

It's Tough to be Pretty: semantic relatedness between *tough* and *pretty* predicates*

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1 Puzzle: *Tough* and *pretty* predicates seem to differ in their argument structure

- *Tough* (1a) and *pretty* (1b) predicates¹ are two classes of predicates that can take an infinitival clause as complement.

- (1) a. **Suzi** is tough to please. (TC)
b. **Roses** are pretty to look at. (PC)

Main syntactic contrast between TCs and PCs

- TCs allow both an “*it*-variant”²(iTC) such as (2b), and a “fronted” variant (fTC) such as (2a) [Rosenbaum, 1967].
- PCs only allow a “fronted variant” (fPC) such as (3a); meaning, they do not allow any “*it*-variant” (*iPC, (3b)) [Lasnik and Fiengo, 1974].

- (2) a. **Suzi** is tough to please. (fTC)
b. **It** is tough to please Suzi. (iTC)
(3) a. **Roses** are pretty to look at. (fPC)
b. * **It** is pretty to look at roses. (*iPC)

- **The contrast extends to fronted infinitival clauses**, which are grammatical in TCs (4a), but ungrammatical in PCs (4b).

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¹It has been shown that some nouns and verbs can behave like *pretty*- or *tough*-predicates [Lasnik and Fiengo, 1974, Pesetsky, 1987, Gluckman, 2019], but for the sake of simplicity we will focus on adjectival predicates in that talk.

²We adopt this theory neutral denomination instead of the usual “expletive” denomination for reasons that will be made clear in Section 3.

- (4) a. **To please Suzi** is tough. (cfTC)
 b. * **To look at roses** is pretty. (cfPC)

- Even if the *tough*- and *pretty*-class both involve (subjective) predicates of personal taste [Lasnik and Fiengo, 1974, Pesetsky, 1987, Lasersohn, 2005, Gluckman, 2019], they have been argued to differ semantically.

Semantic contrast between TCs and PCs

- The *tough*-class contains predicates over **events**, such as *easy*, *impossible*, *important*, *annoying* [Pesetsky, 1987, Gluckman, 2019].
- The *pretty*-class contains “sensory” predicates over **individuals** such as *pretty*, *tasty*, *fragrant*, *melodious*.

- A potentially related fact is that *pretty* takes its subject as a **THEME argument (5a)**, unlike *tough* (5b), which seems not to take its subject as argument.

- (5) a. **Roses** are pretty to look at. (fPC)
 ~> *Roses are pretty.*
 b. **Suzi** is tough to please. (fTC)
 ↗> *Suzi is tough.*

- The subject of an fTC like (5b) has been traditionally assumed to receive its θ -role from the embedded predicate, just like the embedded object of iTCs. More specifically:
 - * the so-called **LONG-MOVEMENT** approaches to TCs (e.g. [Hicks, 2009, Longenbaugh, 2017]) predict that the matrix subject gets its θ -role directly from the embedded predicate;
 - * while the **BASE-GENERATION** accounts of the structure (e.g. [Rezac, 2006, Keine and Poole, 2017]) assume that the embedded θ -role is transmitted through binding or agreement from an embedded null operator to the (base-generated) matrix subject.

If you want to know more about those two competing approaches to *tough*-movement, I invite you to read Appendix 5.1 at the end of this handout!

- As a result, previous accounts (LONG-MOVEMENT and BASE-GENERATION) **do not predict any semantic differences between fTCs and iTCs.**

Our goal for today

- We will shed light on the fine-grained semantic properties of *tough*-predicates.
 - * We will show that they have a more complex argument structure than what was previously assumed.
 - * **More specifically, we will argue that *tough*-predicates require a “reference”, i.e. an individual that is the drive of the *toughness* judgment.**
- Once *tough* has been established as a baseline, we will pinpoint the key similarities and differences with *pretty*-predicates.
 - * We will establish that *tough* and *pretty* take similar semantic arguments (THEME and REFERENCE)...
 - * but, crucially, those arguments are associated to different syntactic positions (matrix subject vs complement clause) in each construction.
 - * We will relate this key difference between *tough* and *pretty* to the structural contrast regarding the (un)availability of an *it*-variant.
- We will conclude by suggesting that our theory may extend to other (sub)classes of predicates with infinitival complements, offering a more unified picture of what those constructions are, and do:
 - * **rare-constructions** [Fleisher, 2015], previously argued to form a subcategory of *tough*-constructions, coming with specific semantic restrictions.
 - * **rude-constructions** [Stowell, 1991], which seem to share semantic properties with PCs and syntactic properties with TCs.
- To the best of our knowledge, no previous account managed to provide a unified view of TCs and PCs at the syntax-semantics interface as we do here.

2 Semantics of *tough*-constructions

2.1 Basic assumptions about the semantics of infinitival clauses and *tough*-predicates

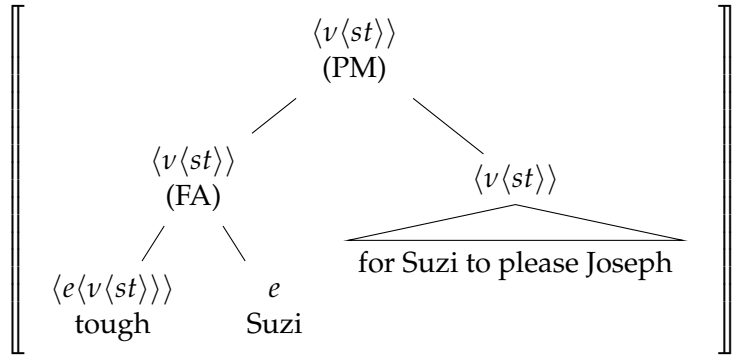
- We assume with [Kratzer, 2006, Moulton, 2009, Moulton, 2015] and [Gluckman, 2021] that **embedded clauses denote properties of individuals with propositional content** (type $\langle e \langle st \rangle \rangle$).
- More specifically, infinitival clauses compatible with *tough* or *pretty* would be properties of *events* (type ν , understood as a subtype of individuals, type e). For instance:

[[for Joseph to please Suzi]] = $\lambda v_\nu. \lambda w_s. \text{CONTENT}(v)(w) = \text{Joseph pleases Suzi}$

- The infinitival clause is expected to **compose with *tough* via Predicate Modification (PM)** [Moulton, 2015, Gluckman, 2021].
- Following [Pesetsky, 1987, Lasnik, 2005] and [Keine and Poole, 2017], we also postulate that ***tough* and *pretty* predicates are judge-dependent**.
- We define a tentative entry for *tough* under those assumptions (to be revised in Section 2.2):

$$\llbracket \text{tough} \rrbracket = \lambda j_e. \lambda v_v. \lambda w_s. \text{TOUGH}^3(v)(w)(j)$$

- Below is a sketch of the derivation of *Joseph is tough for Suzi to please*. **Note that, since it is assumed for now that *tough* does not take the matrix subject as argument, the sentence is equivalent to *It is tough for Suzi to please Joseph*, i.e., the matrix subject is being interpreted as the object of the embedded predicate.** The first argument that is passed to *tough* is the judge-argument, which for simplicity is assumed to be coreferential with the embedded subject here.



$$\begin{aligned} &\stackrel{PM}{=} \lambda v_v. \lambda w_s. (\llbracket \text{tough Suzi} \rrbracket(v)(w) \wedge \llbracket \text{for Suzi to please Joseph} \rrbracket(v)(w)) \\ &\stackrel{FA}{=} \lambda v_v. \lambda w_s. (\llbracket \text{tough} \rrbracket(\text{Suzi})(v)(w) \wedge \llbracket \text{for Suzi to please Joseph} \rrbracket(v)(w)) \\ &\stackrel{\beta}{=} \lambda v_v. \lambda w_s. \text{TOUGH}(v)(w)(\text{Suzi}) \wedge \text{CONTENT}(v)(w) = \text{Joseph pleases Suzi} \end{aligned}$$

- Once *tough* has combined with the infinitival clause through PM (resulting in a $\langle v \langle st \rangle \rangle$ type), an existential layer $\lambda Q_{\langle v \langle st \rangle \rangle}. \exists v_v. \lambda w_s. Q(v)(w)$ guarantees that the sentence has type $\langle s, t \rangle$.
- In the next section, we will argue that there is in fact something more to this, i.e., ***tough* is in need on an additional semantic argument**.

2.2 Key observation: *tough*-predicates are in need of a “reference” argument

- We focus first on fronted *tough*-constructions (fTCs), such as (1a), repeated below.⁴

(6) **Suzi** is tough to please.

³TOUGH(v)(w)(j) is a shorthand for *v is tough in w according to j*. This clearly has to be fleshed out. In fact, TOUGH most likely contains another layer of modality.

⁴As mentioned in the roadmap, most of the heavy lifting will be done in defining a semantics for *tough*. Once this is done, the semantics and argument structure of *pretty* predicates will be derived quite easily.

- Recall what previous accounts predicted about those structures:

Previous accounts of the *tough* θ -grid

- **LONG-MOVEMENT:** the subject of *tough* receives its θ -role from the embedded predicate before moving to the matrix.
- **BASE-GENERATION:** the subject of *tough* receives its θ -role *via* binding or agreement with a null operator within the embedded clause (which itself received its θ -role from the embedded predicate).

- Since previous accounts predict that the matrix subject and the *tough*-predicate are semantically unrelated, **fronting different elements from the same embedded clause (e.g. an object, a goal...) in a TC should not lead to differences in truth conditions...**
- We claim here that is not true: even if *tough* does not take the matrix subject as a somewhat standard THEME or EXPERIENCER argument, **we claim that *tough* remains sensitive to the subject, in a very specific way that cannot be cashed out by traditional θ -roles.**
- A first piece of evidence comes English dummy elements, such as existential *there* [Chomsky, 1981] and “weather” *it*.
 - As shown in (7), those vacuous elements are not acceptable as *tough*-subjects (examples from [Bayer, 1990])⁵

(7) a. * **There** would be difficult to believe to be a party tonight. *there*-TC
 b. * **It** would be difficult to believe to be raining. “weather” *it*-TC
 - However, as shown in (8), those elements seem fine⁶ when combined with a raising predicate (keeping the embedding complexity constant).

(8) a. **There** seems to be believed to be a party tonight. *there*-RC
 b. **It** seems to be believed to be raining. “weather” *it*-RC
 - This contrast is unexpected if *tough*-predicates, just like raising-to-subject predicates, are not thematically linked to their subject.⁷
- To convince ourselves that *tough* is, in fact, thematically linked to the matrix subject, let us now look at two slightly different scenarios:

⁵Note that in (7) the presence of an intermediate raising-to-object predicate (*believe*) guarantees that ungrammaticality is not caused by the embedded gap being in a subject position – as subject-gap TCs are notoriously ungrammatical.

⁶It has been argued that such constructions were not necessarily perfect, even when the extracted element is an argument [Nanni, 1978], which suggests some inherent difficulty there. We still think that the contrast between (7) and (8) is real however, as (7) sounds far worse than (8).

⁷At that point, one could argue that iTCs represent an obvious counter-example to the current argument, as those structures seem to exhibit an expletive *it*, and are yet perfectly grammatical. We will come back to this particular case at length in the next section, Section 3.

- **Scenario 1:** *Joseph has to send a very big and heavy package to Lisa, who lives in the same country as Joseph (so that if the package was a simple letter, Joseph would have no problem sending it to Lisa). Joseph complains to Suzi about this.*
- **Scenario 2:** *Joseph has to send a small and lightweight package to Lisa, who lives in an isolated place in a remote island, without any nearby post office. Joseph complains to Suzi about this.*

- Given **Scenario 1**, the utterance in (9a) seems acceptable, while (9b) does not. With **Scenario 2**, the pattern gets reversed.

