

LEARNING THE *TOUGH* CONSTRUCTIONS

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Tough constructions are a special case of constructions where we find unusual relationships between the form of a sentence and its meaning. These include examples like *John is tough to please*. Although this might seem quite unremarkable to you, it's actually been extensively discussed by linguists and others. To understand why, we may need to take a few steps back.

When children begin speaking in multi-word sentences in their native language, they typically start out by producing semantically simple messages: their words are nouns, verbs and adjectives, and the meanings of phrases are built up in a straightforward way by combining the meanings of adjacent words. For example, toddlers say things like *Mommy go* (*mommy* is the agent of going), *want cookie* (*cookie* is the object of wanting), and *big doggie* (the adjective describes the adjacent noun). Such sentences follow a canonical mapping between sentence structure (syntax) and meaning (semantics): typically, the subject is an animate agent (a “do-er”), the verb denotes an action, and the object is an inanimate patient (what is affected). These relations are shown in Table 1.

Table 1. Prototypical syntax-semantics relations

<u>Syntax</u>	<u>Semantics</u>
Subject	Agent (“do-er” often animate)
Verb	Action
Object	Patient (affected; often inanimate)

It is only later that children begin combining words in configurations such that semantic combinations cannot be computed from syntactically nearby words. The words can be separated, as in *I see a dog that is big*, where a relative clause separates the noun (*dog*) and its adjective (*big*). Conversely words that are side-by-side don't always have a semantic connection. In *John seems to me to be working*, the subject *John* is next to *seem* but is not the agent of *seem* (rather John is the agent of *working*). The correspondence between syntactic and semantic roles can also take on an atypical character. In *the cookie was eaten by the girl*, the patient (the cookie) is the subject and the agent (the girl) is the object of a preposition, more or less the reverse of a typical sentence. Finally, in *this book is hard to read*, we find a situation in which the action and its patient are both separated and out of the usual order. These constructions involve what is known as *displacement*: a word

or phrase is pronounced in a different part of the sentence from where it gets interpreted semantically. These are not the first types of sentences children build,¹ but by early elementary school, if not earlier, children grow into speakers who do build them. How does this happen?

Tough Constructions

In the late 1960s Carol Chomsky conducted an experiment using sentences like *John is tough to please* to find out whether children understood that the syntactic subject (*John*) is the patient of the verb in the *to* infinitive (*please*). As adult speakers, we can verify this interpretation by looking at the paraphrase of this sentence where *John* appears after *please*: *It is tough to please John*. We also know that *John is tough to please* doesn't mean that John is tough, or that he is going to please someone else. But Chomsky wanted to know how children understood it. To find out, she presented elementary school aged children with a blindfolded doll and asked, "Is the doll easy to see or hard to see?"² If children answered that the doll was easy to see, Chomsky further prompted them to "make the doll hard to see," to which children often responded by placing the doll under the table. This is an adult-like response because it shows that children understood the initial question as asking whether it was easy or hard to see the doll (easy, if the doll is in plain view). Many children, however, answered, "hard to see," and when they were prompted to "make the doll easy to see" they removed the doll's blindfold. This indicates that their interpretation of the initial question was that it asked whether it was easy or hard *for the doll* to see (something else). This is not an adult-like interpretation.

It is not an unreasonable interpretation, however. English has a very similar construction, known to syntacticians as a CONTROL construction, in which the subject of the main clause is interpreted as the agent, not patient, of the infinitive as well. Compare the (*tough*) sentence *the girl is easy to see* with the (control) sentence *the girl is eager to see* (see Table 2). In the *eager* sentence the girl is the one who will be doing the seeing, not the one being seen. Chomsky's result with children, namely that younger children appear to give the *eager*-type interpretation to sentences with *easy*, has also been found by other researchers, such as Cromer (1970) and Anderson (2005).

1 It should be noted that some sentences involving displacement, namely *wh*-questions (with *who*, *what*, *where*, etc.) are produced quite early on. In *what do you see?* for example, the question word *what* refers to the object of *see* (*you see [what/the dog]*), but it is at the front of the sentence. Here I will focus on some of the non-question types of constructions involving displacement and the particular subset of these constructions known as *raising* and *tough* constructions.

