

Easy to (re)analyse

Tough-constructions in minimalism

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Within minimalism, we may assume derivations to involve subderivations, connected by the interface components dealing with sound and meaning (layered derivations). If so, complex adjectival constructions involving predicates like *tough/easy* (as in *John is easy to please*) receive a natural account in terms of reanalysis taking place at these interface components, turning a complex adjectival construction into a simplex adjective which can be merged in predicative or attributive position in the next derivation layer. Arguments against reanalysis address earlier, more complicated conceptions of reanalysis, and fail to distinguish plain and expanded *tough*-constructions, the latter not showing any reanalysis characteristics. In a layered-derivation *cum* reanalysis approach, the arguments for empty operator movement in the embedded infinitival clause disappear, and the reanalysed construction shows the properties of an adjectival passive instead.

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1. Introduction

Tough-constructions, illustrated in English (1), first rose to prominence in Chomsky's (1964) discussion of the contrast with (2), providing a textbook example of the observation that superficially similar constructions may have radically different underlying structures.

- (1) John is easy to please
- (2) John is eager to please

Meanwhile, proposals for the proper analysis of (1) have varied over the years. I argue in this article that *tough*-constructions receive a simple and natural analysis

within linguistic minimalism. A crucial ingredient of minimalism, in the view adopted here, is the construction of a network of (sub)derivations (derivation layering), with interface effects showing up each time an element passes from one derivation layer to the next (Zwart 2009, 2011a). I argue that the reanalysis of the complex string *easy to please* as a single adjective can be understood as such an effect of derivation layering.

In view of this, the paper addresses the evidence for reanalysis in *tough*-constructions, as well as an alternative minimalist analysis (of Hicks 2009) not involving reanalysis, but relying on a movement process that I argue is not needed here.

2. Reanalysis in minimalism

Although conceptions of reanalysis vary, for the purpose of this article it will suffice to adopt a simple definition, where reanalysis applies when a complex structure is interpreted as a single unit. In minimalism (Chomsky 1995), complex structures are generated by a syntactic process (Merge), combining elements from some unordered set (called Numeration) into larger constituents. Sound and meaning properties are associated with these structures at an interface component which is strictly speaking not part of syntax. As I have argued elsewhere (Zwart 2006, 2011b), the output of this derivational process may be included in another Numeration, servicing a next derivation, creating a recursive loop. When that happens, a complex structure (the output of one derivation layer) is reanalysed as a single item (as part of the input for another derivation layer).

From this perspective, reanalysis is a key ingredient of the derivation of structures with a certain degree of complexity. As a side-effect of this process, reanalysed items may acquire special properties, such as a new category label, or a new phrase structure status. For example, the string *far from simple* in (3) must be construed in one derivation layer as a complex phrase headed by *far*, but is employed here as a single adjective expressing a degree of simplicity (Kajita 1977).

(3) a far from simple solution

Likewise, the string *easy to please* in (1) may be viewed both as a complex adjectival construction involving an infinitival complement to *easy*, and as a single adjective referring to a property of *John*. As Nanni (1980) shows, the string *easy to please* displays the distributional properties of an adjective:

- (4) a. How { old / easy-to-please } is John?
- b. John is an { old / easy-to-please } guy

In minimalist terms, we may state that *easy to please* is created in one subderivation, is reinterpreted as a single adjective in the interface component concluding that subderivation, and is then listed as a single item in the Numeration of the next subderivation, yielding expressions like (1) or (4).

Nanni's reanalysis proposal for *tough*-constructions is referred to by Chomsky (1981: 318) in his discussion of (1) in the context of the theory of government and binding. Chomsky's analysis, however, is considerably more complicated, and has provoked a number of critical reactions (e.g. Levine 1984a, 1984b; Hicks 2009). In what follows, I address these reactions in order to assess the viability of the reanalysis approach. As we will see, the objections raised against Chomsky's application of reanalysis do not apply to the more minimalist conception of reanalysis suggested here.

3. Reanalysis in Chomsky's analysis of *tough*-constructions

Chomsky (1977: 103) proposes that the infinitive *to please* in (1) has as its object a variable, the trace of a moved operator sitting in the left periphery of the infinitival clause (with the subject *John* somehow connected to the moved operator):

- (5) $John_i$ is easy [OP_i to please t_i]

As Chomsky argues, the proposed operator movement can be detected by its effects, familiar from *wh*-movements: unboundedness and island-sensitivity.