- (9) a. Joseph: **This package** is tough to send to Lisa. 1 ✓ 2 ? (object-fTC)
 b. Joseph: **Lisa** is tough to send this package to. 1 ✗ 2 ✓ (goal-fTC)

- More specifically, in each scenario, **some salient property of the matrix subject** (*being bulky, living far away...*) **seems to cause the sending event to be “hard”**.
- This might explain why (9a) is only mildly unacceptable in the context of **Scenario 2**: *being far from Lisa* is a property applicable to the package that, despite not being very salient, can make the sending event hard.
- In **Scenario 1** on the other hand, it appears nearly impossible to find a salient property of Lisa that would cause the *sending*-event to be tough, hence the plain infelicity of (9b) in that context.
- The upshot is that the semantic judgments for the whole sentences depend on what the matrix subject actually is!

- Building on some observations by [Bayer, 1990] and [Fleisher, 2015], we therefore argue that **tough-predicates take their subject as a semantic “reference” argument, understood as the causer of the toughness of the situation denoted by the embedded clause.**

- We update the lexical entry of *tough* as follows (PART(x)(v)(w) is true iff individual x is a participant in event v in world w):

$$\begin{aligned} \llbracket \text{tough} \rrbracket &= \lambda j_e. \lambda r_e. \lambda v_v. \lambda w_s. \\ \exists P_{\langle e \langle st \rangle \rangle} : & P(r)(w) \wedge \forall w'_s : w' \in R_w^j \wedge P(r)(w') \wedge \text{PART}(r)(v)(w'). \\ & \text{TOUGH}(v)(w')(j) \end{aligned}$$

- *Tough* takes an judge j (type e), and a REFERENCE r (type e), and returns a property of events with propositional content.
- More precisely, *tough* returns the set of events v s.t. some property P that is true of r in the evaluation world “causes” the toughness of v according to j i.e. in every relevantly accessible world w' where P holds of r , and r is part of v , v is judged as tough by j .
- Under those assumptions, (9a) will be true iff there is a *sending-this package-to-Lisa* event v and a property P that holds of the package, s.t. in all relevantly accessible worlds according to Joseph where P still holds of the package, and the package is still involved in v , v is judged as tough by Joseph.

If you want to get some further evidence for the *tough*-predicate involving existential quantification over propositions, I invite you to read Appendix 5.2 at the end of this handout!

- Conclusion of this section: *tough* takes its subject as a semantic argument, i.e., it assigns a θ -role to it. **This in line with a simple BASE-GENERATION account of the construction, whereby no θ -transmission is required between the embedded null-operator and the matrix subject.**

3 The status of *it-tough*-constructions (iTCs)

3.1 iTCs are not expletive constructions

- We now turn to the case of iTCs such as (2b) (repeated below), where the REFERENCE argument is expected to be the seemingly expletive *it*.

(10) It is tough to send this package to Suzi.

Strategy for this section

- Traditional approaches to TCs (both LONG-MOVEMENT and BASE-GENERATION) have taken the existence of such “expletive” iTCs to mean that the matrix subject of TCs was *not* thematic.
- BASE-GENERATION approaches in particular, had to posit a specific θ -transmission process at the syntactic level, and an ambiguous entry for *tough* at the semantic level, in order to account for both fTCs and iTCs (see e.g. [Keine and Poole, 2017]).
- But if *it* happens to be a contentful element in iTCs, **our approach will have a clear advantage since it will allow to assume a simpler version of the BASE-GENERATION approach, along with a single lexical entry for *tough*, applicable to both fTCs and iTCs.**

- We show here that **there is evidence from French that the *it* present in iTCs is not a pure dummy element.** In that language, *it* can be expressed *via* two pronouns, an expletive (*il*) and a demonstrative (*ça, cela*).
 - **The expletive variant *il* is the only variant allowed in (clearly expletive) raising constructions (RCs),** as shown by the contrast in (11), as well as impersonal “weather”-sentences (12).

(11) a. Il semble que Jolyne gagne.
It seems that Jolyne wins.
It seems that Jolyne wins.

il-RC ✓

- b. * **Ça** semble que Jolyne gagne.
This seems that Jolyne wins.
Intended: It seems that Jolyne wins. *ça*-RC ✗
- (12) a. **Il** neige ce matin.
It snows this morning.
It is snowing this morning. *il*-weather ✓
- b. * **Ça** neige ce matin.
This snows this morning.
Intended: It is snowing this morning. *ça*-weather ✗

– The demonstrative variant *ça* is the only variant allowed in (clearly thematic) subject-doubling (SD) constructions [Jaeggli, 1981, Roberge, 1986, De Cat, 2007]. This is established by the contrasts in (13)⁸ (nominal subject), and (14) (clausal subject).

- (13) a. * La lavande_i, **il**_i sent bon.
The lavender, it smells nice.
Intended: Lavender smells nice. *it*-SD ✗
- b. La lavande_i, **ça**_i sent bon.
The lavender, this smells nice.
Lavender smells nice. *this*-SD ✓
- (14) a. * Aller au théâtre_i, **il**_i change les idées.
To-go to-the theatre, it changes the ideas.
Intended: Going to the theatre clears your head. *it*-SD ✗
- b. Aller au théâtre_i, **ça**_i change les idées.
To-go to-the theatre, this changes the ideas.
Going to the theatre clears your head. *this*-SD ✓

- As a result, *ça*, contrary to *il*, has been consistently argued to be is a “uniformly referential, θ -bearing pronoun” [Kayne, 1983, Pollock, 1983, Jaeggli, 1981, Zaring, 1994].
- Interestingly, *ça* is also the preferred pronoun in French iTCs (15a).⁹

- (15) a. **C'** / **Il** est dur d'apprécier Jean-Pierre.
This / It is tough to like Jean-Pierre.
It is tough to like Jean-Pierre. (iTC)

- The behavior of the French pair *il/ça* thus suggests that **English *it* is ambiguous between an expletive and a referential pronoun**, s.t. *it*_{expl.} (= *il*) would be used in raising and “weather” constructions, and *it*_{ref.} (= *ça*) would be used in TCs.
- The upshot here is that the seemingly “expletive” iTCs do not pattern like expletive raising-constructions, in that the former, unlike the latter, license a θ -bearing pronoun as subject.

