

# Vacate Phase and A Symmetrical theory of Movement:

## How the Reconstruction of Propositionality in Child Language Reveals Core Grammar

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### 1.0 Introduction

Our goal is to explore the interpretive side of the Strong Minimalist Thesis (SMT) which forces cyclic, phase-based interpretations:

- 1) every Phase undergoes Transfer to Interpretation.

A careful look brings us to ask exactly how traces are reconstructed in light of the classic philosophical question of opacity under propositional attitude verbs. The stages of acquisition provides a finer structure than we see via adults in this instance:

We begin by following the SMT articulated by Chomsky:

“there are Transfer....hands Syntactic Object 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 (2005)

The SMT opens up a new possibility for a symmetrical motivation for movement: If interpretation occurs in each Phase, then movement could block an interpretation. This is immediately intuitive when we examine inversion.

- . Why do we move an auxiliary to ask a yes/no question:

- 2) Can you play baseball?

We argue that when the auxiliary moves, it vacates a Phase, leaving a trace which allows thematic reconstruction, but blocks a propositional commitment because Tense has been removed:

- 3) [CP Can [IP you t [VP play baseball]]

Thus precisely the proposition entailed without movement:

- 4) You can play baseball

is no longer in force. To carry out this intuition, we must identify the IP or TP with a Phase (see Branigan (2005) for arguments of this kind).

The leading idea is that movement is symmetrical because it is motivated both by the necessity to mark discourse at a higher level and by the necessity to avoid an interpretation within a Phase at the lower originating level. The logic is elementary: if Transfer occurs at each Phase, then Transfer must be delayed if an incorrect scope would arise by fully interpreting a trace left behind. Therefore a wh-word or an inverted auxiliary auxiliary moves because it must to prevent an incorrect interpretation.

Crucial evidence comes from language acquisition where subtle data shows that children will carry out Full Interpretation within a Phase when adults do not. This not only provides a symmetrical account of the motivation for movement, but it shows that Radical Reconstruction at PF is a natural property of grammar, as Miyagawa (2006, 2010) has suggested, because it appears in child language, although it is rare in the adult language. This in turn supports Boeckx (2008) proposal that acquisition evidence provides direct insight into UG where historical evolutionary factors cloud adult data.

We argue that acquisition data from copying in inversion (“Can I can come”) and partial movement in wh- (“what did she say what she wants”) and experimental evidence on misinterpretation by children (“what did she say she bought” => what-bought, not what-said) supports the SMT and the concept of Vacate Phase. In addition, it will support the notion of PF-reconstruction of movement at the Initial Stage which, in a sense, gives unique acquisition evidence for the original notion of transformation.

### 1.1 Reconstruction

Simple reconstruction of a trace-meaning is, of course, too simple. A trace remains--or as generally argued---a copy (Nunes (2007)) which is not then not pronounced in the initial Phase. Some reconstruction must occur, but how much? There are a number of proposals about reconstruction, originating with Lebeaux's claims, derived initially from acquisition data, where Adjuncts are not reconstructed but generated in place.<sup>1</sup> In general, it is clear that movement involves a contribution of meaning both from the origin and the landing site. What part of meaning, exactly, should not be projected within a Phase and how should it be represented technically?

Movement of a wh-word to a Phase- head appears to exempt it from interpretation because the Phase-Head does not undergo Transfer (Boeckx (2008)). However the

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<sup>1</sup> An extension is that arguments move, but adjuncts to them are added by Late Merge as in:

- i) Lebeaux's initial argument applied to a full Adjunct as in cases like:

Near the girl, she put a basket

where adults get non-coreference but children allow coreference for girl = she.

Late Merge (Takahashi (2008)) applies to the adjunct of a merged argument:

Near the girl that John likes he put a basket

where coreference between John and he is possible. Recent accounts suggest that Determiners on NP are in the Phase-head but the NP itself undergoes Transfer (Hiroki (2010)).

technical solution does not articulate the full interpretive consequences of movement out of a Phase Complement.

We do not have a full theory of reconstruction to propose, but we argue that the presence of opacity needs to be a part of the ultimate representation. We will sketch a pragmatically augmented SMT which accounts for child data and some adult data as well.