Unboundedness is illustrated in (6), where the gap is located in the infinitival complement of *try*, and island-sensitivity in (7), where the operator in the left periphery of the infinitival clause apparently blocks *wh*-movement out of that clause.

- (6) This book is easy [to try [to read]]

- (7) * [What sonatas] $_j$ is this violin easy [OP_i to play t_j on t_i] ?

If the operator movement in (5) is real, *John* cannot be a moved object of *please*, and yet it is interpreted as the internal argument of *please*. This is the problem that Chomsky (1981: 312) attempts to solve via reanalysis. In his proposal, the string *easy to please* (including the operator) is reanalysed as a single adjective, leaving the operator's trace stranded:

- (8) $[_{AP} \text{easy} [OP_i \text{to please } t_i]] > [_{AP} [_{A} \text{easy-to-please}] \quad t_i]$

The trace, then, can assume a new role as the foot of an A-chain (*John*, t), recreating a configuration familiar from passive and raising: by entering in a chain relation with the trace, *John* can receive the thematic role of the complement of *please*.

As Hicks (2009:543) points out, this analysis cannot be maintained within minimalism, where movement is no longer taken to leave a trace (instead, movement leaves a copy of the moved constituent). But notice that this objection is only valid if the reanalysis works exactly as pictured in (8), where the trace is not part of the reanalysed string. If reanalysis includes the trace (or if there is no operator movement to begin with, see below), all it does is yield a simplex adjective, which may be construed with its subject as in other predicative adjective constructions.

I conclude, then, that Chomsky's (1981) implementation of the reanalysis idea is complicated by what is potentially a mistaken rationale: the need to free up the trace of the moved operator in order to be able to provide the subject with a theta role. To clarify this issue, I propose to reconsider the evidence for *wh*-movement in *tough*-constructions first, and then return to the arguments leveled against reanalysis in this domain.

4. Reconsidering *wh*-movement in *tough*-constructions

As we have seen, the idea that *tough*-constructions involve *wh*-movement is supported by (better: consistent with) the observation that *tough*-constructions are islands for extraction. Thus, assuming operator movement, the ungrammaticality of (7) is explained by whatever explains *wh*-island effects like (9).

(9) * [What sonatas]_j did you wonder [how_i to play *t_j* *t_i*] ?

However, if *tough*-constructions involve reanalysis, the explanation of (7) in terms of *wh*-islands is redundant. This is because reanalysed items, though phrasal in the context of one derivation layer, are 'words' in the context of the next derivation layer, and are therefore generally opaque (by what Zwart 2006:137 calls the 'Generalized Integrity Principle', an extension of the principle of lexical integrity).

There is, however, a difference between opacity effects of the *wh*-island type and opacity effects of the generalized integrity type. The latter are absolute, but *wh*-island violations are somewhat mitigated when the moved element is not an adjunct. Thus, while the interpretation of *what sonatas* in (9) as the object of *play* is not entirely impossible, yielding a relatively mild ungrammaticality, interpretation of *how* as a constituent of the embedded clause in (10) is simply not available.

(10) * How_i did you wonder [[which sonatas]_j to play *t_j* *t_i*] ? (e.g. fortissimo)

If (7) is to be understood as a *wh*-island effect, we expect the same shades of ungrammaticality to appear. So the question is not whether (7) is ungrammatical, but whether it is in fact only mildly ungrammatical compared to (11).

- (11) * [How]_j is this violin easy [OP_i to play *t_j* on *t_i*] ? (e.g. fortissimo)

But (7) and (11) appear to be equally ungrammatical, suggesting that the ungrammaticality of (7) is not a wh-island effect.

The other piece of diagnostics invoked in support of wh-movement in *tough*-constructions is its presumed unboundedness, illustrated in (6). As is well-known, wh-movement can apply across clauses, in principle indefinitely:

- (12) Who_i did John say that Mary thought that Pete claimed ... that we met *t_i*

The fact that *tough*-constructions can be similarly expanded (cf. (6)) suggests that the operator movement is as unbounded as the wh-movement in (12).