⁸In (13), we used a feminine subject (*la lavande*) to avoid any ambiguity between the expletive, gender-neutral *il* (target) and the homophonous masculine personal pronoun (automatically banned due to being incompatible with a feminine antecedent).

⁹The availability of *il* in iTCs remains somewhat mysterious. It might be due to the very same caveat we mentioned in the previous footnote, namely that French expletive *il* is ambiguous with the masculine third person singular pronoun. The *il* present in iTCs may thus very well be a referential pronoun as well, and not an expletive. In any event, this does not affect the main point, namely that *ça*, which is unambiguously *in need* of a θ -role, is licensed in iTCs.

3.2 iTCs have the properties of extraposed constructions

- We showed that *it* in iTCs is most likely not an expletive. But then, what is *it*?
- We argue here that *it* is an **extraposition marker, i.e., a pronoun that refers back to the embedded clause** (extraposition *it*, [Rosenbaum, 1967]).
- More specifically, we show that iTCs like (16b) are the result of extraposition of the subject from a clause-fronted *tough*-construction (cfTC) like (16a).

- (16) a. **To send this package to Lisa** is tough. (cfTC)
 b. **It is tough to send this package to Lisa.** (iTC = *it*-extraposed cfTC)

- The *it*-variant of the *tough*-construction would then be analyzed in a similar way as *it*-extraposed sentences featuring rightward CP-movement like those in (17) and (18).

- (17) a. **It was frustrating that Johnny lost the race.** CP-Extrapos
 b. **That Johnny lost the race** was frustrating. CP-*in situ*
 (18) a. We suggested **it** to them **that we leave later than planned.** CP-Extrapos
 b. We suggested **that we leave later than planned** to them. CP-*in situ*

- Extraposed constituents are notoriously frozen to further extraction [Keller, 1995]; in other words, **\bar{A} -extraction (*wh*-extraction in particular) is impossible out of an extraposed constituent.**

- The contrast between (20a) and (20b) below (adapted from [Keller, 1995]) illustrates this restriction in the case of a clear instance of PP-extraposition (baseline without *wh*-extraction in (19)):

- (19) a. You saw a picture **of Rohan** in the newspaper. no PP-extrapos. ✓
 b. You saw a picture **t** in the newspaper **of Rohan.** PP-extrapos. ✓
 (20) a. **Who** did you see a picture of **t** in the newspaper? *wh*+no PP-extrapos. ✓
 b. * **Who** did you see a picture in the newspaper of **t?** *wh*+PP-extrapos. ✗

- This result extends to CP-extraposed constituents, although the contrast between (22a) and (22b) might be a bit less clear:

- (21) a. Lucy was frustrated **that Johnny lost the race.** no CP-extrapos. ✓
 b. **It** was frustrating **that Johnny lost the race.** CP-extrapos. ✓
 (22) a. **Which race** was Lucy frustrated that Johnny lost **t?** *wh*+no CP-extrapos. ✓
 b. ?? **Which race** was **it** frustrating that Johnny lost **t?** *wh*+CP-extrapos. ✗

- iTCs, contrary to the other variants of the construction¹⁰, seem to verify this fact as well, at least to the extent that CP-extrapos sentences like (22b) do:

- (23) a. **This package** is tough to send to Lisa. (fTC) ✓
 b. **It is tough to send this package to Lisa.** (iTC) ✓

¹⁰We chose not to use a clause-fronted *tough*-construction as a baseline here, because *wh*-extraction out of a complex subject is ungrammatical for independent reasons.

- (24) a. **Which package t** was tough to send to Lisa? *wh+fTC* ✓
 b. ?? **Which package** was it tough to send **t** to Lisa? *wh+iTC* ✗

- In brief, the infinitival clause of iTCs, unlike that of fTCs, verifies a key property of extraposed constituents, which suggests that **iTCs result from the extraposition of the subject of the corresponding clause-fronted TC.**
- Note that, counter-intuitively maybe, **this account of iTCs is still compatible with a simple BASE-GENERATION approach without θ -transmission.**

How iTCs still fit a BASE-GENERATION account

- clause-fronted TCs, like individual-fronted TCs, can be analyzed as having their subject (the clause) base-generated in the matrix, binding a type- $\langle v \langle st \rangle \rangle$ null operator in the *tough*-complement position.
- this way, the full-fledged clause plays the role of the REFERENCE, while the coreferential null operator plays the role of the THEME.
- iTCs would differ minimally from clause-fronted TCs in that the matrix base-generated clause would undergo extraposition. This does not affect the distribution of θ -roles.
- A LONG-MOVEMENT approach on the other hand, would have to posit that the clause gets both a THEME and a REFERENCE θ -role!

3.3 iTCs have a clausal REFERENCE argument

- We have shown that iTCs are most likely extraposed clause-fronted TCs; which allows the lexical entry of *tough* to apply to iTCs as well as fTCs.
- A further prediction is that the REFERENCE argument in iTCs should be interpreted as – roughly – the embedded clause; s.t. (25a) and (25b) end up having the same truth conditions:

- (25) a. **It is tough to send this package to Lisa.** (iTC)
 b. **To send this package to Lisa is tough.** (cfTC)

If you are wondering about type considerations in iTCs and clause-fronted TCs, feel free to have a look at the additional puzzle presented in Appendix 5.3 at the end of this handout!