## 1.2 Propositionality

A major unaddressed dimension of Phases is their connection to classic philosophical (and syntactic) questions about the nature of opacity and the status of propositions. The term proposition invokes an extensive history (see Hinzen (2009) Chomsky (200?)) and it is unlikely that it will receive a unified treatment, but rather like the notion of Reference, it must in part be treated as a kind of encapsulated mystery. since it plays a role in a number of meaning types.<sup>2</sup>

Our concern will be the classic notion of Proposition in Tensed clauses (once called Propositional-Islands) and contexts where they are presupposed (how come you can play baseball). To put the question squarely, what is the trace left behind in a sentence like:

5) what did she say [t she bought t ]

where what she bought is distinct from what she said she bought. It is the wide scope interpretation of movement which putting what before say guarantees. And, importantly, it is distinct from the presupposed proposition that she bought something. Although much debated, the repeated suggestion that there is a presuppositional difference between

- 6 a) it va ou
- b) ou va-t-il

reflects, on the margins of standard speech, what acquisition re-enforces. While (a) presupposes "he went somewhere", (b) does not (and can be answered with: "he went nowhere"). Thus the first Phase [what [ she bought t]] must not allow the direct interpretation of what in (a).<sup>3</sup> Our primary goal is to put this question on the agenda of what traces must reflect. To answer that question fully we must include the fact that children will allow exactly this form of Total reconstruction. The critical factor, we shall see, is that Radical Reconstruction occurs only when the lower verb is tensed, not when it is an infinitive:

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<sup>2</sup>

<sup>3</sup> Semanticists, like Sauerland (2004) have suggested that there is a "World Variable" which is not initially interpreted in situ, but waits until later. This solution already violates the SMT in a sense because we have to block interpretation of the World Variable. We will suggest a partial solution to the problem in terms of a Point of View feature on Tense which is co-indexed with the wh-in-situ but changes to an upper clause POV feature inherited on a lower CP when the wh-word moves to the lower CP.

7) what did she say to buy

An extra-linguistic pragmatic explanation will not capture this difference. Our analysis looks first at the propositional implications of auxiliary inversion.

## 2.0 Auxiliary Inversion and Propositions

Why would the odd manipulation of order be the natural way to indicate a yes/no question, rather than using a lexical item devoted to that contrast:

8) \*whether he can play baseball

Instead we say:

b) Can [IP he t play baseball]]

with a modal moved to the CP and a trace left in IP. In (b) it is clear that the proposition is never asserted. The contrast becomes sharper when we consider the meaning difference associated with tag-yes/no questions:

9) you can play baseball, can't you<sup>4</sup>

Here it is clear that we project a proposition and then either confirm or reject it. The negative in the Tag seeks disconfirmation of what is propositionally presupposed. Notably the two cannot be combined:

10) \*can you play baseball, can't you

which produces a sharp sense of syntactic ungrammaticality, not an LF or a implicature failure.

Under our approach we have an answer to the non-existence of:

11) \*whether he can play baseball

This alternative would require us to make a proposition (he can play baseball) and then lift it.<sup>5</sup> Inversion of the auxiliary has exactly the virtue that the proposition is never projected. We can make the SMT do most of this work, in a way compatible with other proposals, such as the idea that Tense should ultimately

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<sup>4</sup> Merchant (2009) adds a second clause and obligatory ellipsis (see Merchant (2009)) to guarantee an answer:

<sup>5</sup> It is possible (M. Zimmerman) to say this in German with a different meaning that is hard to pin down:

Ob er Fussball spielen kann {whether he football play can)  
The question seems to invoke a larger context of alternatives.

reside in CP (Pesetsky and Torrego ( )), but the notion of "open" in open proposition will itself still be open.

## 2.1 Tense Projects Proposition

In line with the original Propositional Island Constraint, we argue that:

12) Tense projects a Proposition as an Assertion

This must be augmented to capture a critical property of chains:

13) Pronounced Tense inside a Phase entails a proposition

SAI carries out Vacate Phase to achieve the non-projection of a proposition. If the copy is pronounced, the proposition reappears.

Thus we predict the presence of this output structure together with the assumptions  
a) that CP contains an Attractor for Tense because it must move to a Force position to check off Assertive, Q, or Imperative force (Torrego and Pesetsky ( ), Rizzi ( )), and  
b) that IP is a Phase (see Branigan (2005)).

14) +Tense => projects Proposition

[Can [ you t	[play baseball]]]
[C [IP Phase	[VP Phase]]]

If we assume that [Aux t] then the TP can be seen as a Free Rider which does not project or deletes. Other modes of execution are possible, but they should respect this intuitive idea.

## 2.2 Tense and acquisition

How does the notion of Proposition first appear in child language. It is well-known that in many languages children begin with no verb:

15) he big

Potts and Roeper (2005) argued that the form reflects an "expressive" stage of acquisition much like the adult use of expressives:

16) you idiot! you fool!

which are not propositional and not deniable. (\*you fool, aren't you)  
What exactly happens when the child moves to the form:

17) he is big

Here we argue precisely that the propositional force of such sentences comes into play. In fact, 3 yr olds will use Verum Focus and say:

18) "it IS working"

with stress on the tensed auxiliary to deny a statement (it isn't working), indicating their awareness of propositional force.

