On Minimalist theorizing and scientific ideology in grammar theory[1]

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Abstract

Scientific ideologies hamper scientific advance. An instructive case for studying the negative impact of scientific ideologies on theoretical and empirical progress is the 'Minimalist Program' (MP). More than two decades after its onset, the MP is still run in a 'protected mode'. Compatible data are filed under confirmation; crucial counter-evidence is largely ignored or shielded off by extrapolating ad hoc auxiliary assumptions, with a data base that is biased towards SVO. Although severe empirical deficiencies are easy to locate, dedicated followers take the core premises for granted as if they were established facts.

This paper examines three central ingredients of the MP, namely 'covert' movement, the 'copy theory' of movement, the 'EPP' and, as an amendment, the derivation of head-final structures ('SOV'). In each case, counterevidence is robust but persistently disregarded. Scientific ideology combined with an SVO bias has proven stronger and detrimental to scientific advance.

Key words: linguistic methodology, theory assessment, science vs. pseudoscience, Minimalist Program.

1. Scientific ideology

An ideology is a body of ideas that form a comprehensive normative vision for people who adopt it. A scientific program, on the other hand, is a set of ideas whose degree of trustworthiness depends on the empirical coverage and predictive success. The higher the predictive reliability and consequently the empirical adequacy, the higher is the plausibility. A *scientific ideology* is a combination of both – ideological motives combined with scientific ones – with inevitable damages for the scientific side whenever the ideological side gets ranked higher since "*The scientific method is the antipode to ideology*" (Hillinger 2008:1).

Unconditional adherence to a normative vision invites followers to cross the demarcation line between science and "*just a kind of play-acting at science*" (Chomsky 1959:39) or "*cargo cult science*" (Feynman 1974). An ideological mind set encourages or even obliges followers to abide by the central norms of a preferred view and unconditionally defend them against counterevidence and counterarguments based on this evidence. Scientific ideas need to be defended, too, especially if they have proven empirically successful. The essential difference lies in the attitude. In a scientific approach, the outcome is principally open; in an ideological setting, the outcome is predetermined by the initial conviction.

The probability of coming close to ultimate correctness is near nil for any one of our current theoretical claims in grammar theory.[2] Our cross-linguistic knowledge base is still highly limited, especially because the research field is young and complex and the body of syntactically well-studied languages is small. Most of them are SVO languages belonging to the same language family.

[1] Special gratitude I owe to Stefan Müller, Gisbert Fanselow and Wolfgang Sternefeld for comments on an earlier version. Any shortcomings have to be blamed on the author, of course.

[2] Let me clarify: This statement refers to *theoretical* claims (e.g. "Wh-movement is subject to a minimal-link constraint.") but of course not to *factual* generalizations (e.g. "Dative does not switch into nominative in the standard German passive construction.")

In this situation, ideological protectionism means conservation of wrong ideas. Sticking to ideas that are empirically restricted and unproductive in the presence of valid counterevidence is a good indicator of an ideological attitude. A primarily affirmative, "*stubborn adherence to a position, protecting it from confuting evidence by developing ad hoc hypotheses, clearly indicates an ideological conception"* (Richards 1993: 103).

1.1. Scientific ideology in grammar theory

In grammar theory, the Minimalist Program (MP) is an apt candidate for studying negative effects of insisting on theoretical positions for mainly scientific-ideological reasons in spite of empirically negative scores. Even insiders bemoan that "*It has become increasingly difficult to prove individual analyses, to prove them wrong, or to confront them in a meaningful way with counterarguments or supporting evidence*."[3]

In philosophy of science, such a situation is regarded as symptomatic of theories that are going to miss scientific standards. Ultimately, if 'anything goes', a theory has become unfalsifiable and therefore unscientific. A toxic ingredient is the easy availability and unhesitant acceptance of neutralization strategies for confuting evidence in order to maintain a theoretically favored position by way of ad hoc auxiliary assumptions.

In Generative Grammar, a main ideological guideline seems to be the esprit de corps for the affirmation of momentarily favored theoretical maxims proposed by a leading figure of the field. First a maxim is illustrated by selected data. From then on, it gets continuously affirmed and protectively amended, well beyond the period of grace every new conception deserves.

More than two decades after onset, the productivity of the MP in uncovering new grammatical 'laws' or in resolving classical empirical problems is unimpressive. Many of its core ideas clash with counterevidence from less English-like languages. Central predictions could have been known to be wrong from the beginning (see especially section 1.3 and 2.1). As a research program, the MP has become dogmatic and protectionist to a considerable degree when its core ideas are habitually shielded against adverse evidence by ad hoc auxiliary assumptions. This kind of attitude already dates back to the pre-MP times.

The MP suffers from a birth-defect, namely its dissociation from the body of results of the preceding periods of research. Apparently, the GB framework had been regarded as not worth pursuing any longer[4] because it has become unproductive.[5] It proves the charisma of its founder that the MP is still pursued under the maxims sketched more than two decades ago, in spite of a reductio-ad-absurdum-like low success rate in coverage and predictive power. Philosophers of science, such a Lakatos (1978), emphasize productivity as the prime indicator of an empirically and explanatorily successful theory. Productive programs produce new insights and these lead to predictions that turn out to be right; degenerative programs on the other hand mainly recycle data and when applied to novel data they continuously run into problems that

[3] From the announcement of the 2015 conference "*Generative Syntax in the Twenty-First Century: The Road Ahead*" http://linguistlist.org/callconf/browse-conf-action.cfm?ConfID=180781# (Jan 10, 2018)

[4] In the documentation movie from 1992 – „*Manufacturing of consent: Noam Chomsky and the media*" – there is a single but telling remark on linguistics, namely, that the field would be dead if he stuck to the ideas he has pursued ten years before.

[5] The quest for a unified account of conditions on movement (ECP, barriers, subjacency, etc.) had come to a halt in a blind alley and the UG theory had gotten inflated with a plethora of allegedly innate parameters.

need to be tamed by patch-ups. To a large extent, MP syntax has been a translation program, translating a sample of G&B-framed analyses into the new framework in conformity with its axioms.

In a similar situation in a scientific discipline, if an established theory is to be replaced by a new one, especially if the old theory is not fully subsumed by the new theory, the new theory must be shown to be evidently superior to the old theory on theoretical as well as empirical grounds. As for the empirical coverage, a successor theory is expected to satisfactorily cover at least core data areas of the predecessor in due course. This kind of incremental coverage in theory succession is not true for the change from G&B to MP. The MP does not build on the analytic success story of the G&B era, viz. the conditions on extraction domains (see sect. 1.3). It is not disposed to cover them mainly because the primary motivation of the relaunch was an ideological motivation.

1.2 The MP as an ideologically motivated relaunch

Two metaphysical notions, namely perfection and economy,[6] have been emphasized as guiding ideas on the way to a new theory. The MP favors the hypothesis that the human mind embodies a grammatical system of a perfect design in the sense that it contains only what is minimally necessary for mapping sound on meaning and vice versa. Apparently, with respect to UG, we are to return to Leibniz since we allegedly live in the best of all possible linguistic worlds, brain-wise.

The designer of the MP has introduced a style of argumentation that might serve a logician or a mathematician, but not an empirical scientist. On the one hand, he adduced the 'argument from perfection',[7] and on the other hand, the argument from 'virtual conceptual necessity'.[8] These arguments are familiar from the discussion of logical calculi on the one hand and from theological proofs of god's existence (*argumentum de gradu*; Blackburn [2008]) on the other hand. Logicians devise and judge calculi in terms of perfection and economy, but in empirical domains this does not have any conclusive force. It is merely a rhetoric figure.

First, there is simply no evidence that evolutionarily evolved computational capacities of the homo sapiens brain provide 'perfect' implementations of 'perfect' algorithms. Lappin et als. (2000: 666) underline that "*the foundational assumption of the MP rests upon an obscure metaphor rather than a precise claim with clear empirical content. […] The distance metric invoked in these speculations remains undefined and ungrounded in empirical considerations."* The distance metric for wh-movement, for instance, is unequivocally contradicted by OV languages (cf. Haider 2013: 125-128). In the family of Germanic languages, the highly exceptional[9] grammar of English is a good counterexample to perfection claims in general.

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[6] These notions are metaphysical since they do not refer to empirically observable properties. What counts as perfect and economical is relative and a matter of judgment. Economy is relative to restricted resources and cost-benefit relations (see e.g. the Marginal Value Theorem). The MP did not develop a syntactic theory of economy.

[7] Language is a "*perfect system, meeting external constraints as well as can be done*." (Chomsky 1995b: 385-86). Chomsky calls this assumption "*the strong minimalist thesis*" and contends that it should guide all linguistic theorizing until shown incorrect (2001b:3).

[8] Postal (2003) provides a lucid discussion of the shortcomings of this mode of argumentation.

[9] English is clearly the oddball among the Germanic languages: It employs '*do'*-support, instead of moving the main verb; it does not allow passivizing intransitive verbs because of the lack of a suitable expletive subject; it

Second, conceptual necessities are analytic truths and do not tell anything about reality by itself.[10] As Hornstein (2000:4) acknowledges, "*To ask for the simplest most elegant theory based on the most natural sorts of principles often asks for very little*" in concrete terms, although it may be an ultimate desire of scientists in any branch of science.

1.3 Condemnation of memory?

A significant defect of the MP is its downright dissociation from THE major result of at least two and a half decades of successful research on conditions on transformations. A lasting result from this era is the following generalization dating back to the cumulative research from the period of the seventies to the eighties, here in an informal rendering:

(1) Structural opacity-law (*informal*): In a VO language, extraction of material out of any phrase in a position preceding the VP is barred.

This generalization not only covers the opacity of subjects (2a,b) or topicalized phrases (2c) in SVO. In SOV, too, phrases in *spec* positions such as in V2-languages (2d) are correctly predicted to be opaque for extractions. In (2d), the fronted VP of the infinitival clause is in a spec position. In (2e), extraction is straight-forward since it passes through post-verbal positions.