- We assume here that (25a) and (25b) should be true iff some property *P* of a salient *sending-this-package-to-Lisa* event is causing this event's own toughness. Assuming that *P* can be about any *participant* of the event (e.g. *the package* or *Lisa*) or the action itself (*sending*), (25a) is predicted to be relatively acceptable in both **Scenario 1** and **Scenario 2**, repeated below.

- **Scenario 1:** *Joseph has to send a very big and heavy package to Lisa, who lives in the same country as Joseph (so that if the package was a simple letter, Joseph would have no problem sending it to Lisa). Joseph complains to Suzi about this.*
- **Scenario 2:** *Joseph has to send a small and lightweight package to Lisa, who lives in an isolated place in a remote island, without any nearby post office. Joseph complains to Suzi about this.*

- We think that this prediction is borne out. Besides being compatible with **Scenarios 1 and 2, (25a)**, unlike its fronted alternatives (9a) and (9b) repeated below, should also be compatible with the following scenario, where the *toughness* is induced by the *sending* event as a whole:

Scenario 3: *Joseph has to send a small and lightweight package to Lisa, who lives in the same country as Joseph. However, the local post office has a very restricted schedule, and always ends up crowded; Joseph expects a 3-hour line to send his package. Joseph complains to Suzi about this.*

- Below is a recap of the whole paradigm.

- (26) a. Joseph: **This package** is tough to send to Lisa. 1 ✓ 2 ? 3 ✗ (object-fTC)
 b. Joseph: **Lisa** is tough to send this package to. 1 ✗ 2 ✓ 3 ✗ (goal-fTC)
 c. Joseph: **It is tough to send this package to Lisa.** 1 ✓ 2 ✓ 3 ✓ (iTC)

Summary so far

- We have shown that *tough* takes an extra REFERENCE argument and we modified its lexical entry accordingly.
- We argued that the resulting entry could apply homogeneously in both fTCs and iTCs, modulo the independently motivated assumption that *it* in iTCs is a referential, θ -bearing extraposition marker.
- We now have done all the heavy-lifting required to naturally extend our account to a construction that is (at least) superficially similar to the *tough*-construction: the *pretty*-construction.

4 Extension to PCs: a reversal in argument structure

4.1 Pretty-predicates are properties of “pure” individuals, which explains *iPC

- We first argue that *pretty*-predicates denote properties of “pure” individuals of type $e \setminus v$ (as opposed to type- v events).
 - Even if it appears possible to say things such as (27a), where the event is a nominal, non-nominal (clausal) events can never be *pretty* (27b), and even less *tasty* (27c):

- (27) a. **This wedding** was pretty.
 b. ?? **Dancing the waltz** is pretty.
 c. ?? **Eating this cherry pie** was tasty.

- We assume that **event nominals in fPCs are always interpreted in a metonymic way**, s.t. *pretty* applies to some participants of the event instead of the event as a whole.
 - * For instance, a *pretty wedding* is expected to involve at least some “pretty” (non-eventive) individuals as participants (animate or not).
 - * On the other hand, a contemporary art performance designed to shock and be the ugliest in every detail, but beautifully orchestrated, could hardly be judged as pretty.¹¹
- **Since metonymic interpretation is usually not possible with clausal elements, those are naturally excluded from the subject position of fPCs.**
- As a result, extraposed clause-fronted PCs (=iPCs) are predicted to be bad as well, which is exactly what is desired:

- (28) a. **It is pretty to dance the waltz.** (*iPC)

4.2 Similarities and differences between *pretty* and *tough*

- A specificity of PCs is that, contrary to TCs (29b), those constructions do not allow for further embedding within the infinitival clause (29b) (David Pesetsky, p.c.):

- (29) a. **This horse** is tough to convince Johnny to ride.
 b. * **This painting** is pretty to convince Lucy to look at.

- Intuitively, it is totally fine for a *convincing-Johnny-to-ride-this-horse* event to be judged as *tough*.
- The unacceptability of (29b) seems to come from the fact that a *convincing-Lucy-to-look-at-this-painting* event does not constitute a suitable circumstance for a prettiness judgment about the painting.
- In other words, a *convincing*-event is not susceptible to *cause* a prettiness judgement.
- This causality relationship between the *pretty* predicate and the infinitival clause in turn suggests that the infinitival clause constitutes the REFERENCE argument of *pretty*. **We therefore define the lexical entry of *pretty* as similar to that of *tough*, except that the roles of the infinitival clause and that of the subject are reversed.**
- More specifically:
 - *pretty* combines with the infinitival clause (its REFERENCE argument) through Functional Application (just like *tough* did with its own REFERENCE argument);
 - the “source” of the *prettiness* judgment is some event that is part of the denotation of the infinitival clause;

¹¹Or, the public has a very specific notion of beauty, and we are back in the metonymic case.

- *pretty* states the prettiness of its *subject* each time the circumstances denoted by the embedded clause are met.

$$\llbracket \text{pretty} \rrbracket = \lambda j_e. \lambda C_{\langle v(st) \rangle}. \lambda x_{e \setminus v}. \lambda w_s. \\ \exists v_v. C(v)(w) \wedge \forall w'_s. w' \in R_w^j \wedge C(v)(w') \wedge \text{Part}(x)(v)(w'). \text{PRETTY}(x)(w')(j)$$

- *Pretty* states the existence of an event e whose content is that of the infinitival clause C (i.e. e is a verifier of C), s.t. in any relevantly accessible world where the content of e is the same and x is a participant of e , x is judged as pretty by j .¹²
- Coming back to the case of embedded events in PCs (29b):
 - (29b) is predicted to be true if there is a *convincing-Lucy-to-look-this-painting* event in the actual world s.t. in all relevantly accessible worlds according to the speaker where *this painting* is still part of the *convincing* event, the speaker judges the painting to be pretty.
 - There is no reason to think that all the relevantly accessible worlds verify the aforementioned condition, i.e., the causality relationship implied by *pretty* in (29b) does not make sense! Our account thus correctly predicts the oddity of this sentence.