However, Nanni (1980:576) was careful to point out that strings like *easy to please* in sentences like (1) are structurally ambiguous: they may be the result of reanalysis, and hence essentially words, or they may be regular full fledged structures. As she shows, only the latter can be expanded to include multiple embeddings or a *for*-PP (as in *John is easy for Mary to please*). Expanded *tough*-constructions do not show the reanalysis characteristics (cf. (4a)):

- (13) a. How easy (*to try) to read is that book?
b. How easy (*for Mary) to please is John?

The difference between plain and expanded *tough*-constructions is also clearly observable in Dutch, where only the expanded construction involves the complementizer *om*:

- (14) Dit tentamen is makkelijk (om) te maken (Dutch)
this test is easy OM to make-INF
'This test is easy to make.'

In attributive position (cf. (4b)), the complementizer cannot appear, showing that the expanded *tough*-construction is not subject to reanalysis:

- (15) een makkelijk (*om) te maken tentamen (Dutch)
an easy OM to make-INF test
'an easy-to-make test'

To return to the evidence for wh-movement in *tough*-constructions, reanalysis can only be motivated for plain *tough*-constructions, and in these the embedding illustrated in (6) does not occur.

The analysis of (1) in Chomsky (1981) requires that operator movement and reanalysis coincide, but evidence for this coincidence now appears to be lacking. In constructions where it is reasonable to suppose that reanalysis takes place (plain, non-expanded *tough*-constructions), evidence for empty operator movement is

absent. The opacity effects follow automatically on the assumption that reanalysis creates an opaque domain (generalized integrity), and unboundedness can only be demonstrated in expanded *tough*-constructions (not involving reanalysis). With this in mind, let us return to the question of reanalysis in *tough*-constructions.

5. Against reanalysis

I now proceed on the assumption that the arguments of Levine (1984a,b) and Hicks (2009) are sufficiently representative of the problems facing a reanalysis account of *tough*-constructions.

The first problem, noted by Levine (1984a: 164), is that the *tough*-construction can be broken up by Right Node Raising (backward conjunction reduction of peripheral material):

- (16) John is difficult, and Mary (is) impossible, to please

Right Node Raising is different from most other syntactic operations in not necessarily respecting constituency (Abbott 1976). Within minimalism, where the only syntactic operation is Merge, this suggests that Right Node Raising is not part of syntax, but part of what goes on at the interface (possibly some kind of ellipsis). Generalized integrity does not always apply at the interface, as illustrated with Right Node Raising in Dutch in (17), breaking up compounds.

- (17) Tasman heeft het Noord- en Cook (heeft) het Zuid- eiland verkend
 Tasman has the North and Cook has the South island explored
 ‘Tasman explored the North Island and Cook the South Island.’

If so, the observation in (16) is not inconsistent with a reanalysis account of *tough*-constructions.

The second argument (Levine 1984b: 7) involves a demonstration of internal structure within the reanalysed string:

- (18) My car was hard [for the people John_i said he_i used in such cases] to fix

In (18), the internal structure is demonstrated by the structure-sensitive dependency between *he* and *John* inside the *for*-PP. However, such a dependency can only be shown in expanded *tough*-constructions — which we know do not involve reanalysis in the first place.

A third argument (Levine 1984b: 13) shows that an extraposed clause can be associated with the noun phrase in a *for*-PP in an expanded *tough*-construction:

- (19) Mary would be hard for *someone* to deal with *who was unprepared for her eccentricities*

As expanded *tough*-constructions do not involve reanalysis, a more relevant case would have to feature a relative clause associated with a recipient PP inside an *easy-to-please* string, as in the following example from Dutch:

- (20) een makkelijk aan kinderen te gev-en koekje
a easy to children to give-INF cookie
'a cookie that is easy to give to children'

As (21) shows, an extraposed relative clause can be associated with the noun phrase in a recipient PP:

- (21) koekjes aan kinderen gev-en die Donald Duck ken-nen
cookies to children give-INF REL Donald Duck know-PL
'give cookies to children who know Donald Duck'

We can now use this observation to test if an extraposed relative clause can be associated with a noun phrase internal to an *easy-to-please* string, and (22) shows that it cannot, as predicted by the reanalysis account.

