Back to the Future:
Non-generation, filtration, and the heartbreak
of interface-driven minimalism

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1. Introduction

This paper argues that the filtration-based approach to syntactic competence adopted in the context of minimalist syntax (Chomsky 1995, 2000, 2001), where freely-assembled syntactic outputs are filtered at the interfaces with the sensorimotor (SM) and conceptual-intentional (C-I) systems, is empirically wrong. The solution, I argue, is a return to a non-generation alternative, of the kind put forth in Syntactic Structures (Chomsky 1957).

2. The beginning: non-generation as the only source of ill-formedness in syntax

Early on in Syntactic Structures, Chomsky proposes a *generative* way to think about the grammar of a given language:[1]

> "The fundamental aim in the linguistic analysis of a language L is to separate the grammatical sequences which are the sentences of L from the ungrammatical sequences which are not sentences of L and to study the structure of the grammatical sequences. The grammar of L will thus be a device that generates all of the grammatical sequences of L and none of the ungrammatical ones."
>
> [*Chomsky 1957:13*]

This way of thinking about language and grammar laid the groundwork for serious inquiry into that which was systematically absent: patterns and structures that could have, logically speaking, been part of natural language, but which are systematically excluded from it. Perhaps the greatest and most seminal example of such work, in the wake of Syntactic Structures, was Ross' (1967) study on kinds of movement dependencies that are systematically excluded from language.

This way of characterizing the goals of a grammatical theory brings into focus the question of how those outputs which we want the grammar to never generate (i.e., ungrammatical ones) are excluded by the generative procedure.

[1]This way of framing things, and in particular the implied bifurcation of sentences into exactly two categories (grammatical and ungrammatical), has come under a variety of criticisms in the decades since. But virtually all such criticisms conflate *performance* with *competence*—and, more generally, fall into the trap of inferring gradient representations from gradient behavior. This, as already demonstrated in Armstrong, Gleitman & Gleitman 1983, is by no means guaranteed to be a valid inference.

In Syntactic Structures, the answer to this question was *non-generation*. There were two sub-cases worth noting. First, some outputs were excluded because the phrase-structure component did not contain the relevant rewrite rules necessary to generate them. More precisely, the phrase-structure component did not contain rewrite rules that could produce anything that could be related to the output in question by the extant transformations in the grammar of L. For example, the absence of rewrite rules that could be combined to yield the effect in (1a) underpinned the fact that (1b) is not generated by the grammar. (The phrase-structure symbol 'T' corresponds to what we would now call 'D' or 'Det'.)

(1) a. *unavailable:* S $\rightarrow$ ... $\rightarrow$ N N T P

 b. * convection legume the of.

There is a second way in which the generative procedure used in Syntactic Structures could exclude a particular output. This is when the phrase-structure component produced something that could, in principle, be related to the output in question by the extant transformations in the grammar of L, but the STRUCTURAL DESCRIPTION was not met for one or more of the transformations in question.[2] For example, the output in (2a) was generable by the phrase-structure component of the grammar of English. And there was a transformation (an obligatory one, in fact) of the form in (2b) (p. 112). But because (2a) did not meet the STRUCTURAL DESCRIPTION for (2b) (shown in (2c)), the output in (2d) could not be generated by the grammar.[3]

(2) a. John – C – see + stars

 b. $X_1 - X_2 - X_3 - X_4 \longrightarrow X_1 - X_2 - X_4 - X_3$

 c. STRUCTURAL DESCRIPTION for (b): $\left\{ \begin{array}{l} X - V_1 - Prt - Pronoun \\ X - V_2 - Comp - NP \end{array} \right\}$

 d. * John stars see.

For close to two decades, even as the theory of syntax developed, non-generation remained the primary mode of excluding ungrammatical outputs. Ross' (1967) findings, for example, were integrated into the theory of grammar by Chomsky (1973) (in the aptly-named Conditions on Transformations) through the mechanism of *Subjacency*, whose function was to restrict possible rule applications. In particular, an extraction rule could not relate two positions separated by more than one *cyclic node* (NP, S). Accordingly, an output like (3) was not ruled out because it violated some output filter. It was ruled out because the only way to derive it (given the assumptions in Chomsky 1973) involved the application of the *wh*-Movement transformation across two cyclic nodes at once (Chomsky 1973:23ff.).

(3) * Who does she believe [NP the claim [S that John saw __]]?

More succinctly, (3) was excluded because the grammar—beholden, as it was, to the Subjacency constraint—had no way of generating this kind of structure.

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[2]In Syntactic Structures, Chomsky uses the term STRUCTURAL ANALYSIS (76, 111, *i.a.*), rather than the now more familiar STRUCTURAL DESCRIPTION.

[3]Technically, this is only part of the explanation for (2d) not being generated by the grammar. Another necessary part of the explanation is that (2d) cannot be related to (2a)—nor to any other possible output of the phrase-structure component—by any other, applicable transformation (or series of applicable transformations).

At this stage in the theory's development, there was a concerted attempt, at least in some circles, to restrict the possible sources of syntactic ill-formedness to non-generation alone. As an example, see Baker & Brame's (1972) position in the *Global Rules* debate (Baker & Brame 1972, Lakoff 1970, 1972). But a sea change was coming: soon thereafter, Chomsky & Lasnik's (1977) *Filters and Control* ushered in the golden era of filtration, which I discuss in the next section.

