Tough-displacement without movement

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Abstract

While *tough*-constructions in English are standardly analyzed as biclausal structures that involve an A' dependency in the embedded clause, German *tough*-constructions are generally conceived of as a type of passive. I challenge this view by presenting evidence of bi-clausal behavior of German TCs. I argue that these structures show both, typical monoclausal, passive-like, and typical bi-clausal properties. I propose (following Müller 2017*a* a.o.) that this paradoxical state of affairs is an indication of the derivational history of these constructions: they start out with an embedded CP that is at a later point of derivation depleted to VP size by a syntactic structure removal operation. The CP shell is removed from the derivation, which allows a DP in Spec,CP to be transported into the matrix clause without inflicting an Improper Movement violation.

1. Introduction

Constructions like (1-a), in which the object of an embedded verb shows up as the subject of a matrix predicate, pose interesting questions for syntactic theories. These so called *tough*-constructions, named after their characteristic predicates like *tough, hard, easy, fun*, etc., have been the object of much debate in recent years (see e.g. Hicks 2003, Rezac 2006, Hartman 2011, 2012, Pesetsky 2013, Fleisher 2013, Keine and Poole 2015, Longenbaugh 2016, Gluckman 2017, Keine and Poole 2017 and many more). They alternate with a semantically equivalent expletive construction (1-b).

(1)   a.   John is easy [to please ⟨*John*⟩].
       b.   It is easy [to please John].

The discussion has focused primarily on the construction in English. German possesses structures like (2), which look superficially similar.

(2)   weil   dieser   leckere Käsekuchen   [leicht zu backen] ist
         beacsue this.NOM tasty   cheese.cake.NOM easy to bake   is
         "because this tasty cheese cake is easy to bake"

There are two groups of analyses for English-type *tough*-constructions: BASE-GENERATION accounts and LONG-MOVEMENT accounts. Both have in common (i) the clausal embedding structure – the *tough*-predicate takes a CP complement, and (ii) the existence of an A′ dependency in that CP (see e.g. Chomsky 1982). They differ on their assumptions regarding the element involved in the A′ dependency. Base-generation approaches suggest that an empty operator is merged in the embedded object position which moves to the edge of the embedded CP. It is coreferent with the subject that is base-merged in the matrix clause. Long-movement analyses, on the other hand, assume that the matrix subject itself is base-generated as the embedded object and moves (improperly) through the embedded clause into the matrix clause.

In contrast, German *tough*-constructions are standardly analyzed as monoclausal, passive-like structures (e.g. Höhle 1978, Comrie 1997, Demske-Neumann 1994, Holl 2010). However, there are also analyses that equate it to its English counterpart (e.g. Brinker 1969, Breckenridge 1975, Rosengren 1992).

These two strands of analyses are already indicative of the main puzzle that is addressed in this paper: I will demonstrate that German *tough*-constructions offer evidence for both, a small, monoclausal, and a bigger, embedding underlying structure. I propose that these seemingly conflicting properties can be reconciled under an analysis in which syntactic structure is removed at a certain point in the derivation. Thus, these structures behave like smaller and like bigger structures, because at different stages of the derivation, they *are* bigger, and then smaller. The crucial idea of the analysis is that *tough*-predicates embed CP-complements and trigger the removal of the CP shell. This removal of the CP projection allows the object DP of the embedded clause to enter the matrix clause and become the matrix subject.

The subsequent parts are structured as follows: section 2 investigates the size of German *tough*-constructions. It sheds light on the paradoxical behavior of these structures: while they are similar to a passive in some respects, other tests suggest that they involve clausal embedding like English *tough*-constructions. Section 3 reviews and compares previous analyses. A new analysis is proposed in section 4. Section 5 explores the question of improper movement and shows

how the observed properties of *tough*-constructions can be accounted for. Section 6 concludes.

2. The size of German *tough*-constructions

This section illustrates some properties of German *tough*-constructions. As will become clear, German *tough*-constructions differ from English ones in interesting ways. They show paradoxical behavior: in some respects they behave as if the *tough*-predicate embeds a clausal structure, parallel to their counterpart in English. At the same time, other tests suggests that the construction is monoclausal and passive-like.

I will first summarize arguments from the literature on German *tough*-constructions that argue for a small, monoclausal structure. The second part of this section presents mainly new evidence for the underlying biclausal, CP-embedding structure of these sentences.

2.1. In favor of a monoclausal structure

2.1.1. Object promotion

It has been observed that the passive and *tough*-constructions behave alike in their ability to promote the theme argument to grammatical subject (e.g. Hawkins 1986). In German, the indirect object may not be promoted to subject in passivized structures and it is also unable to be the subject in a *tough*-construction, see (3).

(3)   a.   *dass der   Junge   geholfen wurde
              that the.NOM boy.NOM helped   become.PASS
       b.   *dass der   Junge   einfach zu helfen ist
              that the.NOM boy.NOM easy   to help   is
              intended: *"that the boy is easy to help"*   (Hawkins 1986)

Dative case has to be retained in both constructions.

(4)   a.   dass dem   Jungen   geholfen wurde
             that the.DAT boy.DAT helped   become.PASS
             "that the boy was helped"

b. dass dem   Jungen   einfach zu helfen ist
    that the.DAT boy.DAT easy   to help   is
    "that the boy is easy to help"

English shows the mirror image: indirect and oblique objects can be *tough-*moved, and they can also be promoted to subject in passive constructions, see (5).

(5) a. He is easy to help.
     b. He was helped.

This observation illustrates the superficially common property of *tough-*constructions and passives: the promotion of the direct object and the impossibility to target non-direct objects in German. The line of argumentation in Hawkins (1986) and others is, that since they behave the same with respect to object promotion, these structures can be equated with one another.

2.1.2. Tough-movement is bounded

*Tough-*constructions in German are typically short dependencies: *tough-*movement may not cross multiple clause boundaries. As (6) shows, *tough-*movement is impossible across an embedded infinitive in German, in contrast to English.

(6) a. *dass dieses   Buch   schwer [$_{CP}$ Hans zu
         that thisNOM book.NOM hard   Hans.DAT to   convince
         überzeugen [$_{VP}$ ⟨*dieses Buch*⟩ zu   lesen]] ist
         this   book to   read is
     b. that this book was easy to convince John to read

                                                    (Wurmbrand 2001:29)

English *tough-*movement is allowed across multiple clauses, as long as there is no intervening element in a Spec,CP position (like *why* in (7-b)), which suggests an A′-dependency in the embedded clause (Nanni 1980, Hicks 2003). Compare (7-a) and (7-b)[1].

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[1]Note that Gluckman (2017) judges *tough-*constructions like (i) which involve a finite embedded clause as ungrammatical, in contrast to Hicks (2003:43). Gluckman concludes that *tough-*constructions show a 'weak' A-bar dependency, since they do pass most tests for A′-movement, but are not completely unbounded.

(7)   a.   A guy like John is hard [to imagine [any woman believing [she
               could ever resist falling in love with _]]]

        b. ??A guy like John is hard [to imagine [any woman wondering [why
               she could never resist falling in love with _]]] (Hicks 2003:43)

If a predicate embeds a CP and there is A′-movement in that CP (regardless of
the element that moves), one would expect that this A′-movement has the
typical property of applying successive-cyclically. It is expected to cross any
number of CPs. In German, that does not seem to be the case.

   This led some scholars to believe that there is no clausal embedding in these
constructions in German. Instead, they propose a monoclausal structure like a
canonical passive.

2.1.3. No attributive use

Tough-constructions can be used attributively in prenominal position in English,
as in (8).

(8)   a.   a difficult book to read
        b.   an easy thing to say

Since they pattern similarly to adjectives with respect to their distribution, it
is plausible to assume that *tough*-constructions consist of an adjective that
embeds a clause. *Tough*-constructions in German do not show the same
distribution.

   Tough-predicates in German do not behave like adjectives in the sense that
they cannot be used attributively in prenominal position (e.g. Comrie 1997,
Holl 2010), (9).

(9)   a.   ein schwer zu les-end-es   Buch
               a   hard   to read-PTCL-NOM.SG.NEUT book.NOM

        b. ?*ein schwer-es   Buch   zu lesen
               a   hard-NOM.SG.NEUT book.NOM to read

In German, the *tough*-element is invariant and does not bear inflection –
properties of an adverb rather than an adjective, as argued by Comrie (1997).

(i)   *The book was difficult to say that John read _.

Instead, the inflection is hosted on the participle verb form, which marks it as the head of the attribute. Consequently, Comrie argues that German *tough*-constructions do not consist of an adjective that embeds a complement clause, unlike their English counterparts. Rather, they are a passive (morphologically realized as a *zu* 'to'-infinitive instead of a participle) which is modified by an adverb (i.e. the '*tough*-predicate'; see also 2.1.4, Demske-Neumann 1994, Comrie 1997).

2.1.4. *Tough-predicate is optional*

German *tough*-constructions may lack a *tough*-predicate, as in (10). These sentences are ambiguous between two possible interpretations: they can receive a reading of necessity or possibility. Depending on the lexical verb, one of the readings is more salient.

(10)　dass die　　Kälte　　jetzt ∅ [$_{VP}$ zu spüren war]
　　　　that the.NOM cold.NOM now　　　to feel　was
　　　　"that it was possible to feel the cold now" or *"that one had to feel the*
　　　　cold now"　　　　　　　　　　　　　　　　　　　　(Höhle 1978)

The possibility of *tough*-constructions without an overt *tough*-predicate has been used as an argument for the underlying passive nature of these constructions (Höhle 1978, Comrie 1997). In these analyses, *tough*-constructions are monoclausal structures with an infinitival predicate. The *tough*-adjective is merely an optional adverb that modifies it. This structure has been called a 'modal passive' because of the modality readings it can receive (possibility or necessity).

