Control and Raising:

Predication in tough constructions
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Introduction: One of the contexts of predication that has resisted a straightforward analysis is *tough*-movement (TM). I propose that in TM, the null operator (NO) moves to the matrix predicate and forms a new predicate that assigns a theta role to the subject. This analysis is shown to unify verbal and non-verbal predicates that exhibit TM, *tough* predicates with *pretty* and *too/enough* predicates and accounts for why certain other predicates do not exhibit TM.

Background and proposal: TM is challenging because of the following alternation.

1) It was tough to please John. 1b) John was tough to please __.

(1a) shows that tough does not assign a subject theta role but allows the embedded object to appear as the matrix subject. TM also licenses parasitic gaps (PG) (eg. Hicks 2009). Two approaches to TM are in (2).

2a) John was tough [⟨John,⟩ to please ⟨John,⟩]. 2b) John was tough [Op, to please ⟨Op,⟩].

(2a) shows a movement analysis (eg. Brody 1993) where *John* is A*-moved to the edge of the clause and then A-moved to Spec, TP. (2b) shows a base-generation analysis of *John* (eg. Chomsky 1977) where an NO A*-moves to the clause-edge. The following shows the possible entries for *tough* in these analyses.

3) \( λp\text{TOUGH}(p) \) Movement Analysis (eg. Hicks 2009)
4a) \( λp\text{TOUGH}(p) \) 4b) \( λPλx\text{TOUGH}(P(x)) \) Base-generation Analysis (eg. Keine & Poole 2017)
5a) \( λp\text{TOUGH}(p) \) 5b) \( λPλx\text{TOUGH}(x, P) \) Base-generation Analysis (eg. Lasnik & Fiengo 1974)

In the movement analysis [(2a)], *tough* takes a propositional complement [(3)] which means that in (1a) and (1b), *John* receives a theta role from the embedded verb. In the base-generation analysis [(2b)], there are two possibilities for how *John* gets a theta role. One possibility is in (4), where *John* always receives a theta role from the embedded verb, albeit in different orders of composition, shown in (4a) and (4b). Another possibility is (5). Here *tough* is ambiguous, alternating between one where *John* receives a theta role from the embedded verb [(5a)] and one where *John* receives a theta role from *tough* itself [(5b)]. My proposal is as such: *tough* only has the denotation in (3) but NO movement to the matrix predicate creates a new predicate that assigns *John* a theta role. This analysis has a precedent in Mulder & den Dikken (1992) but the empirical coverage and details of the proposal here is novel.

6a) John was [Op, tough [⟨Op,⟩ to please ⟨Op,⟩]] 6b) \( λx[\text{tough to please}(x)] \) (John)

In (6a), the NO lands at the edge of the adjective. This movement, following Nissenbaum (2002), creates a new predicate which assigns *John* a theta role [(6b)]. In this analysis of TM, improper movement, smuggling or multiple lexical entries of *tough* is not required. Such complex predicates are also seen in clauses like *News about the election are what I need to avoid*, albeit with overt operator movement.

Subject Theta roles in TM: First, I rule out (3) and (4), following Lasnik & Fiengo (1974: 543).

7a) *It is intentionally easy to please John. 7b) John is intentionally easy to please.

In (7a), the expletive *easy* construction does not allow *intentionally* but the TM variant in (7b) does. While not all *tough* predicates with TM allow this, L&F argues that the ones that do indicate that in TM, there is a subject theta role. Some of these theta roles are compatible with intentionality. In contrast, raising predicates, which never assign a subject theta role, never allow this. If this is correct, then (3) and (4) where no subject theta role exists can be ruled out. In contrast, (6a) provides a straightforward account for these facts. (7a) is bad because *easy* never assigns a subject theta role but the complex predicate *easy-to-please* does and it is this predicate that is being modified by *intentionally* in (7b).

Control and Raising: Although (5) is compatible with (7), (5) does not explain why the argument structure in (1a) is a necessary condition for the structure in (1b). In other words, only predicates which
allow an expletive subject and take an infinitival complement exhibit TM. Others, like control predicates, do not have homonyms with a (1b) structure. The proposed analysis in (6a) can explain this.

**Ruling out control predicates:** There is no predicate which on one meaning is a control predicate and on another, has the structure in (1b), eg. (9a). While (5) doesn’t explain this, (6a) does. Note that control predicates (eg. *eager*) assign subject theta roles given that they cannot have expletive subjects. If the NO moved to the edge of the matrix adjective to form a complex predicate as shown in (9b), two predicates, *eager* and *eager_to_please* have to assign a subject theta role. This is a violation of the Theta Criterion.

\[\text{9a) } *\text{John is eager [to see __].} \quad \text{9b) } \text{John is [Op, eager} <\text{Op}> \text{to see <Op>].} \]

Thus, (6a) explains why TM predicates which are homophonous with control predicates do not exist.

**A potential problem with raising predicates:** If the account of why (9a) is bad is correct, the proposed account wrongly predicts that (11a) with the representation in (11b) is good. Note that (11a) has a raising predicate which does not assign a subject theta role. Since there is no such theta role, (11b) should be fine.

\[\text{11a) } *\text{Tom is likely that John saw __.} \quad \text{11b) } \text{Tom is [Op, likely <Op> that John saw <Op>].} \]

However, (11) can be ruled out independently as the gap in a TM construction cannot be in a finite clause.

\[\text{12a) The project was easy [to remember [to complete __]].} \quad \text{12b) *The project was easy [to remember [that John completed __]].} \]

Only (12a) is grammatical due to a finiteness restriction (L&F). Note, however, that expletive forms of (12a) and (12b) are good. Thus (11a) is ruled out independently and so not a problem for (6a) after all.

**Verbal predicates with TM:** The analysis in (6a), and the discussion of control/raising predicates indicates that a predicate that exhibits TM is necessarily one that allows an expletive subject and has an infinitival complement clause. Thus, verbal predicates that have such an argument structure are predicted to allow TM. This is correct. (13) shows *take*, although *need, require* and *cost* behave the same way.

\[\text{13a) It took (me) 3 hours [to shovel the snow].} \quad \text{13b) The snow took (me) 3 hours [to shovel __].} \]

\[\text{14a) John took us 3 hours [to convince Sally [to date __]].} \quad \text{14b) John took us 3 hours [to groom __] [before introducing pg to Sally].} \]

**Pretty and too/enough predicates:** The following look quite similar to (1b) on the surface.

\[\text{15a) Mary is pretty [to look at __].} \quad \text{15b) The rock is too heavy [to carry __].} \]

Such predicates also have an infinitival clause with an object gap like the TM in (1b). In addition, the gaps in the embedded clauses of these predicates have a similar finite clause restriction seen in (12) in the TM constructions (Ross 1967). However, these differ from *tough* predicates by assigning a subject theta role seen in the fact that they disallow expletive subjects. I propose the following structures for these.

\[\text{16a) Mary is pretty [Op, to look <Op>]} \quad \text{16b) The rock is too heavy [Op, to carry <Op>].} \]

In (16), the embedded clause is an adjunct of type <e, t> that modifies the matrix predicate through predicate intersection. Note that the NO in these cases cannot move to the adjective-edge as this would create the predicates *pretty_to_look_at* and *too_heavy_to_carry*. Given that these and the matrix predicates both assign subject theta roles, this violates the Theta Criterion. In the proposed account of TM, these predicates and *tough* predicates have an NO that is licensed similarly and moves to form complex predicates. The main difference between *tough* and these predicates lies in the distance to which the NO moves, which is constrained by whether the predicate assigns a subject theta role or not.