(2) a. *What$_i$ do people in the Andes think [that [$_{Spec}$ [killing e$_i$]$_j$ [brings bad luck]]]?[11]
b. * What$_i$ will [to admit e$_i$ in public] be easier someday?
c. *And what$_i$ do you think [that [$_{Spec}$ [committed e$_i$]$_j$ [he has e$_j$]]]?
d. *Wen$_i$ hat sie behauptet [$_{Spec\text{-}C}$ [$_{VP}$ e$_i$ anzurufen]$_j$ [$_{C'}$ habe [sie e$_j$ versucht]]]?
whom has she claimed [[to-phone] has she tried]
e. [What$_i$ does he claim [e$_i$ (that) [she has overheard [e$_i$ [that they are planning e$_i$]]]]]?

An empirically robust generalization such as (1) could and should have been used as a kind of Archimedean lever point for all sorts of MP-driven explorations into clause structures in general, and before extending them to SOV structures in particular. After twenty years of theory development, the MP still has not (re-)captured this law (1).[12] Consequently, hardly anybody seems to find fault with MP analyses that blatantly violate the generalization (1) as if these research results of the pre-MP time had never existed.

(1) is incompatible with any structure assignment that places phrases in pre-VP functional spec-positions if these phrases turn out to be evidently transparent for movement. In particular, (1) right away eliminates any analysis that assigns an object or an adverbial phrase to a

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lacks infinitival modals because of the lack of inflected infinitival verb forms in general; it is only partially V2; etc. This list of imperfections is not exhaustive, of course. If perfect solutions look like this, the interface conditions that trigger these measures surely belong to the imperfect parts of the system.

[10] Here is a fairly recent precedence case: For a 19th century physicist it was *virtually conceptually necessary* that light needs a medium in which to propagate, namely the *luminiferous aether*. After all, light is a wave phenomenon and a wave is an oscillation that travels through matter. Experiments produced counterevidence. Einstein's theory of 1905 ("*On the Electrodynamics of Moving Bodies*") did not require any aether anymore.

[11] "In the Andes people think that *killing an Andean mountain cat* brings bad luck." https://bio4esobil2010.wordpress.com/2011/05/

[12] A reason for completely abandoning and ignoring this well-explored territory may have been the fact that the prime target, namely a unified theory of all the conditions on extraction domains has not been reached in the G&B area. So, the MP, as a complete theoretical relaunch, eclipsed this area. Gereon Müller (2010) is a rare exception in his attempt of integrating earlier findings into the MP.

VP-external spec-position in an OV language since such an assumption would inevitably gear wrong predictions. First, the object is predicted to become intransparent. Second, any phrase preceding a preverbal functional projection would become intransparent, too. So, any object preceding an adverbial in a spec-position in SOV should be intransparent for extraction since it would precede a pre-VP spec-position. Both predictions are unequivocally contradicted by uncontroversial data from OV languages. Nevertheless, Cinque's (1999) conjecture on adverb positions has been widely accepted for SOV languages, despite robust counter-evidence from languages that are not SVO.

In addition, (1) straightforwardly invalidates all approaches following Kayne (1994) in deriving SOV from SVO by fronting all the post-verbal material to preverbal spec-positions (e.g. Biberauer & Roberts [2008]). (1) eliminates such an analysis on theoretical grounds and the empirical findings confirm it cross-linguistically. If the Kaynean conjecture were correct, it would generate a grand prediction. In SOV, the subjects and all objects would be as intransparent for extraction as the subject in SVO. SOV languages could be this way, but they are not. Sound theory development must not ignore evident facts. (3a) is an example of extraction out of an infinitival clause in a pre-subject position; (3b) exemplifies extraction out of an infinitival subject clause (Haider 1993:156-162; 2010:155; 2013:223-224). Data such as (3) have been discussed in the syntactic literature on German since the mid-eighties.

(3) a. Was_i hat denn [e_i damit zu beweisen] schon $\text{mancher}_{\text{Nom}}$ versucht?
what has PRT [it-with to prove] already someone tried
b. Wen_i hätte denn [e_i damit zu konfrontieren] $\text{manchen}_{\text{Acc}}$ besonders gefreut?
whom would-have PRT [it-with to confront] someone especially pleased

From a scientific point of view, it is inconceivable that a fundamental issue like this one does not seem to bother anyone who subscribes to this approach. The opacity prediction for SOV is an integral part of a Kaynean account of VO and OV structures, but it completely and unequivocally fails for OV languages, and not only for German. The same is true for Cinque's conjecture of adverbial phrases as functional projections.

The facts illustrated by (3) have been discussed and acknowledged in the Generative literature on German in the eighties. Why has this been ignored? First, ignoring is easier than dealing with them. Second, a reason why these facts tend to be ignored in theory development may be the absence of this data area in Dutch, the 'witness of the crown' for OV in Generative research. Dutch does not admit infinitival clauses in clause-internal positions at all. They are either extraposed or replaced by verb raising construction. Consequently, evidence from infinitival clauses or infinitival subject clauses is not available in Dutch for principled reasons, but the absence of evidence in Dutch is not evidence for the absence of the phenomenon in general.

2. Theory-subservient 'verification' by abduction[13] and habituation

The MP was initiated as a conceptual enterprise, based on premises that are declared as "virtually conceptually necessary" (Chomsky 2005:12).[14] With a long history dating back to Aris-

[13] Abduction: P_j is found in some languages. Abductive premise: $G_i \rightarrow P_j$. Conclusion: G_i causes/explains P_j.
[14] Here is a more recent quote: Merge "*is the computationally simplest operation that implements the basic prop-*

totelian physics, via Ptolemaic astronomy to scholastic interpretations of the world, top down conceptual approaches are renowned for their flops. What appears to be conceptually necessary at a given time too often turns out to be empirically inadequate later (see fn 10).

In philosophy of science, it is a commonplace that hypothesis formation is a creative act. There is no logically valid procedure that could reliably guide a scientist from conceptual analyses or empirical observations to the discovery of a novel law, but there is a logically valid method of testing. 'Educated guessing', that is, hypothesizing based on a body of empirically corroborated insights plus seriously testing them and their predictions is the essence of the scientific method. If it turns out that a prediction (i.e. entailment) of a 'virtually conceptually necessary' premise is wrong, the premise is wrong, too. Hypothesis formation is typically an instance of abductive reasoning (Harman 1964); testing is deduction (4a) by modus tollens. Abduction amounts to affirming the consequent (4b). Deduction is logically valid.

(4) a. [For any A, $A \rightarrow P(\text{property})_j$] & $\neg P_j$, therefore $\neg A$. modus tollens
b. [For any A, $P_{i\text{-}n}(A)$. For any S, $S(x) \rightarrow P_{i\text{-}n}(x)$; therefore A is an S abduction

The scientific method does not tell us whether a hypothesis is true even if its predictions happen to come out right. The method demonstrably tells us only whether a hypothesis is wrong, but it does not tell us *why* it is wrong if it turns out wrong. Usually we are dealing with a conjunction of hypothetical propositions C_i to C_n that imply a conjunction of properties P_i to P_n, as in (4a). Consequently, if one of the implied properties P turns out to be wrong (4a), we know that the conjunction is wrong.

There are numerous repair options in such a case. The first option is finding the wrong C_i. But there is also a second possibility. All the Cs could be right, but the conjunction might be still incomplete, with a condition missing.[15] Once we add it, the effects would match the observations and the counterevidence would transmute into confirming evidence.

A theoretician is allowed to dream of the latter option but one should realistically reckon with the former as a much more likely cause of failures, especially in a developing field of research and in the absence of an empirically well-founded and already highly reliable theoretical framework. If one pursues the latter option, it is obvious that the auxiliary premise must be kept on a watch list. Any doubt must be resolved against it since it has been added only for producing the desired outcome. Whoever puts forth an auxiliary hypothesis is required to produce solid independent evidence; otherwise it will be justly regarded as an ad-hoc patch-up for saving a wrong theory.

The following sections review exemplary cases of falsification situations. In each case, core premises are contradicted by empirical evidence but the premises are not given up. Instead, the evidence is blocked off by ad hoc auxiliary assumptions. *First*, covert movement is maintained although it violates core restrictions of movement and the auxiliary premises are wrong (section 2.1). *Second*, movement is modelled as a copy & paste operation, but the negative

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erties of an I-language, and as such a conceptually necessary, irreducible component of UG." (Chomsky et als 2017:4). Presumably as necessary as the aether for physicists. Note the appeal to simplicity and necessity.

[15] Again, the debugging endeavors are principally hampered since in a situation of imperfect knowledge there is no procedure that guarantees the detection of the wrong premise in the set of premises. A wrong theory can always be protected against counterevidence by means of auxiliary assumptions (see the Duhem-Quine thesis).

consequences of hidden ‘copies’ instead of ‘traces’ are not taken into consideration (section 2.2). *Third*, derivations are postulated that violate empirically well-supported but presently disregarded empirical generalizations from the G&B area (section 2.3). *Fourth*, a property of SVO languages is elevated to the rank of a universal and protected by empirically and conceptually inadequate auxiliary hypotheses (section 2.4). In each case it seems that scientific ideology, flanked by conviction and habituation, overrides and overrules scientific standards.

Confidence in the ‘truth’ of precarious hypotheses and ongoing habituation are characteristics shared by the four cases. In each case, there was first a theoretical guess based on a narrow data basis. The guess would add to the ‘elegance’ of the theory. Then a search is started for adducing empirical support. Typically, these affirmative actions are not accompanied by rigorous modus-tollens checks, that is, investigations of the various implications of the guess that would discredit it if they turned out wrong. After some time, when the list of affirmative publications covers a decent portion of a paper’s bibliography, habituation takes over. The guess is considered to be part of an established and unquestioned core of the theory. From now on, *conviction* dictates that any counterevidence justly deserves to be marginalized. As a consequence, ad hoc auxiliary assumptions for explaining away disobedient data are readily accepted even if they are contrived and without independent empirical support.

