J. Linguistics **58** (2022), 233–268. © The Author(s), 2021.
Published by Cambridge University Press
doi:10.1017/S002222672100013X

Taking time with the *tough*-construction[1]

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(Received 30 November 2019; revised 23 April 2021)

I provide a syntactic analysis of the take-time construction (*It took an hour to complete the test*). The investigation provides insight into well-known issues concerning the related *tough*-construction. Using a battery of standard syntactic diagnostics, I conclude that the take-time construction and the *tough*-construction require a predication analysis of the antecedent-gap chain, not a movement analysis. I also conclude that the nonfinite clause is in a modificational relationship with the main clause predicate, not a selectional relationship. Broadly, this study expands the class of *tough*-constructions, illustrating crucial variation among predicates, and pointing the way to a unified analysis. The investigation also reveals undiscussed aspects of English syntax, including the fact that English has a high applicative position.

KEYWORDS: applicatives, modification, nonfinite clauses, predication, syntax, *tough*-construction

1. INTRODUCTION

The *tough*-construction in (1) has generated an enormous amount of healthy theoretical debate.[2]

(1) (a) It was difficult to complete this test.
(b) This test was difficult to complete *e*.

The alternation in (1) is not confined to just adjectives (cf. Lasnik & Fiengo 1974; Williams 1983), though this fact has not generally played a significant role in the analysis of (1). Nevertheless, it has been recognized that other kinds of predicates can be *tough*-predicates, including nouns (Lasnik & Fiengo 1974) and psych-verbs (Pesetsky 1987). The focus of this study is on the take-time construction (TTC),

[1] I sincerely thank Dominique Sportiche and Tim Stowell for generous feedback on earlier drafts of this work. I also thank audience members at LSA in Washington DC in 2016. Finally, I thank the three anonymous reviewers for the *Journal of Linguistics*, whose invaluable comments have made this a better piece of research.

[2] Restricting discussion just to English, see Bresnan (1971, 1972), Postal (1971, 1974), Lasnik & Fiengo (1974), Chomsky (1977, 1981), Nanni (1980), Williams (1983), Browning (1987), Epstein (1989), Bayer (1990), Grimshaw (1990), Jones (1991), Brody (1993), Heycock (1994), Grover (1995), Dalrymple & King (2000), Goh (2000), Hornstein (2001), Levine & Hukari (2006), Fleisher (2008, 2013, 2015), Hicks (2009), Hartman (2011, 2012), Longenbaugh (2015, 2016), Keine & Poole (2017), Poole, Keine & Mendia (2017), Gluckman (2018, 2019).

https://doi.org/10.1017/S002222672100013X Published online by Cambridge University Press

which has also been observed to allow the *tough*-alternation (Chomsky 1981: 319, credited to Tim Stowell; Jones 1991: 227; Klingvall 2018; Gluckman 2019).[3]

(2) (a) It took an hour to complete this test.
(b) This test took an hour to complete *e*.

As I illustrate in Section 2, the alternation in (2) is identical to that in (1), and so should be given the same theoretical explanation. The contribution of this article is to investigate the syntactic properties of the *tough*-construction through the lens of the TTC. As an instantiation of the general phenomenon that comprises the *tough*-construction, a close look at the alternation in (2) sheds light on what is, and is not, a viable analysis of (1).

The TTC provides clarity on two core issues with respect to the *tough*-construction. Foremost, we find that the subject *this test* does not get to its surface position in (2) via movement out of the lower clause; however, we find evidence that it has moved from somewhere lower in the main clause. This finding is compatible with PREDICATION-based approaches to the *tough*-construction (as in, e.g., Williams 1983), rather than MOVEMENT-based approaches (as in, e.g. Postal 1971). Moreover, it discriminates among various kinds of predication-based accounts as well in that it is not consistent with licensing the non-expletive subject *this test* in its surface position (as argued in, e.g. Rezac 2006), rather, the '*tough*-subject' is a (nonthematic) argument of the *tough*-predicate (Jones 1991).

Second, we find that the relationship between the nonfinite clause and the main clause is a MODIFICATIONAL, rather than a SELECTIONAL relationship. In (2), the nonfinite clause is a VP modifier. This again differentiates among analyses of the *tough*-construction between those that treat the nonfinite clause as an argument of the *tough*-predicate (e.g. Keine & Poole 2017) and those that treat it as adjoined to the *tough*-predicate (e.g. Mulder & Den Dikken 1992; Hornstein 2001).

In addition to these two core observations, I make an ancillary observation about English syntax. We find clear evidence for a HIGH APPLICATIVE position in English – a language that is otherwise argued to lack high applicatives (Pylkkänen 2008). The data are consistent with what is argued in Kim (2012) and lexical decomposition approaches to light verbs (Ritter & Rosen 1997; Hale & Keyser 2002).

The final point of this article is more general. The TTC is representative of the class of predicates that participate in the *tough*-construction, including *cost* and *set X back* (Jones 1991), and possibly psych-verbs (Pesetsky 1987). Thus, the findings below are not simply a 'quirk' of the TTC, rather the properties that I investigate here are broadly applicable in English syntax. In the specific investigation of the TTC, I therefore address both the homogeneity and heterogeneity of the general class of predicates that permit the *tough*-alternation. The finding is that all predicate types, adjectives, nouns, and verbs, are potential *tough*-predicates (see Williams

[3] The take-time construction is most widely recognized as a diagnostic for telicity (e.g. Mourelatos 1978; Mittwoch 1991; Borer 2005: 330; MacDonald 2006).

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1983). In this way, we start to build a profile of the range of core properties of the *tough*-construction, where each predicate type differs, and why.

This article is structured in the following way. I will first confirm in Section 2 the parallels between (1) and (2), showing that both constructions involve the same somewhat idiosyncratic properties. I will also note there how the two constructions diverge in both form and meaning. I investigate the TTC's specific properties in Section 3, using standard tests for constituency, movement, and c-command. I then turn back to the *tough*-construction in Section 4, showing how the findings shed light on the numerous previous proposals of the alternation in (1). In the conclusion, Section 5, I briefly expand the investigation to comment on other predicates that could possibly provide further insight into the *tough*-construction, as well as the general argument structure of English.

2. Shared properties of the TTC and *tough*-construction

The purpose of this section is to establish the (well-known) defining properties of the *tough*-construction, and illustrate that the TTC represents an instance of the same idea. The first and central observation is that, in both cases, we find an alternation between an expletive/pleonastic subject and non-expletive subject binding a (non-subject) gap in a lower nonfinite clause (represented throughout with '*e*').

(3) (a) It was difficult to repair the car.
(b) The car was difficult to repair *e*.
(4) (a) It took an hour to repair the car.
(b) The car took an hour to repair *e*.

The characteristic property of this alternation is that the non-expletive subject in the examples in (3b) and (4b) are SYNTACTICALLY arguments of the main clause, but THEMATICALLY arguments of the lower clause. The latter point is illustrated by the fact that without the nonfinite clause the *tough*-subject is not possible, demonstrated by the lack of entailment in (5).[4]

[4] This of course differentiates the *tough*-construction from the related *pretty*-class adjectives, where the subject is possible without an implicit/elided clause.

(i) The painting was pretty (to look at *e*).

See further discussion in Section 4. Multiple reviewers suggest that sentences like *The test took an hour/the test was difficult* at least imply that the TTC and the *tough*-construction *can* thematically license a subject. However, such sentences are cases of what Pustejovsky (1996) calls *metonymic reconstruction*, i.e. coercion to events. *Test* can be coerced to something like *taking the test*, in a parallel fashion to the observation that *Mary began the test* means *Mary began taking the test.* Type-shifting *the test* to describe a property of events allows combination with *take an hour* intersectively (as suggested by an anonymous reviewer). (An alternative idea is suggested in Landau 2009.) The idea would be that (iii) is then subject to event closure.

(ii) $[_{VP}$ the test [take an hour]]
(iii) $[\![(ii)]\!] = \lambda e.[\text{taking-the-test}(e) \wedge \text{take-an-hour}(e)]$.

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(5) (a) The car/tree/table was difficult to move $e \not\models$??The car/tree/table was difficult.
(b) The car/tree/table took an hour to move $e \not\models$??The car/tree/table took an hour.

To the extent that we can understand the second sentences in (5), it must be with respect to an elided or implicit event. Thus, we appear to have a case of non-local selection. The natural response is to treat this as a case of movement (as in, e.g. Chomsky 1981). But this raises more questions, because there is very good evidence that the movement step in the lower clause comprises a step of A′-movement. This would make the antecedent-gap chain an instance of IMPROPER MOVEMENT, i.e. an A′-chain headed by something in an A-position. Evidence for the A′-step comes from standard diagnostics like islandhood, extraction of goals in double object constructions, and licensing of parasitic gaps (Chomsky 1977).

(6) *Creates islands*[5]
(a) * What is that sonata easy to *e* play on t_{wh}?
(b) * What did that sonata take an hour *e* to play on t_{wh}

(7) *No extraction of indirect objects*
(a) * Mary was difficult to give *e* a book.
(b) * Mary took an hour to give *e* a book.

(8) *Parasitic gaps*
(a) Kathryn was easy to convince *e* without insulting *pg*.
(adapted from Heycock 1991: 225)
(b) Kathryn took an hour to convince *e* without insulting *pg*.

What makes metonymic reconstruction possible is subject to debate, though it is clearly influenced by contextual factors, as well as lexical semantics. Still, as evidence that certain nouns can be given event readings, I note that *test* may also have an event modifier: *a quick test.* And indeed, similar coercion can even save the sentences in (5) in a given context. If we are looking at a collection of tables that you recently moved, you can say *That table took an hour/That table was easy,* or *That was a quick table.* See further discussion in Pustejovsky (1996: 21–23) concerning *tough*-predicates proper and their connection to event structure.

[5] This is noted in Chomsky (1977: 105) to be NOT true in all cases.

(i) What violin is that sonata$_j$ easy to play *e* on t_j?

Jacobson (2000) shows that island effects do appear when other factors are introduced. It is also worth noting that Faraci (1974: 22) prefigures Chomsky's original discussion with the observation that once there is an antecedent-gap chain, 'the remaining NP in the VP complement to the *tough*-type predicate cannot be chopped'.

(ii) the sonatas$_i$ which it is easy to play t_i on this violin.
(iii) *the sonatas$_i$ which this violin is easy to play t_i on *e*. (Faraci 1974: 22)

We now understand these examples as instances of a *wh*-island constraint violation.

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Even more unusual, the A′-movement is restricted in ways that other A′-movements are not. For instance, it does not appear to generally cross finite clausal boundaries.[6]

(9) (a) * The test was difficult to say that Mary completed *e*.
(b) * The test took an hour to say that Mary completed *e*.