Additional evidence for this view comes from the fact that elements that are unambiguously adverbs (and not adjectives) can occur in the *tough*-predicate position, as in (11).

(11)　a.　dass der　　Brief　*kaum* zu lesen war
　　　　　that the.NOM letter.NOM hardly to read　was
　　　　　"that one could hardly read the letter"
　　　b.　*der　　kaum-e　　　Brief
　　　　　the.NOM barely-NOM.SG.M letter.NOM

2.2. In favor of a biclausal structure

2.2.1. *Non-passive verbs and non-tough verbs*

Some German verbs cannot be passivized, but can still be part of a *tough*-construction: *bekommen* 'to get', *erhalten* 'to receive', *erfahren* 'to learn', *haben* 'to possess' (Holl (2010), Rosengren (1992)). In (12-a) and (13-a), passivization of *bekommen* and *haben* is impossible, while the *tough*-constructions in (12-b) and (13-b) are licit.

(12)   a.   *dass die   Bücher   am Schalter im Lesesaal
                that the.NOM books.NOM at desk   in reading.room
                bekommen werden
                get.PTCL   become.PASS
                intended: "*that one can get the books at the desk in the reading room*"
    b.   dass die   Bücher   am Schalter im Lesesaal
                that the.NOM books.NOM at desk   in reading.room
                (einfach) zu bekommen sind
                  easy   to get   are
                "*that one can get the books at the desk in the reading room (easily)*"   (Holl (2010), modified)

(13)   a.   *dass es   gehabt   wird
                that it.NOM possessed become.PASS
                intended: "*that it is possessed*"
    b.   dass es   noch zu haben   ist
                that it.NOM still   to possess is
                "*that it can still be obtained*"   (M.Salzmann, p.c.)

In addition to that, intransitive unergative verbs can be passivized, but cannot be part of a *tough*-construction. (14)[2] shows the impersonal passive of some unergative verbs.

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[2]Example (14-a) was obtained from https://www.wertingen.de/rathaus-und-verwaltung/aktuelles/612-allein-der-spass-zaehlt.html, 27 July 2018. Example (14-b) was obtained from Müller and Rieland (2006: 289).

(14)   a.   dass bei jedem Wetter   gelaufen wird
                that in every weather run   become.PASS
                "that one runs in every weather"
       b.   wenn von der   Vereinbarung innerhalb der
                if   from the.DAT agreement   within   the.GEN
                Klagefrist   §4 des   KSchG
                period.of.appeal §4 the.GEN employment.protection.law
                zurückgetreten wird
                withdraw   become.PASS
                "if one withdraws from the agreement within the period of appeal according to §4 of the employment protection law ... "

These verbs are illicit in *tough*-constructions, like (15)[3].

(15)   a. ?*dass bei jedem Wetter   gut   zu laufen ist
             that in every weather easy to run   is
             intended: *"that running is easy in every weather"*

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[3]Some authors (e.g. Holl 2010) report that *tough*-constructions with intransitive verbs are possible. Holl (2010) presents examples like (i):

(i)   a.   ??Nun ist aber   wirklich einzuschlafen.
            now is MOD.PART really   to.go.to.sleep
            "One really has to go to sleep now." (Holl 2010:17, grammaticality judgment from Holl 2010)
      b.   Ab   22 Uhr   ist zu schlafen.
            from 22 o'clock is to sleep
            "One has to be asleep as from 10pm."   (Holl 2010:18)

Since these examples involve unaccusative verbs, which cannot be passivized, they pattern like *bekommen* and *haben* in (12) and (13).

    Note that there is a discussion about the ability of unaccusative verbs in German to be passivized. Recently, some authors have argued that genuine passivization of these verbs is possible (Primus 2010*b*, 2011, 2010*a*, Kiparsky 2013). Such passive realizations are standardly analyzed as a reinterpretation of unaccusative as unergative verbs (Růžička 1989, Fanselow 1992, Müller 1999, 2002). I follow this line of thought in concluding that unaccusative verbs cannot be passivized directly (see also arguments in Müller 2018).

b. *weil   von der Vereinbarung innerhalb der Klagefrist
because from the agreement   within   the period.of.appeal
schwer zurückzutreten ist
hard   to.withdraw   is
intended: *"because it is hard to withdraw from the agreement within the period of appeal"*

Altogether, it seems that there is a double dissociation between the ability to occur in a passive and in a *tough*-construction, suggesting that these two structures are not related to one another. This does not mean that *tough*-constructions have an underlyingly bigger structure than passives. It only suggests that these two constructions cannot be identical.

2.2.2. Licensing of parasitic gaps

A′-movement is known to be able to license parasitic gaps (e.g. Engdahl 1983). Parasitic gap licensing is taken as a diagnostic of A′ movement in *tough*-constructions since Chomsky (1982), Montalbetti et al. (1982), as in (16). There is no consensus regarding the element that undergoes this movement: in base-generation theories it is an empty operator that moves to the edge of the embedded clause and is coreferent with the subject that is first merged in the matrix clause (e.g. Fiengo 1980, Chomsky 1982, Rezac 2006, Keine and Poole 2015). In long-movement accounts it is the matrix subject itself that moves from the embedded into the matrix clause (e.g. Brody 1993, Hicks 2003, Hartman 2012, Longenbaugh 2017).

(16)   CDs are easy [to copy _ [without having to pay good money for $_{pg}$]].
(Hicks 2003:43)

The existence of parasitic gaps in German has been debated in the literature (e.g. Felix 1985, Fanselow 2001, Kathol 2001, Assman 2010). Assmann (2010) concludes that the contexts which allow parasitic gaps are much more restricted in German than in English. While parasitic gaps can occur in English in tensed and tenseless adjunct clauses (17-a), (17-b) relative clauses (17-c), subjects and complement clauses (17-d) a.o., in Standard German[4] they are

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[4]I only consider parasitic gaps in Standard German. Parasitic gaps in Bavarian and other southern German varieties show different behavior and are structurally closer to English, see e.g. Lutz (2004).

only licit in non-tensed adjunct clauses. They are licensed by A′-movement, *wh*-movement in (18-a), and scrambling[5] in (18-b).

(17) *Parasitic gaps in English*

    a. Which article did Ted copy _ [without reading $_{pg}$]?   Postal (1994)

    b. Which colleague did John slander _ [because he despised $_{pg}$]? Engdahl (1983)

    c. the woman [who your attack on $_{pg}$ enraged _]? Postal (1994)

    d. Who did you tell _ [that we are going to vote for $_{pg}$]? Engdahl (1983)

(18) *Parasitic gaps in German*

    a. Wen   hat er [ohne $_{pg}$ zu mögen] freundlich _
        who.ACC has he without   to like   friendly
        gegrüßt?
        greeted
        "Who did he greet nicely without liking?"

    b. dass dieses   Buch alle   [ohne $_{pg}$ zu lesen] _ ins
        that this.ACC book everyone without   to read   into
        Regal gestellt haben
        shelf put   have
        "that everyone put this book on the shelf without reading it"
        (Müller 1995:173)

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[5]There is much discussion about the nature of scrambling in German. It has been argued to be either A-movement (Fanselow 1987, 1990, Frey 1989, Moltmann 1990), A′-movement (Stechow and Sternefeld 1988, Sternefeld 1990, 1991, Müller and Sternefeld 1993, 1994, Vikner 1994), or have mixed A- and A′-properties (Webelhuth 1989, 1992). As (i) shows, parasitic gaps cannot be licensed by A-movement (see also the discussion in Müller 1995). I will consider scrambling to be A′-movement.

(i) *dass dieses   Buch [ohne $_{pg}$ zu lesen] dem   Peter _ gegeben
    that this.NOM/ACC book without   to read   the.DAT Peter   given
    wurde
    become.PASS
    intended: *"that this book was given to Peter without reading"*

Both *tough*-constructions and parasitic gap constructions are marginal structures in German. Crucially however, sentences in which they are combined are not significantly worse than sentences with only parasitic gaps. In the context where parasitic gaps are licit in German, they seem to be possible in *tough*-constructions as well. The sentences in (19) were judged to be as grammatical as sentences like (18-a) and (18-b) by 35 participants in an informal grammaticality judgment survey.

(19)   *Parasitic gaps in German tough-constructions*

    a.   dass der   Text einfach [ohne $_{-pg}$ gründlich
             that the.NOM text easy   without   thoroughly
             durchzulesen] _ zu verstehen   ist
             to.read   to understand is
             "that the text is easy to understand without reading thoroughly"

    b.   dass die   Türen [ohne $_{-pg}$ zu beschädigen] _ zu
             that the.NOM doors without   to damage   to
             schließen sind
             close   are
             "that the doors should/ can be closed without damaging them"

    c.   ?dass diese   Skulpturen leicht [ohne $_{-pg}$ zu
             that these.NOM sculptures easy   without   to
             beschädigen] _ zu transportieren sind
             damage   to transport   are
             "that these sculptures are easy to transport without damaging"

The acceptability of parasitic gaps in *tough*-constructions represents strong evidence that there exists an A′ dependency in German *tough*-constructions, parallel to the English construction. This in turn suggests that *tough*-constructions are not underlying monoclausal passive structures, since no theory of the passive assumes an A′ dependency. Consider as well (20), which shows that parasitic gaps cannot be licensed in canonical passives.

