them tomorrow.

Implicature: John actually bought eggs.

Why is it not factive? It can be cancelled:

2. A. John remembered to buy eggs, when he left for the store, but then he forgot => didn't buy eggs.
B. John remembered that he bought eggs, but then he forgot => he still bought eggs.

Prediction: open nature of implicatures is not immediately
acquired.

Summary:

Entailments first

Assumption of Truth

[+ or - Presupposition] (inversion lifts presupposition)

Implicatures

The acquisition path interacts with syntax:

1) because languages vary

- how they mark presupposed truth
- how they lift the presupposition of truth
- how and where grammar, semantics

and cognition connect

2) Once these dimensions are fixed, the mind
has an efficient representation

3) Efficiency appears through recursion.

a. John thought we all thought the baby
thought he was home.

Hypothesis: Reasoning about presuppositions in
other minds is facilitated
by an efficient representation.

For informal presentation of these
ideas

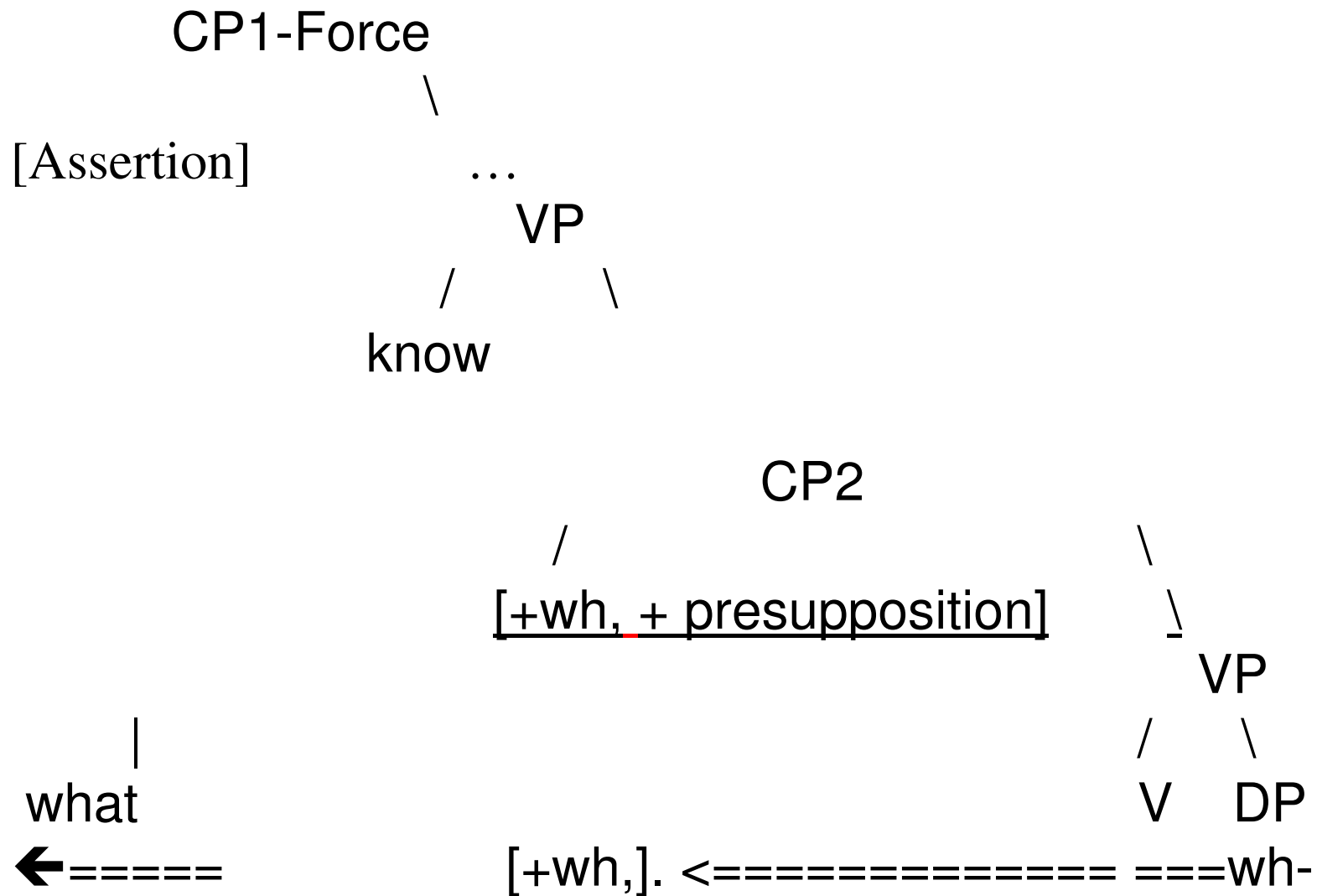
See Roeper: Prism of Grammar (2007) MIT Press
[Chapter “False False Belief Belief”]

“there are Transfer operations: ... hands clause to the semantic component, which maps it to the Conceptual-Intentional interface.

Call these SOs *phases*.

Thus the Strong Minimalist Thesis entails that computation of expressions must be restricted to a single cyclic/compositional process with phases.

Chomsky (2006)



That is, the wh word begins in the lower clause and moves to check off the +wh feature in the medial CP.

*who did John wonder what bought t

*who did John wonder __ bought what

Rizzi (2006): theory of “ criterial freezing”

Chomsky (2007): Phase restriction

Lasnik et al (2005):

Phase boundary changes if [uninterpretable] feature is on the wh- word, which will force it to move further.

(10) The specifier of the head of PH (“phase edge”) belongs to the next higher phase PH₂, for the purpose of Transfer only when it involves an unchecked uninterpretable feature (e.g. wh-phrases in intermediate COMP positions (p. 249)