It has also been widely noted that the *tough*-construction resists connectivity effects. *Tough*-subjects cannot be interpreted for scope (10) or for variable binding (11) inside at the gap position (Postal 1974; Epstein 1989; Fleisher 2013).[7] *Tough*-subjects also permit Condition C obviation (Munn 1994) in (12).

(10) (a) Many people are easy to convince *e*.
≠ It is easy to convince many people.
(adapted from Epstein 1989: 651)
(b) Many people took an hour to convince *e*.
≠ It took an hour to convince many people.

(11) (a) * Its$_i$ shelf was easy to put every book$_i$ on *e*
cf. The shelf was easy to put every book on *e*.
(b) * Its$_i$ shelf took an hour to put every book$_i$ on *e*.
cf. The shelf took an hour to put every book on *e*.

[6] There are a few noted exceptions to this (Jacobson 2000; Postal & Ross 1971), but the point stands that the gap is not as widely available as expected for A′-movement. A reviewer correctly observes that gaps may be embedded in (some) nonfinite clauses, e.g. (ii).

(i) Lima beans are hard (for me) to imagine anyone liking *e* / wanting to eat *e* / thinking they can get Mary to *e*. (Jacobson 2000: 9)
(ii) The lima beans took an hour to decide to eat *e*.

I will put aside in this article how to derive the particular A′-properties associated with this movement. Note though that, *a priori*, there is no reason to expect that finiteness of the embedded clause should affect whether A′-movement is possible or not. In any case, the crucial point is that there is a parallel between the *tough*-construction and the TTC in this regard. Note though that, as discussed below, there are semantic distinctions with respect to which predicates are permitted in the lower clause: the TTC imposes a telicity requirement, which makes some predicates (like *imagine*) infelicitous in the TTC for independent reasons (i.e. they are not telic predicates).

[7] This too is widely debated with many claiming that bound variables are possible (Sportiche 2006; Hicks 2009; Salzmann 2017). However, Poole et al. (2017) point out (citing a blog post by Benjamin Bruening) that all known examples involve picture-NPs, or similar 'logophoric' elements, and so are confounded by the known properties of such perspectival items. However, even given this observation, it appears that there is just a basic disagreement about grammaticality in the literature. For instance, Salzmann (2017) gives the following example of binding (adapted from Mulder & den Dikken 1992: 308).

(i) His$_i$ car is tough for me to believe that any German$_i$ would be willing to part with *e*.
(Salzmann 2017: 332)

I have found no speakers of English who share this judgment. Pending further investigation into dialectal variation, I will continue under the assumption that such bound variables are not possible.

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(12) (a) A picture of John$_i$ is hard for him$_i$ to draw *e*.
(adapted from Munn 1994: 403)
(b) A picture of John$_i$ took an hour for him$_i$ to draw *e*.

Similarly, as Wilder (1991: 123) points out (see also Mulder & Den Dikken 1992: 316), examples such as (13a) demonstrate that the *tough*-subject is not necessarily a selected argument in the nonfinite clause. Because the verb *believe* can only appear with finite or purely nominal complements, the infinitival clause *tough*-subject could not have originated as the complement to the infinitive. The same fact holds for *refute* in (13b).

(13) (a) For him to be top of the class is hard to believe *e*.
(Wilder 1991: 123)
(b) For the moon to be made of cheese would take 10 minutes to refute *e*.

It is worth noting one argument that, at least superficially, suggests that connectivity effects are possible: idiom chunks. It is widely reported that certain idioms survive in the *tough*-construction (14a). However, it is also widely reported that not all idioms are possible (14b).

(14) (a) The hatchet is hard to bury *e* after long years of war.
(Berman 1973: 34)
(b) *Good care is hard to take *e* of the orphans.
(Chomsky 1981: 309)

(15) (a) The hatchet took a while to bury *e* after so many years.
(b) *Good care took years to take *e* of the orphans.

I will not provide a solution to this puzzle here. I adopt Hicks's (2009: 554) stance that 'the behavior of each type of idiom chunk under [*tough*-movement] at least mirrors its behavior under passivization'. Whatever the explanation for this, I simply note that the *tough*-construction proper and the TTC share the same judgments.

I finally briefly note that the *tough*-construction and TTC share many similarities in where the gap in the lower clause is allowed to appear. An illustrative example is the fact that raising-to-object/ECM'd arguments are not permitted as *tough*-subjects, though object control is perfectly fine as a target for the gap (Postal 1974: 193).

(16) Raising-to-object/ECM
(a) *Smith was easy for John to force *e* to complete the test.
(b) *Mary took an hour to force *e* to complete the test.

(17) Object control
(a) Bill is tough to persuade *e* [PRO to complete the test].
(b) Mary took an hour to persuade *e* [PRO to complete the test].

The examples illustrate that the exact same particular (and somewhat peculiar) properties of the *tough*-construction are also found in the TTC.

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This is not to say that the constructions are entirely identical. There are some notable and important differences between the *tough*-construction and the TTC. First, obviously, they mean different things. This is important to point out because it affects which nonfinite verbs are permitted. The TTC imposes a telicity restriction on the nonfinite verb and therefore it is incompatible with stative verbs (Mourelatos 1978; Mittwoch 1991), a property not shared by the *tough*-construction.[8]

(18) (a) It's difficult to owe money to the mob
(b) ??It took a year to owe money to the mob.

The TTC also differs syntactically in a striking way: it has a richer argument structure, licensing what I identify as an applied argument.[9]

(19) (a) It was (*Mary) tough (*Mary) to read this book.
(b) It took Mary a year to read this book.

The syntactic status of *Mary* in (19b) will play an important role in the analysis of the TTC. I return to it in Subsection 3.2.

The TTC also has a more 'flexible' argument structure in that it permits the non-expletive subject to bind a non-object gap, something which is disallowed in canonical *tough*-predicates.[10]

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[8] However, there are also noted restrictions on which nonfinite verbs are permissible in the *tough*-construction (Nanni 1978; Dalrymple & King 2000). In general, 'non-volitional' predicates are degraded.

(i) ?? It was tough for John to lack money.
(ii) ?? It was easy for Mary to want that expensive dress.
(iii) ?? It was hard for the teacher to prefer the hardcover edition.
(adapted from Dalrymple & King 2000: 14)

I put aside this interesting fact here, but the analysis below is perfectly consistent with this restriction. In Subsection 3.1, I adopt the idea that the nonfinite clause and the *tough*-predicate form a complex predicate by meaning conjunction of properties of events. Thus, I will derive that the *tough*-construction will be restricted to nonfinite event descriptions which can have manner adverbials like *in a difficult/easy/hard/... way*, which is not possible for such non-volitional predicates.

[9] A reviewer correctly points out that canonical *tough*-predicates permit judge arguments (Keine & Poole 2017), and so in fact may not be so dissimilar from the TTC after all. Our analysis below in fact captures this parallelism, because they are both controllers of the PRO subject in the lower clause. However, there are important semantic and syntactic distinctions between judges and what I am identifying as applied arguments in the TTC, as we illustrate below. Finally, I also note that not all *tough*-predicates permit judges: *illegal* is not judge-dependent, nor are Fleisher's (2015) *rare*-class predicates.

[10] In this way, the TTC is similar to the adjective *ready* in (i) and (ii), though *ready* does not allow an expletive version (see Chomsky 1977: 109) in (iii).

(i) The chicken is ready to eat *e* (… we are hungry).
(ii) The chicken is ready PRO to eat (… it is hungry).
(iii) *It is ready to eat the chicken.
Too/enough-degree constructions also follow this pattern.

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(20) (a) * Mary was difficult to complete the test.
(b) *The bus was easy to arrive.

(21) (a) Mary took an hour to complete the test.
(b) The bus took an hour to arrive.

I note that there is an alternative reading of (21a) that treats *take* as a 'lexical' verb (i.e. not a light verb). On this reading, Mary set aside an hour to complete the test. This version of *take* is diagnosable in two ways. First, lexical-*take* may appear with verbal particles. Verbal particles are barred in the presence of an expletive subject and a gap in the nonfinite clause (i.e. cases where *take* is a light verb).

(22) (a) Mary took off an hour to complete the test.
(b) *It took (Mary) off (Mary) (for Mary) an hour to complete the test.
(c) *The test took (Mary) off (Mary) (for Mary) an hour to complete *e*.

Second, constructions with lexical-*take* lose the telicity restriction. Thus it is possible to follow sentences like (21a) with a statement that asserts the nonculmination of the nonfinite event (23a), and it is possible to use a stative predicate (23b). When *take* is a light verb, the event must culminate, and stative predicates (or any non-culminating event) are not possible (24).

(23) (a) Mary took an hour to complete the test (but she didn't complete it).
(b) Mary took an hour to sit and stare out of the window.

(24) (a) It took (Mary) an hour (for Mary) to complete the test # (but she didn't complete it).
(b) The test took (Mary) an hour (for Mary) to complete *e* # (but she didn't complete it).
(c) *It took an hour to sit and stare out the window.

I will put aside the lexical version of *take* in this article. I assume that, in this case, the subject is introduced as an agent in its normal position. To control for this issue, when applicable, I will use inanimate subjects, which cannot be agentive. For example, (21b) is not ambiguous in the same way as (21a).[11]

Finally, there is the obvious observation that there are simply more parts to the TTC. It minimally consists of the light verb *take* plus a 'measure phrase'. Note that the measure phrase need not be a temporal unit as long as it describes some bounded interval.[12]

[11] A third diagnostic is that lexcial-*take* can be passivized: *?An hour was taken off to complete the test.* However, because these judgments are particularly shaky, I do not believe that this is a reliable test.

[12] Credit goes to Nico Baier for this observation. Interestingly, there are more idiomatic uses of the TTC that involve what are less obviously measure phrases as in (i). Surprisingly, such idiomatic uses do not permit antecedent-gap chains in (ii) nor high applicatives in (iii).

(i) It took three days/the death of his father to convince John to go home.

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(25) (a) It takes me 3 steps to reach the door.
(b) The door took me 3 steps to reach *e*.

Thus, while the *tough*-construction proper involves a syntactic relation between an adjective and nonfinite clause, the TTC is a more complex syntactic creature. I view this as a benefit, because I believe that the relative simplicity of the *tough*-construction hides many of the complex factors that go into the relation between the two clauses. The TTC's relative 'complexity' actually makes the issues somewhat more transparent.

In sum, despite some non-trivial differences, I take the preceding correlations to validate treating the TTC as a proxy for the *tough*-construction, along with the authors cited above. I turn in the next sections to a thorough investigation of the TTC, putting the *tough*-construction aside until Section 4.

