

1 Null subjects

1.1 The phenomenon

Null subjects in English

Until around 3 years old, children will often omit subjects:

- (1) Drop bean.
- (2) Fix Mommy shoe.
- (3) Helping Mommy.
- (4) Want go get it.

Why do they do this? What if anything does this tell us about the developing grammar?

1.2 Two possible explanations

Null subjects as an adult language option

Lots of languages *allow* you to drop the subject.

Italian The verb generally carries enough information to identify the person, number, gender of the subject.

Chinese Where the subject is obvious from context it can be left out.

Not English Let's talk about Bill. *Left. *Bought groceries. *Dropped eggs.

On the view that kids know language, but are just trying to figure out the specific details (principles and parameters), one possibility is that they always start out speaking Italian (or Chinese) until they get evidence for the contrary. This hypothesis: **Null subjects are grammatical for children.**

Null subjects as a processing limitation?

Children do tend to speak in short sentences. There seem to in fact be identifiable stages in terms of the length of children's sentences (one-word stage, two-word stage, multi-word stage). This is often measured in terms of MLU (mean length of utterance), which roughly corresponds to linguistic development.

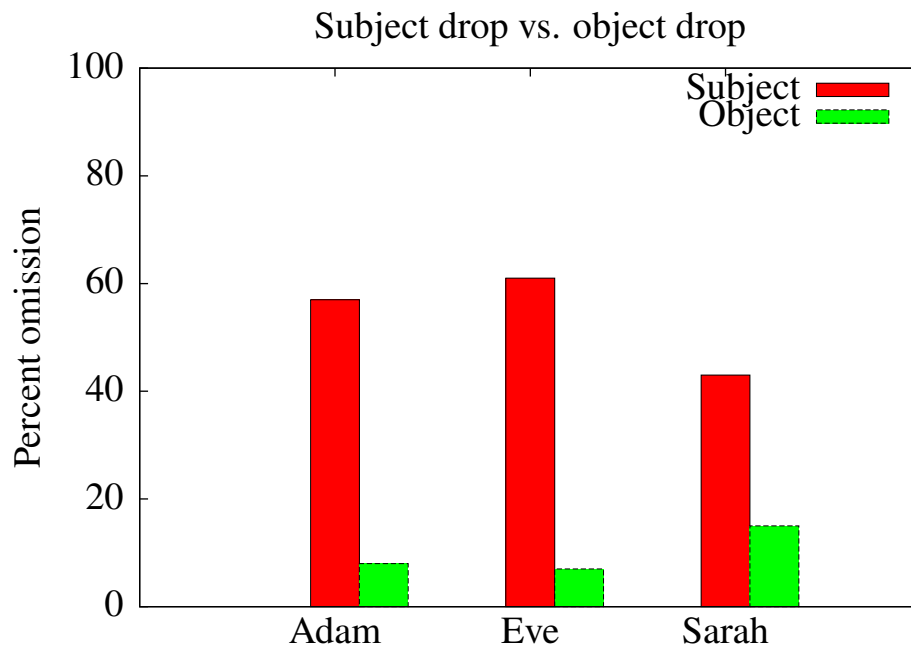
Perhaps the kid's just trying to say a three-word sentence in a two-word window, so something's got to go.

This hypothesis: **Null subjects result from some kind of processing limitation**