- (22) *een makkelijk aan kinderen te gev-en koekje die Donald Duck ken-nen
a easy to children to give-INF cookie REL Donald Duck know-PL
'a cookie that is easy to give to children who know Donald Duck'

This argument, then, seems to provide support to a reanalysis account (of the relevant cases involving plain, non-expanded *tough*-constructions).

A fourth argument (Hicks 2009: 552) shows that the subject of the *tough*-construction may reconstruct into the position with which it is thematically associated (i.e. the trace position in the operator movement analysis, cf. (5)). This would suggest that the subject is not base-generated in its surface position, but moved there from the position of the object of the infinitive. (23) is a representative example (from Sportiche 2002: 117; bracketing and indices added).

- (23) [Pictures of his_i friends]_j are hard for [every photographer]_i to sell *t_j*

In (23), *his* is interpreted relative to the reference of *every photographer* (see Hicks 2009: 552f for further examples and for discussion of the factors blocking such dependencies in other cases). Inasmuch as the reanalysis account entails that the subject is base-generated in its surface position, observations like (23) potentially undermine it. However, as before, this argument can only be formulated for expanded *tough*-constructions, which we know do not involve reanalysis.

A final argument (Hicks 2009: 554) shows that *tough*-constructions behave exactly like passives in the extent to which they tolerate split idioms:

- (24) *kick the bucket* ‘pass away’
 a. *The bucket was kicked
 b. *The bucket was easy to kick
- (25) *make headway* ‘progress’
 a. ?Headway was made
 b. ?Headway was hard to make

From the minimalist perspective taken here, idioms, with their idiosyncratic sound-meaning properties, are typically established at the interface between derivation layers (Zwart 2009: 173). The problem with (25b) for the reanalysis account would be that *hard to make* and *make headway* cannot both be created at the interface between derivation layers.

To fully appreciate the argument, we would need to exclude that (25b) is an expanded *tough*-construction, and we would have to be sure that the relevant cases involve an idiomatic collocation rather than a metaphoric expression (*headway*) combined compositionally with a nonidiomatic light verb (*make*). It is not clear, then, how to weigh the argument at this point. As we see below, the parallel with the passive is potentially quite significant, though.

Summarizing, once we make the distinction between plain and expanded *tough*-constructions, it becomes clear that arguments formulated in the literature against reanalysis apply to expanded *tough*-constructions only, which we know do not involve reanalysis in the first place. For plain *tough*-constructions, the observations in Nanni (1980) suggest that reanalysis takes place, though not as implemented in Chomsky (1981), but along the minimalist lines sketched here in Section 2.

6. The passive nature of *tough*-constructions

At this point, we are led to conclude that *tough*-constructions (at least of the plain, nonexpanded type) are characterized by reanalysis (turning a complex adjectival phrase into simple adjective), and that we are not compelled to assume any empty operator movement inside the *tough*-adjective’s infinitival complement. These conclusions are diametrically opposed, however, to the only (or most prominent) minimalist analysis of *tough*-constructions in the public record, Hicks (2009).

Rejecting the reanalysis account, and maintaining the empty operator movement of Chomsky (1977), Hicks (2009) proposes that the subject (*John* in (1)) is generated in the object position of the infinitive (marked by the trace in (5)), *together* with the empty operator. The subject-operator complex moves to the left periphery of the infinitival clause, just like in (5), from where the subject is subextracted and moves to its surface position (as an instance of ‘smuggling’ à la Collins 2005).

The analysis, like that of Chomsky (1981), is motivated by the need to link the subject up with the position of the infinitival verb's internal argument. However, the parallel with the passive observed by Hicks (2009:554) (see (24)–(25)) suggests a different approach.

In Dutch, the infinitive in *tough*-constructions alternates with a passive participle (in the intended reading of (26), *gemaakt* 'made' has pitch accent, which shows that *makkelijk* 'easy' is an adverb and not a resultative predicate):

- (26) Het tentamen is makkelijk { te mak-en / gemaakt }
 the test is easy to make-INF make:PART
 'The test is easy to make.' / 'The test is easily made.'

The infinitive in Dutch (as in most Indo-European languages, cf. Sihler 1995:607) has no voice feature specification, and it can clearly be used in a modal (potential) passive sense in constructions like (27).