3. Properties and analysis of the TTC

3.1 *Constituency*

I will start with a discussion of constituency. In principle, there is nothing wrong with a measure phrase like *an hour* and a nonfinite clause like *to complete the test* forming a constituent. However, they do not form a constituent in the TTC. Though this may seem counterintuitive at first glance, this fact is demonstrated through basic constituency tests which force the measure phrase and the nonfinite clause to form a constituent, for instance, *all*- and pseudo-clefting. The (b) examples simply demonstrate that clefting is possible in the TTC.

(26) (a) *An hour to complete the test is all/what it took.
(b) An hour is all/what it took to complete the test.

(27) (a) *A year to learn French is all/what it took.
(b) A year is all/what it took to learn French.

A measure phrase and a nonfinite clause also cannot be a fragment answer to the question *What did it take?* (The responses are marked infelicitous because they are grammatical utterances, just not in the given context.)

(28) What did it take?
(a) # An hour to complete the test.
(b) # A year to learn French.

(ii) John took three days/*the death of his father to convince *e* to go home.
(iii) *It took John the death of his father to decide to go home.

I have no explanation for this, though I note that the examples with *the death of his father* seem to lack the purpose/rationale clause reading identified in Subsection 3.1. The semantic relationship between *the death of his father* and the nonfinite clause is very different than that between a measure phrase and the nonfinite clause. This difference in meaning likely reflects a difference in structure which in turn rules out the antecedent gap and high applicatives, though I must put aside an explicit explanation.

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It is worth comparing examples where the measure phrase and nonfinite clause DO form a constituent. An illustration of such a context is the have-time construction (HTC).[13]

(29) (a) Mary has an hour to complete the test.
(b) An hour to complete the test is all/what Mary has.
(c) What does Mary have?
An hour to complete the test.

I also point out that the semantic role of the nonfinite clause is different when the measure phrase and nonfinite clause form a constituent. In the HTC, it is possible to paraphrase the relationship as a relative clause, whose head is the measure phrase (30). This is not possible with the TTC (31).

(30) (a) Mary has an hour (in which) to complete the test.
(b) Mary has a year (in which) to learn French.

(31) (a) It took an hour (*in which) to complete the test.
(b) It took a year (*in which) to learn French.

Instead, the nonfinite clause in the TTC is more accurately parsed as a purpose/rationale clause.[14] (This reading is also available with the HTC, see footnote 13.)

[13] It is likely that the HTC is in fact ambiguous in that the nonfinite clause CAN form a constituent with the nonfinite clause, but it is also possible that it is merged as a modifier of the VP/*v*P, in line with our analysis below. As evidence, I note that the HTC can also be paraphrased using a purpose clause, (i) and (ii). See further discussion below.

(i) Mary has an hour (in order) to complete the exam.
(ii) Mary has a year (in order) to learn French.

Furthermore, the two readings are distinguished when the measure phrase is clefted away from the nonfinite clause. This is the expected result if the difference between the two readings correlates with a difference in adjunction height, e.g. NP versus VP/*v*P.

(iii) An hour is what/all Mary has (in order/*in which) to complete the exam.
(iv) A year is what/all Mary has (in order/*in which) to learn French.

[14] Though the difference is often collapsed (see Jones 1991: 26n18), Faraci (1974: 28) and what follows distinguishes purpose from rationale clauses in part by noting that rationale clauses answer the question *Why did X happen?*, rather than the *Why did A do X?* for purpose clauses. (Alternatively, purpose clauses are always thought to be predicated of an internal argument; see Whelpton 1995.) In practice, however, I believe that the line is fairly blurry between when something is a purpose versus rationale clause. The distinction is not directly relevant in this article as the crucial point is about the height of adjunction, rather than terminological classification. (Moreover, the TTC answers neither *why*-question.) I note though that the TTC has somewhat conflicting syntactic properties. In the absence of a gap, it can always be paraphrased with *in order*, suggesting that the nonfinite clauses are rationale clauses, but they also all allow object gaps, suggesting that they are purpose clauses. Still, the impersonal nature of the TTC means that there is never an agent thematic role in the main clause, which is typically required for purpose clauses elsewhere. Note as well that Jones (1991) understands rationale clauses (IOCs in his terminology) as being capable of 'free adjunction', i.e. adjunction at any level (practically meaning adjunction at either VP or S). As the next sections illustrate, the nonfinite clause in the TTC must be merged at some clause internal position for issues related to scope and control of PRO. Still, a reviewer correctly notes that *in order*-clauses are not possible in the presence of a

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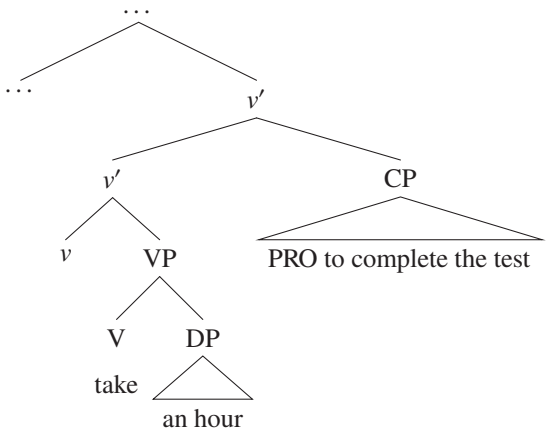
(32) (a) It took an hour (in order) to complete the test.
(b) It took a year (in order) to learn French.

The lack of constituency with the measure phrase and the parse as a purpose/rationale clause lead to the conclusion that the nonfinite clause is merged as a modifier (that is, an unselected argument) of the verb phrase (Faraci 1974), here assumed to be the complex *v*+V. (I discuss control of PRO in the next section.)[15]

(33)



gap in the TTC (**The test took an hour in order to complete*), undermining the parallel I am drawing here. The point is important given data like (i) showing that, in principle, object gaps are possible in *in order* clauses.

(i) Here is the influential professor that John sent his book to *e* [in order to impress *pg*] (Engdahl 1983: 11)

I concede that this is a counterargument to the claim that the nonfinite clause in the TTC is a modifier when there is a gap. Ultimately, I may be overstating the connection between *in order* clauses and nonfinite clauses in the TTC. It may be that *in order* phrases are in fact adjoined higher (a position adopted in Whelpton 1995), which in turn bleeds the ability to combine with *v*P, as I later argue is necessary in the TTC. I note, though, that treating *in order* clauses and 'headless' nonfinite clauses as distinct does not entail that the headless clauses are always arguments. We will see additional motivations for the adjunct status of the nonfinite clause in Subsection 4.2. There are also additional issues with gaps in *in order* phrases. Sometimes, they are ruled out in adjoined phrases for reasons that are not fully understood.

(ii) Mary brought John along (in order) to talk to him.
(iii) Mary brought John along (*in order) to talk to *e*. (after Jones 1991: 26)

[15] I understand the head *v* to be equivalent to Voice (as in Kratzer 1996) in that it is responsible for the thematic properties of VP-external argument structure. It is possible configure the analysis as adjoining the nonfinite clause with VP, rather than *v*P. I adopt *v*P-adjunction because it simplifies the relationships between the main clause and nonfinite clause. (See further discussion in footnote 24.) Note that the terms 'adjunct', 'complement', and 'specifier' are not definable in terms of structure, as I am assuming a minimalist syntax. In particular, I do not assume that adjuncts are defined as sisters of a bar-level and daughters of a bar-level. I use these terms as descriptive labels in the discussion of the structures below.

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The tree in (33) predicts that the measure phrase does not c-command the nonfinite clause. The binding data in (34) confirm this prediction.[16]

(34) * It took every student$_i$'s lunch-hour for her$_i$ to finish cramming for the test.

I understand modification in terms of the semantic process of predicate modification (Heim & Kratzer 1998) or meaning conjunction. In a Neo-Davidsonian event semantics the combined meaning of the two clauses is given in (35a). The predicate TAKE-AN-HOUR is a function that 'measures' or 'bounds' an event, such that TAKE-AN-HOUR(e) means, 'e measures/is bounded at one hour'.[17] I assume existential closure over events, so that the sentence *It took an hour to complete the test* has the truth conditions in (35b).

(35) (a) $[\![(33)]\!] = \lambda e.$ TAKE-AN-HOUR(e) $\wedge$ complete(e) $\wedge$ AGENT(e)=PRO$_{arb}$ $\wedge$ THEME(e)=the test.

(b) $[\![(32a)]\!] = 1$ iff $\exists e \mid$ TAKE-AN-HOUR(e) $\wedge$ complete(e) $\wedge$ AGENT(e)=PRO$_{arb}$ $\wedge$ THEME(e)=the test.

Notice that we neatly explain the telicity restriction found in the TTC. Given that the two events are conjoined via predicate modification, the event described by the nonfinite predicate must measure an hour – that is, it is bounded – as they are in fact the same event.[18]

3.2 *High applicatives*

The TTC permits an additional argument, sitting between the light verb *take* and the measure phrase.

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[16] Note that quantificational possessors can bind variable pronouns: *Every girl$_i$'s father thinks she$_i$'s a genius* (Kayne 1994: 23). Thanks to an anonymous reviewer for pointing out the necessity of stating this fact.

[17] Entailed in (35a) is the standard assumption that *v*P describes a property of events, as does the nonfinite clause. It is because of this (the characteristic of all *tough*-predicates; (Gluckman 2019) that the nonfinite clause can also be introduced as a subject: *To complete the test took an hour.* The TTC can always be predicated of an event-denoting expression, thus the nonfinite clause, which describes an event, can serve as a subject, as can purely nominal event-denoting expressions, e.g. *The destruction of the city took an hour.* See also footnote 4 for related discussion. I finally note that nonfinite clauses introduced by *in order* can never be arguments, and so the fact that **In order to complete the test took an hour* is ungrammatical cannot be taken as an argument against our analysis. Ultimately, I believe that the alternation between the nonfinite clause-as-modifier and the nonfinite clause-as-subject is related to other argument/adjunct diatheses (e.g. instrumental subjects, passives, locatives/directionals). I will not pursue this connection here, however.

[18] There is one constituency test that suggests that the measure phrase and nonfinite clause are a constituent: coordination, illustrated in (i).

(i) It took [a week to read this book] and [an hour to watch the movie about it].

I attribute this not to DP coordination, rather, *v*P coordination, assuming that the head complex *v*+V moves further up to a higher projection (e.g. aspect or Appl proposed in Subsection 3.2).

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(36) (a) It took **Mary** an hour to complete the test.
(b) It took **the students** a year to learn French.

This 'intermediate' argument is in complementary distribution with an overt subject in the nonfinite clause.

(37) (a) It took Mary an hour (*for John) to complete the test.
(b) It took the professors a year (*for the students) to learn French.