(20)   *No parasitic gaps in German passives*

    a.   *weil   er [anstatt $_{pg}$ freundlich zu behandeln] _ geärgert
       because he instead   friendly   to treat   bothered
       wurde
       was
       intended: *"He was bothered instead of treating him nicely."*

    b.   *dass das Buch [ohne $_{pg}$ zu kaufen] _ bekritzelt   wurde
       that the book without   to buy   doodled.on was
       intended: *"that the book was doodled on without buying"*

    c.   ?*dass Maria [ohne $_{pg}$ anzusehen] _ geküsst wurde
       that Maria without   to.look.at   kissed was
       intended: *"that Maria was kissed without looking at"*

2.2.3. Topicalization

A second argument against an underlying passive-representation of *tough*-constructions comes from topicalization: (active and passive) VPs can be topicalized to Spec,CP in German, while APs generally cannot, see (21).

(21)   a.   [$_{VP}$ Langusten   gegessen] wurden   nicht.
        crawfish.NOM eaten   become.AUX.3PL not
      "Crawfish wasn't eaten."

    b.   *[$_{AP}$ Langusten   lecker] sind nicht.
        crawfish.NOM tasty   are   not

If *tough*-constructions are passives, we would expect the infinitival VP to be able to topicalize with the *tough*-adverbial *leicht*, parallel to (21-a). This is, however, not what we find[6], see (22).

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[6]Note that (22) cannot be ruled out on the grounds of the subject being too low, inside *v*P. Haider (1990) shows that (indefinite) subjects in German can be topicalized with the *v*P, as in (i).

(i)   [$_{vP}$ Ein Außenseiter gewonnen] hat hier noch nie.
      a underdog   won   has here yet never
   "An underdog has never won here."   (Haider 1990:94)

(22)   *[_{VP} Linguisten   leicht zu überzeugen] sind nicht.
        linguists.NOM easy to convince   are not
      intended: *"Linguists are not easy to convince."*

Even structures that do not contain an overt *tough*-adjective cannot be topicalized[7], (23).

(23)   ?*[_{VP} Briefbomben   zuzustellen] sind nicht.
        mail.bombs.NOM to.deliver   are not
      intended: *"Mail bombs should not be delivered."*

Tough-constructions seem to pattern with APs rather than VPs with respect to topicalization, suggesting that their underlying structure is not a VP, but an adjective embedding a bigger structure.

2.2.4. Long scrambling

Some accounts of *tough*-movement assume that a *tough*-construction and the corresponding expletive construction are derivationally connected (e.g. Rosenbaum 1967, Postal 1971).

   Expletive constructions show evidence for the existence of a CP shell. Scrambling is generally clause-bound in German (e.g. Ross 1967, but see Grewendorf and Sabel 1994 for exceptions). Thus, (24), where an element has been scrambled out of an embedded clause into the matrix clause, is ungrammatical.

(24)   *weil   ich den   Mann$_i$ glaube, [_{CP} dass sie _$_i$ liebt]
        because I   the.ACC man.ACC believe   that she   loves
      intended: *"because I believe that she loves the man"*

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[7]Even though the sentence in (23) is not completely ungrammatical for all speakers and becomes more grammatical with more material in the middle field, as in (i), the contrast between (21) and (22)/(23) certainly still obtains.

(i)   ?[_{VP} Briefbomben   zuzustellen] sind nur montags   bis freitags   von 12
        mail.bombs.NOM to.deliver   are only on.mondays until on.fridays from 12
    bis 14 Uhr.
    to 14 o'clock
    "Mail bombs should only be delivered from Monday to Friday from 12–2pm."

Likewise, in an expletive construction, scrambling out of the embedded clause is ungrammatical, (25).

(25)   *dass es den   Kuchen$_i$ leicht [$_{CP}$ _$_i$ zu backen] war
          that it the.ACC cake.ACC easy   to bake   was
          intended: *"that it was easy to bake the cake"*

Scrambling behavior thus indicates that a clause boundary is present in the expletive sentences. If *tough*-constructions are derived from expletive constructions, the *tough*-predicate must at some point in the derivation embed a CP.

   Interestingly, scrambling out of the *tough*-predicate complement in *tough*-constructions is permitted, (26).

(26)   weil   meine   Nachbarin [$_{CP}$ meinem neuen   Freund]$_i$
          because my.NOM neighbor   my.DAT new.DAT boyfriend.DAT
          leicht [$_{VP}$ _$_i$ vorzustellen] ist
          easy   to.introduce is
          "because my neighbor is easy to introduce to my new boyfriend"

2.2.5. Scope of negation

The scope of embedded negation is in the embedded clause (Haider 2010), (27).

(27)   Sie hat versucht, [ihn *nicht* zu beunruhigen].
          she has tried   him not   to alarm
          "She has tried not to alarm him." (*versuchen* » NEG, Haider 2010:19)

In expletive and *tough*-constructions, the negation cannot scope out of the complement of the *tough*-predicate, (28).

(28)   a.   dass es schwer war [ihm das *nicht* zu versprechen]
              that it hard   was him that not   to promise
              "that it was hard not to promise that to him"   (*schwer* » NEG)

b. ?dass ihm   dieses   Versprechen schwer [nicht zu geben]
   that him.DAT this.NOM promise   hard   not   to give
   war
   was
   "that this promise was hard not to give him"

This scope restriction is indicative of a clause boundary.

2.2.6. *Unstressed pronoun fronting*

Unstressed pronouns have to be fronted, i.e. they have to be moved to the left periphery of *v*P. They can be preceded only by the subject (Müller 2016*a*). This is illustrated in (29) with the verb *lehren* 'to teach' which takes two accusative objects, one of which is the unstressed pronoun *ihn* 'him'.

(29)   a.   dass *ihn*   die   Maria den   korrekten Umgang
            that him.ACC the.NOM Maria the.ACC proper   handling
            mit Schusswaffen gelehrt hat
            with firearms   taught has
       b.   dass die   Maria *ihn*   den   korrekten Umgang
            that the.NOM Maria him.ACC the.ACC proper   handling
            mit Schusswaffen gelehrt hat
            with firearms   taught has
       c.   *dass die   Maria den   korrekten Umgang mit
            that the.NOM Maria the.ACC proper   handling with
            Schusswaffen *ihn*   gelehrt hat
            firearms   him.ACC taught has
       d.   dass die   Maria den   korrekten Umgang mit
            that the.NOM Maria the.ACC proper   handling with
            Schusswaffen den   Peter gelehrt hat
            firearms   the.ACC Peter taught has
            "that Maria taught him/Peter the proper handling of firearms"

It seems to be a fact about the syntax of German that this fronting can only happen in the presence of a CP in the relevant domain (Müller 2016*a*). Compare the embedded infinitivals in (30). (30-a) shows a raising construction. Independent tests show that raising verbs do not embed a CP, but a smaller

complement. Thus, fronting in the complement of a raising verb results in ungrammaticality. On the other hand, (30-b) shows a control infinitival in which fronting of *es* is possible.

(30)   a.   *dass sie   mir   schon   letzte Woche [*es* zu lesen]
            that she.NOM me.DAT already last   week   it   to read
            schien
            seemed
            "that she seemed to me already last week to be reading it"
       b.   dass sie   mir$_i$ schon   letzte Woche [t$_i$ *es* zu geben]
            that she.NOM me.DAT already last   week   it to give
            versucht hat
            tried   has
            "that she already tried to give it to me last week"(Müller 2016*a*)

When we turn to embedded *tough*-infinitives, we find that they pattern with control-infinitives rather than with the complements of raising verbs, suggesting that they possess an equally big structure, see (31). (31) again uses the double-accusative verb *lehren*. One of the accusative objects can be *tough*-moved, while the other, the pronoun, can be fronted or left inside the complement of the *tough*-predicate *leicht*.

(31)   dass (ihn)   der   korrekte Umgang mit Schusswaffen
       that   him.ACC the.NOM proper   handling with firearms
       (ihn)   nicht so leicht [(?ihn)   umfassend (*ihn)   zu
        him.ACC not so easy   him.ACC thoroughly him.ACC to
       lehren] war
       teach   was
       "that the proper way of handling firearms was not all that easy to teach him thoroughly"

The parallel behavior of *tough*-complements and control-complements suggests that they have in common what raising constructions lack: a CP.

2.2.7. Reconstruction

Approaches to *tough*-constructions that posit a long movement chain from the position in the embedded clause in which the pivot DP is first merged

to its surface position as the matrix subject, can be distinguished from base-generation accounts, where an empty operator is A′-moved in the embedded clause and connected to an overt subject merged in the matrix clause, by the possibility of reconstruction of the pivot DP into a position in the matrix clause (Longenbaugh 2017).

Analyses in which an element starts out in a lower position and moves into a higher one, predict the possibility of reconstruction into the lower position. It has been shown by Pesetsky (2013), Fleisher (2013), and Longenbaugh (2017) (a.o.) that reconstruction of the *tough*-subject into the object position of the embedded clause is possible in English[8]. The prediction is borne out in the same way in German. (32-a) shows reconstruction for anaphor binding: the anaphor *sich selbst* can reconstruct into a position where it is c-commanded by its antecedent. (32-b) shows scope reconstruction which is entirely parallel to English.