The same semantic shift must be entailed by the move from root infinitives in Germanic languages to V2 to capture a tensed element as articulated by Wexler in a number of papers. Thus, if the SMT is correct, then we should look for the semantic reflex of the introduction of each Phasal node and expect that the child looks for it too.

### 3.0 Inversion and Interpretation in Acquisition

What should we predict the acquisition path to be for children for inversion? Will children understand that inversion blocks the projection of a proposition? We argue that a) at first they do not, and b) a modular theory of transformations predicts this result.

First a range of facts that point toward how Tense and inversion are connected. The idea that a child projects a proposition when the auxiliary is pronounced emerges clearly from this contrast from a 4yr old:

19) Father: do you want to go outside  
Child: No!  
Child [speaks to friend]:  
Do you don't want to go outside?

The doubled auxiliary clearly intends to preserve the proposition you don't want to go outside which would not be present if the auxiliary moved, projecting no proposition, and allowing a "suggestion" implication:

20) Don't you want to go outside

The same logic applies to this example without negation from a 3.8 yr old upon suddenly entering a strange forest:

21) "Where are we ARE" (Danilo 3.8, Sept 2010)

which has the natural interpretation with a presupposition brought out by Focus:

22) "where is it that we ARE"

The copying of auxiliaries is frequently noted:

23) "Is Bill is busy?"  
"Can I can have milk"

Widely reported in acquisition since Brown (1973), Menyuk (1969). What do they mean:

- 24) a) a true open question: Is Bill busy
- b) a tag question: Bill is busy, isn't he

Our hypothesis and intuition suggest that the meaning is closer to the tag-question where the proposition is maintained. Notably tag-questions involve a complex structure (Brown (1973)) and are not used in the late 2yrs and early 3yr range. Therefore the Auxiliary-copying fills an interpretive gap--it is not just a syntactic reflex, although it lends support to the copy theory of movement (See Jesney ( 2008 )).

Here are more forms which clearly use copying to preserve a proposition:

- 26)
- “why do you're going outside”
- "why do you're giving juice"
- "why do you're cutting the meat”   "what's he's doing”
- "what's the mouse is doing”        "why is there's big tears”
- "what is the woman is doing”       "Is it's Stan's radio"
- "Is this is the powder”            "Is that's a belt”
- "why do deze don't unrase” "why did you didn't want to go”

We return to a more careful discussion of these cases when we discuss wh-movement.

### 3.1 European Portuguese and Copying

Does the adult language reveal any connection between copying and propositions? In fact European Portuguese (Martinis 2007) uses copying as a form of affirmation of a proposition, occupying a polarity position in the CP:

- 27) Ele        PODE        SAIR DE    CASA,        PODE.
- he        can        leave-inf   of    house can

= “of course he can go out”

The copy is outside of the Phase which means that we can, again, take the inside auxiliary-with-tense as anchoring the projection of a proposition.

### 3.2 The Acquisition Path and Total (Radical) Reconstruction

Now let us try to imagine what a natural acquisition path would be in light of our evidence thus far. In syntactic terms we can incorporate the evidence into the copy theory of movement. Move = copy then delete. It follows that a child might ---and does---exhibit copying as a distinct stage, albeit usually short-lived.

Short-lived stages are not insignificant and in fact when our level of magnification is really where it needs to be, we may find that children pass through many stages in perhaps even a one hour period. An analogy is bike-riding: a child may fall off a bike for weeks, but then in a crucial 15 minute period go through several stages of balance coordination that are very significant. A child might, in an afternoon, go through several stages in auxiliary inversion that range across lexical items, negation, complex auxiliaries---or they may take several years, as seems to be the case with learning the interaction of negation with inversion (Jesney ( )).

But it may be that the stage is not as short-lived as it seems. What happens when the child chooses to delete? It does not follow that the *trace* must have the same properties as we find in the adult grammar. Recent careful work---on constructions quite rare in language, including scrambling in Japanese and Focus+Superiority in English have led to the suggestion by Sauerland (2004) that Radical Reconstruction is a possibility. This means PF reconstruction with no impact upon LF. This can occur with apparent superiority violatons:

28) “WHAT did you say who bought \_\_\_\_”  
=> who bought what

The analysis suggests that the movement occurs only at PF and therefore an interpretation has already been rendered that obeys superiority.

Miyagawa (2006) points out that Radical Reconstruction in fact fills a logical position in the typology of movement: it ought to exist:

29) Radical Reconstruction:



“ the chain completes the paradigm of chain spell-outs given in the literature. It is easy to see that radical reconstruction fills a logical gap in the paradigm.”