I identify the relationship between this argument and the empty subject position in the nonfinite clause as (obligatory) control, rather than raising.[19] This is diagnosed by the fact that this position does not tolerate expletive subjects (38), nor does it permit idiom chunk interpretations (39), nor meaning-preservation under passivization (40).

(38) (a) It took an hour for there to be a full classroom.
(b) *It took there an hour to be a full classroom.
(c) It took two days for it to snow.
(d) *It took it two days to snow.

(39) (a) It took an hour for the cat to get out of the bag. √ idiom, √ literal
(b) It took the cat an hour to get out of the bag. * idiom, √ literal
(c) It took an hour for the shit to hit the fan. √ idiom, √ literal
(d) It took the shit an hour to hit the fan. * idiom, √ literal

(40) (a) It took an hour for the doctor to examine Mary.
=It took an hour for Mary to be examined by the doctor.
(b) It took the doctor an hour to examine Mary
≠It took Mary an hour to be examined by the doctor.

I further observe that the arguments sitting in this position have available scope readings which are not possible for arguments inside of the nonfinite clause. Such lack of connectivity I again take as evidence for a control relation. The comparison between the sentence-medial position and the subject position inside of the nonfinite clause concisely makes the point.

(41) (a) It took two women an hour to stand up.
(b) ≠ It took an hour for two women to stand up.

[19] As noted by an anonymous reviewer, this relationship is slightly abnormal from canonical obligatory control in that the controller of PRO is optional. However, the absence of an overt controller does not entail non-obligatory control. It is possible that there is an implicit argument in the main clause that binds PRO (see discussion in Landau 2015: 35). Indeed, later I draw a parallel to the obligatory control found in Stowell's (1991) mental predicates: *It was kind (of Mary$_i$) PRO$_i$ to talk to John.* These are also cases of obligatory control because even implicit arguments must control PRO of the nonfinite clause. I discuss further connections to this class of predicates in Subsection 3.4.

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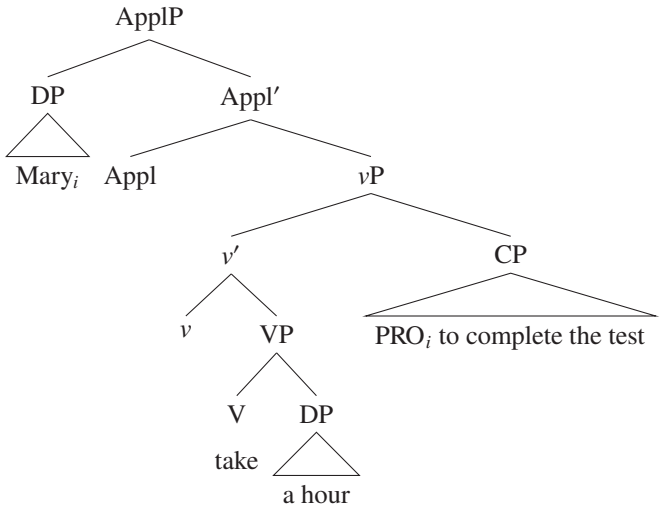
(42) (a) It took three students a year to learn French.
(b) ≠ It took a year for three students to learn French.

The example in (41a) is true in a context in which each woman separately needed an hour to stand up. Assuming that the group of women is Janice and Mary, (41a) is true in a context in which, when Janice stood up at 8 a.m. and Mary at 11 a.m., both women needed a full hour to rise. The example in (41b) is not true in this context, meaning only that both women rose in the same hour. Similarly, in (42a), when *three students* appears in front of *a year*, it is true in the context that each of the students needed different years (e.g. 2016, 2017, 2018) to learn French. When *three students* appears after *a year*, the only available reading is that all three students learned French in the same year.

I identify the controller of PRO as the specifier of an applicative phrase, and it is in an obligatory control relationship with the adjoined nonfinite clause. Furthermore, because of the structural position of the adjoined clause, this must be an applicative head that relates an argument to an event – a HIGH APPLICATIVE in the terminology of Pylkkänen (2008).[20]

(43)



[20] Structurally, Pylkkänen's high applicatives appears between VP and *v*P/VoiceP. Appl in the tree in (43) is thus closer to Cuervo's (2003) High Appl, which takes as its complement *v*P. It can also be construed as Kim's (2012) peripheral applicative. See further discussion in footnote 23. It is also possible to transpose the analysis by having the nonfinite clause modify VP and situating ApplP above VP. However, this requires slightly different assumptions about how external arguments are introduced. Since I show in the next section that the *tough*-subject can reconstruct below the applied object, external arguments would have to be merged in spec-VP. Still, while I make the standard assumption that *v* introduces external arguments, the alternative sketched in this footnote is consistent with the overall conclusions of this article: the nonfinite clause is a modifier; the subject is generated below the applied object, but not inside of the nonfinite clause; and there is an applicative head that maps its specifier to an event.

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I assume, following Landau (2015), that obligatory control requires a strict c-command requirement between the controller and PRO, which in turn forces the applicative to be a high, rather than low applicative head. That is, if Appl were merged above *an hour* as a low applicative, the applied argument would not c-command the nonfinite clause. (It would also fail to interact correctly with a *tough*-subject, as I discuss in the next section.)

An applicative analysis is confirmed by considering languages with overt applicative morphology. Consider the Bantu language Logoori (Luhya, Bantu). In Logoori, the TTC patterns identically to English on all relevant diagnostics, and licenses an intermediate object with the applicative morpheme.[21]

(44) (a) ya-vogor-a muhiga mulala kwiiga Logoori.
9SM-take-FV year one learn.INF Logoori
'It took a year to learn Logoori.'
(b) ya-vogor-el-a Imali muhiga mulala kwiiga Logoori.
9SM-take-APPL-FV Imali year one learn.INF Logoori
'It took Imali a year to learn Logoori.'

Finally, I point out that treating this argument as a high applicative again matches intuitions. The applied argument seems to be 'involved' in the event in some way that the subject of the nonfinite clause is not. For instance, in (45), the difference between the two sentences seems to be in whether *Mary* is 'measuring out' the event of taking an hour. In (45a) we get the sense that Mary has attempted to stand for an hour. Example (45b) also has this reading, but it additionally has a reading in which the speaker in some way is measuring out this event, like they are waiting for Mary to stand up.

(45) (a) It took Mary an hour to stand up.
(b) It took an hour for Mary to stand up.

I interpret this to be a result of the Appl head mapping its specifier directly to the *taking an hour* event in (45a). I will refer to this thematic relation as an AFFECTED thematic relation. This affected reading is a result of Mary being in a relationship with the event that measures an hour, as described by the higher *v*P.[22] Controlled PRO subsumes the thematic role of the lower clause. In contrast, merged inside of

[21] Glosses for Logoori: 9: noun class 9; APPL: applicative; FV: final vowel; INF: infinitive; SM: subject marker.

Thanks to Mwabeni Indire for help with the Logoori sentences. He notes that he believes that the expression is calqued from English, though this does not diminish the validity of the evidence. Note that I explicitly reject the idea that the applied argument starts in the specifier of *v*P due to, (a) the morphological facts in (44); (b) the event-relation discussed in (45); and (c) the interaction with the *tough*-subject, discussed in Subsection 3.3.

[22] 'Affectedness' as used here does not imply 'animacy', as inanimates can be applied arguments as well, e.g. *It took the tree an hour to fall.* Thus, I use the term distinctly from how Bosse (2011) and Bosse, Bruening & Yamada (2012) identify affected arguments. It may be possible, however, to reconcile these two views. See further discussion in footnote 23.

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the nonfinite clause, Mary is not directly related to this event in an affected thematic relation. She is simply the agent of the event of standing up. In such cases, I assume that the measurement of time is 'speaker-oriented' – a notion that I will not attempt to formalize. Thus, the truth conditions of (46)/(47) minimally differ in that (46a) has an extra thematic relation that (47a) lacks.

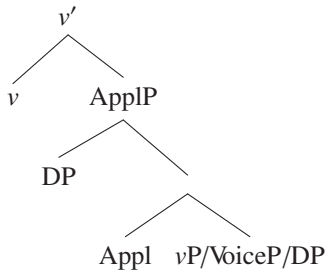
(46) (a) It took Mary an hour to complete the test.
(b) $[\![(46a)]\!] = 1$ iff $\exists e \mid$ TAKE-AN-HOUR$(e) \wedge$ AFFECTED(e) = Mary$_i \wedge$ complete$(e) \wedge$ AGENT(e)=PRO$_i \wedge$ THEME(e)=the test.

(47) (a) It took an hour for Mary to complete the test.
(b) $[\![(47a)]\!] = 1$ iff $\exists e \mid$ TAKE-AN-HOUR$(e) \wedge$ complete$(e) \wedge$ AGENT(e)=Mary$_i \wedge$ THEME(e)=the test.

If this is correct, the data from the TTC point to a potential problem: English is generally thought to LACK an applicative head that relates its specifier to an event. Indeed, in the typology of applied arguments, English is considered to be a canonical example of a language that only has a low applicative, i.e. a head that relates an individual to another individual (Pylkkänen 2008).

I will, however, adopt the view of Kim (2012), who argues that English does have structurally higher applicatives which can be observed in the following data.[23]

(48) (a) John had Mary pick up the book.
(b) John had Mary walk out of his classroom.
(c) John has a book.
(d) (Kim 2012: 73)



The idea explored by Kim is that *have* in general is merely the realization of the complex of Appl and the higher verbal head *v* – taking a cue from Freeze's (1992) analysis of *have* as P-incorporation. In the examples in (48a) and (48b), Appl is

[23] Terminologically, Kim 2012 calls this a PERIPHERAL APPLICATIVE, to distinguish it from the high and low applicatives in Pylkkänen (2008). The position of this applicative head is also consistent with Cuervo's (2003) locus of High Appl. High applicatives in English have also been argued for in Bosse (2011) and Bosse et al. (2012), where they are called affected arguments. While I do not adopt the semantics of Bosse et al.'s proposal for the head that introduces this applied argument, I believe their general framework is consistent with what is claimed here. Thanks to an anonymous reviewer for making me aware of these works.

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merged above the verbal domain. In these cases, Appl 'denotes a relation between the causee, *Mary*, and the event' described by the verb phrase (Kim 2012: 77).[24]

To the extent that light verbs like *have* are related to *take*, an idea that I consider highly plausible from a lexical decomposition point of view (Hale & Keyser 2002), then I believe that postulating a high applicative head with *take* is motivated in English. However, I will remain agnostic as to the name of this projection. It is not the goal of this article to provide a decompositional analysis of the light verb *take* in English, nor to derive the distribution of high applicatives in English. The point made here is simply that there is sufficient evidence for treating this clause medial argument as a high applied object.[25]

3.3 *The interaction of subjects*

In this section I will consider the interaction of the *tough*-subject (*the test*) and the applied argument (*Mary*) in (49).