3. The rise of filtration

Chomsky & Lasnik's (1977) influential study centered on a series of environments in which overt noun phrases are unable to occur in English.[4] These environments, however, did not readily lend themselves to a non-generation account, at least not against the backdrop of the syntactic theory of the time. Instead of non-generation, Chomsky & Lasnik adopt Perlmutter's (1968, 1971) proposal that the generative mechanism includes a set of *Surface Filters*. These are constraints that potential outputs of the generative procedure must meet before those outputs can be deemed well-formed.

Of the filters that Chomsky & Lasnik proposed, the one that had perhaps the greatest influence on the field is the **[NP to VP]* filter, whose full form is given in (4):

(4) THE Non-Finite Subject Filter   [*Chomsky & Lasnik 1977:479*]
     * [$_\alpha$ NP to VP], unless α is adjacent to and in the domain of a verb or *for*.

Upon reading a draft of Chomsky & Lasnik's paper, Jean-Roger Vergnaud wrote a letter to the authors. In this letter, he suggests that a filter like (4) could actually be subsumed under Case, a mechanism inspired by the different forms that noun phrases take on depending on the different positions in which they occur (in some languages). This suggestion was itself very influential, and within a few years, took hold in the form of the *Case Filter*, given in (5):

(5) THE Case Filter   [*Chomsky 1981:49*]
     * NP, if NP has phonetic content and has no Case

This shift, whereby ungrammatical outcomes were increasingly excluded through filters rather than non-generation, did not take place in a vacuum. The rise of filters was intertwined with a concomitant effort to simplify the form of transformations, culminating in the unification of all movement transformations under a single rule, *Move-α*:

(6) THE TRANSFORMATION *Move-α*   [*Chomsky 1980:3–4, see also Chomsky 1981*]
     Move some category α to some position.

With this unification, the STRUCTURAL DESCRIPTIONS and STRUCTURAL CHANGES of movement transformations were eliminated altogether. They were replaced with a single, freely applying, fully general movement transformation (6), whose application was constrained only by the requirement that the eventual output comply with Surface Filters of the kind exemplified in (4)/(5).

If the formal complexity of transformations was to be simplified in this manner, it seems rather inescapable that much of the explanatory burden would have to be offloaded to filters. Inevitably, then, the developments touched on here ushered in what might be thought of as the golden era of filtration. Many subsequent proposals were widely adopted that made crucial reference to filters

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[4]In the years since, it has become quite clear that most languages do not manifest anything resembling this set of restrictions. It may very well be the case that, in the end, the phenomenon in question is a fairly marginal one, restricted to a small group of Western European languages.

as the source of syntactic ill-formedness. Alongside the Case Filter (5), there emerged the Empty Category Principle (ECP; Chomsky 1981:248); the principles of Binding Theory, now construed as filters (Chomsky 1981:188ff. cf. Lees & Klima 1963 for an early, non-generation approach to binding); the Theta Criterion (Chomsky 1981:36); and others.

A crucial question is whether the choice to parcel out explanatory burden this way can be adjudicated empirically—and if so, what the empirical verdict is. It is this question that I will tackle in section 5. But before that, let us survey some of the more recent history of non-generation and filtration in syntactic theory.

4. Non-generation and filtration in contemporary syntactic theory

In the wake of Chomsky's (1995) *The Minimalist Program*, the trend towards a filtration-based theory became reified in the grammatical architecture. To see why, consider Chomsky's (2004:106) Strong Minimalist Thesis (SMT):

(7) POSSIBLE SOURCES OF PROPERTIES OF NATURAL LANGUAGE SYNTAX
    i. factors specific to natural language
    ii. interface conditions: properties imposed by the very fact that syntax is connected to sensorimotor (SM) and conceptual-intentional (C-I) cognitive systems
    iii. general properties (of cognition, or of the physical world more generally)

(8) THE STRONG MINIMALIST THESIS
    There are no properties that fall under (7.i).

The SMT is the assumption that there are no proprietary characteristics of syntax, whose etiology is specific to natural language (besides the basic combinatorial operation, *Merge*). If we assume—as do most scholars working in this research tradition—that syntax is modularly encapsulated from other cognitive systems, then the sensorimotor (SM) and conceptual-intentional (C-I) systems cannot exert their influence in the form of non-generation. Instead, these systems must exert their influence by way of filtration, scrutinizing the structure that syntax has built and checking whether it meets the relevant well-formedness criteria at the interfaces.

On this view, the freely-applying nature of *Move-α*, now recast as freely-applying *Merge*, is no longer a theoretical choice-point. It is forced by the very architecture of the system. An operation that could not apply freely, and instead had linguistically-proprietary conditions on its application, would constitute a violation of (8).[5]

Note that, technically speaking, what is submitted to the interfaces for filtration need not be the putative syntactic structure of the utterance in its entirety. On a view where syntactic structure is shipped to the interfaces in chunks such as *phases* (Chomsky 2004, Uriagereka 1999), the evaluation of well-formedness can apply to each chunk separately. At the limit, if the chunks are the size of individual syntactic projections (cf. Müller 2004), this dissolves the distinction between non-generation and filtration entirely (as well as, arguably, the modular encapsulation of syntax in the first place). However, for the purposes of the current paper, I will assume that syntax is capable of building a non-trivial amount of structure before the result is inspected by extra-syntactic systems.

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[5]In this light, appeals to syntactically proprietary principles like *Greed* in earlier versions of minimalism (Chomsky 1995, 2000) are very much in violation of (8). The only hope would be to derive principles of this sort from so-called economy considerations, but the prospects for such a derivation seem to me to be very bleak; see the discussion below.