2.1 Covert movement as movement in the dark

In its onset period in the sixties, Generative syntax was an item & process model. The output of one transformation served as input to another one. In the seventies, the Extended Standard Theory introduced a novel ingredient, namely traces. Traces made it possible to trace the derivational history of a displaced item. In fact, traces made a transformational conception dispensable. Instead, the structure could be generated directly with gaps (viz. 'traces') in the required positions, comparable to the slash features of HPSG; see Borsley (2012) for a critical comparison of a slash-based approach with a movement approach. Traces have been generally assumed to be atomic empty positions, except for rare proposals suggesting that in some cases a trace might be ‘layered’, that is, a structured empty phrase (cf. van Riemsdijk & Williams 1981, Barss 1986) rather than an atomic empty position.

Within the MP, traces have been abolished in favor of cloning a phrase by ‘copying’ it and remerging the clone. At the spell-out points of a given derivation, the copies are hiding, except for a single one, usually the highest in the structure, which is transmitted to PF (‘phonetic form’) for 'spell out'. Each copy is a full-fledged phrase and a duplicate that is syntactically indistinguishable from the master copy.[16] The reason for abandoning traces has been ideological not empirical. Traces are empty. Merging something empty would be against a maxim "*that precludes the introduction of extraneous objects – for instance, traces*" (Chomsky et als. 2017: 9). So, structures containing traces are not generated by the fundamental operation of the MP model by fiat.

The idea of hiding copies is the outcome of a second strand of precursor ideas, namely the idea of ‘overt’ versus ‘covert’ movement. Covert movement has been felt to be a highly at-

[16] Note that any argument against layered traces will be an argument against covert copies since these silent copies are structurally congruent with layered traces.

tractive concept for unifying wh-movement on the theoretical side. On the empirical side, it would allow one to capture wh-movement phenomena and eventually also scope phenomena of quantifiers across languages, given the following situation for clauses that contain more than a single wh-item.

There are languages that simultaneously front any number of wh-items to the clause-initial position, such as the Slavic languages (5a). Germanic and Romance languages front only a single wh-phrase and leave the other items in situ (5b). Finally, languages such as Chinese (5c) do not front wh-items at all. The key appeared to be the Slavic and Germanic situation. What is left in-situ in Germanic languages is assumed to move, too, but covertly in the part of the derivation after the bifurcation that feeds into PF and LF in the G&B model. In Chinese, wh-fronting is deemed to be an entirely covert movement. In the MP, the covert part is the strand of derivation after spell-out.

(5) a. *Co kdo* doporučil komisi?- *Kdo co* doporučil komisi? [Czech] [see Meyer (2004:222)]
what$_{Acc}$ *who*$_{Nom}$ recommended commission$_{Dat}$
'who recommended what to the commission'

b. *Wen* hat *was* am meisten gestört? [German]
whom$_{Acc}$ has what$_{Nom}$ at-most bothered

c. Ta mai le *shenmo* (?) [Chinese]
(s)he buy ASP what
'What did (s)he buy?' / '(S)he bought something'

On the way to LF, in the 'dark' regions of the derivation, '*what'* is claimed to be wh-moved to its point of destiny, either to the matrix spec in (5b,c) and (6), or to the spec of the embedded clause in (6b). (6b) is ambiguous since the in-situ 'what' could be paired with the matrix 'who' or the embedded 'how'.

(6) a. *Who* told you [that he moved *what*]?
b. *Who* told you [how he moved *what*]?

Let me stress with due emphasis that in the MP, this kind of movement is regarded as a regular instance of wh-movement. After all, spell-out is a completely passive inspection & registration device. There is no possible excuse anymore that 'before' (= overt) vs. 'after' spell out (= covert) could differ with respect to syntactic properties, which was possible in G&B, with S-Structure and LF as different levels of representation, separated by spell-out.

(6b) already raised a non-trivial problem for covert movement if overt movement would entirely precede covert movement. The long-distance construal would be rendered unacceptable in English because it violates the wh-island property when the in-situ wh-item would be fronted. The derivation that leads to the multiple indirect question reading, on the other hand, would violate the principle of the strict cycle. Wh-movement would have to be applied to a subtree at a time when the derivation already operates on the matrix cycle. Hence there is no well-formed derivation and (6b) is predicted to be ungrammatical because of a wh-item in situ with an unchecked wh-feature.

Theoretical creativity devised a loop-hole (Bobaljik 1995, Groat & O'Neil 1996). Covert or overt is not so much an effect of being part of a derivation before or after a specific spell-out

point in a derivation. It is the effect of selecting a particular copy for 'pronouncing' in the given language, at the end of a derivation. Some languages are deemed to pronounce the lower copies (e.g. Chinese) while others pronounce the higher copies (e.g. Russian).[17]

Even with this amendment, covert movement in fact never should have become a workable hypothesis. It should have been clear from the beginning that the distribution of in-situ wh-items does not match the predictions of the covert movement hypothesis and that auxiliary assumptions could not plausibly save the hypothesis. The truly unsurmountable obstacle was and still is this. In-situ wh-items are acceptable (7a,c) and lead to acceptable interpretations even if they occur in contexts that are uncontroversially opaque domains for wh-movement, such as adverbial clauses (7b) or relative clauses (7d).

(7) a. *Who* would have to leave the meeting room [before we start discussing *what*]?
b.*What$_i$ would he have to leave the meeting room [before we start discussing e$_i$]?
c. *Who* has criticized syntacticians [who criticize *what*]?
d.*What$_i$ did they praise syntacticians [who criticize e$_i$]?

In this empirically awkward situation, which proponents of dark syntax acknowledge (cf. Huang 1995:158), the straws to clutch at were seen in a far-fetched conjecture, namely a pied-piping hypothesis for dark movement (cf. Choe 1987, Pesetsky 1987, Nishigauchi 1990). The claim was this. Covert movement, contrary to appearance, respects opacity contexts. However, an auxiliary hypothesis is adduced in order to neutralize the counterevidence. Here it is. Covert movement pied-pipes the whole opaque clause, but only if the wh-item contained in the opaque clause is an argument and not an adjunct [sic!]. The clause is covertly moved to the respective spec position. Adjuncts, however, do not trigger pied-piping for whatever unclear reason and therefore they remain subject to opacity.

First, these assumptions are far from evident. If there existed a pied-piping option for wh-arguments 'imprisoned' in wh-movement islands, we had to expect this option also for overt movement. If there is a pied-piping option for saving (7a,c), the pied-piped versions (8a,b) ought to be well-formed indirect question as well, with an adjunct-internal wh-item pied-piped to the spec-position. After all, these are wh-movement-based derivations in the same language, employing the very same movement operations. There is no plausible way of pushing pied-piping back to exactly those derivational phases that are not spelled-out. If it is available in these phases, it must be available earlier as well. If not, the assumption is wholly ad hoc. The positioning of a 'spell-out' point cannot have an influence since it is a neutral and passive device. Unlike PPs (e.g. '*with what'*) or DPs (e.g. '*which clause'*), a fronted clause as in (8) cannot function as a pied-piped wh-phrase. There is no justification whatsoever for assuming that covert pied-piping would allow what is forbidden for overt pied-piping.

(8) a. *I wonder [before we start discussing *what*] he would have to leave the meeting room
b.* I wonder [syntacticians who criticize *what*] they praised

[17] Languages like English destroy the nice picture since in multiple wh-constructions one item is pronounced in the target position of Wh-movement while the others have to be pronounced in the lowest position, although all copies have been moved to the target position. The idea of different loci of 'pronunciation' merely is an attempt to rescue the covert movement idea, but without independent motivation and support.

The very same patterns are attested in German. In-situ wh-items occur in opaque domains. If these opaque contexts are pied-pied overtly, the result is gibberish (9b,d). Why should LF pied-piping produce a better result than overt pied-piping? If pied piping is at work in (9a,c), it cannot be blocked in (9b,d), since the very same condition that motivates pied-piping for (9a,c) holds for the extraction of the argument in (9b,d), viz. an argument in an opaque clause.

(9) a. *Wer* hat gelacht [als ich *wen* erwähnt habe]?
who has laughed [when I *whom* mentioned have]
b. *Er fragte sich, [als ich *wen* erwähnte] jemand gelacht hat
he wonders [when I *whom* mentioned] someone laughed has
c. *Wer* hat [die Briefe, die sie an wen geschrieben hat] publiziert?
d.*Er fragt sich [[die Briefe, die sie an *wen* geschrieben hat] jemand publiziert hat
he wonders [the letters, which she to whom wrote] somebody published has

In addition, the German data clearly show that there is no argument vs. adjunct asymmetry for in-situ wh-elements. These data are representative of OV languages. The alleged argument-adjunct contrast for inspiring a pied-piping excuse simply does not exist. Here are fully acceptable examples (10). The in-situ wh-item is an adjunct and the containing clause is an adjunct clause, too. The inevitable prediction for the MP would be that all these sentences are ungrammatical because covert movement would violate an island constraint and pied-piping would not apply to adjuncts. The prediction is evidently wrong.

(10)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 Wasserspiegel *wie hoch* ansteigt]?
how long must one wait [until the water level how high rises]
c. *Wer* war jeweils Zeuge, [als sie dich *weshalb*/*aus welchem Anlass/wann* beleidigte]?
who was in-each-case witness [when she you *why/because of which cause*/*when* insulted]
d. *Wer* hat jeweils gelacht, [während sie *weshalb*/*aus welchem Grund* geweint hat]?
who has in-each-case laughed [while she *why/because of which reason* cried has]?

The covert-movement idea singled out adjuncts because of the exceptional behavior of *'why'* and *'how'*. This idea could only survive in a linguistic biotope of SVO syntacticians since only in VO languages, in-situ wh-tokens of '*why'* and '*how'* are unacceptable in any clause. This fact provided a pretense for positing an argument versus adjunct asymmetry for covert pied piping. In SOV, in situ wh-adverbials of any kind are fully acceptable and normal; for details see Haider (2010, ch. 3).[18]

[18] Bošković (2015:254) quotes G. Müller & Sternefeld for the following starred German example:
i. **Wer* hat gesagt, dass Fritz *warum* ein Buch gelesen hat?
who has said that Fitz why a book read has
It may be pragmatically demanding to imagine a set of paired persons & reasons as answer in this specific case (i), but it is not difficult at all to produce fully acceptable examples with '*weshalb'/'weswegen'/'warum'* (why) in situ, especially in adjunct clauses. You only have to put the stress on the first syllable, i.e.'WArum', when you test it with informants. Gereon Müller and Wolfgang Sternefeld (p.c.) agree that the examples (10) are fully ok.