(32)   a.   dass Bilder   von sich   selbst$_i$ für Max$_i$ schwierig _ zu
            that pictures of   himself self   for Max difficult   to
            verschenken   sind
            give.as.present are
            "that pictures of himself are hard for Max to give as a present"
       b.   dass fünf Leute   schwierig gleichzeitig   _
            that five people hard   simultaneously
            zufriedenzustellen sind
            to.please   are
            "that five people are hard to please at the same time"   (*hard* ≻
            five)

Since reconstruction behavior is so similar in German and English, it is plausible to assume that the structure underlying the constructions in the two languages is similar, too (see also Salzmann 2018). The consensus in the literature is that the complement of an English *tough*-predicate is a CP. The parallel reconstruction behavior suggests that the same is true for German.

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[8]Unfortunately, it is not completely clear to what extent reconstruction really is possible in English. While the authors cited in this subsection argue that reconstruction for binding and scope is possible, Poole et al. (2017) and Gluckman (2017) argue against it. I will not discuss intervention effects in reconstruction. For that, see Hartman (2011), Keine and Poole (2017) and references therein.

2.3. Interim summary: paradoxical data

We have seen that *tough*-constructions have puzzling properties: in some ways they resemble a passive, suggesting that they consist of a small, monoclausal structure. On the other hand, there is evidence for standard long-movement analyses of *tough*-constructions, for the identity of the matrix subject and the embedded object, and for clausal embedding. This leaves us with a paradox. How can these conflicting properties be reconciled?

Before we try to solve this paradox, we will look at previous analyses that have been proposed for *tough*-constructions in the next section.

3. Previous accounts

There are three groups of analyses of *tough*-constructions that are relevant for our purposes: monoclausal accounts specifically for German (e.g. Höhle 1978, Demske-Neumann 1994, Comrie 1997, Holl 2010), and two strands of biclausal accounts that have mainly dealt with English. Of these, the long-movement group proposes that the gap in the embedded clause is derived by movement out of that infinitival into the matrix clause (e.g. Postal and Ross 1971, Chomsky 1981, Hicks 2003, 2009, Hartman 2011, 2012, Longenbaugh 2016, 2017), while the base-generation group proposes that an (empty) operator A′-moves in the embedded clause and enters a predication relation with the matrix clause subject (e.g. Chomsky 1977, Browning 1987, Jones 1991, Mulder and Den Dikken 1992, Rezac 2006, Salzmann 2017, Keine and Poole 2015, 2017). This section offers a brief overview over these accounts and evaluates their advantages and disadvantages.

3.1. Monoclausal accounts

German *tough*-constructions have standardly been analyzed as monoclausal modal passive/ A-movement constructions (see e.g. analyses in Höhle 1978, Hawkins 1986, Demske-Neumann 1994, Comrie 1997, Wurmbrand 2001, Holl 2010). The main idea of these analyses is that sentences like (33-a) are a type of passive, with the verb surfacing with non-canonical morphology (*zu*-infinitive plus a form of *sein* 'to be', whereas normal passives consist of

the past participle and a form of *werden* 'to become')[9]. The '*tough*-predicate' is merely an optional adverb that modifies the verb.

(33) a. weil   der   Kuchen   [$_{VP}$ (schwer) [$_{VP}$ zu backen ist]]
          because the.NOM cake.NOM   hard   to bake   is
          "because the cake is hard to bake"
      b. weil   der   Kuchen   [$_{VP}$ (gerade) [$_{VP}$ gebacken
          because the.NOM cake.NOM   just.now   baked
          wurde]]
          become.PASS
          "because the cake has just been baked"

As we have seen in 2.1, evidence for this view comes from the parallel object promotion behavior of *tough*-constructions and passives, the impossibility to use a *tough*-predicate attributively, the optionality of the *tough*-adjective, and most of all the boundedness and non-A′-character of *tough*-movement in German.
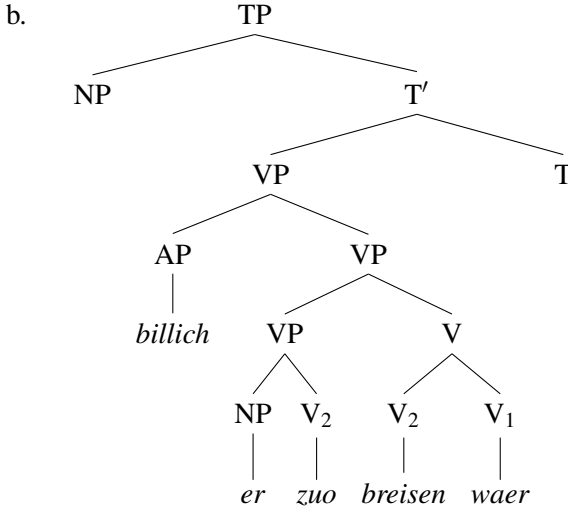
Demske-Neumann (1994) offers a historical examination of the *tough*-construction and the modal passive in German and English. She argues that due to the loss of adverbial morphology, adjectives like *leicht* 'easy', *schwer* 'hard' etc. could no longer be identified as being used adverbially or predicatively. This led to a reanalysis of genuine *tough*-constructions in German as passives. The infinitival verb is not understood as the complement of a *tough*-predicate anymore, but reanalyzed as a complex predicate that emerged from the abstract incorporation of the infinitival verb with *sein* 'to be' (Demske-Neumann 1994:184f). The internal argument of the infinitive is raised to subject position to receive case, since the incorporated complex predicate cannot assign accusative case anymore. The *tough*-predicate is reanalyzed as an adverbial that is adjoined to the VP.

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[9]Although note that there are types of passive in German that also do not show canonical passive morphology, like *lassen*-passive in (i).

(i) dass der   König   den   Wein   hereinbringen ließ
     that the.NOM king.NOM the.ACC wine.ACC bring.in   let
     "that the king had someone bring in the wine"

(34)   *Passive analysis of German tough-constructions (Demske-Neumann
1994:185)*

    a.   des   er   billich   zuo breisen waer

          REL.PRON he.NOM appropriate to   praise   be.COND

          "of which it would be appropriate to praise him"

                (*Early New High German*; Demske-Neumann 1994:184)

    b.

```
                        TP
                      /    \
                    NP       T′
                           /    \
                         VP       T
                        /  \
                      AP    VP
                      |    /   \
                   billich VP     V
                         /  \    /  \
                       NP   V₂  V₂   V₁
                       |    |   |    |
                       er  zuo breisen waer
```

Based on the typically biclausal properties discussed in section 2.2, which are
unaccounted for in such a passive-like analysis, I will dismiss a straightforward
passive analysis of *tough*-constructions. Something more needs to be said. I
will turn to biclausal proposals next.

3.2. Biclausal accounts

Section 2.2 presented evidence that *tough*-constructions in English and in
German involve clausal embedding. The subject of these constructions is
related to a gap in an embedded infinitival CP. It is the thematic argument
of the embedded verb, not of the *tough*-predicate, see (35) (Chomsky 1981,
Browning 1987, Brody 1993, Hicks 2003 and many others). If (35-b) is
grammatical, Gluckman (2017) notes that it can only be interpreted with
respect to an implicit event of chopping down, suggesting that the theta role
the subject receives stems from the embedded verb.

(35) a.   This tree was easy to chop down.
       b.   ??This tree was easy.   (Gluckman 2017:5)

While this relation follows straightforwardly in monoclausal analyses (since there is only one predicate, the lexical verb), biclausal proposals have to develop different means to account for it.

3.2.1. *Base generation accounts*

In base generation analyses, the relation between the matrix subject and the gap in the embedded infinitival is indirect, mediated by an operator in the embedded clause. This operator is merged as the object and A′-moves to the edge of the embedded clause. There, it enters into a relation with the subject that is base-merged in the matrix clause: via semantic predication in e.g. Ross (1967), Lasnik and Fiengo (1974), Chomsky (1977, 1981), Rezac (2006), Keine and Poole (2015, 2017) and via syntactic Agree in Rezac (2006), Fleisher (2013).

   Base generation analyses face a number of problems: first, they cannot account for the possibility to reconstruct into a position in the embedded clause (Hicks 2003, Longenbaugh 2017). Reconstruction is possible for anaphor binding and for scope, as the German data in (32-a) and (32-b) have illustrated. German and English behave entirely parallel in this respect. Reconstruction into a lower position suggests that the reconstructed element inhabited that position at some point in the derivation. This is excluded in base generation accounts. Second, Longenbaugh (2017) points out that *tough*-constructions show properties of A-movement, and the A′-movement they exhibit seems to be more restricted than A′-movement elsewhere (it is degraded for non-subjects and impossible for subjects out of finite CPs). An analysis that relies solely on A′-movement in the embedded clause cannot offer a straightforward account for that. Third, base generation accounts violate the Theta Criterion (Hicks 2003, 2009). *Tough*-predicates do not assign *theta*-roles. The *tough*-subject is interpreted as a *theta*-argument of the embedded verb. If that role is assigned to an operator in the embedded clause, the matrix subject will be without a *theta*-role. It is not clear how it can receive its interpretation.

   I conclude that these observations have cast sufficient doubt on the validity of base generation approaches to *tough*-constructions. I turn to long movement analyses next.

3.2.2. Long movement accounts

In long movement accounts (e.g. Postal and Ross 1971, Chomsky 1981, Hicks 2003, 2009, Hartman 2011, 2012, Longenbaugh 2016, 2017), there is a direct relation between the matrix subject and the gap: they are connected by a movement path. A DP is merged as the object of the embedded predicate and moves into matrix subject position improperly, i.e. by following an A′ movement step with an A movement step.

Evidence for this view and against base generation approaches comes from reconstruction data, as discussed above. All other biclausal properties discussed in 2.2 are compatible with this analysis.