(49) The test took Mary an hour to complete *e*.

Though the applied argument cannot be interpreted for scope and variable binding inside of the nonfinite clause (as shown in Subsection 3.2), nor can the *tough*-subject (as shown in Section 2), the two positions do scopally interact with each

[24] Beyond the noted parallels to Cuervo's (2003) High Appl in footnote 23, the proposal here is most consistent with Kim's structure for *causative have* (48a), in which Appl is merged directly over *v*P – a distinct projection from the agent-introducing Voice. *Take* then would be distinguished from *have* in lacking a higher v_{cause}+Voice projection which licenses the external argument. However, it is also possible to recast the analysis for the TTC provided here using a Voice projection as well occurring below Appl, in which case the structure is equivalent to Kim's experiencer *have* (48b). It is worth noting that the proposal is also generally consistent with the account of *have* in Ritter & Rosen 1997 (*modulo* some slight structural differences), though it requires postulating extra movements that are not motivated in the TTC. See their work and criticisms in Kim (2012: 79–85) for discussion. I note that recent work on Bantu applicatives has sought to break down the high/low applicative distinction (e.g. Jerro 2016) in terms of lexical semantics. I endorse this view, and believe it may resolve some of the issues here, but I do not currently see how it solves the issue of restricting when an event-related applicative like that in the TTC is permitted in English. I also point the reader to the work on Spanish 'temporal' *tener/llevar* in Fernández-Soriano & Rigau (2009), who argue for a lexical decomposition of similar data in different varieties of Spanish.

[25] It is worth considering whether this analysis can extend to the HTC mentioned earlier, and repeated in (i).

(i) Mary has an hour to complete the test.

Prima facie, I believe that such structures can be derived as I propose for the TTC, with two caveats. First, while the TTC permits the applied argument to remain *in situ*, the HTC does not, requiring that the argument promote to the subject position: **It has Mary an hour to complete the test.* Ultimately, this may lead us to conclude that the TTC involves some higher functional structure (perhaps related to aspect) that case-marks the applied argument. Second, as I note in footnote 13, the HTC likely has two distinct parses, depending on whether the nonfinite clause is a *v*P/VP modifier or a modifier of the measure phrase. The latter option is not available in the TTC.

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other, as we might expect if they are in the same clause. Surprisingly, however, the *tough*-subject can be interpreted for scope and variable binding *below* the applied argument. Again, it is worth comparing the applied argument versions with the nonfinite clause versions. In the versions with an applied argument, inverse scope of the *tough*-subject relative to the applied argument is permitted; the *tough*-subject can be interpreted below the applicative.

(50) (a) Two tests took no student more than an hour to complete *e*.
two > no, no > two
(b) Two tests took more than an hour for no student to complete *e*.[26]
two > no, *no > two

(51) (a) Two languages took three students a year to learn *e*.
two > three, three > two
(b) Two languages took a year for three students to learn *e*.
two > three, *three > two

The example in (50a) is true in a context in which student Mary completed her French and Spanish tests in less than an hour, student Sally completed her Spanish and German test in an hour, and student Greta completed her German and Swahili test in an hour. In this context, *two* scopes under *no*. The example in (50b) is not possible in this same context. Likewise, the crucial reading in (51a) is the one where there are six different languages in total, two for each student, and the students each spent a year learning their two languages. This reading is available in (51a) but unavailable in (51b).

We find the same thing with variable binding.

(52) (a) It took no bus$_i$ more than an hour to complete its$_i$ route.
(b) Its$_i$ route took no bus$_i$ more than an hour to complete *e*.
(c) *Its$_i$ route took more than an hour for no bus$_i$ to complete *e*.

(53) (a) It took no tree$_i$ less than a week to lose its$_i$ leaves.
(b) Its$_i$ leaves took no tree$_i$ less than a week to lose *e*.
(c) *Its$_i$ leaves took less than a week for no tree$_i$ to lose *e*.

This suggests that there is a position below the applied object, but outside of the nonfinite clause, in which the surface subject starts. The natural choice is spec-*v*P, which I assume to be the first-merge position of external arguments in general.

[26] I include the case where the negatively quantified expression is the subject of the nonfinite clause, but I acknowledge that for many people, such sentences are not possible. The test here does not rely on (50b) being possible though, as the crucial reading is the inverse scope reading in (50a). I provide (50b) as a potential control.

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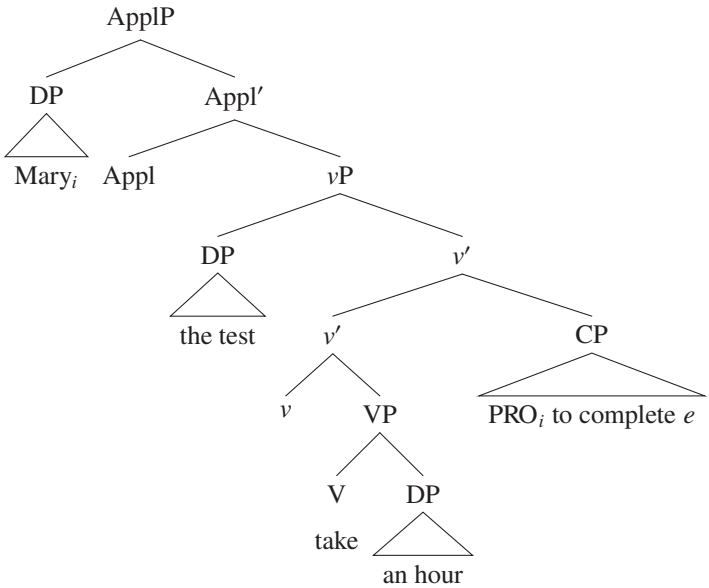
(54)



The argument in spec-*v*P promotes to the subject position, past the applied object. I assume that the applicative is licensed *in situ* and is therefore inactive for further syntactic processes (Chomsky 2000, 2001). (See further discussion concerning intervention effects in Subsection 3.4.)[27]

The interaction of the subjects illustrated here provides strong evidence against treating the applied object as a low applicative, merged below V, c-commanding the measure phrase. In such a position, it would be impossible to reconstruct the *tough*-subject below the applied object. The applicative must be structurally higher than the *tough*-subject in its base position, which requires that it be merged somewhere higher in the verbal domain.

The structure is consistent with approaches to the *tough*-construction in which the nonfinite clause merges an operator and then is later predicated of the subject which is generated (athematically) in the main clause. The subject then gets a thematic role through some mechanism of 'thematic transmission', whereby the head of the chain is assigned a thematic role through the operator (Williams 1983; Browning 1987; Heycock 1994).[28] Though it is possible to capture this idea in a

[27] I note that we also find Condition C obviation (i), which is characteristic of A-movement chains (ii), and so is consistent with the analysis below.

(i) This picture of John$_i$ took him$_i$ an hour to paint *e*.
(ii) This picture of John$_i$ seems to him$_i$ to be beautiful.

[28] See also Jones's (1991) notion of a 'latent-patient'.

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variety of different formalisms, I believe that the notion of 'thematic transmission' (as it is intended for the *tough*-construction) follows from independent syntactico-semantic principles.

Keeping the assumption from earlier that VP/*v*P describes a property of events, and that *v* is responsible for introducing external arguments, I additionally assume that *v* in the TTC introduces a nonthematic argument, i.e. an argument which is not mapped to the event via a thematic relation. This is functionally equivalent to saying that *v* introduces vacuous quantification over individuals, as shown in (55b).[29]

(55) (a) $[\![[_{VP}$ take an hour $]]\!] = \lambda e.$ TAKE-AN-HOUR(e)
(b) $[\![[_{vP}$ take an hour $]]\!] = \lambda x \lambda e.$ TAKE-AN-HOUR(e)

The problem of course is that without a thematic role the added argument is vacuous, and so is plausibly excluded on semantic/pragmatic grounds – though of course it is a violation of more well-known syntactic constraints like the theta criterion of the government and binding framework (see Bruening 2013 for recent discussion), as well as the ban on vacuous quantification.[30]

To fix the issue, the nonfinite clause is predicated of the *tough*-subject, providing what the main clause cannot, a thematic role, thereby making the quantification over individuals non-vacuous. I assume that operator insertion is permitted to apply freely to form predicates out of nonfinite clauses (Nissenbaum 2000; Landau 2011), and that the nonfinite clause is merged again via predicate modification, yielding the structure and meaning in (56). This analysis employs a standard notion of chain-formation via PREDICATION (Williams 1983; Heycock 1994).[31]

[29] The assumption that *v* permits a nonthematic role can be alternatively framed in terms of morpho-syntactic features by adopting the ideas in Schäfer (2008) and Alexiadou, Anagnostopoulou & Schäfer (2015), who argue that *v*/Voice is specified for two features, a syntactic feature that modulates whether *v*/Voice requires a DP specifier, and a semantic feature that modulates whether *v*/Voice semantically selects for a thematic role. On the approach here, *v* in the TTC is specified as positive for the first type of feature (it requires a DP specifier), and negative for the second (it does not assign a thematic role). In Schäfer (2008) and Alexiadou et al. (2015), this is the configuration that licenses expletive arguments, which is precisely what we predict for the TTC (and hence the *tough*-construction), because we have here an alternation between an expletive subject and a non-expletive subject. I believe that the explanation provided in the text here is equivalent. Importantly, I am not claiming that this 'nonthematic-*v*' is a general option. Rather, I make the standard assumption that different 'flavors' of *v* are selected by the predicates with which they merge. Thus, this nonthematic-*v* will not appear with, e.g. unaccusatives, because unaccusatives select for a particular, different, *v*.

[30] I naturally assume that expletive subjects cannot have a theta role (Chomsky 1981), and so are barred from licensing a gap in the lower clause as well.

[31] A reviewer wonders whether I predict that sentences like **The test was for Mary to complete* should be grammatical if we are permitting nonfinite clauses to be predicated of subjects. However, such nonfinite clauses simply never appear in a predicative position: **It/there was for Mary to complete the test.* Whatever explains this fact extends to the cases where there is a gap in the nonfinite clause.