Let us recapitulate. The hypothetical grammatical law was this: Wh-phrases are universally moved, in some languages overtly, in other languages covertly. Consequently, covert movement has to obey the same constraints on movement as overt movement. It is the same syntactic process. Pied-piping under covert movement seems like a mad concept. The question merely is whether it is mad enough to be true.[19] In science, from time to time apparently mad ideas turn out to be successful, but science applies rigorous standards for finding it out. The standards involve scrupulous and thorough testing of the implications of the 'mad' idea for connected and for independent data areas.

Let us test the pied piping conjecture once more. Here is a straightforward prediction. If, for independent reasons, the kind of fronting operation required for pied piping is blocked, a multiple wh-reading ought to be deviant. Pied-piping would be definitely blocked in the following cases, but the acceptability of in situ wh-phrases is impeccable.

(11) a. *Wer* hat so^{i} lange argumentiert [bis^{i} man *was* akzeptierte]?
who has so long argued [until one *what* accepted]
b. *[Bis viele Pied-piping akzeptierten]^{i} haben sie so^{i} lange argumentiert
until many pied-piping accepted] have they so long argued
c. [Bis jeder es akzeptiert hat]^{i} können wir nicht (*so^{i} lange) warten
[until everyone it accepted has] can we not (so long) wait

The extraposed clause in (11a) depends on '*so'* which is part of the adjunct 'so long'. In such constellations, the dependent clause may not be fronted across the element it depends (11b),[20] although fronting is possible for such a clause otherwise (11c). There can be no doubt that clauses of this kind are intransparent for movement (12), but a multiple-wh construction (11a) is above reproach.

(12) *Was$_i$ hat er (so lange) argumentiert [bis sie e$_i$ akzeptierten]?
what$_i$ has he (so long) argued [until they e$_i$ accepted]

It would have been a stunning confirmation of the pied-piping conjecture if in-situ wh-items turned out to be ungrammatical in adjunct clauses that must not be fronted to the position of the moved wh-item because of a crossing-constraint. The facts are less stunning, however. There is no difference whatsoever between wh-items in adjunct clauses that can be fronted compared to those that cannot. Remember that in the MP, overt and covert fronting have identical syntactic properties.

Why has covert movement not been abandoned eventually? After all, the auxiliary assumption for saving covert Wh-movement by means of the pied-piping conjecture could have been shown to be misguided from the beginning, with data from easily accessible languages. Covert movement had become a coveted tool and an affirmative action, but for a different reason. Syntacticians had started invading, or rather trespassing into, semantic territories and claimed that covert QR ('quantifier raising') would be the key for syntactically deriving a wide range

[19] Allegedly, "*Not mad enough to be true*" is a formulation originally coined by Niels Bohr.

[20] Other instances of this type are relative clauses. It is well-known that a relative clause may be extraposed but it must not be fronted across the noun it relates to.

of semantic effects mainly with respect to scope assignments that could not be read off directly from S-structure.

Even if semantically correct analyses can be derived by QR, the specific data area is highly indirect evidence for genuine syntactic argumentations. Semanticists derive the very same results by way of different assumptions in their semantic construction algorithms.[21] For sure, semanticists did not call syntacticians for help and there has been no cross-disciplinary competition for deciding whose theory is more adequate.[22]

MP papers tend to be affirmative, assembling data pieces and data analyses that fit. Deliberate search for counterevidence is not a primary concern. If it turns out – nevertheless – that there are facts that do not fit a preferred premise, auxiliary hypotheses are generated (e.g. covert pied-piping of clauses containing argumental wh-phrases) that neutralize the problematic data. This, by itself, is not a fault. The fault is the low threshold of acceptance for such ad hoc patch-ups.

What is crucially missing is a scientific commitment. Auxiliary hypotheses for saving an endangered premise must pass serious checks based on significant independent evidence. However, more than twenty years after onset, the MP is still run in the 'protected mode'. Positive evidence is welcomed, but crucial 'stress tests' are eschewed. Confidence seems to grow in proportion with the number of papers that add selected data. When there is a paper with clear and immediate counterevidence that calls into question a currently favorite assumption, it seems as if the situation is judged quantitatively: 100 papers pro, 1 paper counter, therefore the odds for the theory are 100:1, that is, 99% corroboration.[23]

This is a caricature, of course, but the problem is real. It is a scientifically unsound attitude if data that fit are regarded as sufficient support for a given hypothesis. Popper (1963:35) is explicit: "*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*". In Lakatos' (1978:183) words "*The hallmark of empirical progress is not trivial verifications*". On the other hand, marginal data that do not fit are not the final verdict either "*since all* [research$_{H.H}$] *programs grow in a permanent ocean of anomalies*. *What really counts are […] unexpected, stunning predictions: a few of them are enough to tilt the balance*."

Tilting the balance is an ambiguous expression. A prediction may turn out stunningly right or stunningly wrong. This problem becomes acute when a central prediction – e.g. the prediction of core movement properties for covert movement or the prediction of a general opacity of preverbal phrases in OV – 'stunningly' turn out to be wrong, but the hypothesis – stunningly – is maintained nevertheless, with ad hoc amendments for which there is no independent evidence at all.

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[21] In DRT (Kamp et als. 2011), for instance, the representation of quantifiers in the semantic form ('DRS') is a 'duplex condition' that is not homomorphous with a tree structure. 'LF' mimics PL1 representations.

[22] Von Stechow (1986) has highlighted various shortcomings of covert movement and pied-piping for constructing an adequate semantics for the debated constructions.

[23] Einstein emphasized the opposite of this caricatured attitude: "*No amount of experimentation can ever prove me right; a single experiment can prove me wrong*."

When people maintain such ideas in spite of their documented failures, it is presumably because of 'the comprehensive normative vision' they endorse and not because of their sound scientific judgements. Apparently, they prefer fooling themselves.[24] The theoretical phantasy anticipates empirical findings and guides the self-fulfilling search for supportive data which are apparently deemed to outweigh data that don't fit. If data that do not fit core premises of a theory are neutralized or quarantined – e.g by declaring them as post-syntactical by shifting them to an unanalysed PF-component or by postponing them to the notorious 'agenda of future research' – theory development suffers severely since patently wrong premises are perpetuated. Wrong premises must not block or usurp the place of better ones.[25]

In sum, the theoretical concept 'covert movement' does not stand the tests in its empirical core domain, namely wh-in-situ. Straightforward predictions turn out to be empirically wrong. The auxiliary hypothesis for neutralizing the falsifying data – LF pied-piping – is falsified. It is empirically inadequate (i.e. wh-arguments or wh-adjuncts may occur in-situ in wh-islands) and ad hoc since no compelling independent evidence has been produced.

It is important to bear in mind that wh-movement is the primary source of evidence for covert movement and that it cannot be outweighed by more indirect sources of evidence, such as covert 'quantifier raising'. 'Overt' wh-movement is *syntactically* obligatory in many languages; 'overt' QR is never obligatory. No language is known that obligatorily fronts quantified phrases in a sentence, but there are many languages that obligatorily front wh-phrases. Semanticists can easily do without *syntactic* QR, but question formation must not be neglected by syntacticians.

If a hypothesis fails in clear cases, then the hypothesis is discredited. In the MP, clear cases of counter evidence are discredited instead. Eventually, for wh-items, covert movement was tentatively replaced by feature-movement (Chomsky 1995b). It is not the wh-phrase that moves covertly but only its wh-feature. However, covert movement as a theoretic tool was not cancelled. In the absence of a feature theory, invoking the term 'movement' for 'feature-movement' is merely an equivocation. If feature-'movement' may violate movement constraints, feature-'movement' is not an instance of movement. In-situ wh-items do not move, neither overtly nor covertly. This is what the immediate evidence tells. The covert-movement hypothesis never had a reliable testimonial. 'Dark' matter may exist in the physicist's universe, but not in syntactic territories.

2.2 Internal merge = copy & paste

One of the core axioms of the Minimalist Program is the *Copy & Merge* axiom for handling syntactic 'movement'. Displaced constituents are assumed to be 'copies' related to a master copy that is hiding. One of the copies, usually the highest one, is 'spelled-out'. In original diction, "*K is a copy of L if K and L are identical except that K lacks the phonological features of L*" (Chomsky 2001: 9). G&B-type 'movement' would leave a chain of 'traces'; copy

[24] "*The first principle is that you must not fool yourself – and you are the easiest person to fool." "And it's this type of integrity, this kind of care not to fool yourself, that is missing to a large extent in much of the research in Cargo Cult Science."* Feynman (1974: 12).

[25] Chomsky himself seems to be well aware of the precarious situation since he occasionally drops comments such as "*This may well be too strong a conclusion, raising a problem for the entire approach.*" (1995a:146).

& paste movement however merges a clone at every trace position. These clones are hiding except for one, which is spelled out. Let us keep in mind that the clones are identical except that a hiding clone "*lacks the phonological features*."

The theoretical motivation behind the cloning idea is the reduction of 'movement' to 'merger'.[26] An empirical fringe benefit is the easier handling of reconstruction phenomena. Whenever there is a phenomenon that requires access to properties that hold at the extraction site, the moved phrase does not need to be traced back to its extraction site since the phrase is still hiding in the lower position.

When the copy theory was proclaimed, a simple and obvious question had not been asked, namely: Is every phrase that appears in a displaced position *fully* reconstructable into any of the former trace positions and into its canonical position, viz. 'base' position? Empirically, the answer would have been a flat no, and this should have been the end of the 'copy theory' and all assumptions built on it.

