



**DO NOT COPY & PASTE!**

# NO 'REPLICATIONS' IN SYNTACTIC DERIVATIONS

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Odd-ball talk

Not so much **Hamlet** (1.5.167-8)

“There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy.”

But more like **Georg Christoph Lichtenberg** (1742-1799)

„Gut, dafür stehen auch wieder eine Menge von Dingen in unseren Kompendien, wovon weder im Himmel noch auf der Erde etwas vorkommt.“

[„Ok, but there is a lot of things in our books which neither exist in heaven nor on earth.]

## *On working scientifically*

☞ K. **Popper** (1963:35): “It is easy to obtain ***confirmations***, or verifications, for nearly every theory – if we look for confirmations. Confirming evidence **should not count** except when it is the result of a genuine test of the theory; and this means that it can be presented as a serious but unsuccessful attempt to falsify the theory”.

[emphasis mine]

Popper, Karl **1963**. *Conjectures and refutations*. London: Routledge and Keagan Paul.

## **Rosenthal effect = Experimenter bias** (Rosenthal & Fode **1963**)

Researchers are biased to find evidence for their preferred hypotheses. They tend to find whatever they expected to find.

Quote from Strickland & Suben (2012:2)

The social and professional pressures in the sciences incentivize discovering positive, novel results. This incentive structure often has the desired effect of producing compelling and important research, but it also often has the unintended consequence of producing high rates of false positives (Ioannidis 2005).<sup>1</sup>

- **Rosenthal**, Robert and **Fode**, Kermit L. 1963. The effect of experimenter bias on the performance of the albino rat. *Behavioral Science* 8: 183-189.
- Doyen, S., O. Klein, C. Pichon, and A. Cleeremans. 2012. Behavioral priming: it is all in the brain, but whose brain? *PLoS One* 7(1): e29081.
- **Ioannidis**, J.P.A. 2005. Why most published research findings are false. *Public Library of Science, Medicine* 2: e124.
- **Strickland**, Brent & Aysu **Suben**. 2012. Experimenter Philosophy: the Problem of Experimenter Bias in Experimental Philosophy. *Rev.Phil.Psych.* DOI 10.1007/s13164-012-0100-9

## *On working scientifically*

I.Lakatos (1978:183): “The hallmark of empirical progress is not trivial verifications.” “What really counts are [...] unexpected, stunning predictions: a few of them are enough to tilt the balance.”

I.Lakatos (1970:185) – ***Stress-testing*** of your preferred theory

Thus the crucial element in falsification is whether the *new theory* offers any novel, excess information compared with its predecessor and whether some of this excess information is corroborated. Justificationists valued “confirming” in-

Lakatos, Imre 1970. Falsification and the Methodology of Scientific Research Programmes. In I. Lakatos & A. Musgrave (Eds.), *Criticism and the growth of knowledge* (pp. 170-196).

Lakatos, Imre 1978. *The methodology of scientific research programmes: Philosophical papers*. Vol. 1. Cambridge: Cambridge University Press.

## ‘Replication’ in a highly theory-internal perspective

- **Covert movement:** An item is not where it is. The item has moved and what is left behind is merely a **copy** (replica).

In MP, based on this theoretical concept, syntactic ‘**movements**’ are reinterpreted as instances of a **copy & paste** device:

- **Copy & paste & hide:** An item gets *replicated*; the *copies* are *pasted* = ‘internally **merged**’ higher up in the structure. All but one of the copies **hide**.

‘Movement’ is re-conceptualized in terms of *re-merging copies*.

## 'Movement' – an example

- a. Die Schwierigkeiten häufen sich ---  
the problems accumulate themselves
- 

Technical implementation – **Empty categories** (c) or **copies** (d)?

c. [Die Schwierigkeiten]<sub>i</sub> häufen<sub>j</sub> sich [-]<sub>i</sub> [-]<sub>j</sub>

or

d. [Die Schwierigkeiten]<sub>i</sub> häufen<sub>j</sub> sich ~~[die-Schwierigkeiten]<sub>i</sub>~~ [~~häufen~~]<sub>j</sub>

## Compelling ‘stunning’ evidence for COPIES? - None

1. No languages are known in which syntactic ‘movements’ are implemented by ***overt*** copy & paste processes.

In German, ***wh-scope marking by replication*** comes close to a copy construction (a), but:

- *First*, the crucial property – copying starting in the base position – is missing. This option is ungrammatical (b).
  - a. *Wen* hast du gedacht, *wen*<sub>i</sub> das [-]<sub>i</sub> beeindrucken würde?
  - b. \**Wen* hast du gedacht, *wen*<sub>i</sub> das *wen*<sub>i</sub> beeindrucken würde?
- *Second*, copying is restricted to word-level wh-items (c.)
  - c. \**Welchen Syntaktiker* hat er gedacht, *welchen Syntaktiker* .....