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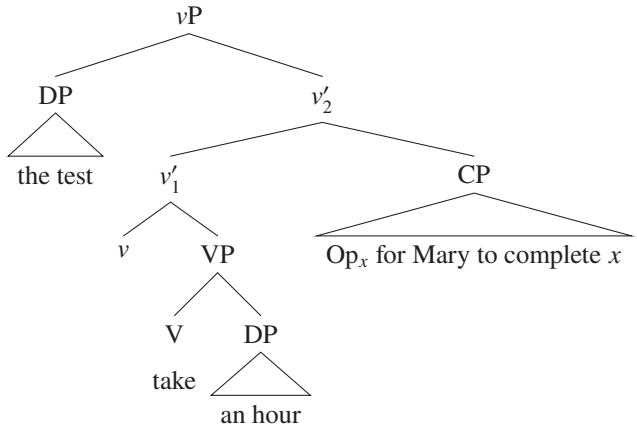
(56) (a)



(b) $[\![v'_1]\!] = \lambda x \lambda e.$ TAKE-AN-HOUR(e)

(c) $[\![\text{CP}]\!] = \lambda x \lambda e.$ complete$(e) \wedge$ AGENT(e)=Mary $\wedge$ THEME$(e)=x$

(d) $[\![v'_2]\!] = \lambda x \lambda e.$ TAKE-AN-HOUR$(e) \wedge$ complete$(e) \wedge$ AGENT(e)=Mary $\wedge$ THEME$(e)=x$ (by predicate modification)

(e) $[\![v\text{P}]\!] = \lambda e.$ TAKE-AN-HOUR$(e) \wedge$ complete$(e) \wedge$ AGENT(e)=Mary $\wedge$ Theme(e)=the test (by function application)

In effect, the nonfinite clause 'rescues' the nonthematic subject by providing a complex event description which includes a thematic relation for the subject.

Most importantly, given that the high applied object gets a thematic role in the main clause, it is not eligible for the same 'rescuing' via predication that applies to the nonthematic arguments in spec-*v*P. This explains why the applied object cannot bind a non-subject gap.

(57) (a) *It took the test an hour for Mary to complete *e*.
(b) *It took French a year for Mary to complete *e*.

The ungrammaticality of (57) follows if syntactic objects can have one and only one thematic role, i.e. the theta criterion (or however this is captured in minimalism). The problem with (57) is that the predication relation attributes to the applied object the thematic role made available in the lower clause, but the applied object already has a thematic role in the main clause in (58).

(58) $[\![\text{ApplP}]\!] = \lambda e.$ TAKE-AN-HOUR$(e) \wedge$ **AFFECTED(e)=the test** $\wedge$ complete$(e) \wedge$ AGENT(e)=Mary $\wedge$ **THEME(e)=the test**

Because we still wish to exclude attributing multiple thematic roles to a syntactic chain (*modulo* Hornstein 2001), the sentences in (57) require the applied object to bear two thematic roles, and therefore are out on independent grounds. A PRO

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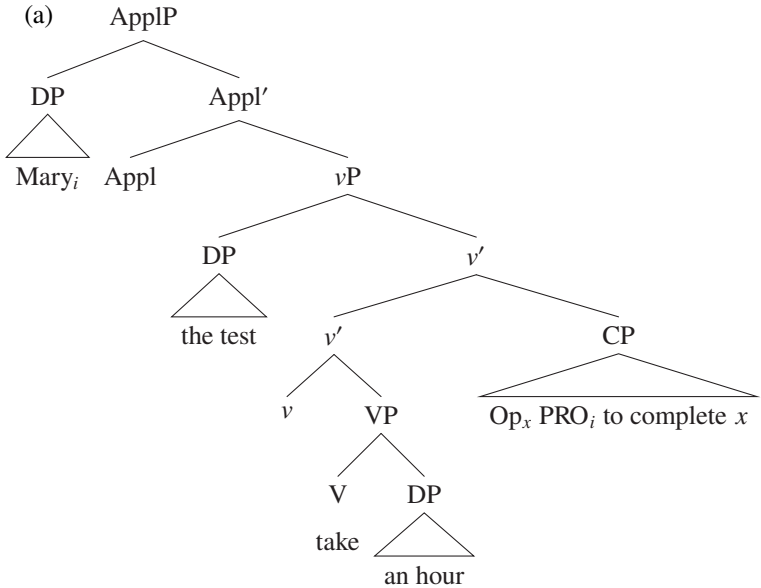
argument, however, independently bears the thematic role assigned in the nonfinite clause. A full sketch of the proposal is provided below.

(59) (a)



(b) $[\![\text{ApplP}]\!] = \lambda e.\ \textsc{take-an-hour}(e) \wedge \textsc{Affected}(e)=\text{Mary}_i \wedge \text{complete}(e) \wedge \textsc{Agent}(e)=\text{PRO}_i \wedge \textsc{Theme}(e)=\text{the test}$

Thus, the fact that the light verb *take* does not assign a thematic role ensures that a subject generated in its specifier has to get one from somewhere else, like predication. In contrast, because the high applied object does get a theta role in the main clause, it is precluded from getting one via predication.

A related question is why the applied argument, when present, must bind SOMETHING in the nonfinite clause. That is, it is not immediately clear from the analysis why (60) is ungrammatical.[32]

[32] A reviewer wonders whether the constraint is perhaps pragmatic, rather than syntactic, suggesting cases without a gap.

(i) It took her$_i$ teacher a year for Mary$_i$ to learn French

I do not share these judgments (the reviewer themself is unsure as well). Given the delicacy of the judgment, I believe a systematic study (e.g. an experimental rating task) would be necessary before deciding whether such data must be accounted for. However, as the reviewer points out, if the connection between the HTC and the TTC is real, then we might expect to find examples like (i), given that the HTC requires merely an 'interpretive link'. To be clear, I would not be surprised to find such examples, but as I cannot, I will continue assuming that they are not possible.

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(60) (a) *It took John an hour for Mary to complete the test.
(b) *It took John a year for Mary to learn French.

This is, of course, a well-known issue in the study of control, i.e. why some predicates require an obligatory control relationship (Grano 2012; Landau 2015). I will not settle the question here.[33,34]

3.4 *Subject control and intervention*

To account for sentences like *The bus took an hour to arrive*, I propose that the applied argument in spec-ApplP is able to raise to spec-TP. In this, I am adopting the idea that Appl can come in two 'flavors', one which licenses its specifier *in situ* (i.e. renders its specifier inactive) and another which leaves its specifier fully active for AGREE.

[33] And indeed, it appears to be one way in which the TTC differs from related constructions like *cost/set X back* (Jones 1991).

(i) It'll cost John $2.00 for his son to buy that book.
(ii) It'll cost John$_i$ $2.00 PRO$_i$ to buy that book.
(iii) It'll cost $2.00 PRO$_{arb}$ to buy that book. (Jones 1991: 226)

The TTC only allows the equivalent of (ii). I have no explanation for this variation.

[34] Our analysis makes functional parallels to the idea that the *tough*-construction is related to parasitic gaps (Mulder & Den Dikken 1992; Nissenbaum 2000: 43n17). I will not pursue this parallelism here. However, as pointed out by a reviewer, the analysis is potentially problematic because, as Nissenbaum & Schwarz (2011) argue, adjoined clauses with operator gaps must be barred from attaching to VP/*v*P (V′ in their structure), in order to rule out sentences like (i), with proposed LF in (ii).

(i) * John filed that article [without talking to *e*] (Nissenbaum & Schwarz 2011: 23)
(ii) John [$_{V'}$ filed that article] λx[without talking to x] (Nissenbaum & Schwarz 2011: 24)

On the account here, however, (i) is ruled out because it attributes two thematic roles to *John*. Thus, Nissenbaum and Schwarz's V′ generalization ('Null operator structures cannot attach to V′', p. 24) is incomplete. Instead, I believe the correct generalization is that null operator structures are barred from attaching to V′ (in our case, *v*′) just in the case that the attachment would produce a violation of the theta criterion, i.e. it would create a chain in which the head of the chain fulfilled two thematic roles.

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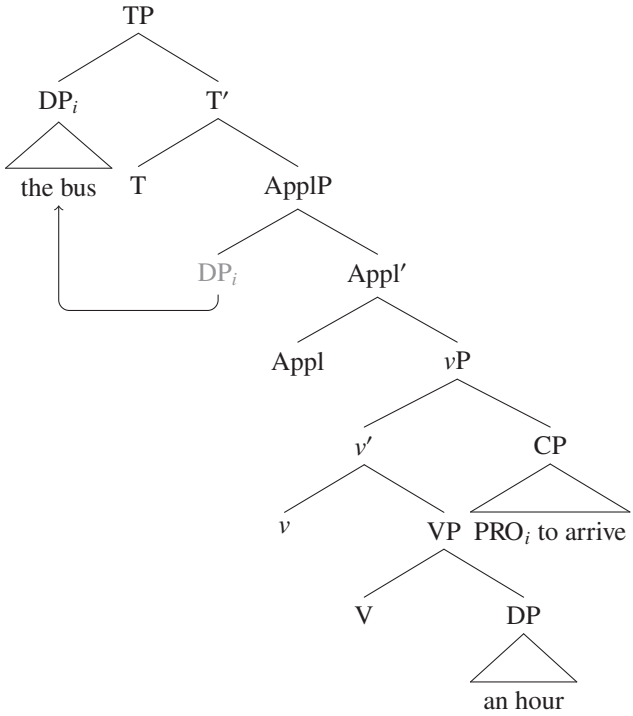
(61)



Note that an argument introduced in spec-*v*P does not have the option of remaining *in situ* (**Mary took the test an hour to complete*), and so when present, must raise to spec-TP, potentially crossing in inactive applied argument. This is because Appl has the specific property of being able to deactivate its specifier, while *v* does not. Anything introduced in spec-*v*P must interact with some non-local head to check its features.

Our analysis raises an important distinction between the TTC and the *tough*-construction proper: it is generally thought that the latter explicitly and uniformly bans gaps in the subject position; (62a) is repeated from earlier.[35]

(62) (a) *Mary was difficult to complete the test.
(b) Mary took an hour to complete the test.

[35] A reviewer notes that some *tough*-predicate can thematically select a subject and control PRO, though not in a nonfinite clause.

(i) Mary was being difficult in PRO demanding a tax receipt.

Clearly, some *tough*-predicates are ambiguous in this way. Note though that *Mary* in (i) is not a judge (i.e. does not have a belief about the embedded clause). This fact is consistent with the correlation I draw below.

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In fact, the ban on subject control with *tough*-predicates appears to be over-stated. There are *tough*-predicates that permit both object gaps and subject control. Consider Stowell's (1991) adjectives describing mental properties, such as *mean, kind, nice, petty*, …. etc. They permit the controller of PRO to be introduced in a prepositional phrase or as the subject in (63a) and (63b). Mental property adjectives also permit non-subject operator-gap chains in (64).[36]

(63) (a) It was kind of Mary to say that.
(b) Mary was kind to say that.