The prediction that separates a copy-hypothesis and a filler-gap hypothesis is easy to check. Copies are potentially complex structures, traces are not. A copy is an isomorphic clone of the original item and if the copy does not fit into the canonical position, the hiding 'original' would not fit either, but a trace may fit. As will be shown in the following sections, there are clear cases of allegedly cloned phrases that do not fit into the original positions, but traces do. Let me note in passing that nobody ever ventured to put to test the copy theory in psycholinguistic experiments.[27]

It is astonishing that an entire volume dedicated to 'copy theory', namely Corver and Nunes (2007), assembles all kinds of "trivial verifications" (Lakatos 1978:182) but does not answer obvious challenges by cases of so-called *movement paradoxes*, that is, cases for which the full reconstruction would be ungrammatical. The general issue has been raised in the literature, for instance by Bresnan (2001:16-18). A reference to movement paradoxes is missing in each of the ten contributions and in the introduction to the volume.[28]

Here is an example from German (Haider 1990). The recipe for generating these data is simple. Any V2 sentence with a fronted VP will do, if the VP contains extraposed material (13a). (13b) is ungrammatical but the copy theory predicts exactly this structure for the lower copy. The grammatical structure (13c) is not the structure of the copy.

(13) a. [Behaupten, es würden überall Kopien auftreten]$_i$ kann$_j$ man leicht e_i e_j
[claim there would everywhere copies occur] can one easily

[26] It should be clear however, that movement must still be at work, namely the movement of the copy from the site of copying to the site of merger. Copying must happen in the original place of merger of the item to be copied; otherwise the locality constraints of old style movement could easily be circumvented. Hence there is still a movement step involved, namely the movement from the copy site to the target site of ('internal') merger.

[27] If the copy theory were taken seriously, simple sentences such as (i) would very likely become unprocessable and this should be easy to verify or falsify experimentally:

i. *Das Problem, das den Satz betrifft, den sie jetzt lesen, sollte man versuchen,* [$_{CP}$ [~~*das Problem, das den Satz*~~
the problem, which the sentence concerns, which you now read, should one try [[~~the problem, which the sentence *betrifft, den sie jetzt lesen*~~] [$_{TP}$ *eleganter* [~~*das Problem, das den Satz betrifft, den jetzt sie lesen*~~] *zu lösen*]].
~~concerns, which you here read~~ more-elegantly ~~the problem, which the sentence concerns, which your here read~~ to solve.

[28] The index of the volume does not list the term. On the other hand, apparently confirming data are picked from far-fetched idioms, such as Coptic, Hmong, Imbabura Quechua, San Lucas Quiavinì Zapotec, or Vata.

b.*dass man leicht [behaupten, es würden überall Kopien auftreten] kann
that one easily [claim it would everywhere copies occur] can
c. dass man leicht [[behaupten kann], es würden überall Kopien auftreten]

In (13a), the fronted VP contains the object clause in the form of a V2-clause. An embedded V2 clause is grammatical only in the post-verbal (i.e. 'extraposed') position. Constructions such as (13a) lack a grammatical version with the fronted VP in its base position (13b). In the base position, verb raising would be obligatory and would leave no room for intervening object clauses. The structural difference between (13a) and (13b) is obvious. In (13c), the two empty elements are atomic and verbal categories. Clusters consist of atomic verbal categories. So, the clause-final gaps in (13a) are compatible with V-clustering, copies of complex phrases are incompatible.

(13c) cannot be a base order for deriving (13a). In this case, the fronted phrase in (13a) would contain (a trace of) the finite verb 'kann' (can), which is ungrammatical. Pertinent evidence comes from standard VP fronting (14a) and the ungrammaticality of structures exemplified by (14b).

(14) a. [Kinder davor warnen]$_{VP\text{-}j}$ muss$_i$ man regelmäßig e$_j$ e$_i$
[children$_{Acc}$ it-against warn] must one regularly
b.*[Kinder davor e$_i$]$_{VP}$ warnt$_i$ sie regelmäßig
[children$_{Acc}$ against dangers] warns she regularly
c. Sie warnt$_i$ [Kinder regelmäßig davor e$_i$]$_{VP}$
she warns [children regularly it-against]

(14b) is deviant. If a fronted VP that contains the trace of the finite verb, as in (14b), would be well-formed just like a VP in the base position (14c), examples like (14b) would be well-formed, too, but they aren't.

In Dutch, a situation analogous to the German data in (13) holds for sentential infinitival complements. The crucial restriction for Dutch is this. Infinitival clauses may be fronted ('topicalized') or postponed (‚extraposed'), but they are ungrammatical in the clause internal position since in this position, verb clustering is obligatory. Because verb clustering goes together with a particular serialization of the verbs, the difference between clustering (15a) and embedding (15b,c) is easy to identify (see Kempen & Harbusch 2003:204).

(15) a. dat Jan de fiets [*zal beloven* te *repareren*]$_{\text{verbal cluster}}$
that Jan the bike [shall promise to fix]
b. *dat Jan [de fiets te *repareren*]$_{CP}$ [*zal beloven*]$_{\text{verbal cluster}}$
c. *dat Jan [*beloven* [de fiets te *repareren*]$_{CP}$ *zal*]$_{\text{verbal cluster}}$

The VP plus its postponed infinitival complement may be topicalized (16).[29] The copy in (16b) would yield an ungrammatical serialization. It clashes with the clustering requirement.

(16) a. [Beloven deze fiets te repareren]$_i$ zal$_j$ zelfs Jan zeker niet e$_i$ e$_j$
[promise this bike to fix] shall even Jan surely not

[29] Thanks to Liliane Haegeman and Henk van Riesmdijk (p.c.) for checking the Dutch example (16).

b.*[Beloven deze fiets te repareren] zal zelfs Jan zeker niet [~~beloven deze fiets te repareren~~] ~~zal~~

The copy conjecture fails; the trace theory prevails. The copy is ungrammatical in the base position. The explanation for the licit trace under a filler-gap analysis is the same as the explanation for the German data in (13). A full copy is illicit; an atomic trace is grammatical.

VP-topicalization (17) is a challenge in English, too. If the VP is topicalized in an English finite clause, a finite auxiliary must be left behind. In its absence, the dummy auxiliary *do* must be inserted (17a). This is understandable under the antecedent-trace scenario,[30] but not under the copy & merge scenario. In the latter analysis, the original VP is still in place; merely its clone has been displaced. The really embarrassing case, therefore, is not so much the ungrammaticality under reconstruction as in (17b), but the ungrammaticality of the variant *without* the expletive auxiliary (17c).

(17) He said he would disprove the theory …
a. … and disprove the theory he did ~~disprove the theory~~ within a couple of minutes
b.*He *did disprove the theory* within a couple of minutes. (n.b. unfocused '*did*')
c.*… and disproved the theory he ~~disproved the theory~~ within a couple of minutes
d. She likes copy & merge and he ~~likes~~ deletions on LF.

There is no doubt that (17c) is deviant. Its deviance cannot be explained away by pointing to the fact that an overt finite verb would be missing within the VP. First, a finite verb is allegedly still there, according to the cloning idea, and secondly, finite verbs may legally be phonetically void in English, as gapping in (17d) shows. In each case, there is a manifest antecedent for the hidden copy, but (17c) is gibberish. The decisive difference between (17c) and (17d) is 'movement' vs. 'elision'. The copy conjecture levels this difference. In each case, there would be some items deprived of phonological features. The items are there but merely not spelled out. The empirical properties tell a different story, however. The trace theory has a straightforward answer. The trace of a fronted VP must be lexically governed. An empty T° would not be an appropriate governor for a trace, but an unpronounced copy would not need a governor.

Another case against syntactic clones is a restriction against infinitival wh-clauses in German. Infinitival clauses are transparent for Wh-movement, but a clause-initial wh-item is admitted neither for indirect questions (18c) nor as a copy in the *was*-wh-construction (19d).

(18) a. Er versteht, wie man das korrekt ausführt
he knows how one this correctly executes
b. Er versteht [das korrekt auszuführen]
he knows [this correctly to-execute]
c.*Er versteht [wie das korrekt auszuführen]
he knows [how this correctly to-execute]
d. He knows [how to execute it correctly]

[30] In the G&B era, the trace of the fronted VP was in need of a lexical governor (‚L-marking').

In German, unlike English, the Spec of an infinitival clause cannot accommodate a wh-item (18c). This even excludes a wh-item as a genuine copy in the construction illustrated in (19d). Wh-copies in the copy construction are not affected by subcategorization restrictions, as (19a) shows. Although 'meinen' (think) does not tolerate a wh-clause as complement (19b), a wh-clause whose wh-element is merely a copy is acceptable (19a). An infinitival clause, however, does not even tolerate a copy (19d). Consequently, if (19c) contained a covert copy rather than a trace in the spec of the infinitival clause, this copy should be acceptable in constructions with an overt copy (19d), but it is not.

(19) a. *Was/wen* meinst du, *wen* das überrascht hat?
what/whom think you whom this surprised has
'Whom do you think (that) this surprised has?'
b.*Sie meint, *wen* das überrascht hat
she thinks whom this surprised has
c. Wen$_i$ hat er gemeint [e$_i$ [dafür e$_i$ begeistern zu können]]?
whom has he thought [it-for enthuse to-be-able-to]
d.*Was$_i$/Wen$_i$ hat er gemeint [wen$_i$ [dafür e$_i$ begeistern zu können]]?
what/whom has he thought [whom [it-for enthuse to-be-able]]

The preceding discussion is meant to demonstrate that the 'copy theory' has not been seriously put to test. It has been simply accepted on a 'let's assume'-basis and after a while it has become part of the unquestioned background of the MP. The 'copy theory' is employed in the familiar affirmative style, followed by habituation and conviction. It is safe to predict that serious 'stress tests' will produce counterevidence of the kind discussed above in many other languages, too. With respect to theory-internal concerns, Neeleman and Van de Koot (2010) have pointed out in detail that the 'copy theory' is incompatible with well-motivated conditions on phrase structure. The onus of proof is on the side of the proponents, but they do not bother to deliver.