Conclusion: a typology of predicates with infinitival complements

- We showed that *tough* and *pretty* are **both subjective predicates in need of a REFERENCE argument, understood as the source of the toughness or prettiness judgments**.
- *Tough* and *pretty* only differ in the syntactic configuration of their respective arguments.

Main semantic contrast between *tough* and *pretty*

- *Tough* (1) takes its **subject as REFERENCE** in both fTCs and iTCs, and (2) **states the toughness of the event** denoted by the infinitival clause.
- *Pretty* (1) takes the **embedded clause as REFERENCE**, and (2) **states the prettiness of its subject** (a “proper” individual).

- This paradigm may also extend to other varieties of infinitival constructions: so-called **rare-constructions** [Fleisher, 2015] and **rude-constructions** [Stowell, 1991, Bennis, 2000, Bennis, 2004, Landau, 2006].
- *Rare-constructions*, like (30), have been argued to form an independent subclass of TCs, in that their grammaticality seems to be conditioned by the matrix subject being “kind”-denoting (example from [Fleisher, 2015], extracted from a naturalistic corpus).

(30) **That kind of straight-up statement** is exceedingly rare for a politician to make.

¹²Again, the meaning of PPETTY in the lexical entry has to be fleshed out; but it is probably not as complex as that of TOUGH.

- Since *rare* is expected to take its subject (*that kind of straight-up statement*) as argument in our framework, the kind-restriction is now trivially accounted for, by simply assuming that the lexical entry of *rare*-predicates imposes an additional type restriction on the REFERENCE argument *r*.
- Therefore, **our account may allow to unify the class of *tough*-predicates.**
- *Rude*-constructions (31) on the other hand, are missing-subject constructions which seem to be part of an alternation similar to that of TCs, featuring a fronted variant (31a) and an *it*-variant (31b). But at the same time, the θ -assignment pattern of those constructions seems closer to that of PCs.

- (31) a. **Gabby** was rude to refuse Daiya’s invitation. *fronted-rude*
 ~> **Gabby was rude.**
- b. **It** was rude of Gabby to refuse Daiya’s invitation. *it-rude*
 ~> **Gabby was rude.**

- The predicates at play in those constructions all denote mental qualities of proper (animate) individuals (*rude, brave, nice* etc.).
- Just like *pretty*-predicates, ***rude*-predicates are interpreted relatively to the event denoted by the embedded clause**, which is the drive of the *rudeness* judgment. In (31a) for instance, Gabby is not inherently *rude*, but rather, judged to be so by the speaker in the context of his refusal of Daiya’s invitation.
- This implies that *rude*-predicates take the embedded clause as REFERENCE argument, and the matrix subject as THEME, just like *pretty*-predicates.
- The possibility of an *it*-variant in *rude*-constructions might be explained by an ability of *rude*-constructions to “swap” the syntactic order of their arguments prior to *it*-extraposition¹³ – a property that may be linked to the fact that those constructions are subject-gap constructions (as opposed to non-subject-gap TCs and PCs).
- A tentative typology of the semantic and syntactic properties of *tough, rare, pretty, and rude* predicates can be found in Table 1 below.

Construction	THEME	REFERENCE	Gap	<i>it</i> -variant
<i>tough/rare</i>	infinitival clause	matrix subject	non-subject	✓
<i>pretty</i>	matrix subject	infinitival clause	non-subject	✗
<i>rude</i>	matrix subject	infinitival clause	subject	✓

A tentative typology of predicates with infinitival complements

- To summarize, our analysis has three main implications.

¹³A signature of this special operation is the presence of the original matrix subject (e.g. *Gabby* in (31a)) within a demoted adjunct PP in the *it*-variant, reminiscent of passive constructions [Bennis, 2004]

3 main implication of our analysis

1. unifies the semantics of *tough* by proposing one single lexical entry suitable to both fTCs and iTCs (*contra* [Keine and Poole, 2017]).
2. integrates *pretty* within a typology of predicates with infinitival complements, while providing an explanation of the ungrammaticality of iPCs.
3. brings new evidence in favor of a BASE-GENERATION approach applied to all varieties of TCs, without the need of an *ad hoc* θ -transmission mechanism between the matrix subject and a bound null operator.

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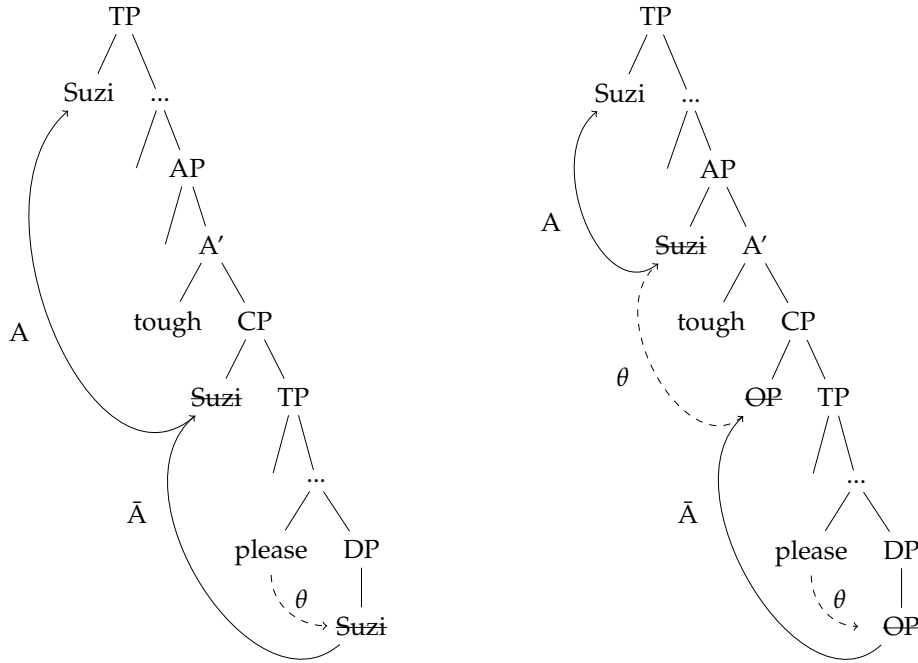
5 Appendices

5.1 Previous approaches to *tough*-constructions

- **Why and how the matrix subject of TCs ends up in this position** has been a puzzle since the early days of generative syntax. In particular, the fact that *tough* seems to receive a θ -role from the embedded predicate, but no accusative case is very intriguing.
- Previous approaches to TCs have been divided into two groups.