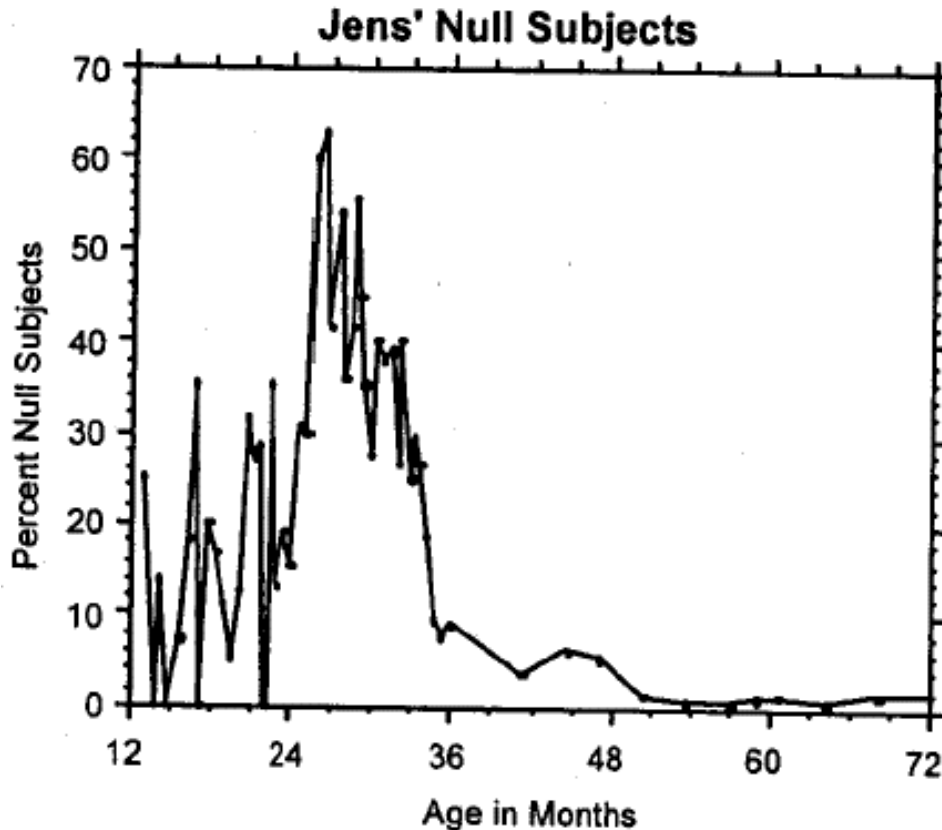
2 Patterns in the data

2.1 Subject/object asymmetries

Subject vs. object drop



Null subjects vs. time



Null subjects seem to be pretty robustly confined to a certain portion of linguistic development. There's a pretty sharp dropoff at around 2.5 or 3. Hamann's Danish kids illustrate this well.

2.2 Against a mis-set null subject parameter

Why can't English kids really be speaking Italian?

In Italian, subjects can be dropped (but *need* not be), in English, they can't be dropped at all.

So, since *having* subjects is consistent with Italian, what's going to signal to the child that they've got the wrong kind of language?

This is a "subset" problem. One that could conceivably be solved via *it* and *there*?

In Italian, null subjects are allowed wherever a subject pronoun would be, including embedded finite clauses ("I know that [he] has left") and finite root questions ("What has [he] bought?").

In Kid English, null subjects never show up in these environments. It doesn't seem so much like Italian.

Ok, are they speaking Chinese?

In adult Chinese, subjects can also be omitted.

In Italian, Spanish, the allowability of null subjects was taken to be tied to agreement. Something about rich agreement licenses null subjects.

In Chinese, there is no agreement morphology, so that isn't what's allowing null subjects.

Proposal: What allows argument omission in Chinese is a form of *topic drop*. They are allowed roughly when they are "old information," recoverable.

Is Kid English Chinese?

Suppose that these are the parameters:

±**pro-drop** The Italian/English difference.

±**topic-drop** The Chinese/English difference.

Kid English isn't +pro-drop. In +topic-drop languages, subjects aren't particularly privileged. Subjects tend to be old information, but when objects are old, they too can be dropped (in adult Chinese).

Kid English is not Chinese

We've already seen that Kid English overwhelmingly drops subjects, not objects. (33% subjects, 4% objects, according to Wang et al. 1992).

Kid English looks like English with some extra null subjects.

But Kid Chinese drops even more subjects and lots more objects (47% subjects, 23% objects).

Kid Chinese looks like Chinese with maybe some extra null subjects.

