

It's tough to reconstruct

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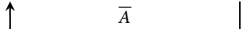
1 Introduction

• *Two analyses of tough-constructions*

Although there is agreement that \bar{A} -movement occurs inside the embedded clause (Chomsky 1977, 1982), how this embedded movement dependency is linked to the surface subject has been a matter of controversy. Analyses of *tough*-constructions divide into two groups: the base-generation analysis and the long-movement analysis.

1. *Base-generation analysis*


The matrix subject is base-generated in that position. A null operator \bar{A} moves from the gap position to the edge of the embedded clause. The matrix subject is interpreted as coreferential with the null operator.

(1) Alex_i is tough [Op_i PRO_{ARB} to please t_i]


⇒ E.g. Ross (1967); Akmajian (1972); Lasnik & Fiengo (1974); Chomsky (1977, 1981); Williams (1983); Rezac (2006); Fleisher (2013, 2015); Keine & Poole (2016)

2. *Long-movement analysis*

The matrix subject originates in the embedded gap position. First, it \bar{A} -moves to the edge of the embedded clause. Second, it subsequently A-moves to the matrix subject position.

(2) Alex_i is tough [t_i PRO_{ARB} to please t_i]


⇒ E.g. Rosenbaum (1967); Postal (1971); Postal & Ross (1971); Brody (1993); Hornstein (2001); Hicks (2009); Hartman (2011, 2012a,b); Fleisher (2013); Longenbaugh (2015)

⇒ *Predictions*

- The long-movement analysis predicts the presence of reconstruction effects of the *tough*-subject at the embedded gap position.
- The base-generation analysis predicts, however, no such reconstruction effects because the *tough*-subject did not originate inside the embedded clause.

* *Claims*

- **There are no reconstruction effects in *tough*-constructions.**
- In particular, we show that Longenbaugh's (2015) claim that comparative quantifiers reconstruct is false.
- The complete absence of any evidence for reconstruction of the *tough*-subject offers strong support for a base-generation analysis of *tough*-constructions, e.g. Keine & Poole (2016).

2 Standard reconstruction diagnostics

① *Scope*

It is well-known that the *tough*-subject cannot take scope under the *tough*-predicate, unlike canonical A-raising (Postal 1974). Thus, the *tough*-subject cannot reconstruct for scope:

- (3) a. **Low scope possible in A-raising:**
 Someone₁ seems to be sick ____₁. *some* >> *seems*; *seems* >> *some*
- b. **Only wide scope in *tough*-constructions:**
 Someone₁ was difficult to please ____₁.
some >> *difficult*; **difficult* >> *some*

② Condition C

Pesetsky (2013) observes that the *tough*-subject does not obligatorily reconstruct for Condition C in a *tough*-construction:

- (4) a. **Condition C violation in an expletive construction:**
* It was difficult for **her**₁ to please **Mary's**₁ father.
- b. **No Condition C violation in a *tough*-construction:**
[**Mary's**₁ father]₂ was difficult for **her**₁ to please ____₂.

③ Variable binding

The *tough*-subject cannot reconstruct to allow a variable to be bound by a quantifier:

- (5) a. **Baseline with binding:**
It was hard for John to tell **every farmer**₁ [the bad news about **her**₁ goat].
- b. **Baseline with no binding:**
[The bad news about the well]₁ was hard for John to tell every farmer ____₁.
- c. **Variable binding not possible:**
* [The bad news about **her**₁ goat]₂ was hard for John to tell every farmer₁ ____₂.

- It has been argued that the *tough*-subject can reconstruct in a *tough*-construction for anaphora binding (Hicks 2009; Pesetsky 2013):

- (6) a. **C-command → Binding:**
[This aspect of **himself**₁]₂ was easy for **John**₁ to criticize ____₂.
- b. **No c-command → No binding:**
* [This aspect of **himself**₁]₂ was easy for **John's**₁ mother to criticize ____₂.

- Bruening (2012) argues, however, that consideration of the pragmatic factors governing picture-NPs reveals that c-command is not required and thus (6–7) are not ordinary binding:

- (7) [This aspect of **herself**₁]₂ was tough for **Sarah Palin's**₁ autobiography to present ____₂ in a good light.

- * All of the standard diagnostics for reconstruction show that the *tough*-subject **cannot reconstruct** into the embedded gap position in a *tough*-construction.

3 Novel reconstruction diagnostics

- In addition to the standard suite of reconstruction diagnostics considered in the literature on *tough*-constructions, we examine three additional reconstruction diagnostics, which confirm that the *tough*-subject cannot reconstruct.