In effect, we have two kinds of traces, Full Copy traces that are PF phenomena and PF+LF traces that may involve less than a full copy.<sup>6</sup> The latter kind have been discussed in terms of Late Merge primarily where binding facts are captured by arguing that adjuncts are not reconstructed, we argue here for an extension to the non-projection of Tense from a trace.<sup>7</sup>

Why is it so rare? In fact the LAD is built to seek and add meaning constraints at both the origin and the landing site of movement. The child may not see them all at once, but soon finds that almost every movement involves both positions.

Now we have arrived at an important observation and prediction: the child first deletes the auxiliary as a PF operation and therefore the Full Copy Trace is present. This claim fits a claim about Modularity in acquisition (deVilliers and Roeper (2010)) who advance a number of examples in its behalf:

**Modularity Constraint:** Analyze new operations in a single module first

Therefore the child first analyzes all movement within PF alone as indicating no change in meaning or LF:

- 30) Stage 1: PF trace => Tense + Modal
- Stage 2: add LF (scope, discourse information)
- => Modal, not Tense

Tense checked off in the CP plays a different role---not fully specified (see

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<sup>6</sup> Miyagawa (2010) suggests that Phase-boundaries force a Full Copy Trace:

Phase-based characterization of chains:

A full copy must be available for interpretation if the movement crosses a transfer boundary.

We note that this claim does not consider questions of opacity for wh-expressions, and therefore may require modification. Other instances of Trace Conversion also in effect involve non-full interpretation.

<sup>7</sup> thanks to S. Cable for suggesting that there are two kinds of traces available to the child.

Pesetsky and Torrego ( ), but its power to project an asserted proposition is dropped at Stage 2.

The idea that a PF analysis can be initially projected by the child would provide critical evidence to the child that the trace-position is correct. Once established, further meaning changes can be added, but obscure the original hypothesis.

This means in effect that acquisition may provide crucial evidence not found in the adult language for the nature of core grammar. Boeckx (2008) argues in fact that this should be a general perspective on adult grammars which may seem difficult to grasp because latter developments obscure and even seem to contradict core generalizations.

We now arrive at a prediction: even deleted auxiliaries may project a Full Copy Trace and therefore carry propositional force.

### 3.3 Full Copy Trace and Acquisition Evidence

There is evidence toward this point, but further experimentation is needed. Here is a dialogue which suggests that a child may fully reconstruct [can't Karen = Karen can't]

31)

\*FAT: Karen # let me borrow your chair for a second . (Abe 2;7.26)

\*KAR: ok .

\*Abe: hey # **can't** Karen get down .

\*FAT: sure she can .

\*ABE: no she can't .

It is often the case that we need indirect methods to probe a child's grammar for its subtler features. One consequence of movement is its impact upon negative polarity items. A pilot experiment was run in which the goal was to see how they were understood. If the auxiliary is unmoved, then we get a universal reading, but if it moves we get an option for a Free Choice reading, toward which our experiment was biased:

32) a. anyone can lift a ball → exhaustive = everyone

b. can anyone lift a ball → Qp-neg → anyone

= Free Choice

(or exhaustive reading)

A child was given a picture with the following objects:

33) Reconstruction Experiment:

Look at these things and look at this ball:

[insect, dog, fish, child]

a) Can anybody play with a ball?

→ adult: yes, the child or dog (yes-bias chooses)

b) Anybody can play with a ball, is that right?

→ adult: no, not fish, insect

Can anybody play with a ball => if yes-bias => “yes, the child”  
actual child answer: “no, not fish or insect”. Now imagine (or ask yourself) what a copy form, or Full Copy Trace, produces as meaning:

c) Can anybody can play with a ball?

→ presupposition intact with universal reading

In fact in our pilot experiment with a 4yr old, the child, against the yes-bias, answered as if the copy were present: "no not the fish or insect".

The polarity question can be approached by this thought experiment which we are currently exploring:

34) Inversion and Indefinites

Imagine this scene:

a small boy near large door he cannot open

a large boy standing nearby; obviously big enough to open the door

Child is asked this question:  
"Someone can't open the door, can he?" => small boy  
or: "Can't someone open the door?" → big boy

Our Prediction under Full Copy theory is that the child will project a Full Copy Trace and therefore answer both questions the same way:

c) = Can't someone can't open the door = (a)  
→ yes, the small boy

Thus we argue that the Full Copy Trace may capture a critical, but short-lived moment in acquisition. This argument leads to the prediction that other movement operations should show the same stage. We argue below that wh-movement behaves the same way.