Having said all this, and despite the aforementioned architectural commitments, it turns out that minimalist syntax still harbors a significant residue of non-generation, in the form of so-called economy principles. As an example, consider minimality effects. These are scenarios of the kind schematized in (9), where there are two putative targets for some syntactic relation, which stand in an asymmetric c-command relation to one another. As observed by Rizzi (1990), syntax quite generally disallows relations that target the (structurally) farther away of the two putative targets in such cases.

(9)   If $\alpha \gg \beta, \gamma$; $\beta \gg \gamma$; and β and γ are both putative targets for α:

[*where '$\gg$' denotes asymmetric c-command*]

    a. $\alpha \ldots \beta \ldots \gamma$
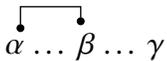
    b. * $\alpha \ldots \beta \ldots \gamma$
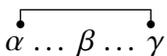
It seems unlikely that configurations like (9b) are ruled out because of some incompatibility with the SM or C-I systems. There is some promissory discussion in Chomsky 1995 *et seq.*, suggesting that restrictions like (9) might ultimately derive from more general principles of efficient computation, which are not specific to language (see, e.g., Chomsky 2000:135). Promissory discussion aside, I know of no explicit proposal that would tell us why (9) is an attested restriction, but a myriad of other restrictions—which could just as easily be tied to efficient computation in the same vague manner—are not. Pending such explication, I see no other concrete option than to treat the ill-formedness of configurations like (9b) as an instance of non-generation *per se*.

The state of affairs with respect to other so-called economy principles seems similar. Chomsky (2001) cites efficient computation as the explanation behind a particular reformulation of Pesetsky's (1989) Earliness Principle, given in (10).

(10)   Perform computations as quickly as possible.   [*Chomsky 2001:15*]

To see just how tenuous the argument from efficient computation to (10) is, one needs to look no further than Chomsky 2008, where the same premises are used to argue for a conclusion that stands in direct contradiction to (10):

(11)   Operations are at the phase level only.   [*Chomsky 2008:156*]

Clearly, whatever overtures to efficient computation are made in these works, according them the status of 'explanations' would be very misleading. Thus, to the extent that there are any derivations that are ruled out by (10) or by (11) (see Chomsky 2001 and Chomsky 2008, respectively, for some putative examples), these must also be taken for the time being as instances of non-generation.[6]

The examples in (9) and in (10–11) are important for the following reason: one could attempt to mount an argument against non-generation on the grounds that a theory resorting to filtration alone would be more uniform, and thus simpler. (In the context of minimalism, this would depend on the extra step of showing that the filters in question fall under (7.ii), i.e., that they are good candidates to be something that the SM & C-I systems would care about; see the discussion in §5.1.) What these examples show is that, at the present time, no extant theory can seriously claim to be uniformly

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[6]This discussion is not meant to add support to one of (10–11) over the other. It is merely a demonstration that, in the context of a theory of syntactic competence, the current understanding of efficient computation and related concepts appears to be an insufficient basis upon which to build argumentation of this sort.

filtration-based, and free of non-generation as a mechanism for excluding ungrammatical outcomes. This sets the stage for investigating the choice between these two mechanisms from an *empirical* perspective. It is this type of investigation that is the topic of the next section.

5. The case against filtration-based minimalism

5.1. Some background

There is not—and cannot be—an empirical argument against filtration *in its most general form*. That is because one can always enrich the syntactic representation using devices like traces, indices, etc., to the point that any relevant aspect of a structure's derivational history can be read directly off of the final representation. Given a sufficiently enriched representation, then, any effect of non-generation can be recast as a filter on the occurrence of the relevant history-encoding devices.[7] Accordingly, the arguments in the remainder of this section are not about filtration in general, but rather about a particular filtration-based approach: the one that has been put forth in the context of minimalist syntax. The approach in question involves "free generation" by the syntactic component, which then submits its putative output to filtration at the interfaces with the SM & C-I systems.

The arguments rest on the following two premises:

(12) **PREMISE 1:** A filter on the output of syntax imposed by some system S must be stable in a plausible manner using the primitives of S.

(13) **PREMISE 2:** Both agreement in φ-features[8] ("φ-agreement") and configurationally-assigned case ("m-case") are computed within syntax proper.

Premise (12) amounts to the assumption that different cognitive modules traffic in different informational primitives. Insofar as the SM & C-I systems are modularly distinct from syntax— which, it seems to me, is a fairly innocuous and widespread assumption—it would be quite the coincidence if the basic vocabulary of one or both of these distinct modules happened to be the same as the basic vocabulary of syntax. This premise still leaves room for filters that examine, for example, the featural content of a given syntactic node (this includes Chomsky's 2000, 2001 *uninterpretable features* proposal, though we will see shortly that this proposal fails for independent, empirical reasons). Some subset of syntactic features have effects on phonology and semantics, and are thus part of the vocabularies of the latter systems; filters stated over such features are therefore not problematic, from the perspective of (12). What this premise would exclude, for example, is a filter demanding that every node bearing some feature f stand in some syntactic relation to some other node bearing some particular featural specification. That is because syntactic relations are, by definition, the purview of syntax, not of other systems.