The major disadvantage of long movement accounts is that they violate the Improper Movement constraint. This constraint was formulated (Chomsky 1973, May 1979, Chomsky 1981) to rule out derivations in which the same XP undergoes A′-movement and subsequently, A-movement, accounting for the ungrammaticality of hyperraising as in (36).

(36)   a. *Minnie seems [_ that _ adores custard].
        b. *Minnie scheint [_   dass _ Windbeutel liebt].
             Minnie seems   that   cream.puffs loves

However, this is exactly the configuration that is assumed in long movement analyses of *tough*-constructions: the object DP A′-moves to the edge of the embedded clause and A-moves from there into subject position. Various ways around this violation have been proposed: Longenbaugh (2017) proposes that the relevant movement step in English *tough*-constructions from Spec,CP to Spec,*v*P is an instance of *composite movement*, showing both A- and A′-properties. He follows van Urk (2015) in assuming that the A/A′ distinction is due to properties of movement-triggering probes. When a head contains both A (i.e. ϕ)- and A′-probes, they can trigger movement together and this movement would then show mixed A/A′ behavior. Longenbaugh (2017) argues that *v* in English is such a head. Thus, since v does not distinguish between A- and A′-movement, movement into its specifier does not constitute an Improper Movement violation. Composite movement cannot account for *tough*-constructions in German, though. Mixed A/A′-properties for German scrambling have been proposed by Webelhuth (1989, 1992). However, it has been shown by Mahajan (1994) that German offers no evidence for these kinds of mixed A/A′-positions.

Hicks (2003, 2009) adopts a smuggling account for *tough*-movement (based on Collins 2005*a,b*). The *tough*-movement pivot possesses the complex structure in (37).

(37)   [$_{DP}$ D [$_{NP}$ Op [$_{DP}$ ...]]]

Hicks' account, the outer DP moves to the embedded clause edge and the inner DP is subextracted into the matrix clause. Smuggling derivations face the problem of violating the freezing principle (according to which movement out of a moved constituent is ruled out, see section 3.2.2). Even in Abels (2007), where it is argued that the freezing principle as such is too strong, the dependencies relevant to *tough*-constructions (*wh*-movement feeding A-movement) are still ruled out, see Abels (2007:76f).

It thus seems that neither of these proposals can offer a solution for the improper movement problem in German *tough*-constructions. In fact, certain German *tough*-movement structures even show evidence that no movement takes place from the embedded into the matrix clause.

First, evidence from scrambling in the German middle field challenges long-movement approaches to *tough*-constructions. It has been observed (e.g. Reuland 1988, Webelhuth 1989, Geilfuß 1991, Haider 1996) that certain elements cannot be scrambled, i.e. moved into a position in the middle field. Compare (38-a) – (38-c). In (38-a) the indefinite pronoun *was* 'something' is located in its base position, following the subject *einer* 'someone'. (38-b), where the indefinite has been scrambled across the subject, is ungrammatical. This movement is allowed when the scrambled element is a full DP like in (38-c).

(38)   *Indefinite pronouns cannot scramble*
        I can't imagine ...

    a.   dass hier einer   *was*   begreift
           that here someone something understand
           "that someone gets anything here"

    b.   *dass hier *was$_i$*   einer t_i begreift
           that here something someone   understand

    c.   dass hier das Problem$_i$ einer t_i begreift
           that here the problem someone   understand
           "that someone gets the problem"   (Haider 1996, modified)

Yet, while scrambling is impossible, indefinite pronouns can be part of a *tough*-construction, as in (39).

(39)   dass was   schwer zu verstehen   ist
        that something hard   to understand is
        "that something is hard to understand"

If both short scrambling and the final movement in *tough*-constructions are A-movement (for scrambling see a.o. Fanselow (1990), Saito (1992), Mahajan (1994)), their divergent behavior is unexpected.

   Something similar is at play in the interaction between scrambling of objects and focus. It has been observed that there is an asymmetry in the ability to scramble over a focussed or non-focussed phrase (a.o. Lenerz 1977, Stechow and Sternefeld 1988). A direct object can scramble over a focussed indirect object, see (40-b) (Stechow and Sternefeld 1988:452, the focussed argument is shown in small caps, (40-a) shows the base-generated word order).

(40)   [Context: Who did you give the book to?]
        a.   dass ich dem   SCHÜLER   das   Buch   gegeben
             that I   the.DAT student.DAT the.ACC book.ACC given
             habe
             have
        b.   dass ich das   Buch   dem   SCHÜLER   ⟨*das Buch*⟩
             that I   the.ACC book.ACC the.DAT student.DAT the   book
             gegeben habe
             given   have
             "that I gave the book to the student"

A focussed direct object may generally not scramble over a non-focussed indirect object, see (41).

(41)   [Context: What did you give to the student?]
        a.   dass ich dem   Schüler   das   BUCH   gegeben
             that I   the.DAT student.DAT the.ACC book.ACC given
             habe
             have

b. ?*dass ich das   BUCH   dem   Schüler   ⟨*das Buch*⟩
     that I   the.ACC book.ACC the.DAT student.DAT the   book
     gegeben habe
     given   have
     "I gave the book to the student."

If *tough*-constructions are derived by moving a DP into the matrix clause, we should expect the restriction that rules out (41-b) to hold here as well. This is not what we find. (42), where the DO ends up in a position higher than the non-focussed IO, is grammatical.

(42)   dass das $BUCH_i$ schwer dem   Schüler   ⟨*das Buch*⟩
     that the.NOM book.NOM hard   the.DAT student.DAT   the book
     zuzustellen war
     to.deliver   was
     "that the book was hard to deliver to the student"

In both of these contexts, *tough*-'movement' was allowed, while scrambling was not. This contrast suggests that the same restrictions do not hold for *tough*-movement and scrambling. Given the general immobility (in the middle field) of indefinite pronouns like *was*, it is not implausible to assume that the *tough*-pivot is not transported from the embedded into the matrix clause by movement.

A second problem for standard long-movement approaches is the lack of freezing effects in complex *tough*-'moved' DPs. If the step from the embedded clause into the matrix clause is movement, the *tough*-moved phrase should be opaque for further extraction, according to the freezing principle (Ross 1967, Wexler and Culicover 1980, Abels 2007).

Freezing describes certain movement configurations in which an element moves out of a moved constituent. Ungrammaticality ensues when a trace in a moved item is c-commanded by its antecedent outside of that moved item, see (43).

(43)   *Freezing (Müller 1998)*
     *X [$_Y$...⟨X⟩...] ⟨Y⟩

One construction to test this hypothesis with is the *was-für* ('what kind') split construction. *Was-für* splits are complex discontinuous DPs, as in (44).

(44)   Was haben dich   denn   für Leute besucht?
        what have   you.ACC MOD.PART for people visited
        "What kind of people have visited you?"

Was-für splits are standardly analyzed as remnant movement constructions
(Abels 2003, Leu 2003, see also Leu 2008 for a detailed analysis of their
internal syntax), in which a subpart of the complex DP moves out and allows
the bigger DP containing the trace to move. Simplifying somewhat, they are
derived as in (45).

(45)   a.   [$_{DP}$ was für Leute]
        b.   [$_{XP}$ für Leute] ... [DP was $\langle XP \rangle$]
        c.   [$_{DP}$ was $\langle XP \rangle$] ... [XP für Leute] ... $\langle DP \rangle$

Remnant movement is subject to the freezing principle. Compare the structure
in (46), in which scrambling and subsequent *wh*-movement out of the DP
leads to ungrammaticality.

(46)   *[$_{DP}$ Was $\langle XP \rangle$] (denkst du) hat [$_{XP}$ für Leute] keiner $\langle DP \rangle$
            what   think you has   for people nobody
        gesehen?
        seen
        intended: *"What (do you think, what) kind of people did nobody
        see?"*

Was-für DPs in *tough*-constructions should be as ungrammatical as (46). But
this is not the case. In *tough*-constructions, a DP *can* be split after arriving in
the matrix clause, see (47). This violation of the freezing principle suggests
that the complex DP is not transported into the matrix clause by movement[10].

---

[10]Note that there is an alternative analysis for sentences like (47), given that we have just
learned that long scrambling is possible in *tough*-constructions. In this alternative analysis,
was is the sole target of *tough*-movement and the rest of the DP scrambles up, apparently
long-distance, at a later stage of the derivation. This analysis predicts the possibility of leaving
the remnant in the embedded clause, since scrambling is an optional operation. Curiously, this
is not what we find. Sentences like (i) are ungrammatical.

(i)   *Was sind denn   einfach für Studenten zu beeindrucken?
            what are   MOD.PART easy   for students   to impress

Under such an analysis, scrambling would have to be obligatory.

(47)   [$_{DP}$ Was ⟨*XP*⟩] sind denn   [$_{XP}$ für Studenten] leicht [⟨*DP*⟩
            what   are MOD.PART   for students   easy
        zu beeindrucken]?
        to impress
        "What kind of students are easy to impress?"

A constraint on the surface order like (43), however, cannot take into account differences in the derivational development and is thus unable to differentiate between the grammatical (47) and the ungrammatical (46). There have been numerous attempts to reduce freezing effects to a violation of the improper movement constraint (e.g. Müller 2014, Abels 2007, Grewendorf 2003, 2004).

3.3. Interim summary: theoretical paradox

We have seen that monoclausal analyses cannot account for the complex behavior of German *tough*-constructions. Among the biclausal approaches, base generation accounts have been dismissed due to reconstruction data, bipartisan properties of *tough*-movement (A and A′) and the violation of the Theta Criterion. It seems that long movement accounts are largely on the right track, but there is evidence against them from scrambling and freezing effects in German.