Cf. Geron Müller’s handout p.3 „size restrictions“



2. The *indirect* evidence that serves as prime evidence turns out to be **counter-evidence**: *wh-in-situ*.

 Typology of Wh-movement

- Sinitic: **no** wh-phrase is fronted, everything in-situ
- Germanic: **a single** wh-phrase is fronted, others in-situ
- Slavic: **multiple** wh-phrases fronted

**Theoretical guess** in the Minimalist Program:

On LF, **every** wh-phrase ends up in the fronted position. The phrases, that are not fronted **overtly** are fronted **covertly**.

- a. *Co kdo* doporučil komisi? – *Kdo co* doporučil komisi? [Czech]  
*what*<sub>Acc</sub> *who*<sub>Nom</sub> recommended (the) commission<sub>Dat</sub>
- b. *Wen* hat **was** schockiert? – *Was* hat **wen** schockiert [German]  
*whom* has *what* shocked
- c. Ta mai le **shen-me** [Chinese]  
(s)he buy ASP *what*  
'*What* did (s)he buy?' / '(S)he bought *something*'

- Slavic: **every** wh-phrase is fronted overtly
- Germanic: **a single** wh-phrase is fronted overtly
- Sinitic: **no** wh-phrase is fronted overtly

## Timing?

If LF-Movement were deferred till the end of the overt part of derivations, (i) would not be derivable (viz. because of a violation of the strict cycle) but only (ii):

a. 你 知道 他用 **什么** - Ni zhidao ta yong **shén-me**  
 you know he use **what**

i. You know **what** he uses [But also: You know he uses something]

ii. **What** do you know he uses?

‘Solution’: Grammars differ in terms of the *choice of the copy* they spell out.

## Let's test the "excess" of the covert-movement guess!

Crucial prediction:

Contexts that block wh-movement are contexts that do not tolerate in-situ wh-elements.

### Reality?

a. \**What*<sub>i</sub> would they praise a syntactician [who criticizes --<sub>i</sub>]?

b. *Who* would praise a syntactician [who criticizes *what*]?

d. \**What*<sub>i</sub> did they praise them [after they had achieved --<sub>i</sub>]?

c. *Who* praised them [after they had achieved *what*]?

- No extraction out of a relative clause, but wh-in-situ **ok**
- No extraction out of an adverbial clause, but wh-in-situ **ok**

## Reality re-interpreted

Who praised them [after they had achieved what]

LF: \*Who<sub>i</sub> what<sub>j</sub>: [-]<sub>i</sub> praised them [after they had achieved [-]<sub>j</sub>]

Why are these constructions acceptable nevertheless?

..... **LF pied-piping** [sic!]

Which x, [after they had achieved what]: x praised them?

**Choe**, Jae W. 1987. LF Movement and Pied-Piping. *Linguistic Inquiry* 18. 348-353. [113 cits on PoP!]

**Bošković**, Željko 2015. Wh-movement. In: Antonio Fábregas, Jaume Mateu, Mike Putnam eds. *Contemporary linguistic parameters*. London: Bloomsbury Academic. 251-279.

**Pesetsky**, David. 1987. Wh-in-situ: Movement and unselective binding. E. J. Reuland and A. ter Meulen, eds., *The representation of (in)definiteness*. The MIT Press, Cambridge. pp. 98–129.

... and a lot of literature by the MP camp

... and a lot on ‘real’ pied-piping, e.g. by F. Heck, S. Cable, ...

## Is **LF-pied-piping** a plausible account? – **No.**

1. Overt pied-piping is ungrammatical:

a. \*It is unclear [after they had achieved what] he praised them

2. Pied-piping is deemed to be excluded for (certain) wh-adverbs:

*„Since wh-adverbs cannot be unselectively bound, wh-adverbs in-situ must undergo LF wh-movement“* (Bošković 2015:255).

Therefore, the following sentences are predicted to be ungrammatical:

a. **Wieviel** muss man bezahlen [wenn man es **wie lange** mietet]?

how much must one pay [if one it **how long** rents]

‘What is the price in relation to the length of the rental period?’

b. **Wie lange** muss man warten [bis der Meeresspiegel **wie hoch** ansteigt]?

how long must one wait [until the sea level **how high** rises]

c. **Wie weit** kann man fahren, [wenn man den Akku **wie lange** lädt]?

how far can one ride [if one charges the battery (for) **how long**]

## Is LF-pied-piping a plausible account? – No.

Let's embed [and embed [and embed [and .... ]]]!