As for premise (13), this has been explicitly argued in Preminger 2014:177–213. In brief, the argument goes as follows. First, Bobaljik (2008) has shown that φ-agreement tracks m-case,

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[7]A variant of this argument can be applied to the relation between derivational approaches to syntactic competence and representational ones. Any derivational approach can be recast in representational terms by, for example, taking the set of licit derivational operations in the former model, and recasting them as representational well-formedness conditions on adjacent pairs of syntactic trees in an ordered sequence. (Each individual tree in this ordered-sequence model would correspond to an intermediate derivational step in the derivational model.) Thus, if one places zero restrictions on what syntactic representations might look like (e.g. n-tuples of syntactic trees), then—somewhat unsurprisingly—there is nothing that cannot be modeled in representational terms.

[8]The term 'φ-features' is shorthand for "a non-empty subset of {PERSON, NUMBER, GENDER/NOUN-CLASS}."

rather than Abstract Case or grammatical function. Second, φ-agreement is causally implicated in movement to canonical subject position (at least in some languages; see Preminger 2014:157–170). Finally, since movement to canonical subject position is inescapably syntactic (it has effects on scope, for example), it follows that both m-case and φ-agreement must be in syntax, as well (contra Marantz 1991, McFadden 2004, as well as Bobaljik's own 2008 claim concerning the modular loci of the relevant operations).

5.2. Two arguments

In this subsection, I will review two arguments against the kind of filtration approach outlined above: one from φ-agreement, and one from m-case.

5.2.1. Argument 1: φ-agreement

The following discussion applies to a fairly broad range of theories—namely, any that enforce the obligatory nature of agreement using a condition evaluated at the interfaces. Nevertheless, a useful straw man to keep in mind throughout the current discussion is the *uninterpretable features* proposal of Chomsky (2000, 2001). According to Chomsky's proposal, some features are illegible at the interfaces with the SM & C-I systems. And, for some reason—which, as far as I can tell, is never really given—these extra-syntactic systems cannot simply ignore illegible features.[9] Instead, if such features reach the interfaces untouched, this results in a "crash" (i.e., ungrammaticality).

    Let us adopt the following labels:

(14)   i. H^0 = some head (e.g. a finite verb)

        ii. α = some phrase (e.g. a nominal/DP argument) whose features control agreement morphology on H^0

There is, by now, substantial evidence that φ-agreement is subject to the structural condition in (15) (see Preminger 2013 and Preminger & Polinsky 2015 for a review):

(15) φ-AGREEMENT

      A head H^0 can enter into agreement in some φ-feature f with a DP α **only if**:

       i. H^0 c-commands α

      ii. H^0 and α are in the same locality domain

     iii. there is no bearer of valued f c-commanded by H^0 that asymmetrically c-commands α

    Now, suppose that we observe an instance in which φ-agreement between some particular H^0 and some particular α appears to be obligatory (i.e., its absence yields ungrammaticality). By hypothesis, operations within syntax, such as agreement, are supposed to be freely-applying. Thus, derivations in which the relevant agreement relation has not obtained would have to be ruled out at (one or both of) the interfaces between syntax and the SM & C-I systems. The question, then, is how

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    [9]Norbert Hornstein (p.c.) suggests that the SM & C-I systems' inability to ignore illegible (or 'uninterpretable') features could be attributed to the principle of Full Interpretation. This principle demands that all syntactic material be interpreted, and could be used to rule out, e.g., sentences like *Who did Kim hug Sandy?* But it is entirely unclear to me that we have any reason to think individual *features* should be subject to Full Interpretation. For example, it is unclear that the syntactic feature that prevents the English *hug* from undergoing *v*-to-T movement is interpreted anywhere outside of syntax.

the SM & C-I systems could identify the offending derivations (i.e., those in which φ-agreement has failed to apply).

Following (12), evaluating whether a particular pair <H^0, α> satisfies (15) with respect to some φ-feature f is something only syntax can do. Giving the SM or C-I systems access to the primitives necessary to evaluate (15) would amount to undoing the modular separation between syntax and the SM & C-I systems, in the first place (see §5.1)—especially as it concerns c-command-based minimality. Consequently, the most that the SM & C-I systems could do is inspect H^0 and/or α on their own. Not coincidentally, perhaps, both of these options have been pursued in the minimalist literature. The proposal that φ-features are 'uninterpretable' at the interfaces (Chomsky 2000, 2001) amounts to an "inspect H^0" approach. The proposal that abstract case is assigned as a side effect of agreement in φ-features (Chomsky 1995), coupled with the idea that noun phrases are subject to the Case Filter (Chomsky 1981), amounts to an "inspect α" approach.[10] As we will see below, however, neither of these options (nor a combination of the two) is empirically adequate.

The crucial evidence comes from patterns of omnivorous agreement in the K'ichean *Agent-Focus* construction.[11] There is much more to say about the syntax of K'ichean in general, and about the Agent-Focus construction in particular, than I am able to say in this space.[12] The crucial data, however, are given below:

(16) 3PL "WINS" OVER 3SG

    a. ja   rje'   x-**e/*ϕ**-tz'et-ö   rja'   (Kaqchikel)
        FOC them COM-**3pl/*3sg.ABS**-see-AF him
        'It was them who saw him.'

    b. ja   rja'   x-**e/*ϕ**-tz'et-ö   rje'
        FOC him COM-**3pl/*3sg.ABS**-see-AF them
        'It was him who saw them.'

(17) 2(/1) "WINS" OVER 3

    a. ja   rat   x-**at/*e**-ax-an   rje'
        FOC you(sg.) COM-**2sg/*3pl.ABS**-hear-AF them
        'It was you(sg.) who heard them.'

    b. ja   rje'   x-**at/*e**-ax-an   rat
        FOC them COM-**2sg/*3pl.ABS**-hear-AF you(sg.)
        'It was them who heard you(sg.).'