Two approaches to *tough*-constructions

- **LONG-MOVEMENT approaches** [Rosenbaum, 1967, Postal, 1971, Brody, 1993, Hornstein, 2001, Hicks, 2009, Hartman, 2009], whereby **the matrix subject originates in the embedded clause** (complement position), \bar{A} moves to the edge of the embedded clause (Spec-CP), then A-moves to its final matrix position (Spec-TP). See Figure 1a.
 - **BASE-GENERATION approaches** [Ross, 1967, Lasnik and Fiengo, 1974, Chomsky, 1977, Rezac, 2006, Fleisher, 2015, Keine and Poole, 2017], whereby **the matrix subject originates in the matrix** and binds (or agrees with) a null operator that has moved from the embedded complement position to the edge of the embedded clause (Spec-CP). See Figure 1b.
- LONG-MOVEMENT accounts predict that the matrix subject gets its θ -role directly from the embedded predicate; while BASE-GENERATION accounts assume that the embedded θ -role is transmitted through binding or agreement.



(a) The LONG-MOVEMENT view

(b) The BASE-GENERATION view

Two views on θ -assignment in TCs

- **Crucially, neither LONG-MOVEMENT nor BASE-GENERATION accounts predict that fronted TCs should differ semantically from *it*-TCs, and both accounts predict that the matrix subject gets its θ -role from the embedded predicate!**

5.2 Additional support for *tough* existentially quantifying over propositions

- We show here that **the existentially-quantified proposition introduced by the *tough*-predicate may scopally interact with the modal *want*** in the following sentence ¹⁴ (the *tough*-predicate being *impossible* here).

(32) John wants to be impossible for Mary to include in her experiment.

- If *impossible* indeed involves some existentially-quantified proposition, we expect (32) to have two possible readings:

¹⁴This is heavily inspired by an example from [Nissenbaum and Schwarz, 2011] (itself inspired from [Heim, 2000]), whereby the following sentence is shown to have two readings:

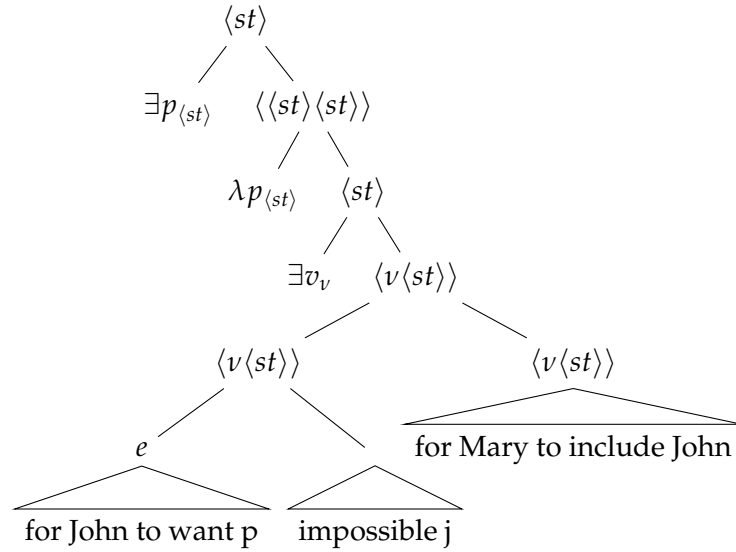
(1) John wants to be too rich for the monastery to hire him.

- Reading 1: John wants to be rich to a degree d s.t. d is too high for the monastery to hire John ($want > too$)
- Reading 2: John wants to be rich to a degree d , and d happens to be too high for the monastery to hire John ($too > want$)

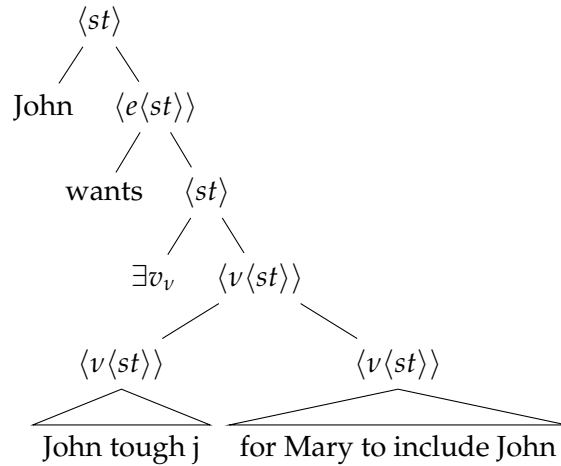
- (*want* > *impossible*): John wants to verify some property P s.t. P causes the *Mary-including-John* event to be impossible.
- (*impossible* > *want*): there is a proposition q s.t. some property P of the *John-wanting-to-verify- q* event causes the *Mary-including-John* event to be impossible.
- We now argue that (32) is compatible with the two following scenarios, which instantiate the (*want* > *impossible*) reading and the (*impossible* > *want*) reading respectively.