(64) That was kind of Mary to say *e*. (after Bennis 2004: 96)

Thus, the fact that the TCC permits both subject control and an object gap is not unprecedented. Though I cannot offer a full account for why canonical *tough*-predicates do not allow this, I will speculate briefly. What permits this kind of three-way alternation appears to be related to the semantic function of the controller of PRO. With the canonical *tough*-predicates, PRO is always controlled by the JUDGE of the *tough*-predicate – whether the judge is explicit or implicit (Landau 2013: 41). Judges of *tough*-predicates are introduced in a prepositional phrase (Keine & Poole 2017).[37]

(65) It is important to Mary$_i$ PRO$_i$ to talk to Bill.

There emerges a basic generalization about judge arguments of adjectives: they never participate in argument structure alternations. Judges are 'fixed' relative to a given adjective.[38] In contrast, non-judge arguments are not fixed, and may

[36] As *tough*-predicates, adjectives describing mental properties are extremely limited. I have no comment on this, though it is consistent with the observation that *tough*-predicates can select for subjects in at least some cases (e.g. Fleisher's 2015 *rare*-class adjectives).

[37] It is worth mentioning here that there is a difference in the KIND of control behavior between the TTC/*kind*-adjectives and the *tough*-construction proper as well. The latter involves LOGOPHORIC control, diagnosable in part by licensing partial control. The TTC and *kind*-adjectives are cases of PREDICATIVE control.

(i) It was important to Mary$_i$ [PRO$_{i+}$ to gather in the park].
(ii) *It took Mary$_i$ an hour [PRO$_{i+}$ to gather in the park].
(iii) *It was kind of Mary$_i$ [PRO$_{i+}$ to gather in the park].
(iv) *Mary was kind [PRO$_{i+}$ to gather in the park].
This has to do with the fact that, as mentioned below, judges are attitudinal. It is possible that this fact contributes to the ban on subject control with judge-dependent *tough*-predicates.

[38] That is, there are no known adjectives that permit this kind of alternation with a judge.

(i) It was important to Mary to read the book.
(ii) *Mary was important to read the book.
(iii) *It was excited to Mary to read the book.
(iv) Mary was excited to read the book.

Note that the generalization is restricted to a given category. For instance, judges of verbal predicates, e.g. *The play amused John*, may be introduced in prepositional phrases when the category of the predicate changes: *The play was amusing to John*, or in passivization.

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participate in argument structure alternations. The applied argument in the TTC and the 'agent' with *kind*-predicates are not judges, and freely alternate.

To be clear, I have no explanation for why non-judge arguments are freer in this respect. But this fact is almost certainly related to another issue that arises with the TTC: DEFECTIVE INTERVENTION. As Hartman (2011) notes, evaluator arguments (including judges) in a number of constructions across languages (*tough*-constructions and various raising contexts) act as interveners for movement, despite the fact that the intervening arguments themselves cannot enter into the movement relationship.[39]

(66) Cholesterol is important (*to Mary) to avoid *e*. (Hartman 2011: 125)

The TTC appears to be an exception to these intervention facts, because the applied argument clearly sits between the subject and the gap – and it moreover can (at least sometimes) undergo raising. Recently, the defective intervention facts for the *tough*-construction have been accounted for in Keine & Poole (2017) by attributing the issue to a type mismatch stemming from the introduction of the judge argument. Alternatively, Gluckman (2018) suggests that defective intervention reduces to a general constraint on chains that cross attitude holders. Both accounts ultimately attribute the intervention effects to the fact that defective interveners in the *tough*-construction are judges. Whatever its eventual explanation, if this descriptive generalization holds, then the applied argument in the TTC will not be a defective intervener because it is not an attitude holder: applied arguments in the TTC do not hold a belief about the lower clause. Indeed, applied arguments do not even need to be animate: *It took the tree an hour to fall.* This is of course consistent as well with the data in (64), which demonstrates another case of non-intervention by a non-judge argument.

Indeed, the parallel between the TTC and mental predicates goes further. Stowell (1991) argues that *Mary* is introduced in the specifier of AP in (63b), making an explicit comparison to Larson's (1988) analysis of the double object construction,

[39] Bruening (2014) extends this observation to note that intervening modifiers also give rise to ungrammaticality.

(i) Strawberries are enjoyable (*in the summer) to eat *e*. (Bruening 2014: 710)

However, these examples likely have a different source than Hartman's. As Moreno & Petersen (2016, 2017) convincingly illustrate, adverbial intervention is only observed with certain adverbs, and the effect reduces to the structural height of the adjoined adverb. Indeed, 'low' modifiers of *tough*-predicates are perfectly grammatical.

(ii) This book is easier than that book to read *e*.
(iii) This book is easier than I thought to read *e*.

Such examples straightforwardly refute one of Bruening's suggested analyses, which is that nonfinite clauses must be linearized adjacent to the selecting head. Examples (ii) and (iii) illustrate that this is simply incorrect. Indeed, the TTC makes the same point because (a) the nonfinite clause is not selected and (b) it is not linearized next to the verb anyway.

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where the goal is in spec-VP. In modern frameworks, of course, this has been reanalyzed in terms of an applicative phrase. Stowell's analysis therefore suggests that the analysis above in which the applied argument raises to spec-TP in the TTC has precedent. Alternatively, Bennis (2004) argues that the alternation in (63) is reminiscent of an active/passive alternation, where the prepositional phrase is equivalent to the passive *by*-phrase. Though I cannot undertake a close examination of these parallel behaviors here, I believe that the similarities are at least strongly suggestive of a shared analysis.[40]

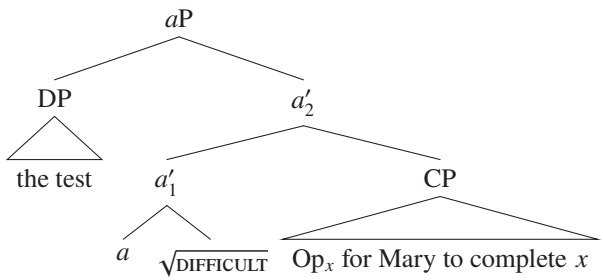
4. Implications for the *tough*-construction

Given the extensive theoretical landscape concerning the *tough*-construction, in this section I wish to illustrate how the TTC sheds light on which proposed analyses of the *tough*-construction are plausible. I focus on two factors which have been debated in the literature: (a) predication vs. movement of the *tough*-subject and (b) selection vs. modification of the nonfinite clause. I illustrate how the predication-based analysis of the TTC is supported in the *tough*-construction proper, and that the nonfinite clause is not a selected argument of the *tough*-predicate. I consequently review the noted evidence against this position, i.e. that the *tough*-subject is not an argument of the *tough*-predicate and that the nonfinite clause is selected, and point out the faults in these arguments.

4.1 *Predication, not movement*

Exporting the analysis of the TTC to the *tough*-construction, the *tough*-subject is generated in the specifier of the adjectival projection *a*P, and the nonfinite clause is adjoined to *a*P. Semantically, I take *tough*-predicates proper to describe properties of events (Gluckman 2019), which compose with the nonfinite clause as indicated earlier. Like *v* introduced above, *a* may also vacuously introduce a nonthematic subject.

(67)



[40] As perhaps a further argument in favor of raising the specifier of ApplP, Kim (2012) argues that applied arguments with *have* can sometimes become derived subjects. If a parallel to the HTC can be drawn between Kim's structure and the TTC, then it might be preferable to raise the applicative to subject.

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(a) $[\![a'_1]\!] = \lambda x \lambda e.\ \text{difficult}(e)$
(b) $[\![a'_2]\!] = \lambda x \lambda e.\ \text{difficult}(e) \wedge \text{Agent}(e) = \text{Mary} \wedge \text{complete}(e) \wedge \text{Theme}(e) = \text{x}$
(c) $[\![a\text{P}]\!] = \lambda e.\ \text{difficult}(e) \wedge \text{Agent}(e) = \text{Mary} \wedge \text{complete}(e) \wedge \text{Theme}(e) =$ the test

This analysis explicitly denies that the various movement-based analyses, most recently in Hicks (2009), Hartman (2012), and Longenbaugh (2016), are correct.[41]

Moreover, with regard to the position of the subject, the data differentiates between some models of predication analyses. The data are consistent with proposals such as Williams (1983), Jones (1991), Wilder (1991), Mulder & Den Dikken (1992), Nissenbaum (2000), and Keine & Poole (2017), which treat the *tough*-subject as a selected argument of the predicate. In contrast, the predication analyses offered in Browning (1987), Heycock (1994), and Rezac (2006) in which the subject does not have a selectional relationship with the main-clause predicate are not consistent with the TTC data.[42] The interaction of the high applied object and *tough*-subject demonstrate that there must be a position lower in the clause into which the subject can reconstruct.

The main argument against a selectional relationship between the *tough*-subject and the main clause predicate comes from nominalizations. It is noted that the *tough*-construction does not survive nominalization of the *tough*-predicate as in (68) (Chomsky 1977: 109; Pesetsky 1991: 101). Thus, the reasoning goes, the *tough*-subject cannot be selected, unlike e.g. *John's eagerness to please.*

(68) (a) *Bill's difficulty to please *e*.
(b) *the store's convenience to visit *e*.
(c) *the fruit's impossibility to eat *e*. (Pesetsky 1991: 101)

On the present analysis, (68) are understood by the fact that such nominalizations are ROOT NOMINALIZATIONS, and so have the structure [*n* [$\sqrt{\text{ROOT}}$]]. They therefore lack an adjectival projection which selects for the subject and which is an appropriate position for the nonfinite clause to adjoin to. This idea is supported by Pesetsky's (1991) observation that nominalizations in *-ness* do permit the antecedent-gap chain, though he notes speaker variation.

(69) (a) % the door's easiness to open *e*.
(b) % it's awkwardness to pronounce *e*.
(c) % the problem's trickiness to solve *e*. (Pesetsky 1991: 101)

[41] For movement analyses in alternative (older) frameworks, see Lees (1960), Postal (1971), Postal & Ross (1971), Bresnan (1971), Chomsky (1981), Bayer (1990), Jacobson (1992), Brody (1993).

[42] In Heycock (1994) and Rezac (2006) the link between the antecedent and gap is accomplished by generating the *tough*-subject *in situ* and linking it (via e.g. agree) with an operator.

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These facts follow if *-ness* nominals (for some people) are derived from adjectival predicates, [*n* [*a* [$\sqrt{\text{ROOT}}$]]], and therefore include a projection in which the nonthematic subject can be generated and that the nonfinite clause can adjoin to. The TTC makes the same point more explicitly because it lacks a root-derived nominal, but has a gerundive nominalization. Because this nominalization includes *v*P (and apparently the applicative phrase given the possibility of an applied object), there is a position (spec-*v*P) that selects for a subject before nominalization.[43]

(70) (a) ?The book's taking everyone a year to read *e* is an impediment to its sales.
(b) ?The bus's taking an hour *e* to arrive really pissed me off.