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[10]The idea that case (whether abstract or otherwise) is assigned as a side effect of agreement has turned out to be wrong (see Bittner & Hale 1996, Bobaljik 2008, Preminger 2011a, 2014 and, in particular, Preminger 2011b:929–930). But as we will see, the interface-driven approach to the obligatoriness of agreement fails even if we counterfactually grant this assumption.

[11]The term *omnivorous agreement* is due to Nevins (2011), and refers to patterns in which the appearance of a given agreement marker is triggered whenever a particular feature f is found on the subject or on the object (or both).

[12]For discussion of the syntax of K'ichean and of K'ichean Agent Focus, see Aissen (1999, 2011), Campbell (2000), Coon, Mateo Pedro & Preminger (2014), Craig (1979), Davies & Sam-Colop (1990), Dayley (1978, 1985), Erlewine (2016), Henderson & Coon (to appear), López Ixcoy (1997), Mondloch (1981), Norman & Campbell (1978), Preminger (2014), Pye (1989), Sam-Colop (1988) and Stiebels (2006).

(18) OKAY TO HAVE TWO PLURALS, OKAY TO HAVE NO PLURALS

    a. ja **röj** x-oj-tz'et-ö   **rje'**
       FOC **us** COM-1pl.ABS-see-AF **them**
       'It was us who saw them.'

    b. ja **ri xoq** x-ϕ-tz'et-ö   **ri achin**
       FOC **the woman** COM-3sg.ABS-see-AF **the man**
       'It was the woman who saw the man.'

Several prima facie candidates for an analysis of these facts can be ruled out. These include: *Multiple Agree* (Anagnostopoulou 2005, Hiraiwa 2001, 2004, *i.a.*); **feature-percolation** (Chomsky 1973, Cowper 1987, Gazdar et al. 1985, Grimshaw 2000, Kayne 1983, Webelhuth 1992, *i.a.*); **a portmanteau** (i.e., a single morpheme reflecting agreement with both arguments); **the effects of a scale/hierarchy** (e.g. one that reflects "cognitive salience"; Dayley 1978, Mondloch 1981, Norman & Campbell 1978, Smith-Stark 1978, *i.a.*; see also Stiebels 2006); and **multiple lexical variants of the probe** (cf.: C^0[+decl] vs. C^0[+decl, +*wh*]). See Preminger 2014 (pp. 18–20, 67–73, 89, 123–128) for the relevant argumentation.

    Let us consider what a viable account of these K'ichean data must deliver. What follows are schemata of a few relevant derivations, along with what we would need the verdict of interface-based filtration to be in each case:

(19)

	PROBE		SUBJ	OBJ	*desired verdict*	
a.	H^0	'*e-*'	*3pl*	*3sg*	✓	(agreement w/closest available *pl* target) *[=ex. (16a)]*
b.	H^0	'*e-*'	*3sg*	*3pl*	✓	(agreement w/closest available *pl* target) *[=ex. (16b)]*
c.	H^0	ϕ	*3sg*	*3pl*	✗	('gratuitous non-agreement': *pl* target available) *[cf. (19b)]*
d.	H^0	ϕ	*3sg*	*3sg*	✓	(no *pl* targets, no agreement) *[=ex. (18b)]*

The question I would now like to focus on is: **What rules out 'gratuitous non-agreement', as schematized in (19c)?** In a model where syntactic operations are freely-applying, the mere availability of an appropriate agreement target (the *3pl* object) is not, in and of itself, enough to guarantee that agreement will apply. The derivation in which agreement has not applied would have to fail some criterion enforced by the SM & C-I systems.

    Can (19c) be ruled out because of some property of the probe (H^0)? There are two possibilities to consider. If *3sg* targets can remove the offending property from the probe—e.g. "check the uninterpretable feature(s)"—then (20) should be grammatical, contrary to fact:

(20)

PROBE		SUBJ	OBJ	*desired verdict*		
H^0 ϕ		*3sg*	*3pl*	✗	("forced" agreement w/*sg* target)	*[cf. (19b)]*

Alternatively, if *3sg* targets cannot remove the offending property, then (19d) above should be ungrammatical—again, contrary to fact.

Overall, the conclusion is that deriving the obligatoriness of agreement from representational properties of the probe (e.g. 'uninterpretable' features) leads to a contradiction.[13]

Can (19c) be ruled out because of a property of one the DP goals? If DPs in this language/construction needed to be agreed with—e.g. to check their "Case"—then (19a–b) would be ungrammatical, contrary to fact. The same is true for (21), as well:

(21)

PROBE		SUBJ	OBJ	*desired verdict*		
H^0 '*e-*'		*3pl*	*3pl*	✓	(agreement w/closest available *pl* target)	*[=ex. (18a)]*

To summarize, inspecting properties of the probe and/or the goals unto themselves is insufficient to account for the obligatoriness of agreement in the K'ichean Agent-Focus construction.

A successful account of agreement is one where agreement involving a feature *f* takes place *as soon as the condition in (15) is satisfied*, and only if it is satisfied. (For reasons of space, I will not go through the relevant derivations here; the reader is referred to Preminger 2014:85–100, 129–175 for details.) In those derivations where the condition is never satisfied (e.g. (18b)/(19d), for *f* = [plural]), agreement simply does not apply, and no ungrammaticality (or "crash") arises. But evaluating (15) requires reference to primitives that are crucially syntactic. Therefore, the SM & C-I systems cannot ensure that agreement happens in the correct subset of cases, and thus, filtration at the interfaces with these systems cannot be what gives rise to the obligatoriness of agreement.