In the next section, I will show how the paradoxical properties of German *tough*-constructions can be resolved under a removal analysis.

4. Structure Removal analysis

The crucial idea of the analysis is the removal of syntactic structure at a certain point in the derivation. German *tough*-constructions behave like they consist of both a small structure and a larger structure, because they do. Early in the derivation, they have a biclausal structure and at this point the properties typical of such a large structure are established. At a later stage, parts of the embedded clause are removed, yielding a smaller structure, and here the operations whose results suggest the small structure apply.

Concretely, I propose that the *tough*-predicate triggers deletion of the CP projection of its complement clause. This removal of the CP shell brings about an environment in which a DP in former Spec,CP can be transported

into an A-position in the matrix clause. This gives us an analysis of *tough*-constructions that belongs to the family of long movement accounts (in the sense that the element in object and subject position is identical), but does not face their problem of violating the Improper Movement constraint, since no syntactic movement occurs, and thus also has the advantage of accounting for the properties of German *tough*-constructions that indicate that no movement out of the embedded clause took place.

In the rest of this section I will first outline the concept of structure removal I adopt, then go through an example derivation, and finally review how the properties of German *tough*-constructions can be accounted for under this view.

4.1. Theoretical assumptions

Long movement analyses generally face the problem of violating the Improper Movement constraint whereby an XP may not move from an A′- into an A-position. This is the exact movement that occurs in *tough*-constructions, as proposed by long-movement accounts – the *tough*-subject DP moves from Spec,CP of the embedded clause into the matrix clause subject position.

4.1.1. Structure removal

The analysis is based on the operation Remove introduced in Müller (2016*b*, 2017*a*,*b*). Remove is proposed to offer a systematic account for cases in which empirical evidence leads to conflicting representations which cannot plausibly be reconciled by movement Müller (2016*a*). This concept of syntactic removal has forebears in operations like tree pruning (Ross 1967) and S-bar deletion (Chomsky 1981; see also *Exfoliation* in Pesetsky 2016).

Remove deletes structure from the derivation that has previously been built by Merge. It is imagined to be a syntactic operation that is a mirror image to Merge. As such, it has similar properties as Merge: it is triggered by $[-F_{0/2}-]$-features that are ordered on lexical heads (see Stabler 2013, Georgi 2014 among others; $[-F_0-]$ removes a head, $[-F_2-]$ a phrase); it can be external or internal; it obeys the Strict Cyclicity condition (Safir 2010, 2015 building on Chomsky 1973 in (48).

(48)   *Strict Cyclicity Condition (SCC, Müller 2016a)*
       Within the current XP α, a syntactic operation may not exclusively
       target some item δ in the domain of another XP β if β is in the
       domain of α.

(49)   *Domain (Chomsky 1995)*
       The domain of a head X is the set of nodes dominated by XP that are
       distinct from and do not contain X.

Remove can apply to heads and phrases, but in the analysis of *tough*-constructions I propose, only heads are the target of Remove[11].

A lexical item X carrying a $[-Y_0-]$ feature will trigger the removal of the head Y_0 of a projection in X's minimal domain. Under the assumption that a projection cannot exist without the head that projects it, the whole projection of YP (i.e. Y_0, Y′, YP) will be deleted, see (50).

(50)   Merge $(X_{[\bullet Y \bullet] \succ [-Y_0-]}, YP)$
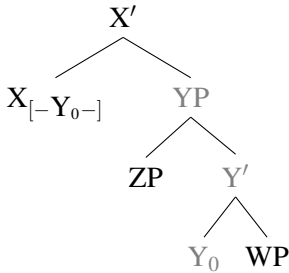
In contrast to phrasal removal, where YP and every element contained in YP are deleted, the complement and specifier of the removed head Y_0 in (50) survive the head removal. However, since the connecting tissue is gone, they are temporarily unassociated from the tree. Müller (2017b) argues that the elements in the former specifier and complement of the removed head have to be reassociated into the remaining structure in a way that preserves the hierarchical and linear relations between the elements pre-removal as much as possible. This *reassociation*[12] is motivated independently for restructuring

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[11]For Remove applying to phrases see Müller (2016b) for passives, Müller (2017a) for applicative constructions and Murphy (2015), Murphy and Müller (2016) for ellipsis in VP and TP.

[12]Müller (2017b) argues that this reassociation is not an instance of Merge: unlike Merge it

constructions in German and Russian (Müller 2016*a*, Dschaak 2017) and for multiply-filled-prefield constructions in German (Müller 2017*b*). The reassociation is shown in (51).

(51)   *Reassociation of ZP and WP*

```
           XP
          /  \
        ZP    X′
             /  \
            X   WP
```
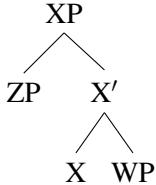
ZP, formerly in the specifier position of Y, has been dislocated to Spec,XP after reassociation. It has reached a higher syntactic position without having moved there.

In the following section, it is shown how German *tough*-constructions are derived via structure removal.

4.2. Analysis

I propose that the basic structure of *tough*-constructions is one of copular clauses with a complex predicate, see (52).

(52)   *Structure of predicational copular clauses* (based on a.o. Heggie 1988, Bowers 1993, Adger and Ramchand 2003)
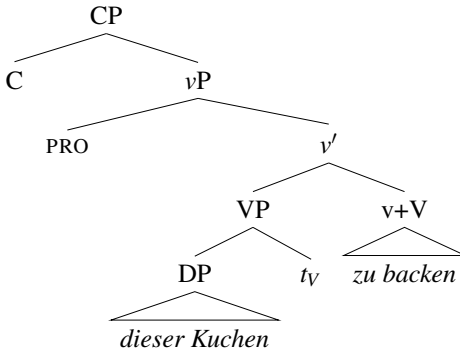
```
              PredP
             /     \
        XP_ref      Pred′
                   /     \
             XP_pred      Pred
```
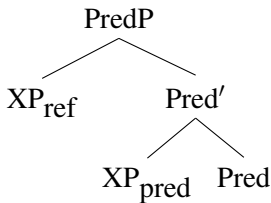
The subject XP_{ref} is the *tough*-movement pivot and the predicative XP is of course the adjectival phrase. I suggest that *tough*-adjectives take clausal complements in German. *Tough*-adjectives differ from non-*tough*-adjectives in their ability to (optionally) remove the head of their complement. In what

only applies to phrases, not heads, it does not show an external/internal distinction and it is not triggered by features; instead it is a byproduct of Remove that reintegrates material whose compositional contribution cannot be recovered otherwise.

follows I will illustrate the details of the derivations of *tough*-constructions. I will equate PredP in the matrix clause with *v*P.
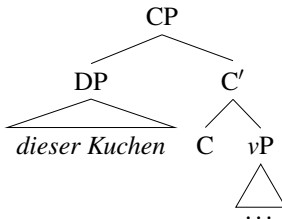
First, the *tough*-movement pivot *dieser Kuchen* 'this cake' is merged as the object of the embedded infinitival verb. The embedded clause is constructed as in (53).

(53)   *Embedded clause*

```
                    CP
              ┌──────┴──────┐
              C            vP
                     ┌──────┴──────┐
                   PRO            v′
                           ┌───────┴───────┐
                          VP              v+V
                     ┌─────┴─────┐      ┌───┴────┐
                    DP          t_V    zu backen
                 ┌───┴───┐
                dieser Kuchen
```

The object DP A′-moves into the left periphery of the embedded clause, see (54).

(54)   *Intermediate A′-movement*

```
                    CP
              ┌──────┴──────┐
             DP            C′
          ┌───┴───┐      ┌──┴──┐
        dieser Kuchen    C    vP
                              △
                              …
```
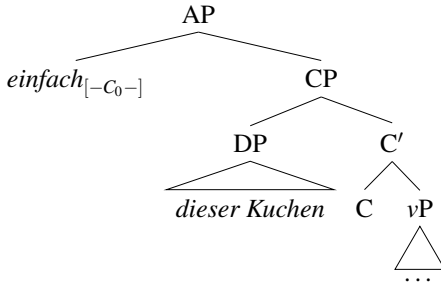
This intermediate A′ movement can license parasitic gaps in the embedded clause, as discussed in 2.2.2. At this point in the derivation, the Improper Movement constraint comes into effect: the object DP has moved up until Spec,CP. The final landing site of the DP is an A-position. A movement step into that position would be improper and lead to a crash of the derivation.

Removal of the CP shell solves that problem.