2.3 Movement in epicycles

Ptolemaic astronomy comes close to the MP's ideal of a virtually conceptually necessary body of assumptions. There is a *single* type of movement, namely movement in circles and it is conceptually necessary for mediaeval philosophers because it is the perfect minimal trajectory, defined by a single point and a given distance. If the observed path of a heavenly body deviates from this ideal, this is apparent only. In this case the object is deemed to move on a circle nevertheless, but the center of this circle moves on another circle, whose center moves on yet another circle and so on. These circles on circles are the notorious epicycles needed for capturing a reality by a theory that does not match a relevant part of the reality. Movement in the MP has exactly this epicyclical qualities, it seems. Everything moves and moves until all the items are in place, and if they do not move overtly they do so covertly.

A prime candidate for epicyclical movement is the movement 'explanation' for the existence of the 'OV' type (Kayne (1994) and later), that is, the fact that there are not only languages with head-initial phrases but also languages with head-final phrases, and even languages in

which the position of the head varies with the category of the phrase.[31] Here is a representative example from German.

(20) a. [solche Phrasen$_{Acc}$ in ihre Teile *zerlegen*$_{V°}$]$_{VP}$
such phrases in their parts dismantle
b. das [*Zerlegen*$_{N°}$ von solchen Phrasen/dieser Phrasen$_{Gen}$ in ihre Teile]$_{NP}$
the dismantle of such phrases/these phrases in their parts
'the dismantling of phrases into their parts'

VPs (20a) are head final; NPs (20b) are head initial. The examples in (20) are minimal pairs in German since the infinitival form of a verb can be directly converted into a noun. As a noun (20b), it assigns genitive to the argument it would assign accusative as a verb (20a). Alternatively, the argument may surface as a PP object, like in English. How does the serialization in (20a) relate to the serialization in (20b)?

A simple answer is this (Haider 2015). Heads license merged phrases directionally, and the directionality value is parametric. This property determines whether a head precedes or follows the phrase-internal elements. Kayne conjectures that heads invariably precede their complements and follow the spec position. So, when a complement precedes its head, the complement must have moved across the head. This is the *universal spec-head-complementizer conjecture* of Kayne (1994, 2013)[32], adopted for Dutch by Zwart (2004) and for German by Laenzlinger (2004).

Originally, this was a bold hypothesis with a number of stunning, easy-to-check, but unequivocally wrong[33] predictions (Haider 1997, 2013, 2015). During the thirty years since its publication, immediate counterevidence from cases like (3) – i.e. the transparency of alleged preverbal Specs in OV – has been persistently ignored, and this is just one area of a number of other equally challenging empirical issues (see Haider 2013, ch.9) that should have raised concern (see Abels & Neeleman 2007). The predictions are patently wrong. So, the conjecture cannot be right.

Another case of movement with epicyclical qualities is 'roll-up movement'. Here is an example of how to derive the order of verbs in an OV clause structure from the order in VO structures (Svenonius 2007). Take for instance the linear order in English (21a) and in German or **Frisian** (21b). Roll-up movement (22) easily converts (21a) into (21b) in two steps.

(21) a. [Aux$_1$ [Aux$_2$ [V° ....]]] e.g. could have tinkered
b. [.... V° Aux$_2$ Aux$_1$] e.g. gebastelt haben könnte German
tinkered have could

(22) [Aux$_1$ [Aux$_2$ VP]] ⇨ [Aux$_1$ [VP$_i$ [Aux$_2$ e$_i$]]] ⇨ [[[$_{VP}$ .... V°]$_i$ [Aux$_2$ e$_i$]]$_j$ [Aux$_1$ e$_j$]]

[31] In Afrikaans, Dutch, Frisian, and German, for instance, a VP is head-final whereas an NP is head-initial.
[32] "*OV can never be associated with a structure in which O is sitting in the complement position of V.*" (Biberauer & Sheehan 2013:5). "The human language faculty [sic!]$_{HH}$ *is antisymmetric, with consistent and exceptionless specifier–head–complement order."* (Advertisement for Kayne's contribution to Biberauer & Sheehan (2013), by OUP).
[33] The set of flatly *wrong* predictions for SOV comprises: any preverbal phrase is an islands for extraction; expletive subjects for otherwise subjectless clauses; the order of auxiliaries is the same for OV and VO; immobile items remain postverbal; pre-VP adjuncts are subject to a head-final constraint; wh-subjects must not be crossed in multiple wh-constructions; *why* and *how* cannot remain in situ; diachronically, SVO precedes SOV.

First the lowest VP moves to a spec-position in between Aux_1 and Aux_3. Then the functional phrase that contains the VP and Aux_2 moves to a spec-position above Aux_1. The resulting order is (21b). It is hard to believe that anybody could take this for more than a hypothetical demonstration of the fairly unconstrained handling of movement operations within the MP. It is grammatically entirely unmotivated and empirically patently inadequate. If the resulting structure is put to test, the result is negative. The structure merely reproduces the linear order of verbs but not its syntactic properties.

If the proponent had been aware of (the ample literature on) the complex syntax of verbal clusters in Dutch or German, he would have quickly realized that VP-roll-up is an untenable idea. First, roll-up would produce opaque domains for extractions, but this prediction is wrong (23). Second, roll-up is incompatible with a core property of verbal clusters, namely the compactness of the cluster (24).

(23) a. dass er vielleicht vergaß, [diese Konsequenz zu berücksichtigen]
that he perhaps forgot [this consequence to consider]
b. Welche Konsequenz$_i$ vergaß er vielleicht [e$_i$ zu berücksichtigen]?
which consequence forgot he perhaps to consider
c. Welche Konsequenz hat er wohl vergessen [e$_i$ zu berücksichtigen]?
which consequence has he well forgotten to consider
d. Welche Konsequenz$_i$ wird er [e$_i$ zu berücksichtigen] (wohl) vergessen haben?
which consequence shall he [to consider] (well) forgotten have

A stunning prediction of the roll-up analysis is the prediction of a sharp contrast between (23c) and (23d). Roll-up predicts (23d) to be ungrammatical, contrary to the facts. In the roll-up structure, the preverbal infinitival clause would be inevitably contained in an opaque phrase, viz. the fronted VP. It is opaque because it is claimed to occupy a preverbal spec-position. Let me add that this type of evidence is inaccessible in Dutch because Dutch, unlike German, does not tolerate clause-internal clausal infinitivals. Verb clustering is obligatory if the clause is not positioned at the periphery, that is, topicalized or extraposed. In Dutch as well as in German, the verbal cluster is compact.

Let me emphasize also that 'opacity **of** extraction' is not a *theoretical* principle that could be assumed or abandoned, depending on the theoretical circumstances. 'Opacity' is an empirical generalization independent of particular theoretical assumptions. Whenever a phrase *precedes* the VP of a clause in a *VO language*, elements in this phrase are inaccessible for filler-gap configurations. This covers the SVO subject position as well as phrases fronted to positions between a clause initial complementizer and the VP. Whether this position is analyzed as a functional spec position, an adjoined position, or whatever type of position the favorite theory provides, it is opaque for extraction. In SOV languages, on the other hand, this is universally not the case.

'Compact' means that any non-verbal intervener is ungrammatical.[34] (22), however, would admit slots for intervening material. Extraposed material or adverbial phrases are wrongly predicted to occur between the VP and the auxiliaries. Needless to emphasize once more that

[34] Particles of particle verbs may intervene in Dutch clusters since they are genuine parts of complex verbs.

the empirical situation is the exact opposite. Roll-up presupposes a VP that moves, but once there is a VP, there is an extraposition site (24b,d), but as (24c,e) show, the verbal cluster does not contain any VP boundaries that could serve as targets for extraposition.

(24) a. dass Roll-up Strukturen nicht ausschließen können würde, *die ungrammatisch sind*
that Roll-up structures not eliminate be-able would which ungrammatical are
'that Roll-up would not be able to eliminate structures, that are ungrammatical'
b. [Strukturen ausschließen, *die ungrammatisch sind*]$_{VP}$ würde Roll-up nicht können
c.*dass Roll-up [Strukturen nicht ausschließen, *die ungrammatisch sind*]$_{VP}$ können würde
d. [Strukturen ausschließen können, *die ungrammatisch sind*]$_{VP}$ würde Roll-up nicht
e.*dass Roll-up nicht [Strukturen ausschließen können, *die ungrammatisch sind*]$_{VP}$ würde

The roll-up idea is typically put forth in an affirmative style. Linearization patterns are presented as the desired outcomes, but without independent counterchecks of the implications of the postulated structures. That (22) accounts for some linearization patterns is fine, but there are many other accounts that would do so as well. What matters is counter-checking and here it fails. Earlier roll-up accounts, for instance Cinque's (2004) account for adverb ordering in OV and VO, fail on the very same grounds (Haider 2004: 796-798; Haider 2013:171). In sum, those who love epicycling may find roll-up attractive, but as a candidate for an empirically adequate analysis it is disqualified.

2.4 EPP – yes, but only in SVO[35]

A particularly clear indicator of an SVO bias is the "EPP" constraint.[36] Initially, there was a correct generalization: "*There is compelling evidence that the subject of a clause is obligatory in English and similar languages*." (Chomsky 1981:40). It is an SVO property. English is SVO and so are the North-Germanic and Romance languages, and in each language, a well-formed clause features an obligatory preverbal subject position.

A direct indicator of such an obligatory position is a subject expletive. In SVO, in the absence of a subject candidate, the obligatory subject position of an SVO clause must be filled by a dummy item. Otherwise, a subjectless clause is ungrammatical. Scandinavian languages such as Norwegian (25) are particularly instructive in this respect because of the free alternation between various options for dealing with the obligatory structural subject position (Taraldsen 1979:49; Lødrup 1991:127).