5.2.2. Argument 2: case[14]

As in the previous subsection, this discussion is intended to apply to any theory that enforces the obligatory nature of case assignment using a condition evaluated at the interfaces with the SM & C-I systems. But a useful straw man to keep in mind is the Case Filter proposal (Chomsky 1981), where valuation of a nominal's case features is enforced via a late-applying representational condition (see also Chomsky & Lasnik 1977, as well as the discussion in section 3).

The crucial evidence against this family of approaches comes from accusative case assignment in Sakha (Turkic). As shown by Baker & Vinokurova (2010), the conditions on the assignment of accusative in Sakha are as follows:

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[13]The same contradiction obtains even if we avail ourselves of covert expletives and/or other undetectable agreement targets. Suppose H^0 in (19d) successfully agrees with some XP β (e.g. a covert expletive). If H^0 could target singular DPs, (20) would be okay, contrary to fact—so β cannot be singular. But if β, targeted by H^0, is formally plural, we predict that H^0 in (19d) would be spelled out as *e-* ("pl."), again contrary to fact.

[14]This subsection builds on joint work with Theodore Levin and with Jaklin Kornfilt; see Levin & Preminger 2015 and Kornfilt & Preminger 2015.

(22) ACCUSATIVE

A nominal/DP α can be assigned ACC **only if** there is a nominal/DP β such that:

 i. β c-commands α

 ii. β and α are in the same locality domain

 iii. β is caseless

See Baker & Vinokurova 2010:599–620 for several arguments that accusative in Sakha is indeed assigned in this fashion, rather than by some head in the extended verbal projection (e.g. v^0 or V^0). Recall also that the assignment of case in Sakha—as in other languages—is part of syntax proper (see also Preminger 2014:177–213).

Now, suppose that we observe a scenario in Sakha in which accusative case is, empirically speaking, obligatory. By hypothesis, operations within syntax (such as case assignment) are supposed to be freely-applying. Thus, derivations in which accusative case has not been assigned would have to be ruled out at (one or both of) the interfaces between syntax and the SM & C-I systems.

As with (15), giving the SM or C-I systems access to the primitives necessary to evaluate (22) would amount to undoing the modular separation between syntax and the SM & C-I systems, in the first place (see (12), above). Thus, evaluating whether there is any nominal β that satisfies (22) with respect to a given nominal α is something only syntax can do. The most that the SM & C-I systems could do is inspect α itself. The interfaces with the SM and/or C-I systems could flag any derivation in which a given nominal α did not receive case as ungrammatical (e.g. due to "unchecked" case features). If the only opportunity for this particular α to get case was via the configuration in (22), then the obligatoriness of this instance of accusative could be derived via filtration at the interfaces. As we will see below, however, this approach is empirically inadequate.

The crucial evidence comes from raising-to-accusative constructions in Sakha:

(23) a. Sardaana **Aisen-*(y)**   beqehee [bügün *t* kel-er   dien] ihit-te   (Sakha)
          Sardaana **Aisen-*(ACC)** yesterday today   come-AOR COMP hear-PAST.3
          'Sardaana heard yesterday that Aisen is coming today.'

      b. Sardaana beqehee [bügün **Aisen-(*y)**   kel-er   dien] ihit-te
          Sardaana yesterday   today **Aisen-(*ACC)** come-AOR COMP hear-PAST.3
          'Sardaana heard yesterday that Aisen is coming today.'

[*Vinokurova 2005:363; annotations added*]

As (23a) illustrates, accusative case on the raised embedded subject is obligatory. (See Baker & Vinokurova 2010:616–617 for evidence that this is raising per se, and not a base-generated argument in the matrix clause coindexed with a null category of some sort in the embedded clause.)

The question I would now like to focus on is: **What rules out 'gratuitous non-accusative' on *Aisen* in (23a)?** If this is to be derived as a filter imposed by the SM & C-I systems, then—given the discussion above—there must be a way to detect the ill-formedness of the accusative-less version of (23a) by inspecting [DP *Aisen*] alone.

It would appear, based on (23b), that there is nothing wrong with an instance of [DP *Aisen*] that has not been assigned accusative. The interface-driven approach to case is therefore forced into the following position: the embedded clause in (23b) must have some property *p* (e.g. the ability to "assign nominative" to [DP *Aisen*]) that ameliorates whatever representational lacuna

the accusative-less version of [DP *Aisen*] in (23a) has. At the same time, the embedded clause in (23a) must lack property p, otherwise the accusative-less variant of (23a) would be predicted to be grammatical.

But this alone still would not suffice. Whether the embedded clause has property p must covary with whether or not [DP *Aisen*] moves out of the embedded clause, otherwise the biconditional relationship in (23a–b) between the position of [DP *Aisen*] and its case-marking would not be accurately captured.