- (27) a. Het tentamen is nog te mak-en
 the test is still to make-INF
 'The test still needs to be made.'
 b. een nog te mak-en tentamen
 a still to make-INF test
 'a test that still needs to be made'

The constructions in (27) alternate with regular passive constructions featuring the perfective participle *gemaakt* 'made' instead of the infinitive *te maken* 'ge-maakt', which forces the particle *nog* 'still' to shift to *al* 'already'. This suggests that, while the regular passive has a realis/perfective flavor, the infinitive is still in use as a passive for unrealized events.

If the infinitive in *tough*-constructions is a passive, and if reanalysis applies, the syntax of *tough*-constructions is simply that of a lexical ('adjectival') passive, and we may assume that the subject receives its thematic role via whatever mechanism applies in attributive and predicative adjective constructions (arguably some form of predication, cf. Levin and Rappaport 1986:643 and Heycock 1999:226).

In support of the analysis of *tough*-constructions as passives, we note that constructions that resist passivization do not occur as *tough*-constructions either (as first noted in Postal 1990:372; with some exceptions, also noted there). This includes passive constructions themselves (28a), unaccusative constructions (28b), exceptional case-marking constructions (28c), and middle constructions (28d).

- (28) a. *John is easy to be pleased
 b. *John is easy to arrive
 c. *John is easy to hear sing a song
 d. *This book is easy to read well

Postal (1990:373–374) raises several objections for the idea that *tough*-constructions are passives. Some of these are easily dispelled (e.g. the absence of passive morphology is not a problem, as the infinitive in Indo-European is voice-neutral; and some objections apply to expanded *tough*-constructions only), while others demand further study. For instance, gerunds receive an arbitrary control reading in *tough*-constructions, but not in passives:

- (29) a. Prince Fielder will be hard to sign without committing {ourselves/
*himself} to a nine-year deal
- b. Prince Fielder was signed without committing {himself/ *ourselves} to a
nine-year deal

But since (29b) is not an adjectival passive, it is not clear what the observation entails, and replacing *signed* in (29b) with an adjectival passive (like *exhausted*) has the effect that the subject control reading disappears again (Erich Groat, p.c.). In the absence of systematic patterns contradicting the passive nature of *tough*-constructions, I will assume that the analysis may be upheld.

7. Conclusion

The gist of the analysis may now be summarized as follows. Plain *tough*-constructions (the *easy-to-please* part in (1)) are created in one subderivation, at the end of which they pass through the interface component, where they are reanalysed as adjectives with a passive reading. In the next subderivation, the subject (*John* in (1)) is combined with this complex adjective, now a single lexical item, and is interpreted by whatever mechanism yields the interpretation of a subject of a predicative adjective (or the head noun of an attributive adjective). The association of *John* with *please* in (1) is entirely derivative, and there is no need to describe it as a direct effect of movement or chain formation, as in Chomsky (1977, 1981) and Hicks (2009).

The proposed analysis cannot be extended to expanded *tough*-constructions (allowing embedding and inclusion of more material, such as a *for*-PP or, in Dutch, a complementizer). Like plain *tough*-constructions, expanded *tough*-constructions are islands for extraction, suggesting that they may be the output of a separate derivation (assuming that derivation layering is the source of opacity in general). But crucially, they show none of the reanalysis characteristics, and appear to lack the infinitival passive interpretation as well. In this connection it should be pointed out that while reanalysis is invariably a function of derivation layering, not every instance of derivation layering needs to give rise to reanalysis.

The minimalist analysis of *tough*-constructions in terms of derivation layering provides a solution to a paradox often noted in the literature (e.g. Lasnik & Uriagereka 1988:147; Chomsky 1995:188; Frank 2002:9). In Chomsky's (1981) analysis, assignment of a theta-role to *John* in (1), normally taking place at D-structure, must be postponed until chain-formation takes place at surface structure; but at the same time, the subject of the *tough*-construction may be arbitrarily complex, perhaps a clause, as in (30), so that theta-role assignment *within* the subject must take place before the subject itself receives a theta-role. Hence there cannot be a single level at which thematic roles are distributed.

(30) [That the Matterhorn is tough to climb] is easy to see

This paradox is now resolved, firstly because cyclic assignment of thematic roles is an inherent feature of layered derivations, and secondly because the analysis proposed here allows us to maintain that within each derivation layer, thematic roles are assigned immediately upon merger of the element involved.

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