2 Not all adjectives appear in the *tough* construction. Some that do are: *difficult*, *easy*, *hard* and *impossible*.

Table 2 Interpretations of *tough* constructions and non-*tough* constructions

<u>Sentence</u>	<u>Interpretation</u>	<u>Syntax-semantics relation</u>
<i>The girl is eager to see.</i>	She wants to see.	Subject is agent of <i>see</i>
<i>The girl is easy (for us) to see.</i>	We see her.	Subject is patient of <i>see</i>

Tough-constructions are only found in a limited number of languages (Givón 1991), and they present some unique challenges for formal theories of syntactic structure (Chomsky 1977; Lasnik & Uriagereka 1994). In fact, given the formal constraints that syntacticians have proposed to account for how displacement works in human language, *tough*-movement should not be possible. We say that the position in a sentence where a noun phrase gets interpreted is where it “originates” or “moves from” if it is pronounced in a different part of the sentence. But according to the rules that govern such movements it should not be possible to move a noun phrase from the object position of an infinitive verb up to the subject position at the beginning of the sentence, which is what appears to happen in *tough*-movement. Holmberg (2000) went so far as to refer to these constructions as “unexplainable.” Thus, the fact that children are late in acquiring this construction should not be too surprising. Moreover, research on adult second language (L2) learners has shown that, like English-learning children, even advanced L2 learners can misinterpret these sentences as if the main clause subject were the *agent* of the infinitive verb (the one doing the pleasing, seeing, etc.; Cook 1973, Yip 1995), and they avoid producing these constructions with displacement (e.g., *the question is hard to understand*), preferring instead the paraphrase (e.g., *it is hard to understand the question*; Callies 2008). Yip (1995) reports production of what she calls “pseudo-*tough*-movement” (*I am very easy to forget*, meaning “it is easy for *me* to forget”) by Mandarin L1 learners of English, but it should be noted that Mandarin permits constructions of this sort when the subject is animate (Becker 2014).

While the errors in producing and interpreting *tough*-constructions in both L1 and L2 learners are not surprising, they underscore the need for an explanation of how these constructions are acquired at all. There is an unusual feature of *tough*-constructions, however, that I have argued makes them entirely learnable, and which sets them apart from more typical syntactic structures: they permit inanimate subjects. Notice that while an adjective like *eager* requires an animate (and sentient) subject (*John is eager to read*, but #*The book is eager to be read*),³ *easy* and *tough* can take any sort of subject (*The book is easy to read*). This is precisely because there is no semantic relationship between the main clause subject and the *tough* adjective, while there is a semantic relationship between the main clause subject and a control adjective like *eager*. In psycholinguistic studies of adult language processing, an inanimate subject triggers adults to interpret the subject as a patient, rather than an agent (Ferreira & Clifton 1986, Truesdell & Tanenhaus 1994). My experimental work with children has shown that children make the same interpretive shift

3 Linguists use the # symbol before a sentence that is semantically ill-formed, and the * symbol before a sentence that is syntactically ill-formed.

given an inanimate subject. If I present children with a sentence such as *The apple is daxy to draw* (as opposed to *The farmer is daxy to draw*), they will interpret *daxy* as meaning something like “easy” or “hard”, but not as “eager” or “afraid” (Becker 2014, 2015).

What Seems to be the Problem?

If we broaden the scope of inquiry to other constructions involving displacement, we find the same absence of a semantic relationship between syntactic neighbors in what are called *raising* constructions. These are sentences such as *John seems (to me) to be tall* or *Flowers tend to bloom in spring*. While the main clause subject in these sentences is not necessarily interpreted as a patient, its semantic role is determined entirely by the predicate in the *to* infinitive (...*to be tall* or ...*to bloom in spring*; see Table 3), and there are paraphrases that help us see this: *It seems that John is tall*; *There tend to be flowers blooming in spring*. Just like in the case of *tough*-constructions, raising verbs easily permit inanimate subjects. And, just like with *tough*-constructions, there is a parallel type of sentence that looks the same on the surface but in which the main clause subject is semantically related to its neighboring verb: in *John claims to be tall*, we can say that John is the agent, the one doing the claiming.