### 3.4 Dialects and Full Copy Trace

Another natural prediction is that dialects might illustrate the presence of a Full Copy Trace. In fact it has long been noted that there is a difference between South African English and American English (and probably other dialects) in how this question is answered:

35) Doesn't he have 3 sisters => American: "No" ( he doesn't)  
=> SA: "yeah" (he doesn't)

= he doesn't have 3 sisters, does he? American: "yeah, he doesn't"

where the response resembles exactly the Full Copy Trace prediction. We turn now to the presence of inversion inside wh-questions. Does it lift a presupposed proposition there as well?

### 4.0 Wh-movement and Inversion: Why and How Come

If inversion lifts a presupposed proposition, then it should do so in wh-questions as well. While it has been often assumed in philosophical circles that questions

presuppose a proposition, a careful look suggests that they do not and the reading is an implicature (which may affect the acquisition path). We find that we can in fact answer the question:

36) What did he buy?  
with "nothing", which is infelicitous in a clefted question which contains a clear presupposition, as pointed out by (Percus (2003)) Fitzpatrick (2005):

37) what is it that he bought => #nothing

Fitzpatrick argues that questions engage a set of possible answers, among which is "nothing" or no one. And therefore there cannot be a presupposition for the clause.

In addition the presence of polarity items indicates the absence of a presupposition:

38) what did John (ever) buy for anyone?

This feature correlates with a sharp contrast in presupposition between why and how come? (Collins (1991), Fitzpatrick (2005))

39) Why don't you go outside  
How come you don't go outside

The how come question is the only case in English where inversion does not occur. It is in fact interesting to ask why this option is not available everywhere in the wh- system?

Belfast English (McCloskey (20005)) reflects the same contrast in complement clauses where inversion is allowed only if non-presupposed:

40) a) I wonder what is he like at all. (IE)  
b) I asked him from what source could the reprisals come.

This is impossible for factive verbs:

41) a) \*I found out how did they get into the building. (IE)  
b) \*The police discovered who had they beaten up.  
c) \*I remember clearly how many people did they arrest

V2 in subordinate clauses<sup>8</sup> in Scandinavian languages are limited to non-factive environments as well.<sup>9</sup>

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<sup>8</sup> See Bentzen (2008), Wiklund (2009), Westergaard (2009), Heycock (2010) for a

#### 4.1 Subordinate Inversion in AAE, Non-inversion in matrix clauses

AAE reveals exactly the opposite characteristic: auxiliary inversion in subordinate clauses. But the interpretive consequence is the same. Only when there is an no presupposed proposition can it occur:

- 42) I don't know can I do it  
\*I know can I do it

Inversion is only possible when the presupposition is lifted. This occurs under negation but cannot occur under simple know since the verb expresses unquestionable knowledge. In Standard English both presupposed and non-presupposed meanings are captured by whether or if:

- 43) he knows if he can do it  
he doesn't know if he can do it.

The terminology indirect question is very misleading on this point, since sometimes it is presupposed and not an indirect question, as in the Christmas song:

- 44) " He knows if you have been bad or good"

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careful look at variation where they propose that the reason that V2 occurs in a clause with regret indicates that the pragmatics of Common Ground are involved:

= we regret that John will not recover from cancer.

The assertion is new to the hearer and therefore not presupposed. Thus factivity, which entails presupposition by the speaker (see below) still leaves the possibility of factivity without presupposition by the hearer.

<sup>9</sup> Speech errors correlate as well. Note that, for speakers like me, an occasional inversion occurs just when there is no presupposed set of alternatives.

I have caught myself saying both:

- i) "I wondered where we should eat"  
ii) "I wondered where should we eat"

The latter case presumes an open set while the former is compatible with the presence of a given, closed set of alternatives (see Starke ( ), Boscovic( )).

And the converse, non-inversion is common in AAE:

45) "What I can do?"

In fact, non-inversion is widespread among English dialects around the world:

Singaporean English (R.Bhatt)  
Trinidadian English (G. Ramchand)  
South African Black English (R. Mestres)

suggesting that it has connections to core grammar, rather than being a consequence of contact. The "standard" grammar is thus the outlier in having uniform inversion in matrix clauses and non-inversion in subordinate clauses.

## 5.2 Optional Inversion in Child Wh-questions

Conroy (2005) provides distinctive support that the presence or absence of a presupposition motivates movement in child language. We find apparent optionality in the following contrasts, but she argues convincingly that they in fact reflect precisely the semantic distinction under discussion.

Studying the diary of R. Thornton, she notes this contrast:

Conroy (2005): Non-inversion is factive

46) "Why *every days when I wake up* the hall light isn't on? (5;1)  
Why *if he goes to jail* she can have his room? (5;0)  
Why *SOME OF YOUR MAKEUP* I can't use (and some I can)?"

However, she also finds inversion that is quite obviously intended not to have a presupposed proposition.