This is where the approach runs into problems. Consider the acceptability of the accusative-less variant of *ehigi* ("you") in (24b):[15,16]

(24) a. min **ehigi-ni** bügün *t* kyaj-yax-xyt   dien erem-mit-im
        I   **you-ACC** today   win-FUT-2pl.S that hope-PST-1sg.S
        'I hoped you would win today.'

     b. min **ehigi** bügün *t* kyaj-yax-xyt   dien erem-mit-im
        I   **you** today   win-FUT-2pl.S that hope-PST-1sg.S
        'I hoped you would win today.'   [*Vinokurova 2005:361*]

This suggests that the kind of movement involved in the alternation between (23a) and (23b) is not, in and of itself, a sufficient condition for the assignment of accusative in this construction. To put this another way: raising out of the embedded clause is not restricted to those nominals that will ultimately receive accusative case (as the account where p = "the ability of the embedded clause to assign nominative" would falsely predict).

The distinction between (23a) (where accusative on the raised subject is obligatory) and (24a–b) (where it seems as though accusative is optional) is likely the result of (24) having two slightly different structures, one of which is ruled out in (23a). Consider (25a–b):[17]

(25) a. Masha salamaat-*(**y**)   **turgennik** *t* sie-te
        Masha porridge-*(**ACC**) **quickly**   eat-PAST.3sg.S
        'Masha ate the porridge quickly.'

     b. Masha **turgennik** salamaat-(#**y**)   sie-te
        Masha **quickly**   porridge-(#**ACC**) eat-PAST.3sg.S
        'Masha ate porridge quickly.'   [*Baker & Vinokurova 2010:602*]

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[15]The placement of the traces in the annotation of (24a–b) assumes that the position of modifiers is fixed, and arguments move around them. This is standard practice in syntactic theory (cf. Pollock 1989, among many others). Note the relative position of *bügün* ("today") and *Aisen* in (23b).

[16]The embedded verb in (24) shows full agreement with the raised embedded subject, in both number and person. Sakha also allows for partial agreement (in number but not in person) on the embedded verb, in which case accusative on the raised embedded subject becomes obligatory (rather than optional, as it is in (24)); see Vinokurova (2005:361). Note, however, that the subject in (23a) is 3rd person, meaning the string in question is compatible with both a full agreement parse and a partial agreement parse (as far as the agreement morphology in the embedded clause is concerned). Therefore, the possibility of partial agreement does not explain the obligatoriness of accusative in (23a) (cf. Baker 2011:893–896).

[17]As Baker & Vinokurova (2010:602) note, accusative in (25b) is possible only if the object bears contrastive focus, hence the '#' annotation (relative to a neutral / out-of-the-blue context).

In (25a), the nominal *salamaat* ("porridge") has moved out of the verb phrase; in (25b), however, it has not. Crucially, the presence of accusative case covaries with this movement (see also Baker & Vinokurova 2010:602–604).

It is likely, then, that this is precisely the source of apparent optionality in (24a–b): the examples in (24) contain no matrix-clause modifier (*bügün* "today" is an embedded-clause modifier, as the tense of the respective verbs makes clear). Thus, there is no overt material in (24) to delimit the edge of the matrix verb phrase. Crucially, then, the difference between (24a) and (24b) involves movement *within the matrix clause* (on a par with movement in the monoclausal (25)).

This means that there is no property *p* that satisfies the requirements stated earlier: regulating both the assignment of accusative *and* movement out of the embedded clause.[18] Crucially, the existence of such a property was a necessary condition for an account of (23a–b) in which the obligatoriness of accusative is enforced at the interfaces with the SM & C-I systems. (I.e., an account that rules out the accusative-less variant of (23a) by inspecting the status of [$_{DP}$ *Aisen*] itself, without needing to (re-)evaluate a condition like (22) outside of narrow syntax.)

To summarize, inspecting the properties of the nominal alone is insufficient to account for the obligatoriness of the assignment of accusative in Sakha raising-to-object constructions.

A successful account of the assignment of accusative (in Sakha, and likely in most other languages) is one where accusative is assigned to a nominal *as soon as it meets the condition in (22)*, and only if it meets this condition. (Once again, space considerations prevent me from going through the relevant derivations here; see Preminger 2014:187–208 for details.) In those derivations where the condition is never satisfied (e.g. (24b, 25b)), accusative is simply not assigned, and no ungrammaticality (or "crash", or fatal violation of the Case Filter) arises. But evaluating (22) requires reference to primitives that are crucially syntactic. Therefore, the SM & C-I systems cannot ensure that accusative is assigned in the correct subset of cases, and thus, filtration at the interfaces with these systems cannot be what gives rise to the obligatoriness of accusative in those instances where it is obligatory.

6. The solution: a return to STRUCTURAL DESCRIPTIONS

In the minimalist model, the obligatoriness of an operation $\mathcal{R}$ is enforced by means of one or more representational filters, imposed by the sensorimotor (SM) and conceptual-intentional (C-I) systems, which rule out the end results of those derivations in which $\mathcal{R}$ has not applied. In Syntactic Structures (as well as in Chomsky & Halle 1968, and many others), on the other hand, the obligatoriness of an operation $\mathcal{R}$ is enforced by automatically triggering $\mathcal{R}$ whenever (and as soon as) its STRUCTURAL DESCRIPTION is met. Derivations in which $\mathcal{R}$ has gratuitously not applied are ruled out as a simple case of non-generation: the grammar simply does not entertain derivations in which the relevant STRUCTURAL DESCRIPTION is met but $\mathcal{R}$ is not triggered.

In the previous section, we saw two case studies showing that the latter model is empirically preferable to the former. These case studies can be seen as specific instances of a broader strategy that can be used to empirically distinguish these two models of obligatoriness:

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[18]The same facts cast considerable doubt on the already dubious *Activity Condition* (Chomsky 2001); see also Nevins (2004), as well as Preminger 2014:134–136.