In passive constructions, the subject argument slot of the passivized verb is blocked for discharge onto a syntactic structure. The obligatory subject position in the clause structure is filled by another item. This may be the direct object (25a) turned into a derived subject. However, in (25b), the so-called pseudo-passive, the complement of the prepositional object is alternatively turned into a subject,[37] and in (25c), the subject position is filled with a dummy

[35] This subsection draws on Haider (2017).
[36] EPP =$_{def.}$ 'clauses have subjects' (Chomsky 1982: 9-10) "*The 'Extended Projection Principle' (EPP) has been* […] *a pervasive mystery since it was first formulated by Chomsky (1981)*." (Lasnik 2001: 356)
[37] A similar pattern can be found in English, with idiomatic expressions:
"were taken advantage of" CocA 11 NOW 95
"advantage was taken of" CocA 1 NOW 9

subject in spite of there being available other candidates for the role of a syntactic subject. Eventually, if the position remains empty, the clause is ungrammatical (25d).

(25)a. (at) *frimerker* ble klistret på *brevet.* Norw.
(that) stamps were pasted on letter$_{DEF}$
b. (at) *brevet* ble klistret frimerker på.
(that) letter$_{DEF}$ was pasted stamps on
c. (at) *det* ble klistret frimerker på brevet.
(that) EXPL was pasted stamps on letter$_{Def.}$
d.*(at) ble klistret frimerker på brevet.

VSO[38] or SOV languages do not obey such a restriction. Dutch, once again, has played a deceptive role in this discussion, as a testimony of SOV. In Dutch, one of the numerous grammatical functions of 'er'[39] – the cognate of English 'there' – is the function of an expletive for the clause-initial position in a V2-clause (26a). Second, and crucially, 'er' may occur clause internally (26b). Hence it may also occur in subjectless sentences (26c) in whatever function it occurs in an active sentence. The absence of 'er' in (26c) is independent of the presence of an adverbial. A Google search (Jan. 11, 2018) for "*dat wordt gewerkt*" ('that is worked') and "*dat er wordt gewerkt"* ('that there is worked'), restricted to news sites, produced 2350 hits for the variant with '*e*r' and 741 for the variant without '*er*'.[40]

(26) a. *Er* heeft hopelijk iemand iets gezien. Dutch
there has hopefully somebody something observed
b. Hopelijk heeft (*er*) iemand iets gezien.
hopefully has *there* somebody something observed
c. Overal werd (er) gedanst
everywhere was *there* danced

In this situation, the next and unavoidable step would have been an investigation into the cross-linguistic situation in order to enlarge the grammatical horizon, well above the narrow SVO vista. It would have turned out that *no* SOV language is attested with an unequivocal EPP requirement. SOV languages in which passivization of an intransitive verb correlates with the *obligatory* presence of an expletive subject do not exist.

Generative syntacticians, however, prefer pulling the trick card. An expletive subject is declared obligatory, but at the same time, it may be *inaudible*. Allegedly, an obligatory expletive subject is obligatory in (26), but it may be 'realized' as an "empty expletive subject": "*It is generally assumed that German* [and Dutch, too]$_{HH}$ *has a silent expletive element, corresponding to English expletive it or there, that can check nominative case in Spec-IP*." (Santorini & Kroch 2007, ch.10).

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[38] McCloskey (1996) has stressed that the Celtic VSO languages do not admit subject expletives. As for SOV languages, there is no language known that requires an obligatory subject expletive in otherwise subjectless clauses. German is a clear case of an SVO language that does not tolerate an expletive subject (Haider 2010:11).

[39] Expletive - existential - locative - quantitative - prepositional; see the following URL (consulted 11-01-18):
http://www.ucl.ac.uk/dutchstudies/an/SP_LINKS_UCL_POPUP/SPs_english/linguistics/syntax_er.html

[40] Here are two examples:
i. *dat wordt gewerkt* aan een permanent bezette maanbasis
(https://www.scientias.nl/chinezen-maken-ruimteplannen-bekend/
ii. *dat wordt gewerkt* aan een snelle oplossing (http://www.nieuwsblad.be/cnt/dmf20140423_01078554)

Outside orthodox Generative Grammar, this is definitely not "generally assumed", and insiders should not assume it either since it is wrong. If the expletive checks the nominative, it is a pronoun. Consequently, such a pronoun will become null in pro-drop languages. Therefore, these languages would be the primary biotope of 'empty expletive subjects'. Every time, an intransitive verb is passivized, the subject would have to be a null-expletive. This cannot be true however, as Romance languages clearly show.

If the standard passive is applied to intransitive verbs in Romance *null-subject* languages (27a-c), the result is ungrammatical. However, in French (27d-e), which is not a pro-drop language, the construction is grammatical, and the subject is an *expletive* pronoun:

(27) a.* [*expl*] È stato dormito bene in questo letto (Italian)
has been slept well in this bed
b.* [*expl*] È stato tossito per il fumo
has been coughed because-of the smoke
c. * [*expl*] Fue trabajado duro aquí. (Spanish)
was worked hard here
d. *Il* a beaucoup été fumé dans cette salle (French)
it has much been smoked in this room Gaatone (1998: 124)
e. *Il* a été dormi dans ce lit Rivière (1981: 42)
it has been slept in this bed

The syntactic reality is easy to grasp if SVO languages are seen as what they are, namely as languages with a particular type of sentence structure. Then, EPP falls in place. In SVO languages, there is an argument that does not stay within the projection of the verbal head it is an argument of. It ends up in a functional spec-position outside of the VP. As a consequence, it is not only outside of the VP but it *precedes* the verbal head while all other arguments *follow* this head inside the VP. It is this setting that constitutes the clause structure type called [S [VO]]. In the two other clause structure types – VSO and SOV – the verbal head either precedes each one of its arguments or it follows all the arguments. In any case, all the arguments stay within the same directionality domain. Only in SVO there is a mismatch. One argument, viz. the subject, is not in the directionality domain of the head that contains all the other arguments.

The trigger of the EPP property of SVO structures is this very directionality mismatch. In SVO, the canonical directionality of heads is to the right; the directionality of merger in phrases is universally to the left (Haider 1992, and later). Hence, neither the verb nor a projection node of the verb can provide directional licensing for the VP-internal subject in (28a). Therefore, a functional head is employed to provide directional licensing (28b), which is indicated by arrows in (28). The projection of the functional head establishes the particular spec position that is typical for SVO languages, namely the position for XP in (28b).

(28) a. ..... $[_{VP}\, XP_{Subj.}\, [V^{\circ} \rightarrow [ZP]]$
b. $[_{FP}\, XP_{j}\, [_{F'}\, F^{\circ}_{\rightarrow}\, [_{VP}\, e_{j}\, [V^{\circ} \rightarrow ZP]]]]$

In OV (29a) and in VSO (29b), any argument of a verb remains within the directionality domain of the verbal head or a projection of it, whence the absence of the particular subject-related functional projection in the clause structures of these languages:

(29) a. $[_{VP}\, XP_{Subj} \leftarrow [_{V'}\, ZP \leftarrow V°]]$
b. $[_{VP}\, V_i° \rightarrow [XP_{Subj}\, [e_i \rightarrow ZP]]]$

The functional projection in (1b) provides a directionally licensing head for the preverbal, VP-internal subject and it is a trigger for moving the subject to the spec-position. This is an effect of the general licensing condition (Haider 2015: 84). The licenser and the licensee must c-command each other. In (1b), F° c-commands the VP-internal subject and the subject c-commands F° by virtue of being raised to the spec position. The very same relation holds VP-internally and triggers the VP-shell structure[41] for complex, head-initial phrases (see Haider 2015:85; 2013:28, 162; 1992).

2.5 A theory disconnected from what it is meant to model

Currently, the evidence for the Generative modelling of the human language capacity is evidence gained from the analysis of its productions. In other words, it is evidence generated when the linguistic capacities are put to use. Expressions classified as 'grammatical' versus 'ungrammatical' are expressions that a native of the given language is expected to classify as 'acceptable' versus 'unacceptable', ideally under controlled testing. In doing so, the native makes use of the cognitive capacity whose make-up the linguists are studying.

It is an open question whether "*the optimal course to follow,* [...], *is to assume a basic compositional operation MERGE*" (Chomsky et als. 2017: 4). What the MP continues to foster is an algebraic approach. Linguistic expressions are characterized as products of a compositional operation. This operation starts at the lowest point of a syntactic structure. For (30), this means, that 'merge' starts with *'quiets'* in (30a) and *'collapsed'* in (30b), respectively.

(30) a. The audience gathered in the concert hall quiets.
b. While the man was mending the roof collapsed.

In both cases, the verbal item to start the merger with is clause final and a (potentially) finite verb. Hence it will be merged with something on its left. This could be either its subject or intervening material such as an adverbial. In (30a), the first suitable item is a whole phrase, namely the complex subject that contains a reduced relative. Clearly, the finite verb could not be successfully merged with a PP or a reduced relative on its left. In (30b), on the other hand, 'the roof' is a good candidate for merger with 'collapsed', resulting in a simple clause, preceded by something ending in a verb, which turns out to be a temporal adverbial *while*-clause. Derivation by merger works straightforwardly for (30a,b)

Sentences such as (30a,b) are well-known as robust syntactic garden-path structures.[42] However, bottom-to-top merger would easily disentangle them. Nevertheless, such structures remain robust garden paths for incremental, that is, *left-to-right, processing*. A listener's merge-geared competence should easily correct and redirect an automatic parse that has come to a halt. Experiments tell a different story.

Merging may well be "*the computationally simplest operation that implements the basic properties of an I-language, and as such a conceptually necessary, irreducible component of*

[41] $[_{VP}\, V_i° \rightarrow [DP\, [e_i \rightarrow DP]]]$ as in: $[deny_i\, [nobody\, [e_i\, anything]]]_{VP}$
[42] This phenomenon was first observed and discussed by Thomas Bever (1970).

UG" (Chomsky et als. 2017:4), but only within a particular analysis-by-synthesis model of linguistic competence. A compelling reason for the empirical adequacy of such a model is wanting.