- a. **Wie lange** muss man warten [bis der Meeresspiegel **wie hoch** ansteigt]?  
how long must one wait [until the sea level how high rises]
- b. **Wie lange** muss man warten [**bis es** klar ist [dass der Meeresspiegel **wie hoch** ansteigen wird]]?  
how long must one wait [until it is clear [that the sea level will rise how high]]
- b. **Wie lange** muss man warten [**bis** alle einsehen [dass **es** klar ist [dass der Meeresspiegel **wie hoch** ansteigen wird]]]?  
how long must one wait [until everyone realizes [that it is clear [that the sea level will rise how high]]]

**Note:** In OV, *how, why*, etc. occur in situ. Only in VO is this excluded. For a structural account see Haider (2010 *The Syntax of German*), ch. 5.

## No replications in syntactic derivations

- **Conclusion of part I**

*Covert movement would unequivocally violate constraints on movement. Hence, **covert syntactic Movement is inexistent**.*

**G&B hand-waiving would not work in MP!**

In G&B days, the data could be ‘explained’ away by assuming that overt movement prior to S-structure differs from covert movement on the way from S-structure to LF.

In the MP, this excuse is not available anymore.

Therefore, covert movement is empirically inadequate and a grammar model that admits it is empirically inadequate, too.



## No replications in syntactic derivations

- **Part II:** *'movement' = copy & paste?*

*"K is a copy of L if K and L are identical except that K lacks the phonological features of L"* (Chomsky 2001: 9)

Chomsky, Noam 2001. Derivation by phase. In Michael Kenstowicz (ed.) Ken Hale: *A Life in Language*. Cambridge, Mass.: MIT Press. 1–52.

# No replications in syntactic derivations

## ■ Part II: *movement = copy & paste?*

### *An example*

- a. **Diese Phrase** behaupten sie, dass in mehreren Kopien existiere<sup>\*)</sup>  
this phrase claim they that in several copies exists
- **Filler-gap** = antecedent-trace analysis:
- b. **Diese Phrase<sub>i</sub>** behaupten sie [ [-]<sub>i</sub> dass [ [-]<sub>i</sub> in mehreren Kopien existiere]]
- **MP-analysis** = copy & paste
- c. **Diese Phrase** behaupten sie [~~diese Phrase~~ dass [~~diese Phrase~~ in mehreren  
Kopien existiere]]

<sup>\*)</sup> see: Hermann Paul (1919: 321f. On 'Satzverschlingung'). *Deutsche Grammatik*. Vol. III, part IV: Syntax. Halle/Saale: Niemeyer.

## No replications in syntactic derivations

- Part II: *movement = copy & paste?*

Given the MP-hypothesis that *movement = copy & paste*, an obvious question obviously deserves to be answered:

⇒ Is there **room** for a full copy in **each** structural position?

a. Which copy has ~~which copy~~ to be spelled out ~~which copy~~ here?

The above question has already been asked by Joan Bresnan:

☞ “Movement paradoxes”! 

cf. Bresnan, Joan 2001. *Lexical-Functional Syntax*. Oxford: Blackwell (p. 16-18).

# Movement paradoxes? – Yes, they would arise!

Paradoxes for **derivations**, but not for **representations** with **traces**

Always room for a **full copy** instead of an atomic **trace**? – **No**

- Topicalized VPs with extraposition - clash with V-clustering
- Topicalized infinitival clauses in Dutch – clash with V-clustering
- Topicalized VPs in English – clash with the lowering of  $\Phi$ -features
- Wh-movement out of German infinitival clauses
- Theory-internal MP problem: PIC & Edge Effect

## ➤ Topicalized VPs with extraposition - clash with V-clustering in OV

- a. \*dass man leicht [behaupten, [es würden überall Kopien auftreten]] kann  
 that one easily [claim it would everywhere copies occur] can
- b. dass man leicht [[behaupten kann], es würden überall Kopien auftreten]  
 that one easily [[claim can] it would everywhere copies occur]
- c. [Behaupten, es würden überall Kopien auftreten]<sub>i</sub> kann<sub>j</sub> man leicht e<sub>i</sub> e<sub>j</sub>  
 [claim there would everywhere copies occur] can one easily
- 

Here is the copy & paste version:

- d. [Behaupten, es würden überall Kopien auftreten] kann man leicht  
 [~~behaupten, es würden überall Kopien auftreten~~] kann

See: Haider, H. 1990. Topicalization and other puzzles of German syntax. In G. Grewendorf & W. Sternefeld eds. *Scrambling and barriers*. Amsterdam: Benjamins (p. 93-112)

## Another example of the same kind

- a. [Kopien hinterlassen, wo sie nicht hinpassen] wird man hier müssen  
copies leave, where they not fit would one here have-to
- b. \*dass man hier [Kopien hinterlassen, wo sie nicht hinpassen] müssen wird
- c. [Kopien hinterlassen, wo sie nicht hinpassen] wird man hier  
~~[Kopien hinterlassen, wo sie nicht hinpassen]~~ müssen wird

☞ Why ungrammatical? – Verb-clustering is obligatory in the local domains.

☞ How does the **empty-category analysis** cope with it?

d. [Kopien hinterlassen, wo sie nicht hinpassen]<sub>i</sub> wird<sub>j</sub> man hier **[[e<sub>i</sub> müssen] e<sub>j</sub>]<sub>VC</sub>**

1. Here, in the **trace-version**, the verbal cluster (VC) is well-formed, since it contains only **atomic** verbal categories. A **trace** is an atomic category, a copy is not.
2. Note that this account presupposes a **representational approach**. The fronted phrase has not been ‘moved’ to this position. The phrase in the displaced position is **related** to its base position by means of the antecedent-trace device.

Why have these facts been ignored? (persistently since 1990)

- a. The discussion is heavily **SVO-biased**. Data from OV languages tend to be regarded as exotic.
- b. **SVO** languages **do not** provide this kind of evidence, since it is a joint effect of obligatory verb clustering in OV and the V2 property.
- c. **In Dutch**, the witness of the crown for OV in Generative Grammar, VP-fronting is less frequent than in German.

**But**

- iii. [*Boeken lezen*] zal hij waarschijnlijk moeilijk kunnen  
[http://forum.viva.nl/forum/kinderen/-april-2007-/list\\_messages/90912/66](http://forum.viva.nl/forum/kinderen/-april-2007-/list_messages/90912/66)
- iv. *Goede boeken lezen* zou hij ook *doen*, als hij er tijd voor had  
<http://www.nrc.nl/handelsblad/1990/03/19/john-de-mol-leest-alleen-scripts-profvoetballer-in-6925885>



## ➤ Dutch – obligatorily clustering infinitival constructions

- a. dat Jan **de fiets** [zal beloven te **repareren**]<sub>verbal cluster</sub>  
that Jan the bike [shall promise to fix]
- b. \*dat Jan [de fiets te repareren]<sub>CP</sub> beloven zal  
(Kempen & Harbusch 2003:204f.)
- c. \*dat Jan beloven [de fiets te repareren]<sub>CP</sub> zal
- d. [Beloven deze fiets te repareren]<sub>i</sub> zal<sub>j</sub> zelfs Jan zeker niet e<sub>i</sub> e<sub>j</sub>  
[promise this bike to fix] shall even Jan surely not
- e. [Beloven deze fiets te repareren] zal zelfs Jan zeker niet  
\*~~[beloven [deze fiets te repareren] zal]~~

Also with participles:

“Nu is het aan de Commissie om concrete maatregelen voor te stellen, wat zij ook **beloofd heeft te doen** in het verslag.”

Van uit: Voorbeeldzinnen voor "doen beloofd" in het Engels.

<http://nl.bab.la/woordenboek/nederlands-engels/doen-beloofd>

## ➤ VP-topicalization in English - Silent copies vs. PF-deletion

He said she would be going to merge several copies, ...

a. ... and [merged several copies] she has ~~merged several copies~~ indeed

b. \* ... and [merged several copies] she ~~merged several copies~~ indeed

- In an **antecedent trace scenario**, (b) can be ruled out by appeal to a feature-lowering crash: The finiteness features do not find an *adjacent* VP head since there would be only a VP-trace as the complement of T° (see also *do*-support in Aux-inversion constructions).
- In the **copy scenario**, there would be a full VP in situ. The structure would resemble that of well-formed cases of gapping which includes the finite verb:
  - c. Some love to merge companies and others ~~love to merge~~ copies
  - d. Noam loves to merge copies, and others ~~love to merge copies~~, too.