(26) FILTRATION [*Chomsky & Lasnik 1977, Chomsky 1995, among many others*]

		structural conditions on $\mathcal{R}$ met?	
		YES	NO
$\mathcal{R}$ happens?	YES	*grammaticality* (definitional)	*ungrammaticality* (definitional)
	NO	*ungrammaticality* (obligatoriness)	**ungrammaticality**

(27) NON-GENERATION [*Chomsky 1957, Chomsky & Halle 1968, among many others; but also: López 2007, Preminger 2014, i.a.*]

		structural conditions on $\mathcal{R}$ met?	
		YES	NO
$\mathcal{R}$ happens?	YES	*grammaticality* (definitional)	*ungrammaticality* (definitional)
	NO	*ungrammaticality* (obligatoriness)	**grammaticality**

The tables in (26–27) are meant to show the relationship between whether the structural conditions on some obligatory operation $\mathcal{R}$ are met, whether the operation itself applies, and whether the result is well-formed. The cells in the first row of each table are definitional: what it means for the structural conditions on $\mathcal{R}$ to be met is that applying $\mathcal{R}$ is licit; what it means for them not to be met is that applying $\mathcal{R}$ is illicit. Since we are interested in obligatory operations, the bottom-left cell of each table (the structural conditions on $\mathcal{R}$ are met, but $\mathcal{R}$ does not apply) must yield ungrammaticality.

The interesting case is when the structural conditions on $\mathcal{R}$ are not met, and $\mathcal{R}$ does not apply. On the filtration approach, what is important is that $\mathcal{R}$ apply (e.g. that the 'uninterpretable' features on the probe and/or goal be checked), and so this state of affairs should result in ill-formedness. On the non-generation approach, a scenario where the structural conditions on an operation are not met is simply a scenario where the operation is not triggered (cf., for example, the failure of *final devoicing* to apply to words that end in a phonological segment of the wrong type). No ill-formedness should arise, in the latter case.

A way to think about the two case studies in section 5.2, then, is as explorations of scenarios of precisely this type. In §5.2.1, we looked at scenarios like (19d), where the operation of φ-*agreement in [plural] features* is inapplicable because there was no accessible argument bearing this feature. (Recall that, in this construction, 3rd person singular arguments cannot be treated as viable targets for number agreement; see the discussion in §5.2.1.) And the result is well-formed, as shown in (18b). In §5.2.2, we looked at scenarios where the operation of *accusative case assignment* is inapplicable because the nominal in question is not in sufficient proximity to the next higher nominal (see (22)). And the result is well-formed, as shown in (24b) and (25b).

Both φ-agreement (at least as it concerns [plural] in K'ichean) and case assignment (at least as it concerns accusative in Sakha) must therefore be obligatory operations of the (27) type. In section 5, the two were formulated in a filtration-oriented way:

(15) φ-AGREEMENT

A head H^0 can enter into agreement in some φ-feature f with a DP α **only if**:

   i. H^0 c-commands α

   ii. H^0 and α are in the same locality domain

   iii. there is no bearer of valued f c-commanded by H^0 that asymmetrically c-commands α

(22) ACCUSATIVE

A nominal/DP α can be assigned ACC **only if** there is a nominal/DP β such that:

   i. β c-commands α

   ii. β and α are in the same locality domain

   iii. β is caseless

But (15, 22) can easily be reformulated as obligatory operations, as required by the non-generation mode of explanation (crucial changes are indicated by underlining):

(15') φ-AGREEMENT

A head H^0 <u>enters</u> into agreement in some φ-feature f with a DP α **<u>as soon as</u>**:

   i. H^0 c-commands α

   ii. H^0 and α are in the same locality domain

   iii. there is no bearer of valued f c-commanded by H^0 that asymmetrically c-commands α

(22') ACCUSATIVE

A nominal/DP α <u>is</u> assigned ACC **<u>as soon as</u>** there is a nominal/DP β such that:

   i. β c-commands α

   ii. β and α are in the same locality domain

   iii. β is caseless

What we have seen is that (15') and (22') are preferable to (15) and (22) on empirical grounds. And if we think of operations as being triggered immediately when their STRUCTURAL DESCRIPTION is met, the "as soon as" portion of (15'–22') can be factored out of their definition:

(15") φ-AGREEMENT

  a. STRUCTURAL DESCRIPTION:

     i. H^0, a seeker of valued f, c-commands α, a bearer of valued f

     ii. H^0 and α are in the same locality domain

     iii. there is no bearer of valued f c-commanded by H^0 that asymmetrically c-commands α

  b. STRUCTURAL CHANGE:

    associate the instance of valued f on α with H^0

(22") ACCUSATIVE

    a. STRUCTURAL DESCRIPTION:

        i. β, a caseless nominal/DP, c-commands α, a caseless nominal/DP

        ii. β and α are in the same locality domain

    b. STRUCTURAL CHANGE:

        assign ACC to α

In other words, we can view these results as an indication that φ-agreement and case are better understood as *transformations* (in the Syntactic Structures sense), and not as *interface conditions* (in the minimalist sense).

7. Conclusion

In this paper, we have seen evidence against the way certain ungrammatical outcomes are ruled out in minimalist syntax, via freely-applying operations coupled with filtration at the interfaces with the sensorimotor (SM) and conceptual-intentional (C-I) systems. It was argued that an empirically preferable approach is the one taken in Syntactic Structures, involving obligatory operations and non-generation.

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