What is crucial then for a *tough*-construction to survive nominalization is that the category that selects for the *tough*-subject be included in the nominalization.[44] The nominalization facts are unexplained in accounts that generate the *tough*-subject higher in the clause.[45]

Independent evidence for selection is also observed in Fleisher's (2015) *rare*-class predicates (although Fleisher does not interpret it as such, adopting an analysis based on Rezac 2006).

(71) (a) * They are rare to find *e*. (Quirk et al. 1985: 1395)
(b) This kind of tuning is rare to hear in chipmusic in general. (Fleisher 2015: 73)

[43] Additionally, ACC-gerunds permit the gap (i), but poss-gerunds with prepositional complements do not permit (ii). Note that gerunds of the *tough*-construction are also possible in (iii) – unexpected if the *tough*-subject is generated in spec-TP or a topic phrase, as in Rezac (2006).

(i) The book taking everyone a year to read was an impediment to its sales.
(ii) *The book's taking of year to read was an impediment to its sales.
(iii) The book's being difficult to read was an impediment to its sales.

These facts are all consistent with the analysis put forth here, under the assumption that (ii) lacks *v*P.

[44] Incidentally, as a reviewer points out, measure phrases, though clearly nominal, also do not permit the *tough*-construction: **the book's hour to read e*. This follows from the facts that a) the nonfinite clause and measure phrase do not syntactically or semantically compose in the TTC and b) the measure phrase does not introduce the *tough*-subject.

[45] It is worth noting that the problem with nominalizations is not the presence of the possessor/*tough*-subject, but rather the nonfinite clause, as observed by Lasnik & Fiengo (1974: 542).

(i) the book's difficulty (*to read).
(ii) the difficulty (*to read this book).

As nonfinite clauses are not permitted with nominalized *tough*-predicates, such examples actually provide additional evidence for treating the nonfinite clause as a modifier – discussed in the next section – which cannot adjoin because the appropriate adjunction site is not present in root nominalizations. The examples in (i) and (ii) can be contrasted with clear cases of root nominalizations where the nonfinite clause IS an argument of the predicate (*the wait to catch the bus*).

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Fleisher's core observation is that *rare*-predicates only permit kind-denoting subjects, rather than type-denoting subjects, even when used as *tough*-predicates. At the very least, such data indicate that the availability of a *tough*-subject is in part dependent on the lexical semantics of the main clause predicate, which in turn argues against an analysis that completely severs this link.

4.2 *Modification, not selection*

The analysis above also has implications for the relationship between the *tough*-predicate and the nonfinite clause. In particular, we have found evidence that this is NOT a selectional relationship, rather, it is one of modification, as in Williams (1983), Wilder (1991), Mulder & Den Dikken (1992), Contreras (1993), and Hornstein (2001). This rules out analyses of the *tough*-construction which treat the nonfinite clause as an argument of the *tough*-predicate (Longenbaugh 2015; Keine & Poole 2017; Salzmann 2017).

However, there are two fairly strong arguments supporting a selectional relationship between the *tough*-predicate and the nonfinite clause. First, it is noted that there are idiosyncratic restrictions concerning which adjectives can and cannot be *tough*-predicates. For instance, Landau (2011) offers the following evidence to suggest that the nonfinite clauses ('Op-derived clauses') are selected in the *tough*-construction.

(72) (a) High-heeled shoes are impossible to wear *e* in this neighborhood.
(b) *High-heeled shoes are forbidden to wear *e* in this neighborhood.
(Landau 2011: 797)

However, it seems that this distinction is not as robust as Landau claims. Many examples of *forbidden* as a *tough*-predicate can be found in a Google search.[46]

(73) (a) However, some of those character traits are forbidden for us to express. (https://www.yaiy.org/Magazine/articles/0705inlikeness.html)
(b) There are two parts of any Kosher animal that are forbidden for us to eat. (http://www.askmoses.com/en/article/554,1953584/Are-all-parts-of-a-kosher-animal-kosher.html)

In fact, this is probably evidence that certain *tough*-predicates select for SUBJECTS, rather than nonfinite clauses, just like what is illustrated in Fleisher (2015). That is, *forbidden* imposes selectional restrictions on what can be a *tough*-subject, not whether it can combine with a nonfinite clause. Indeed, the same sentences are perfectly grammatical without a gap, e.g. *It is forbidden for us to eat two parts of any Kosher animal*, showing that nonfinite clauses are compatible with these predicates.

[46] This is also true of the well-known positive/negative antonyms which seem to differ with respect to being *tough*-predicates (e.g. *possible/impossible, legal/illegal*). In actuality, there are numerous examples of the positive forms of such predicates as *tough*-predicates online, contrary to the reported judgment.

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The second argument against a modification relationship appeals to the semantic relationship between the *tough*-predicate and the embedded clause. Rezac (2006: 291–292) argues that the lack of an entailment relationship illustrates that the nonfinite clause cannot be an adjunct, because entailment is a general property of (intersective) modification. (Judgments are cited as given.)

(74) (a) The stone is easy [to lift *e*] $\nvDash$ The stone is easy.
(b) Tartalo bought the pig [to eat *e*] $\vDash$ Tartalo bought the pig.
(Rezac 2006: 291)

Of course, this argument only goes through if the *tough*-subject is in fact thematically licensed in the main clause, which it is not.

Arguments in favor of a modification analysis include the following ellipsis data from Contreras (1993: 5–10). Contreras first notes that VP ellipsis is not possible when the VP is an adjunct (see Zagona 1988; Lobeck 1986).

(75) (a) John persuaded Mary to leave, and Fred persuaded Jane to $[_{VP}\ e]$.
(b) *John runs to stay fit *e*, and Bill swims to $[_{VP}\ e]$. (Contreras 1993: 5, citing Zagona 1988)

If the nonfinite clause is an argument of the *tough*-predicate, we would expect to be able to elide its VP, contrary to fact.[47]

(76) * John is easy for us to please, but Bill is hard for us to $[_{VP}\ e]$.
(adapted from Contreras 1993: 5)

This diagnostic also extends to the TTC.

(77) * The article took an hour for Bill to read, and the book took a week for Mary to $[_{VP}\ e]$.

Empirical evidence for modification also comes from comparison with true complements to adjectives, which are not acceptable in attributive position, though (some) nonfinite clauses are.[48]

[47] Additional evidence of the adjunct status of the nonfinite clause, at least at the surface representation, comes from degree modification.

(i) Mary is more difficult than Sam [to talk to *e*].

Given the standard assumption that *than X* is an argument of *more* which extraposes rightward, then the nonfinite clause must be able to sit in an extraposed position. Similar data is given in Heycock (1994: 232), showing that, at the surface representation, the nonfinite clause is adjoined.

[48] A reviewer helpfully notes that the modification analysis is additionally supported by the class of *tough*-nouns, e.g. *This book is a pain to read e*. In this case, an infinitival clause cannot be a complement to the noun (nor the copula), and so must be a modifier.

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(78) (a) * the [suspicious of his wife] man.
(adapted from Nanni 1980: 573)
(b) an easy to read book.

Finally, Wilder (1991: 125) notes an additional theory-internal argument for treating the nonfinite clause as an adjunct. He observes that, 'TM infinitives now form a class with infinitival relatives and purpose clauses; they never occur as arguments to lexical heads, but only as adjuncts'. That is, nonfinite clauses with operator gaps are NEVER selected for (*pace* Landau 2011).

I note though, that unlike the TTC, the *tough*-construction does not have a paraphrase as a purpose/rationale clause (Wilder 1991: 129).[49]

(79) (a) It's easy (*in order) to complete the test.
(b) It's difficult (*in order) to learn French.

This is a natural consequence of the fact that the nonfinite clause is a *v*P modifier in one case and an adjectival modifier in another. Given that purpose/rationale clauses are naturally VP/*v*P oriented, then the lack of such a reading can be attributed to the fact that a nonfinite clause with the *tough*-construction proper modifies a different category.

The categorial difference between *a*P and *v*P also explains why the *tough*-construction does not license an applied object: High Appl heads select for verbal projections, not adjectival projections.

5. Conclusion

A close examination of the TTC reveals syntactic variation in *tough*-constructions. Though they share many core properties, the TTC and the 'canonical' *tough*-construction diverge in important syntactic dimensions. I have capitalized on these differences to explore what is, and is not, a viable analysis for this particular (heterogenous) class of predicates. I conclude that the non-expletive subject in the TTC/*tough*-subject is a selected argument of the *tough*-predicate. And I further

[49] A reviewer notes that sometimes *tough*-predicates can appear with *in order*-clauses, as in (i).

(i) The test was difficult in order to evaluate the students.
(ii) The test was difficult [to complete *e*] [in order to evaluate the students].
(iii) ?? It was difficult [to complete the test] [in order to evaluate the students].

The nonfinite clause in (i) is a case of a high modification, i.e. a 'true' rationale clause. As evidence, I note that this kind of a clause can appear in the presence of a 'low' nonfinite clause in (ii). Interestingly, such rationale clauses are only possible when the *tough*-construction has a subject. I suspect this has to do with how control of PRO in the rationale clause is established. What makes (iii) bad is that we are unsure of who the agent of *evaluate* is; in (ii) we infer that it is the creator of *the test.* Note, however, that the judge of *difficult* is necessarily distinct from the controller of PRO in the rationale clause. This follows from the adjunction site: it is too high to be bound by an argument of the *tough*-predicate.

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conclude that the nonfinite clause is a modifier of the main clause. Both conclusions point to a particular kind of analysis of the *tough*-construction in general. The study expands the range of inquiry for *tough*-structures in general, as well as the various aspects of argument structure in English.

More broadly, the general point here is that a close look at the TTC reveals something deeper about the core alternation of the *tough*-construction. The study developed here should be expanded to look at additional predicates which undergo similar alternations and which have complex argument structures, like *cost* (*This book cost me $20 to buy*) or *set X back* (*This book set me back $20 to buy*). (See in particular Jones 1991: 227, as well as discussion of Spanish light verbs in Fernández-Soriano & Rigau 2009.) Though there is variation among the class of *tough*-predicates, there are constant elements as well (Gluckman 2019). There is always an alternation between an expletive subject and non-expletive subject binding a non-subject gap; there is always a 'weak' A′-step; there is always a nonfinite clause.

These facts in turn point to a particular brand of analysis of the *tough*-construction. The most accurate analyses are those which treat the *tough*-subject as an argument of the main clause and the nonfinite clause as a modifier. Thus, the ideas set forth in Mulder & Den Dikken (1992) (who treat the *tough*-construction as a kind of parasitic gap) come closest to a correct response (but see also Jones 1991; Nissenbaum 2000).

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https://doi.org/10.1017/S002222672100013X Published online by Cambridge University Press