Suppose that in a next step, the *tough*-predicate *einfach* 'easy' is merged. *Tough*-predicates have the lexical property of (optionally) removing the head

of their complement. Thus, they have a feature that removes C_0, $[-C_0-]$, in addition to the structure building feature $[\bullet C_0 \bullet]$. The features are ordered intrinsically in the following way, $[\bullet C_0 \bullet] \succ [-C_0-]$, triggering the merger with a CP and subsequently, the deletion of C_0. In (55), the adjective and CP are merged and $[\bullet C_0 \bullet]$ is satisfied and deleted. C_0 is about to be removed.
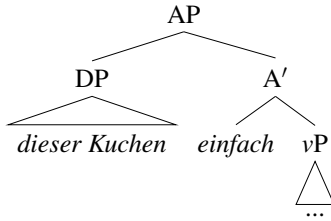
(55)   *Structure before removal of C*

```
                        AP
            ┌───────────────┐
     einfach[−C₀−]          CP
                     ┌───────────┐
                    DP          C′
                 ┌──────┐      ┌──┐
           dieser Kuchen   C    vP
                               △
                               ⋯
```

C_0 and its projection are deleted. The complement and specifier of C, however, are not affected by the removal. This leads to the structure in (56), where the vP-complement and the DP-specifier are briefly unassociated from the structure, since the connecting C-projection is gone.
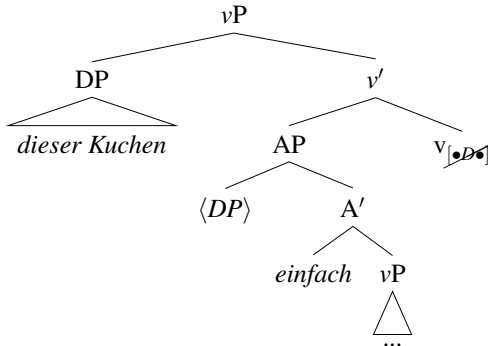
(56)   *Structure after removal of C*

```
              AP
           ┌────┐
       einfach

          DP      vP
          │
     dieser Kuchen
```
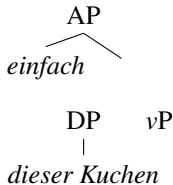
The unassociated elements have to be reintegrated into the structure in a way that preserves the original structure as much as possible. The Strict Cycle condition in (48) provides a restriction concerning the possibilities of reintegration. Thus, it rules out a structure in which the DP is reassociated as a specifier of vP, since in that case changes to the structure would exclusively target a non-root subset of the phrase marker. The only possible structure obeying the SCC is the one in (57)[13].

---

[13]Note that the discussion surrounding (56) just serves to illustrate the remove-and-reassociate

(57)   *Reassociation*

```
                        AP
                 ┌──────┴──────┐
                DP            A′
             ┌───┴───┐    ┌────┴────┐
        dieser Kuchen  einfach     vP
                                   ╱╲
                                   ‥
```
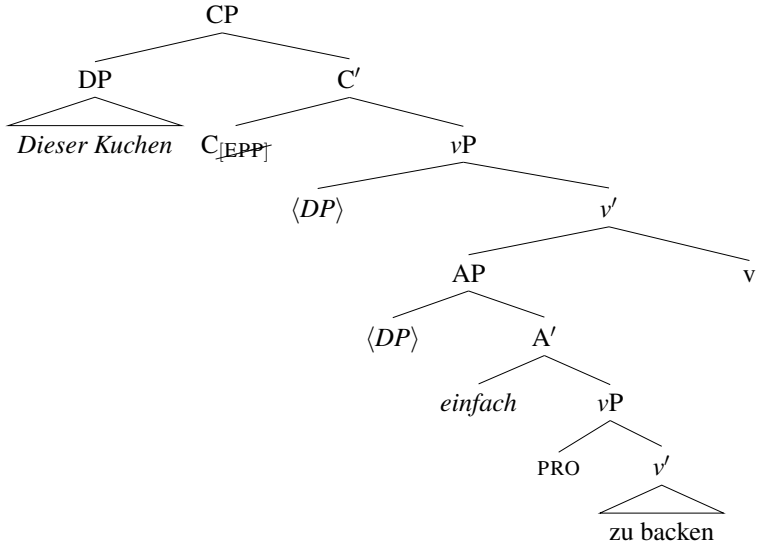
This is the key part of the derivation. Crucially, the DP is reassociated as the specifier of the *tough*-predicate. Thereby, it could reach the matrix clause without having *moved* there. This is of course a change in the c-command relations between the DP and the adjective compared to the structure pre-removal (55). This kind of change is allowed, however, by the SCC, since the modification affected the root node. In its re-associated position the DP is accessible for v. No intermediate movement is necessary, the DPs can move directly into Spec,*v*P to check the [●D●] feature.

(58)   *Final movement of DP*

```
                            vP
                   ┌────────┴────────┐
                  DP                v′
               ┌───┴───┐      ┌──────┴──────┐
          dieser Kuchen      AP           v[●D●]
                          ┌───┴───┐
                        ⟨DP⟩     A′
                              ┌───┴───┐
                           einfach   vP
                                     ╱╲
                                     ‥
```

In the remaining part of the derivation, the DP can now move on into the prefield.

---

mechanism and is strictly speaking not a 'real' derivational step. As noted in footnote 12, Reassociation is not internal Merge and as far as I can see, no operations may interact with Reassociation. Rather, it is a part of the removal operation. Thus, the change of structure from (55) to (57) proceeds in one derivational step.
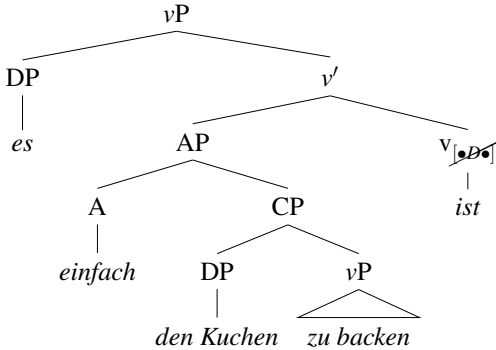
(59)

```
                              CP
                    ┌─────────┴─────────┐
                   DP                   C′
              ┌────┴────┐        ┌───────┴───────┐
        Dieser Kuchen  C[EPP]              vP
                              ┌─────────────┴────────┐
                            ⟨DP⟩                     v′
                                          ┌───────────┴──────┐
                                         AP                  v
                                   ┌──────┴──────┐
                                 ⟨DP⟩            A′
                                          ┌──────┴──────┐
                                       einfach         vP
                                                  ┌──────┴──────┐
                                                PRO            v′
                                                            ┌───┴───┐
                                                          zu backen
```

Recall that *tough*-constructions contrast with the semantically identical expletive constructions, as in (60).

(60)   a.   dass dieser Kuchen einfach [$_{vP}$ ⟨*dieser Kuchen*⟩ zu backen] ist
            that this   cake   easy   this   cake   to bake   is

       b.   dass es einfach ist, [$_{CP}$ diesen Kuchen zu backen]
            that it easy   is   this   cake   to bake

In an expletive structure, intermediate movement of the *tough*-movement pivot is triggered in the same way as in the derivation of a *tough*-construction above. However, the intermediate clause edge cannot be removed. The DP stays in Spec,CP and the [●D●] feature of matrix v is satisfied by the expletive pronoun *es*, see the structure in (61)[14].

---

[14]The embedded CP can be extraposed, yielding the structure in (i).

(i)   dass es einfach ist, [$_{CP}$ diesen Kuchen zu backen]
       that it easy   is   this   cake   to bake

(61)   *Structure of expletive constructions*

```
                            vP
              ┌──────────────┴──────────────┐
            DP                              v′
             │                   ┌──────────┴──────────┐
            es                 AP                    V[•D•]
                      ┌─────────┴─────────┐            │
                     A                   CP           ist
                      │            ┌──────┴──────┐
                  einfach        DP             vP
                                  │
                            den Kuchen    zu backen
```

5. Consequences of the analysis

5.1. Improper Movement

As has been noted in section 3.2.2, the violation of the Improper Movement constraint is a big conceptual problem for long movement analyses. I argue that a structure removal analysis has the advantage of not running into problems with improper movement.

   Various scholars have proposed to reduce the improper movement constraint to the Williams Cycle (Williams 1974, 2003), e.g. Abels (2007), Neeleman and van de Koot (2010), Bader (2011), Müller (2014). The Williams Cycle captures the idea that syntactic operations that apply to an item in a specific domain on one level of embedding may only be followed by the same operations in the *same* or a *higher* domain in a higher level of embedding. Thus, movement of XP to Spec,TP in an embedded clause may only be followed by XP moving at least to matrix Spec,TP. The movement chain may not end in a matrix position below Spec,TP. Williams (2003) formulates it as (62).

(62)   *Generalized ban on improper movement (Williams 2003)*
         Given a clausal structure $X_1 > ... > X_n$ (where X_i takes X_{i+1}P as
         its complement), a movement operation that spans a matrix and an
         embedded clause cannot move an element from X_j in the embedded
         clause to X_i in the matrix clause, where i < j.

A *tough*-moving DP violates the condition in (62). Every time an XP moves

through Spec,CP and ends up in a position lower than Spec,CP of the next higher clause, (62) is disobeyed.

The idea of a structure removal analysis is that with the removal of CP, the XP 'forgets' it ever stopped over there. Thus, Removal of CP repairs a violation that the derivation would otherwise incur (see also repairs by ellipsis in Merchant 2001, 2009).

5.2. Accounting for monoclausal and biclausal properties

5.2.1. *Monoclausal properties*

Object promotion   As discussed in 2.1.1, *tough-* and passive structures share the commonality of promoting the direct object to subject.

Dative-marked arguments cannot be subjects neither in passives, nor in *tough*-constructions, (63). They cannot receive nominative case or control verb agreement.

(63)   a. *dass die   Kinder   geholfen wurden
                that the.NOM children helped   become.PASS
        b. *dass die   Kinder   leicht zu helfen sind
                that the.NOM children easy   to help   are

As has been observed many times, dative arguments are opaque for certain operations on independent grounds (e.g. Chomsky 2000, Holmberg and Hróarsdóttir 2004, Alexiadou et al. 2014).

Unboundedness   We have seen that *tough*-movement cannot cross multiple clause boundaries in German. Recall example (6-a), repeated here as (64).