Parameters are quick

And recall that Italian allows null subjects in embedded clauses, *wh*-questions, etc.

Kid Dutch and French have practically no null subjects in *wh*-questions.

Kid Italian has something like 56% null subjects in *wh*-questions.

If Chinese/Dutch is distinguished by [\pm topic-drop] and Italian/English is distinguished by [\pm pro-drop], the kids already know what they're trying to speak by the time we're testing them.

3 Viability of a processing account

3.1 Bloom 1990 and processing

Processing accounts?

Kids have severely limited processing power, and so they leave off subjects to ease the load. (Bloom 1990)

In favor:

- Length limitations even in imitations.
- Kids omit things other than subjects.
- Some kids don't eliminate subjects, only reduce their frequency.

Against processing accounts?

Contra? Hyams points out:

- Build house. . . Cathy build house
- Go nursery. . . Lucy go nursery
- Kathryn want build another house.

Bloom: So, no absolute limit on length, only a tendency to reduce length.

Predictions about VP length

Bloom (1970) found: negated sentences tend to lack subjects more frequently than non-negated sentences.

Bloom (1990): Hypothesis: Sentences without subjects will have longer VPs than sentences with subjects.

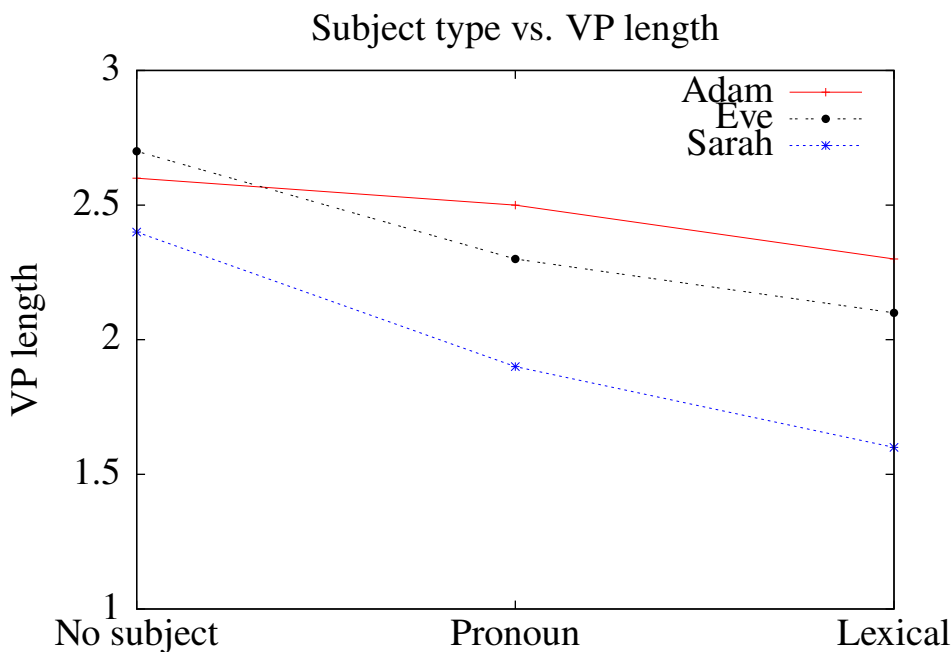
Results on VP length

VP length (words from verb to the end) was counted for sentences with and without subjects.

Results: Mean length of VP in sentences with subjects were (statistically) significantly shorter than those without. E.g., Adam 2.333 with, 2.604 without.

In fact, “long subjects” (lexical subjects), “short subjects” (pronouns), and null subjects correlated with an increase in VP length as well.

Bloom 1990: VP length results



Bloom 1990: Why subjects?

And why are subjects dropped more frequently than objects?
Two possibilities?

- Subjects tend to be “given” (old information) (low “informativeness,” more expendable).
- Maybe processing “saves the heaviest load for last.”

3.2 Hyams & Wexler 1993 contra processing

Subjects are special

Bloom’s (1990) approach (processing) can’t be right either.