- **Background for both Scenarios:** *Mary wants to run a language learning experiment using Finnish as the target language. One exclusion criterion is that the participants should not be familiar with any Finnish words. John is a language nerd and a colleague of Mary who usually helps her as a guinea-pig in her pilots.*
- **Scenario A:** *John got recently upset with Mary, and does not want to help her this time. He heard that the exclusion criterion is knowing some words of Finnish, so he starts learning Finnish basics for Mary not to include him.*
- **Scenario B:** *As always, John is eager to help Mary, without even knowing the specifics of the experiment. However, John has been learning Finnish for quite a while now...*

- We think **Scenario A** is definitely compatible with (32); **Scenario B** appears more borderline but still okay (comments about it are welcome!).
- If indeed both Scenarios are allowed, we think that the scope interaction between *tough* and *want* could be accounted for by the following two Logical Forms:



(a) (*impossible* > *want* reading)



(b) (*want* > *tough*) reading

5.3 A type-mismatch issue in the case of *it*- and clause-fronted TCs

- An issue that remains to be solved in the case of *it*-TCs is the following: if *it* refers to the embedded clause, then it is predicted to have type $\langle v \langle st \rangle \rangle$, which is not a suitable type for the REFERENCE argument (type e). The issue trivially extends to clause-fronted TCs.
- We present some evidence from French that the REFERENCE in clause-fronted TCs is covertly converted to an e -type (through a process close, if not identical, to that posited in e.g. [Fox, 2003])
- We additionally show that French *i*TCs exhibit overt signs of the same sort of conversion.
- We start with clause-fronted TCs. (33b) is an alternative formulation of (33a) where the fronted clause seems to be overtly converted to a type- e , as evidenced by the presence of a definite article. This is done through the addition of “dummy” layer *fait de* (‘the action’/‘the

act') which takes the original clause as a complement. Note that *de* is the standard genitive marker in French.

- (33) a. **Envoyer ce paquet à Lisa** est difficile.
To-send this package to Lisa is tough.
To send this package to Lisa is tough.
- b. **Le fait d' envoyer ce paquet à Lisa** est difficile.
The act DE to-send this package to Lisa is tough.
To send this package to Lisa is tough.

- This datapoint may suggest that simple clause-fronted TCs contain a covert nominalizer akin to the overt *le fait de*.
- Interestingly, the very same genitive marker *de* is found in iTCs (34a), and not in fTCs such as (34b) which feature a different particle, *à* [Huot, 1981, Guerin, 2006, Aguila-Multner and Crysmann, 2022].

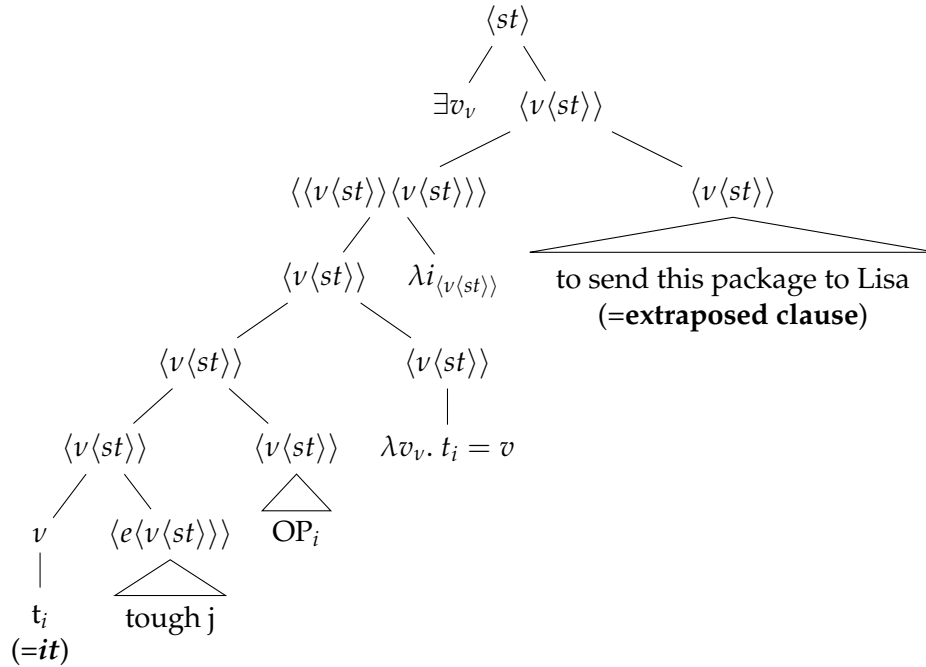
- (34) a. **C'** est difficile **d' envoyer ce paquet à Lisa**.
This is tough DE to-send this package to Lisa.
It is tough to send this package to Lisa.
- b. **Ce paquet** est difficile **à envoyer à Lisa**.
This package is tough À to-send this package to Lisa.
This package is tough to send to Lisa.

- Left-dislocated clause-fronted TCs (35) also make use of the marker *de*.

- (35) **D' envoyer ce paquet à Lisa, c'** est difficile.
DE to-send this package to Lisa, this is tough.
It is tough to send this package to Lisa.

- This might suggest that iTCs actually derive from clause-fronted TCs featuring a *le fait de* layer. It would then result from the reduction of the stranded *le fait*, as *Le fait est difficile d'envoyer ce paquet à Lisa* is ungrammatical for some reason.¹⁵
- The upshot here is that the clausal REFERENCE argument in clause-fronted TCs and iTCs is interpreted as a type-*e* (or even more precisely, an event of type *v*) which ends up being equated with the event variable bound by the embedded clause, as shown in Figure 3 below.

¹⁵Surprisingly, the clefted counterpart *Le fait est qu'il est difficile d'envoyer ce paquet à Lisa* is fine. I do not have any clear explanation for this contrast.



Solving the type-mismatch in iTCs through some “trace conversion” under a BASE-GENERATION approach

- In addition to solving the initial type-mismatch problem, **this account of French iTCs sheds light on the longstanding puzzle of the *à/de* alternation between fTCs and iTCs: we argue here that this alternation does not really exist, and that *de* rather alternates with a zero-marker present in garden-variety clause-fronted TCs.**