(64)   *dass dieses Buch   schwer [Hans   zu überzeugen [_ zu
             that this   book.NOM hard   Hans.DAT to convince   to
             lesen]] ist
             read   is
             "that this book was easy to convince Hans to read"
                                                        (Wurmbrand 2001:29)

This ungrammaticality is due to a violation of the ban against Improper Movement. Recall that improper movement was evaluated on the basis of the Williams cycle and *f-seq*. The improperness of *tough*-movement was

resolved by removing the CP shell from the derivation and thereby removing its 'memory' on the *f-seq*.

Structure removal is very local. It may only affect the specifier or complement of the licensing head. More deeply embedded CPs cannot be removed by the *tough*-predicate. Thus, they contribute to an improper *f-seq* and thereby to an improper movement chain. It follows that only one layer of embedding is predicted to be allowed for *tough*-movement to cross in a structure removal analysis. In English *tough*-constructions, improper movement is resolved in another way, as in Longenbaugh (2017) or Hicks (2009).

No attributive use   Fleisher (2008) notes that semantically, the prenominal adjective does not modify the noun, but the postnominal infinitival clause. He calls structures like (64) *clausal attributive-with-infinitive constructions* (clausal AICs) and argues that they are not derived from *tough*-constructions. He points out the following differences between clausal AICs and *tough*-constructions: (i) clausal AICs allow adjectives like 'odd' and 'nice' that are not *tough*-adjectives (65) and (ii) the infinitival clause in AICs allows an expletive subject, which is not allowed in *tough*-constructions (66).

(65)   a.   Bob is an odd person (for me) to see in Berkeley.
         b.   *Bob is odd (for me) to see in Berkeley.   (Fleisher 2008:163)

(66)   a.   July is an unusual month for it to snow (in).
         b.   *July is unusual for it to snow (in).   (Fleisher 2008:163)

It seems that at least in English, *tough*-constructions and the attributive structures are not identical. Properties of the attributive structures do not necessarily tell us anything about *tough*-constructions. It is not clear how much can be inferred about *tough*-constructions in German. I will return to this question in section 6.

Optional *tough*-predicate   In case of *tough*-constructions without an overt *tough*-predicate, as in (10), repeated as (67), I assume that a phonologically null *tough*-adjective with the meaning 'necessary' or 'possible' is present.

(67)   dass die   Kälte jetzt ∅ zu spüren war
        that the.NOM cold now   to feel   was
        "that it was possible to feel the cold now" or *"that one had to feel the cold now"*

<div align="right">(Höhle 1978)</div>

Since this null adjective may not occur in expletive constructions as in (68), I assume that it carries the CP-removal feature obligatorily.

(68)   *dass es die   Aufgaben zu lösen ist
        that it the.ACC problems to solve is
        intended: *"that it is possible/necessary to solve the problems"*

5.2.2. Biclausal properties

Some characteristics of a biclausal structure fall out quite naturally from the proposed analysis: parasitic gaps in *tough*-constructions are licensed by A′-movement of the direct object in the embedded clause. The topicalization behavior discussed in 2.2.3 can be accounted for under the view that *tough*-constructions involve an AP rather than a VP. In that case, the structure of (22) should be more accurately portrayed as (69). Since the *tough*-subject is still in Spec,AP, the matrix verb is subjectless, which may be a reason for the ungrammaticality.But even if the matrix subject position is filled by an expletive, topicalization of the AP is ungrammatical (regardless of the position of the thematic *tough*-subject inside the AP).

(69)   *[$_{AP}$ (Linguisten)   einfach [$_{CP}$ (Linguisten)   zu überzeugen]]
            linguists.NOM easy   linguists.NOM to convince
        sind/ist (es) nicht.
        are/is   it not

The possibility of reconstruction as discussed in 2.27 follows trivially as well: since the *tough*-movement pivot is merged as the embedded object, it is predicted to be able to reconstruct into that position.

    The other properties are discussed below.

Double dissociation   Section 2.2.1 illustrated that verbs do not behave uniformly with respect to passivization and *tough*-movement, which indicates

that these two constructions are not identical. Generally speaking, the ability to passivize is a property of the verb, while *tough*-movement is regulated entirely by the *tough*-predicate and matrix v in the present analysis. The argument structure of the embedded verb is only relevant insofar as it should supply a direct object DP. Thus, all verbs that take a DP complement are predicted to occur in a *tough*-construction. This seems to be borne out. The verbs that cannot be part of a *tough*-constructions are unergative ones. Verbs like *bekommen* are unable to passivize for independent reasons, but can occur in a *tough*-construction.

Long scrambling Recall that long distance scrambling is allowed in *tough*-constructions but not in expletive structures ((25) vs. (26)). Under the present analysis, scrambling out of a *tough*-complement is only apparently long distance. If we assume that scrambling can happen only after the CP layer has been removed in the complement clause, we can maintain the generalization that scrambling in German is clause-bound. Removal of CP feeds the possibility to scramble in this case.

Scope of negation and unstressed pronoun fronting In contrast to scrambling, scope relations and pronoun fronting in the embedded clause have to be established *before* the CP shell is removed.

Recall that negation in the embedded clause can only take scope there and fronted unstressed pronouns are grammatical in the complement clause of control-predicates and *tough*-predicates, but not in raising constructions. Descriptively, fronting of the pronoun (to Spec,*v*P) happens in the context of a higher CP projection. Fronting happens inside the embedded CP phase. Once the *tough*-predicate triggers removal of CP, the phase has already been completed and the pronoun has fronted. Likewise, once the scope relations are established in the embedded clause, they are set. Removal of CP comes too late to have any effect on these phenomena.

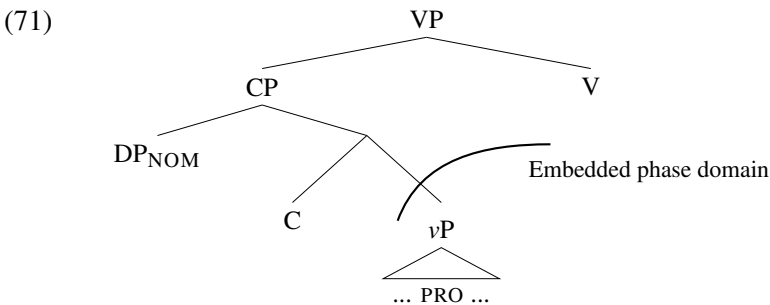## 5.3. Case-assignment on the *tough*-moving DP

An issue that remained unaddressed so far concerns the case of the *tough*-pivot. It it remains *in situ* in the embedded clause, it receives accusative case. If it *tough*-moves up, however, it is marked with nominative. These facts can be accounted for in a Dependent Case framework (Marantz 1991, McFadden

2004, Baker 2015 a.o.), in which case is assigned configurationally, i.e. it is not licensed by a functional head, but rather by the presence of another c-commanding DP.

In expletive constructions the embedded DP is in a c-command relation with the PRO subject of the embedded clause and is therefore assigned accusative (e.g. by the addition of a [+inferior] feature as argued by McFadden 2004, for different implementations see Richards 2010, Preminger 2014, Levin 2015), see (70).

(70)

```
              vP
          ┌────┴────┐
        PRO       ┌──┴──┐
         ○       VP     v
         ┊     ┌──┴──┐
      ACC┊    DP     V
         ┊    ○
         └┄┄┄┄┘
```
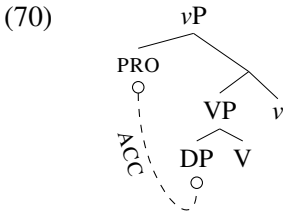
I argue that German *tough*-constructions are parallel to raising-to-object constructions in Sakha (Baker and Vinokurova 2010, Levin and Preminger 2015). Under the assumption that the relevant case domain is C^0's phasal domain, raising can feed case assignment in these constructions: a DP moves to the edge of the embedded clause, out of C^0's phase domain, and thereby escapes case assignment. In Sakha, the subject DP of the embedded clause is now in the case domain of the matrix clause and receives accusative case under the presence of a matrix subject. A *tough*-moved DP also joins the matrix case domain. Since no higher DP is merged in the matrix clause, it receives nominative case, see (71).

(71)

```
                          VP
              ┌───────────┴───────────┐
             CP                       V
        ┌─────┴─────┐
    DP_NOM      ┌───┴───┐        Embedded phase domain
                C      vP
                    ┌──┴──┐
                  ... PRO ...
```

6. Conclusion and outlook

This paper proposed a novel analysis of *tough*-constructions that is similar to other long-movement analyses but does not face their problem of violating the improper movement constraint. I showed that German show evidence that *tough*-constructions consist of both, a smaller and a larger structure. I argued that this contradicting evidence can be accounted for if considered to not exist simultaneously, but in succession. This can be implemented by way of removing parts of the larger structure at a certain point in the derivation, yielding the smaller structure. In the analysis I propose, *tough*-predicates can optionally possess a feature $[-C_0-]$ that removes the head of their complement. In the presence of that feature, *tough*-constructions are derived, while its absence leads to the semantically equivalent expletive structures. Reassociation after removal transports the *tough*-movement pivot DP from an A$'$ position in the embedded clause into an A position in the matrix clause. Since reassociation is not (internal) Merge, it is not subject to the same constraints, like the one on improper movement and therefore cannot violate them. Technically this is implemented in changes in the buffer of the moving DP. *Tough*-constructions are complicated structures and not all puzzles could be solved. The exact relation between them and the pre-nominal clausal attributive-with-infinitive constructions in German (see (9)) remains a topic for future research.

   This view on *tough*-constructions and other phenomena that exhibit evidence for conflicting representations can give insight into the range of operations that are available in UG.

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