The difference between subjects and objects is big, and only rate of *subject* drop changes. Adam & Eve both drop around 40–50% of their subjects in an early stage, and in a later stage are down to 15–30%—meanwhile, their rate of object drop stays around 5–10%.

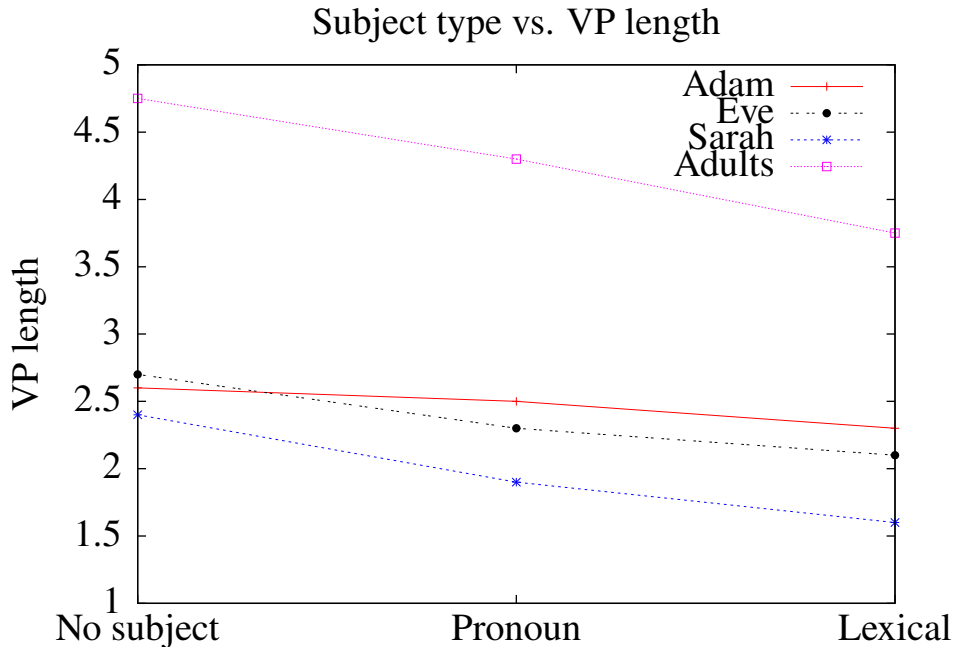
Informativeness doesn’t predict omission

With respect to “informativeness”: All else being equal, the ratio of missing subjects to specific subjects should be equal to the ratio of missing objects to specific objects.

Turns out that kids drop specific subjects about twice as often (Adam 52%) as they drop specific objects (Adam 21%).

Also: considering Italian adults, we find exactly the same correlation Bloom reported for English kids: VP seems to be longer where there is a null subject, shorter with a pronoun, and shorter still with a lexical subject.

Italian adults vs. English children



Do Italian adults have a processing deficiency?

Regardless of why the correlation holds, if it is a processing deficiency in kids, what is it for the Italian adults?

Seems like kids act like they're speaking a language where the null subject is a grammatical option. Note: might be slightly different from a "null subject language" though. Point: dropping subjects is grammatical for these kids, not an error.

3.3 Null subjects come from the pronoun pile

What null subjects compete with

"Output omission" model predicts ratio of overt lexical subjects to overt pronouns should increase over time.

Pronouns are easier, they'll survive. Lexical subjects are harder, they'll be dropped. Initial advantage to visible pronouns.