47) "Why do you think Santa's not coming this year? (3;10)  
Why don't you use this as a magic wand? (3;4)  
I remember my name. Daddy, why would I forget my name? (3;4)

It is notable that many of the non-inverted cases come from the child when she is older rather than younger. Thus the child produces exactly the contrast that our theory predicts.

In fact we find among children many non-inverted cases as has been reported for

many years. deVilliers (1991) Inversion failure for all wh-words at first, but we do not know about interpretations:

48) ‘How I can eat’      “what I did” where, when

This is particularly the case with why, known to be unusual in many languages

49) (from CHILDES database & Sunny Park)

adam18.cha:\*CHI: why you # waking me up ?

adam18.cha:\*CHI: why [/] why you # putting your coffee down .

adam18.cha:\*CHI: why you [?] wake me up ?

adam18.cha:\*CHI: why you [?] waking up shame [?] ?

adam18.cha:\*CHI: why you rolling up ?

adam18.cha:\*CHI: hey # why [/] why you waking me up ?

adam18.cha:\*CHI: why me sitting on it ?

adam18.cha:\*CHI: why you put it dere [: there] ?

Why-questions are more often linked to speaker motives than VP manner and thus may create a *trace* at a higher VP attachment level.

One child who uses primarily non-inverted why-questions, allows an inversion copy, which still preserves the presupposed proposition, but links it to a manner feature:

50) why do it doesn't close (Danilo 3,8)

The cases quoted above all link why to motives, which attach at a higher vP level, rather than VP-manner linked to the lowest VP which may hold the clue to why inversion is not required with them.

How come is uniformly uninverted and seems to carry the predicted presupposition:

51) vicbr1.cha:\*CHI:

Mom # how come you make her [?] [!] go upstairs ?

vicbr1.cha:\*CHI:            how come all the people are not [=? around] here ?

vicmt3.cha:\*CHI:            how come this ain't ?

zoe.cha:\*CHI:                how come you know my mo:mmy ?



In addition in child French we find non-inversion commonly:

- 52 ) (a) et - et comment on fait Áa ? (Pierre: 3;10,04)  
and how one makes it  
(b) dans quelle couleur tu fais Áa ? (Annika: 4,08,23)  
in what color you make it  
  
(c) o\_ elle est ma fl°te ? (Philippe: 2;03,07)  
where she is  
[Matthias Bonnesen / Jürgen M. Meisel (2006)]

And it has been reported that 91% of 9yr old French children fail to invert.

### 5.3 The Shift to Pragmatic Optionality

What is, in a sense, astonishing, is that the adult grammar abandons what looks like a rather useful distinction. As it stands, the adult grammar, in matrix clauses, allows both readings. That is, while the presupposition is not guaranteed, it is not necessarily excluded. Thus: an adult form like:

53) why can't I use your make-up

can either mean:

54) a) could I use some

or

b) why is it the case that I cannot use some.

Pragmatics are then allowed to make the choice in a given situation. There must be some property of interfaces that makes, for standard English at least, a preference for representing the contrast at the interface rather than within the syntax alone.

### 5.4 Speaker-factivity

We turn now to wh-movement and opacity. First we observe the conditions under which a proposition is converted to a presupposition in subordinate clauses. A variety of authors have noted the phenomenon of Speaker-factivity ( Guerzoni (2006)), or claimed the presence of a Factivity Operator Nichols (2001) (DeCuba (2006):

- 55) John was surprised that Bill was late.  
=> Bill was late = presupposed proposition

Speaker-factivity does not change under the upper clause negation:

56) John was not surprised that Bill was late. We argue that the Speaker-factivity here should be linked to a property of the SMT

and not to an independent Operator. The critical fact is that the Phase is interpreted with respect to the outside world at this point. Thus we propose that there is a Pragmatic Operation that is licensed at the Phase boundary:

57) Pragmatic Operation: link Phase interpretation to Context

This move occurs under factive verbs which carry the truth of the lower clause as a presupposition. Now what we want is for opacity-verbs to change that assumption, and therefore block the pragmatic interpretation of the lower clause.

We propose to carry this out by assigning a POV feature to the lower CP which has the default Speaker-POV but can inherit a higher POV from certain verbs that imposes the Subject-POV on that structure.

58) Interpret Speaker-POV at every Phase

This will allow, for instance, a Transfer and Speaker reference for the Determiner in a DP as well as a clause, allowing immediate interpretation of Definite Reference.