Table 3 Interpretations of raising & non-raising constructions

<u>Sentence</u>	<u>Interpretation</u>	<u>Syntax-semantics relation</u>
<i>John claims to be tall.</i>	John says so.	Subject is agent of <i>claim</i>
<i>John seems (to us) to be tall.</i>	We think so.	Subject is not agent of <i>seem</i>

Raising constructions are not as rare among the world’s languages as *tough*-constructions, and the various languages that have them allow inanimate subjects just like English does. In addition to many Indo-European languages, several Austronesian languages (Samoan, Tongan, Niuean, Chamorro, Maori) contain raising constructions and all of them permit inanimate subjects in just these constructions. Inanimate subjects in these languages are ungrammatical in sentences without raising verbs (e.g. *John claims to be tall*). The psycholinguistic effects of inanimate subjects we saw with *tough*-constructions are observed with raising verbs as well: adults assume that a nonsense verb paired with an inanimate subject in a sentence like *The building gorps to be tall* has a raising type of meaning (“seem”, “appear”, etc.), but they don’t make this assumption when the subject is animate (*John gorps to be tall*; Becker & Estigarribia 2013).

(In)Animacy: What is it Good For?

Typical sentences have an animate subject/agent that performs some action which possibly affects something or someone else. An influential idea about how children even begin to decipher the syntactic structure of their language is that, children assume that the syntactic **subject** is the part of the sentence occupied by the most animate noun. Armed with this assumption, children can exploit this regular mapping between semantic role and syntactic position to figure out which word or phrase in the sentence is the subject. When a child hears *the girl is eating peas*, she can figure out that the subject must come before the verb and object in her language, because *girl* is more animate than *peas*, and it also comes before the action word *eat*. This procedure is known as SEMANTIC BOOTSTRAPPING (Grimshaw 1981, Pinker 1982). Since word order varies across languages, this is something children have to figure out about their own language.

Semantic bootstrapping only gets you so far. One of the marvelous aspects of human language is that its syntax permits us to create expressions in which a semantic relationship holds between words that span a long distance. The allowable distance is determined not by the number of words that intervene, but by hierarchical relationships among the words and phrases that make up the sentence. Learning how to compute those hierarchical relationships is what it means to acquire a grammar. What I have argued is that, while an animate subject can provide a good stepping stone in the early process of learning basic word order, an **inanimate subject** can provide crucial information at a later stage for deciphering more complex structures: an inanimate subject can't be an agent, and its semantic interpretation is likely to be found elsewhere in the sentence. In other words, it is very likely to be a displaced noun phrase.

This is one way in which (in)animacy is important for language acquisition. A second way involves the clues it provides about the meanings of verbs and adjectives that permit inanimate subjects. Across languages that have raising verbs, for example, these verbs have a rather narrow set of meanings. In English raising verbs have meanings relating to appearance (*seem, appear*), aspect (*tend, used to, gonna*), likelihood or happenstance (*be likely, be certain, happen*). Other languages' raising verbs generally have these same meanings. Languages with *tough*-constructions (e.g., Finnish, Niuean, Bahasa Indonesian, Labrador Inuttut, Chinese) have a similarly restricted range of meanings, typically having to do with ease and/or difficulty. Such meanings are quite abstract and are unlikely to be learnable straightforwardly by observing events in the world. (Compare *Show me running!* with *Show me seeming!* Or, *Draw something furry!* vs. *Draw something difficult!*) Thus, inanimate subjects not only provide a clue that the syntax of the sentence is complex, with the subject most likely displaced from another part of the sentence, but they also provide a clue to a narrow range of meanings for the main verb or adjective which, it seems, would be otherwise difficult to learn.

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