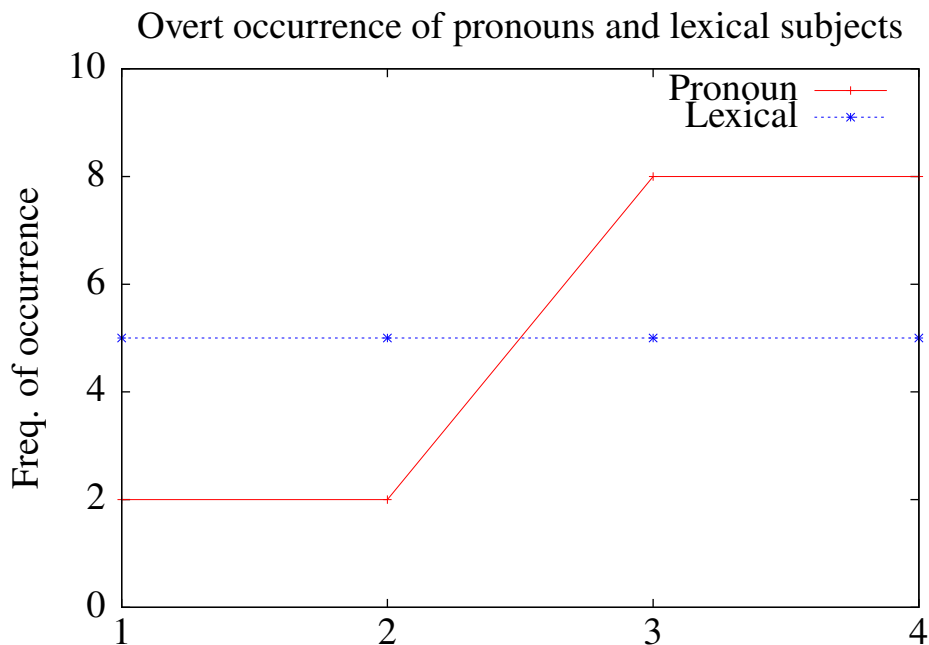
Grammatical omission model predicts ratio of overt lexical subjects should decrease over time. If null subjects are a form of pronoun for kids, they will "dilute the pool," putting visible pronouns at an initial disadvantage.

Null subjects in English

We find: Ratio of overt lexical subjects to overt pronouns decreases over time. Adam goes from about 3:1 in favor of lexical subjects (during subject drop stage) to 1:2 (after subject drop stage).

When he's dropping subjects, they are coming out of the "pronoun" pile—the number of lexical subjects is staying about the same across development.

Null subjects in English



Bigger subjects are more difficult?

Ok, so maybe pronouns are more difficult than lexical nouns? (Doesn't fit well with the length of VP result, but maybe.)

Problem is: kids show a steady level of *object* pronouns throughout this time period—and output omission model doesn't have anything to say about subject vs. object

3.4 Null subjects as a grammatical option

Hyams & Wexler 1993: Conclusions

Null subjects don't seem to arise in child language solely due to processing difficulty.

Rather, they seem to be *allowed* in the child grammar.

- This allows a distinction between subject (high rate of omission) and object (low rate of omission)
- Explains the tradeoff between null subjects and pronouns (and the VP length/subject correlation) if the principles governing availability of subject drop are similar to those at work in Italian.

4 Connection to the root infinitive stage

4.1 Null subjects of infinitives

So what allows null subjects?

Here's where we start to tie into the other known property of that age.

Notice that in English (a non-null subject language) you can have a grammatical null subject in one context.

(5) I want [\emptyset to have a snow day]

(6) [\emptyset to have a snow day] makes more sense if it snows.

Null subjects in English

Subjects of infinitives can be null.