Ordinary wh-questions, as we have seen, involve an extraction from a CP complement Phase to the CP and therefore should not enforce the proposition. Therefore as we noted above, we predict that there is no presupposition for a question like:

59) what did John buy\_\_

because what has been extracted, and indeed, we can answer “nothing”. This is in contrast to the clefted question:

60) what was it that John bought

Fitzpatrick argues, as we do, that this is correct, and points out that negativity polarity items are allowed which clearly do not entail a proposition:

61) what did John buy for anyone”

Notably exactly these forms are excluded from the how-come clauses which carry a presupposition:

62) a. why would John buy anything  
b.\*How come John would buy anything

There show that the presupposition can be blocked by a Negative-Polarity item: (26a) certainly does not presuppose that John has bought something—in fact it implies that he has done nothing.<sup>10</sup>

## 6.0 Partial movement: the Full Copy Trace Prediction

If the argument for Vacate Phase holds for auxiliary movement, then it should hold for wh-movement. We now reproduce the argument for auxiliary inversion and Radical Reconstruction in terms of wh-movement. If auxiliary-copying entails the projection of a proposition, then we would predict that the same would hold for wh-copying.

Herberger (2001) has made exactly this claim: partial movement structures maintain factivity in the lower clause. It is noteworthy that the construction is regarded as substandard by some and the judgements are not constant.

- 63) wen hat er gesagt, wen er gesehen hat  
64) [who did he say who he saw has]

This means: what did he say who he saw ...that he actually saw.

In other words the second wh-word enforces factivity in precisely the way that we argued that the second auxiliary enforces factivity.

Cheng and Rooryk (2003) have similarly argued that in French the

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<sup>10</sup> **Kishimoto (2005):**

Sinhalese particle attached to the wh-phrase is uttered when the speaker assumes that there is at least one value which satisfies the proposition,  
[=presupposed]

→ whereas clause-final particle placement indicates no such presupposition.

In other words, a clause-final *de* is used in a discourse context where the set of individuals that can fill the value of the wh-word might be empty. The speaker therefore would not be surprised to receive the answer.

**Example:**    **Question:**    *kiidenekpote kieuwa de?*  
                  **how:many book read-A Q**  
                  **How many (people) read the book?**  
                  **Answer:**        *kauru-wat kieuwe naeae:*  
                  **anyone read not-A**  
                  **No one read it.**

By contrast, since wh-attached *de* is uttered in a context in which the speaker anticipates that there is at least one value satisfying the proposition,

in-situ wh- carries a presupposition of existence:

- 65) il va ou => he went somewhere  
ou v-t-il => can be answered with “nowhere”

What we need is for the copied wh-word to nail down a referential object that is otherwise left open when Transfer occurs.

From the perspective of Vacate Phase, it is the opposite consequence that is to be blocked: a wh-word vacates Phase in order to prevent a semantic mapping (and possibly a pragmatic mapping) onto a semantic representation and then the context. In other words, the requirements for denotative definite description presupposes a phonetically visible object. So we want the copy in Partial movement to guarantee a transferred reading, just like with SAI copies.

Is there other evidence that such a Transfer can occur? In fact there is a curious emergence of a second reading when one compares these structures:

- 66) a. What did John guess [ t the number was t ]  
[t the number was t] = Phase

Here the Phase is Transferred without a commitment as to the value of the lower traces. But if what is not moved to the front, a second reading occurs:

- b. John guessed what the number was  
= made a guess  
= guessed correctly

Now we argue that the second reading arises precisely because the Phase undergoes Transfer. The concept is the same, but the technical feature of the Phase is now slightly different. We need to allow the wh-word to be included in the lower Phase. (see deVilliers et al (2007) for further arguments along these lines)

“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 wh-phrases in intermediate COMP positions (p. 249)” Lasnik et al (2005)

An alternative would be to argue that there is a Topic Phrase in the left periphery of the TP to which the wh-word can move. If it is in that position, then it is within the TP Phase and therefore directly subject to the SMT and interpretation.<sup>11</sup>

It is well-known that children also exhibit partial movement and in fact will copy the wh-word: (See Thornton (1990)) for many examples)

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<sup>11</sup> Rizzi (2006) seeks to account for a difference of this kind via a notion of Criterial Freezing, but we suggest that our approach has broader explanatory power.

67) “what did she say what she wanted”

Once again, we find that the child refuses to Vacate Phase and generates a new meaning via Transfer. In this instance, it is the denotational meaning of the wh-word, which when visible, is interpreted at the Phase Edge of the lower Phase. From the adult grammar perspective, then, we need a method to create opacity. Vacate Phase expresses that motive by linking operations to the constraints of Transfer.

### 6/1 Radical Reconstruction

If our argument for Radical Reconstruction holds for auxiliary-traces, then the prediction should be that it will hold for wh-traces as well. A long experimental tradition reveals that exactly this claim is correct.

in 6 languages over 2000 children were given these sentences that persist stories like this:

Children were given:

68) Long-Distance Wh- in Opaque environment:

A mother went to a store and bought a birthday cake. The next day the little girl saw the bag from the store and asked, “What did you buy?” The mom wanted to keep the surprise until later so she said, “ Just some paper towels.”