④ *De dicto*

The *tough*-subject in a *tough*-construction cannot be interpreted opaquely with respect to the *tough*-predicate:

- (8) a. It was easy_{w₁} for Bill to ride the **unicorn**_{w₀,w₁}.
✓transparent; ✓opaque
- b. [The **unicorn**_{w₀,*w₁}]₂ was easy_{w₁} for Bill to ride ____₂.
✓transparent; ✗opaque
- (9) **Wh-movement allows de-dicto reconstruction:**
[Which **unicorn**_{w₀,w₁}]₁ did John want_{w₁} Mary to ride ____₁?
✓transparent; ✓opaque

⑤ Quantity readings

Quantity expressions in a *tough*-subject cannot take embedded scope:

- (10) a. [**How many books**]₁ is it easy for the company to publish ____₁?
how many >> *easy*; *easy* >> *how many*
- b. [**How many books**]₁ are easy for the company to publish ____₁?
how many >> *easy*; **easy* >> *how many*
- (11) **Wh-movement allows quantity expressions to reconstruct:**
[**How many books**]₁ do John and Mary want the company to publish ____₁?
how many >> *want*; *want* >> *how many*

⑥ Antipronominality

Stanton (2016) argues that some P⁰s require the DP to totally reconstruct:

- (12) a. [**Which semester**]₁ did Mary take syntax in ____₁?
- b. * [**The fall semester**]₁, Mary took syntax in ____₁.
- c. * Mary took syntax in **the fall semester**, and Sue took syntax in **it** too.

- The ungrammaticality of the gap in a *tough*-construction being in such PPs shows that reconstruction of the *tough*-subject is impossible:

- (13) a. It was hard for Mary to take syntax in **the fall semester**.
 b. * [**The fall semester**]₁ was hard for Mary to take syntax in ____₁.

- * These additional diagnostics for reconstruction also show that the *tough*-subject **cannot reconstruct** into the embedded gap position in a *tough*-construction.

4 Comparative quantifiers

- *The claim*

Longenbaugh (2015) claims that **comparative quantifiers** can reconstruct in *tough*-constructions:

- (14) a. It is easy to talk to **fewer than three professors** (at once).
 b. **Fewer than three professors**₁ are easy to talk to ____₁ (at once).

- (14b) has an interpretation that for any group of professors whose cardinality is less than three, it is easy to talk to that group. This **nonspecific** reading is superficially similar to (14a).

⇒ *Reconstruction and comparative quantifiers*

However, the **true reconstructed** reading of a comparative quantifier involves the interpretation of the **modified numeral**, not specificity (Heim 2000; Hackl 2001):

- (15) John is required to read **fewer than six books**.
- a. **Upper-bound:** (require >> <6)
 John isn't allowed to read more than 5 books.
- b. **Minimality:** (<6 >> require)
 The minimal number of books that John is required to read is less than 6.

- * *True reconstructed readings are impossible in tough-constructions*

The upper-bound reading is unavailable in the *tough*-construction (16b), hence its infelicity. This shows that reconstruction of the comparative quantifier in the *tough*-subject is in fact impossible, pace Longenbaugh (2015).

- (16) *Context:* Jane is worried about a test that she must take. If she makes fewer than 10 mistakes on the test, she will pass. Otherwise, she will fail. Mary wants to console Jane by saying that it is fairly easy to make fewer than 10 mistakes on this test, so she shouldn't worry.

- a. It is easy to make **fewer than 10 mistakes** on this test.
 b. # **Fewer than 10 mistakes**₁ are easy to make ____₁ on this test.

- The **nonspecific** reading of (14b) is the result of **genericity** (i.e. an additional layer of modality), which can be confirmed with anaphora:

- (17) a. **Generic:**
 # **Fewer than three professors** are easy to talk to. They're sitting over there.
- b. **Episodic:**
Fewer than three professors were easy to talk to at the luncheon this morning. They're sitting over there.

5 Analysis: Base generation

- * **The lack of reconstruction effects follows straightforwardly from the base-generation analysis of *tough*-constructions** because the *tough*-subject has never occupied the gap.

- The interpretation of (14a) and (14b) also follows straightforwardly from the semantics of *tough*-constructions under a base-generation analysis.