## ➤ Wh-movement out of infinitival clauses in German

- a. I would not know *where* to publish such a paper
- b. \*Ich würde nicht wissen, *wo* so ein Papier zu publizieren
- c. Wen/Was hast du geglaubt, *wen* du auf diesem Bild wiederer kennst?
- d. \*Wen/Was hast du geglaubt, *wen* auf diesem Bild wiedererzuerkennen?
- e. Wen hast du geglaubt, ~~wen~~ auf diesem Bild wiederzuerkennen?

In the MP version (e), a fully acceptable wh-extraction out of an infinitival clause such as (f) should be **at least as deviant** as the copy construction (d) for the simple reason that German *does not admit any kind of infinitival wh-clauses*, be it an indirect question (b) or an infinitival clause with a wh-copy in its initial position (d). Only traces seem to be admitted in such a position (f).

- f. *Wen* hast du geglaubt, [--] auf diesem Bild wiederzuerkennen?

- A problem for MP-aficionados only – due to PIC:  
**Wh-movement out of English VPs & the Edge Effect**

### Edge Effect

- a. a faster (\*than an airplane) train
- b. to have more quickly (\*than anyone else) understood it
- c. He has [[much earlier (*\*than his competitors*)]] [accomplished it]<sub>VP</sub>]<sub>VP</sub>
- d. [How much earlier *than his competitors*]<sub>i</sub> has he [**e<sub>i</sub>** [accomplished it]<sub>VP</sub>]<sub>VP</sub>?
- e. [How much earlier *than his competitors*]<sub>i</sub> has he [~~how much~~ [~~earlier than his competitors~~]<sub>i</sub> [accomplished it ~~how much~~ ~~earlier than his competitors~~]<sub>VP</sub>]<sub>VP</sub>?

## Sad summary for staunch MP devotees

- Forget *covert movement*!
- Forget *copy & paste*!

And, consider rethinking the *transformational-derivational theorem-proving-mind* approach!

Our computational linguistic mind does not work in a **theorem proving** mode (i.e. algebraically deducing structures from grammatical ‘axioms’)

Our brain is **unable** to handle complex algebraic deductions **on-line**, but it excels at complex **pattern management** tasks.

Our syntactic capacities are not ‘algebraic’; they are ‘geometric’, that is, capacities of **pattern-detecting**, **pattern-projecting** and **pattern-matching**.

See: H. Haider (2010: *The syntax of German*) p. ix. and (2013: *Symmetry breaking in syntax*) ch.2. (both vols. publ. by Cambridge University Press, Cambridge UK).

Final remark:  
There is syntactic life, even after copy & paste



“Putting forward a theory is like taking out a loan, which must be repaid by gleaning an empirical basis for it; theories that fail to do so are declared bankrupt.” (p.61)

Edelman, S. and M.H. Christiansen 2003. How seriously should we take Minimalist syntax? *Trends in Cognitive Science*. 7: 60-61.

The unavoidable sequel question

**AND WHAT ABOUT QR?!**

## QR is not a syntactic rule. It violates syntactic constraints:

- a. [After unthreading each<sup>i</sup> screw] but before removing it<sup>i</sup> ...
- b. The grade [that each<sup>i</sup> student receives] is recorded in his<sup>i</sup> files

Barker (2015:58)

**Consequence:** QR cannot be the effect of a syntactic process. It is a process of compositional semantics, that is, of the semantic construction algorithm.

Note also:

Only in a semantic representation – e.g. in the DRT format – is (b) nearly equivalent to (c):

- c. Each<sup>i</sup> student's grade is recorded in his<sup>i</sup> files

[Chris Barker. 2015. Scope. In Shalom Lappin & Chris Fox. *The handbook of contemporary semantic theory*. (2<sup>nd</sup> edition) Oxford: Wiley Blackwell.]



## QR is not a syntactic rule. It violates syntactic constraints:

Other well-known cases

e.g. Coordinate Structure Constraint (Ross 1967)

- a. \*Who<sub>i</sub> does at least one professor [<sub>VP</sub> [quote -- <sub>i</sub>] and [praise QR]]?
- b. At least one professor [<sub>VP</sub> [quotes each MIT linguist] and [praises QR]].
- c. [each MIT linguist]<sub>i</sub> [at least one professor [VP [quotes <sub>i</sub>] and [praises QR]]].

Semanticists generally do not insource structures from the MP.  
Guess why?

Reinhart, Tanya. (1997) Quantifier Scope: How labor is divided between QR and Choice Functions. *Linguistics and Philosophy*. 20(4): 335-397.

Schwarzschild, Roger. (2002) Singleton Indefinites. *Journal of Semantics*, 19(3): 289-314.