For the MP, a grammar is modelled in terms of a syntactic algebra, defined as a calculus. Only little background in logics is sufficient for recognizing that the MP narrowly tails the definition of calculi: *Atomic elements* (called *'numeration'*) are assembled into formulas by *formation rules* that join basic items into well-formed formulas. This is external *'merge'*. Then, *transformations* map these formulas on other formulas. In the MP, this is *'internal merge'*. A formula is well-formed if there is a correct derivation of this formula in the calculus.[43]

In this view, a competent speaker is a competent theorem prover for expressions ('formulas') of his/her language. An expression is grammatical if it can be derived. *"Unfortunately, to our knowledge, no experimental evidence has been offered to date that suggests that merge and move are real (in the same sense that the spatial frequency channels in human vision are)."* (Edelman & Christiansen 2003:61).

3. What has led to the present situation

The negative drift consists of a combination of overestimating one's capabilities, a myside bias,[44] an authority bias,[45] and a strong esprit de corps. Presently, universality claims are based mainly on findings from English, Romance, and North-Germanic. An extrapolation of results gained from a 2-tenth-of-a-percent sample of languages (i.e. one dozen out of 6000), most of which belonging to the same sub-sub-group (i.e. Western Indo-European SVO) has no realistic chance of being representative of the full set of actually existing or possible grammar systems. Nevertheless, Generative Grammar has always insisted on the universality of the respective model as a model of "universal" grammar. The surmised principles of UG have changed over the years, the universality claim based on a small data basis has not. Geneticists use model organisms but they do not claim that the structure of the model organism is the *universal* structure of organisms. Bats are not regarded as distorted fruit-flies.

Unquestionably, scientific theories have to aim at universal laws, but a scientist is always aware of the fact that the probability of initially guessing a law correctly is close to zero. Therefore, such hypotheses are standardly exposed to uncompromising tests, both for their own empirical adequacy as well as the correctness of their entailments. The latter property is the crucial one. A hypothetic law itself is formulated on a body of evidence. These are the confirming data. Popper (1963:35) emphasizes that "*It is easy to obtain confirmations, or verifications, for nearly every theory – if we look for confirmations*".

The testing ground is a body of data that is independent of the original confirming data. The decisive question is this: What does the hypothetic law predict and are these predictions em-

[43] "A formal system (also called a logical calculus) consists of a *formal language* together with a *deductive apparatus*. The deductive apparatus may consist of a set of transformation rules (also called inference rules) or a set of axioms, or have both. A formal system is used to derive one expression from one or more other expressions." ('Formal Systems', Wikipedia, accessed Jan. 21, 2018).

[44] *Myside Bias*, also known as *Confirmation Bias*, is the tendency to favor, search for, recall and interpret information in a way that supports one's preexisting hypotheses (Kahneman 2011).

[45] *Authority Bias* is the tendency to attribute greater validity and reliability to the opinion of an authority figure for finding out, judging, accepting or refuting (scientific) facts.

pirically correct when tested? Lakatos (1978:34) stresses that "*a given fact is explained scientifically only if a new fact is* [successfully]$_{HH}$ *predicted with it*."

A basic and recurrent fault in the Generative literature is the confirmation bias. People start aggregating *confirming* evidence. Data are *picked* that fit a presently favored law or could be subsumed in combination with an auxiliary hypothesis. In the long run, this leads to a hypothetic edifice built on a hypothetical claim combined with a number of hypothetical auxiliary assumptions, and soon, people are impressed by the range of data apparently covered under the roof of this hypothetical edifice. In the scientific world, such a house of cards would not be commissioned as safe. It is likely to completely collapse at any time since the pillars and foundations of the building have not been stress-tested. The theoretical claims have not been exposed to *uncompromising* tests for their predictions.

Stress-testing is the well-directed testing for failures. First, one has to identify central predictions, then one puts them to test, and compare the results with the predictions. If they diverge, the hypothesis is wrong. In the words of a Nobel prize winner: "*It does not make any difference how beautiful your guess is. It does not matter how smart you are, who made the guess, or what his name is – if it disagrees with experiment it is wrong*. [...] *In that simple statement is the key to science.*" (Feynman 1967:156). The guess is wrong, and not merely insufficiently defended.

A particularly clear case of neglecting stress-testing is Kayne's (1994) conjecture that an SOV clause-structure is the derivational continuation of the allegedly universal SVO structure. The area behind the verb is cleared by moving everything to preverbal positions. The obvious question to ask would be this: What is compelling evidence for assuming that preverbal items are fronted items indeed, or that postverbal items are postponed? The central predictions for the fronting conjecture are obvious, and the empirical tests for them are all negative (see. Haider 2013, ch. 9).

Sampson & Babarczy's (2013: 296-319) criticism of such a 'culture' is rightly entitled "*Minds in uniform - how generative linguistics regiments culture, and why it shouldn't."* Data allocation based on *peer consent* does not count as legitimate in science and it fails in grammar theory (because of immediate stakeholder interests),[46] as documented by St. Müller (2006).

Edelman & Christiansen (2003:61) emphasize this point: "*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 (or their successors that might have bought their debts) are declared bankrupt. In the sciences of the mind, this maxim translates into the need to demonstrate the psychological (behavioral), and, eventually, the neurobiological, reality of the theoretical constructs*." (Edelman & Christiansen 2003:61). The Minimalist Program is in default of payment.

[46] Here are two rare exceptions: Fanselow & Féry (2008) and Häussler et als. (2014) experimentally test data on Superiority and confirm that it is absent in German: "*Taken together, this implies that German tolerates crossing movement in general*." (Fanselow & Féry 2008:67). "*These results support the hypothesis that superiority has a grammatical status in English but not in German, and do not support an account that attributes superiority effects to processing only*." (Häussler et als. 2015:1).

In Generative Grammar, and in particular in the Minimalist Program, the my-side bias is reinforced by an *authority bias* in combination with an *esprit de corps* that spares the leading figure(s) of corrective evidence. It is a sociological fact that the desire of being accepted in a group is strong and affirmative legwork therefore tends to be valued higher than any demonstration of weak points or failures. The 'linguistic wars' are over and so should be the habit of circling the Generative wagons.

In this constellation of shortcomings, a fundamental problem has become visible since the onset of the Minimalist Program. Theory development is hardly data driven any more in the MP. Instead, data analysis is entirely theory driven. If the theory is applied to novel data, the data are adapted to the theory. If the discrepancy is too glaring, the theory to data gap is bridged by auxiliary hypotheses. This is by no means a typical problem of grammar theory (Rollin 1980:239). "*We know from the history of science, that in the face of theoretical commitment, recalcitrant data is easily dismissed or explained away and that theory determines what we see."*

Within the MP camp, this predisposition is reinforced by the unquestioned primacy of the theory. The function of data is decorative. The preferred theory is surrounded by data tailored to suit it. The waiving of sincere stress-testing a theory is detrimental. The MP has acquired many traits of an Aristotelian attitude, but grammar theory needs less of Aristotle and more of Galilei:

Medawar (1979: 70-71) contrasts a Galilean approach, driven by critical experiments, and an Aristotelian, viz. conceptually driven, affirmative approach. An Aristotelian experiment "*is contrived to demonstrate the truth of a preconceived idea.* [...]. *Joseph Glanvill, in common with many of his contemporary fellows of the Royal Society had the utmost contempt for Aristotle, whose teaching he regarded as major impediments to the advancement of learning*: *'Aristotle ... did not use and imploy Experiments for the erecting of his theories: but having arbirtrarily pitch'd his Theories, his manner was to force Experience to suffragate, and yield countenance to his precarious Propositions'*."

A Galilean approach is driven by the desire to empirically discriminate between competing accounts. In doing so it "*either gives us confidence in the view we are taking or makes us think it in need of correction*" (Medawar 1979:71). Research in the Galilean style is powered by the relentless drive of finding out what *really* accounts for the observed facts. Rigorous 'stress tests' for favored hypotheses are a central component of this enterprise.

Research in the Aristotelian way starts from a preconceived idea – virtually conceptually necessary assumptions – and selects facts mainly in order to convince others of the 'coolness' of the idea. Stress tests are avoided and if 'stressing' data cannot be ignored, the theory is unconditionally shielded against them by freely generated, ad hoc auxiliary assumptions.

Backing out of this unsatisfactory state of affairs is in principle possible but it would presuppose the insight of having arrived at a dead end. As long as ideology prevents this insight, an Aristotelian game will continue until no players are willing to engage in it anymore. In linguistics, no bridge collapses, no person dies, and nobody goes bankrupt because of a wrong theory. So, ideology and rhetorics easily prevail over scientific commitments, even if this is a waste of time and energy.

4. Summary

Since its rebranding as 'Minimalist Program' more than two and a half decades ago, the Generative school of grammar theory has continuously and habitually neglected scientific standards. The neglect is the result of a scientific ideology that ranks the defense of a preferred set of ideas higher than the relentless stress-testing of their empirical adequacy. This hampers a successful Galilean-style progress of the field and is responsible for the unimpressive scientific productivity over the previous decades. Since its beginnings, the MP has been an unproductive program with a noticeable "*degenerative* problem shift", in Lakatos' (1978) terminology. The MP did neither solve any classical empirical problem of the preceding period nor did it open windows to insights that would have turned out to be productive in detecting novel and empirically correct laws of the human grammar capacity.

A contributing circumstance for the neglect of unneglectable and falsifying counterevidence is a strong SVO bias. From its onset, the Generative school has been biased towards English-like languages, that is, SVO languages. Languages with other clausal structures have been merely assimilated, except for the G&B period. Other languages are regarded as SVO languages with additional, disfiguring properties. This attitude is facilitated by the fact that the typical generative SOV reference languages, viz. Dutch or Japanese, unlike other SOV languages, lack typical properties that are crucial for checking minimalist claims. So, problematic facts have become easier to neglect. This makes the generative 'tunnel view' perhaps understandable but it does by no means justify it. For the time being, the Minimalist Program has a good chance of turning into a good candidate of 'cargo cult science' (Feynman 1974) rather than becoming a candidate for a prospering sub-discipline of cognitive science.

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