- *Semantics of comparative quantifiers*

We adopt the standard semantics for comparative quantifiers from Hackl (2001) and Nouwen (2010), where comparative quantifiers are degree constructions and undergo QR to form a property of degrees:

(18) a. $\llbracket \text{more than } 3 \rrbracket = \lambda M_{dt} . \max_n (M(n)) > 3$

b. $\llbracket \text{less than } 3 \rrbracket = \lambda M_{dt} . \max_n (M(n)) < 3$

(19) $\llbracket \text{many} \rrbracket = \lambda n \lambda P_{\langle e, st \rangle} \lambda Q_{\langle e, st \rangle} \lambda w . \exists x [|x| = n \wedge P(x)(w) \wedge Q(x)(w)]$

(20) $\llbracket \text{fewer than } N \rrbracket \lambda n \llbracket \text{John read } [n\text{-many books}] \rrbracket$



- *Semantics of tough-predicates*

For *tough*-predicates, we adopt the semantics of Keine & Poole (2016):

$$(21) \text{ Expletive-construction variant: } \langle st, st \rangle \\ \llbracket \text{tough}_{\text{EXPL}} \rrbracket^j = \\ \lambda p_{st} \lambda w . \forall \langle w', j' \rangle \in \text{ACC}_{w,j} [\text{TOUGH}_{w',j'} (\llbracket p \rrbracket^{j'})]$$

$$(22) \text{ Tough-construction variant: } \langle \langle e, st \rangle, \langle e, st \rangle \rangle \\ \llbracket \text{tough}_{\text{TC}} \rrbracket^j = \\ \lambda Q_{\langle e, st \rangle} \lambda x \lambda w . \forall \langle w', j' \rangle \in \text{ACC}_{w,j} [\text{TOUGH}_{w',j'} (\llbracket Q \rrbracket^{j'}(x))]$$

$$(23) \text{ ACC}_{w,x} = \\ \{ \langle w', y \rangle : \text{it is compatible with what } x \text{ believes in } w \text{ for } x \text{ to be } y \text{ in } w' \}$$

$$(24) \text{ TOUGH}_{w,j}(p) \Leftrightarrow p \text{ is tough to } j \text{ in } w$$

- Both $\text{tough}_{\text{EXPL}}$ and tough_{TC} assert that some proposition is tough according to the judge j in all of the centred worlds where j is the centre.
- They differ in how this “*tough*-proposition” is formed compositionally.
- For $\text{tough}_{\text{EXPL}}$, the *tough*-proposition is its single propositional argument λp .
- On the other hand, tough_{TC} combines first with an argument denoting a property of individuals λQ and then with an individual argument λx . The *tough*-proposition is then formed by saturating the predicate Q with x .

⇒ Keine & Poole’s (2016) semantics correctly yield the following desired (simplified) LFs:

$$(25) \text{ LF for (16a):} \\ \text{a. } [\text{It is easy } [[\text{fewer than } 10] \lambda n [\text{to make } [n\text{-many mistakes}]]]] \\ \text{b. } \forall w' \in \text{ACC}_w [\text{EASY}_{w'} (\max_n (\exists x [|x| = n \wedge \text{MISTAKE}(x)(w') \\ \wedge \text{MAKE}(x)(w')]) < 10)]$$

$$(26) \text{ LF for (16b):} \\ \text{a. } [\text{fewer than } 10] \lambda n [[n\text{-many mistakes}] \text{ are easy } \lambda x [\text{to make } x]] \\ \text{b. } \max_n (\exists x [|x| = n \wedge \text{MISTAKE}(x)(w) \wedge \\ \forall w' \in \text{ACC}_w [\text{EASY}_{w'} (\text{MAKE}(x)(w'))]]) < 10$$

6 Problem for long-movement analyses

- Both A-movement and \bar{A} -movement in English show reconstruction effects. The complete lack of reconstruction in *tough*-constructions is thus a mystery on a movement account.

- *Smuggling* (Hicks 2009; Fleisher 2013)

- Fleisher (2013) argues that the complex DP that smuggles the *tough*-subject to the clause edge blocks reconstruction into it. There is no independent evidence for this.
- Moreover, it would have to be stipulated that this reconstruction is not blocked in the very similar promotion derivation of relative clauses, where reconstruction is possible.

- *Composite movement* (Longenbaugh 2015)

- Longenbaugh (2015) proposes that the *tough*-subject in a *tough*-construction undergoes a special “composite” movement that has both A- and \bar{A} -properties.
- However, it remains unclear how combining two movement types that independently allow reconstruction would produce a movement that itself disallows reconstruction.
- Moreover, composite movement has clear reconstruction effects in Dinka, for which van Urk (2015) initially proposed it.

⇒ A long-movement analysis is forced to stipulate a special movement operation found only in *tough*-constructions.

- * No such stipulation needs to be made in a base-generation analysis.

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