-- What did the mom *say* she *bought*?

4-6yr old children and until the age of 7-8 for disordered children, the answer is given that fits a factive interpretation (“reality”): “just a birthday cake” instead of “just a paper towels”:

69) what did she say [ t2 she bought t1 ]

(what) (what)  
“a cake” = what t2  
= [what she bought]

The French Connection:

Oiry (2008) found a direct connection children who produce the partial movement wh- and provide the “reality” interpretation. Thus children who say:

70) what did she say what she bought

are exactly those who provide the factive answer. This held even when there was no actual object purchased, that is, the mother said she bought “paper towels” and in fact she bought nothing. Still the children did not say “paper towels”.

Thus again the children seem to provide a Radical Reconstruction for *trace* even if it is not pronounced.

## 6.2 The Tense –Wh-Connection

There is, moreover, a further convergence: the interpretation of the Phase occurs only when (above the age of 3) when the clause is tensed, exactly the trigger for propositionality:

- 71) what did she say [ t she bought t ] => a cake  
what did she say [t to buy t] => paper towels

Therefore the factive answer to the *trace* depends exactly on the presence of a Tense-marker projecting the proposition.

## 6.3 CP and POV Operator

How can we build that connection in a technical manner? One option is to elaborate the technology of Trace-Conversion. However we think we can build a connection to the cognitive interface if we engage other aspects of “meaning” in the mechanism. Our approach does not capture all of the phenomena entailed by opacity. We will address just two:

- 72) a. Pragmatic decision to refer  
b. Point of View representation as syntactic.

An emerging perspective on Point of View is that it must entail an Operator on the CP which allows co-variation (Hollebrandse (2000), Nevins and Anand (2006). As Jakobson (1926) observed, shifters allow co-variation across pronouns, tense, and deictic reference. It was observed by Nunes and Thompson ( ) that Tense reference and binding are linked:

- 73) a. Every boy<sub>1</sub> thought he<sub>1</sub> was the smartest  
b. Every boy<sub>1</sub> thought he<sub>2</sub> was the smartest

If there is Sequence of Tense, then it supports binding. Now if we allow a POV Operator to bind pronouns and Tense and Deixis, then we can imagine that it starts with a Speaker-value, but can change with a projection from a higher verb (CP<sub>2</sub> value inherited from higher verb). When wh-object passes through the CP, it will pick up a new value:

- 74) a) A POV feature is on Tense [=SMT extension]  
b) POV-feature on Tense valued via Agreement

DP	verb	C	Tense
(John)	(think)	POV-subj	T + POV

=>

<=====

POV- Agreement

Now if we argue that the wh-word also moves to CP, then it will pick up the POV marker, but only if Tense is present. Therefore if we have an infinitive, then a Default Speaker-POV is present.

c) wh- movement through CP values wh-Tense with  
verb's POV-Subject

what did she say CP IP [t she bought t]  
POV-she  
  
+POV-she ←=====wh

If the wh-word stays in the initial Phase at the TP-Topic position, or if there is no Tense, then it receives a default Speaker-factivity POV.

75) SMT Pragmatic Extension: interpret in context every tensed sentence

This will produce opacity in the adult language, but fail to produce for the child who carries out Radical Reconstruction for both copied elements and traces, but not in infinitival environments. Although we need several new technical devices, each of them has been argued for independently.

In sum, Vacate Phase works to articulate why movement exists in a manner which contributes to a transparent interface between syntax and pragmatic interpretation.

### 6.3 Summary: SMT Interface and UG Stages

In sum, if we examine very carefully the role of the SMT in acquisition we can see a subtler level of short-lived stages which are, perhaps, the most precise reflections of UG. The child not only applies a pure notion of transformation, but directly applies the SMT in ways that the adult does not. We have, via child language, sought to address a major question for linguistic theory: how, exactly, should opaque environments build a precise interface with grammar?

We have argued that the interpretive dimension of the SMT creates a new vision of what motivates movement: escape from the meaning enforced by the SMT.

It engages a number of technical steps:

- a) the copy theory of movement
- b) treatment of IP as a Phase
- c) Radical Reconstruction as an important UG option
- d) Modularity as a form of economy and a basis for the initial acquisition stage
- e) forces an analysis of opacity as a technically precise aspect of the syntax/cognition interface.

Is the extraction of wh-forms from Transfer domains simply a matter of Externalization preferences? If our reasoning can be sustained, the argument we have presented supports a tight connection between the cognitive representations of a Phase and its grammatical instantiation.

## Bibliography