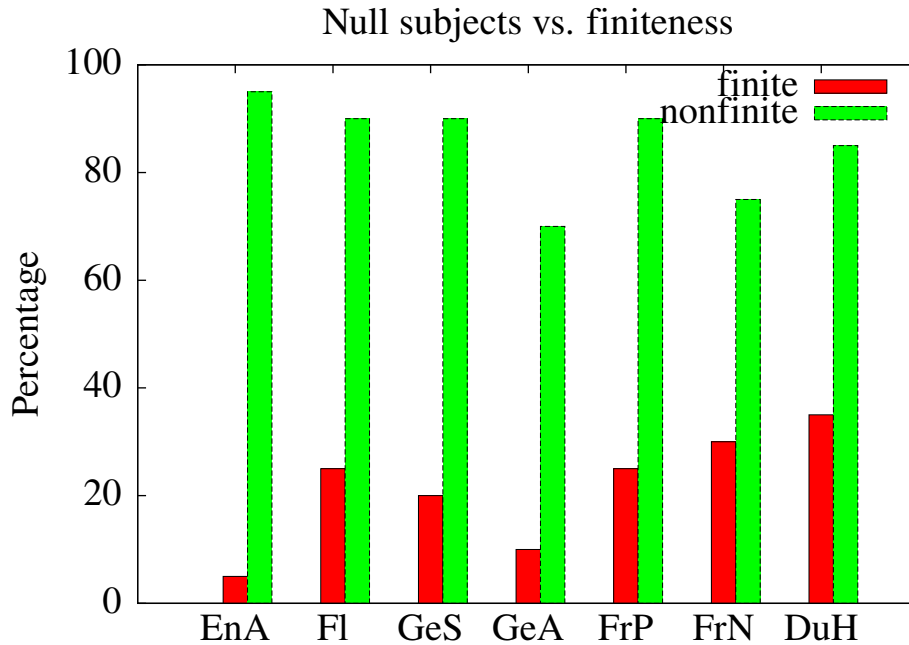
(7) Bob wanted [PRO to win the lottery].

Kids at the age where subjects are often missing often use infinitive verb forms.

Perhaps that's the key: Since kids can use infinitives where adults can't (main clause main verb), this allows them to use null subjects in those sentences as a side effect.

4.2 Null subjects vs. root infinitive stage

Null subjects vs. finiteness



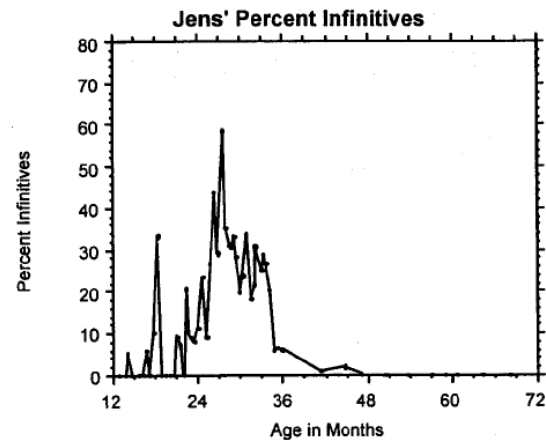
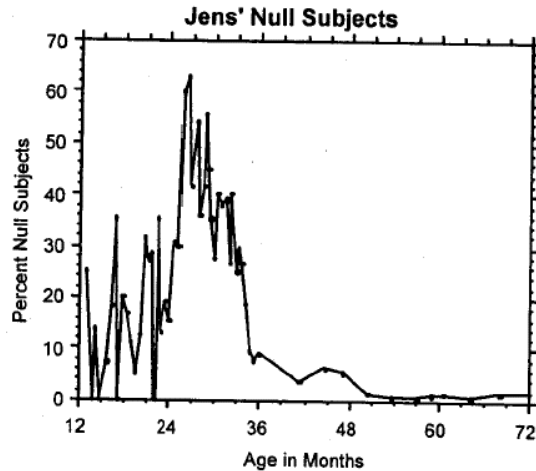
Null subjects

Null subject parameter(s) is/are *not* initially misset (kids don't all start off speaking Italian or Chinese—contra Hyams 1986, 1992); rather, child null subjects are (at least in part) due to the availability of non-finite verbs.

Most null subjects are licensed by being the subject of a nonfinite verb (i.e. PRO).

But there are still some null subjects with finite verbs... We'll come back to this.

Root infinitives vs. time



5 Finite null subjects

5.1 Bromberg & Wexler (1995)

So what allows null subjects?

Bromberg & Wexler (1995) suggest that null subjects with finite verbs arise from a kind of “topic drop” (available to adults in special contexts, perhaps like “diary drop”).

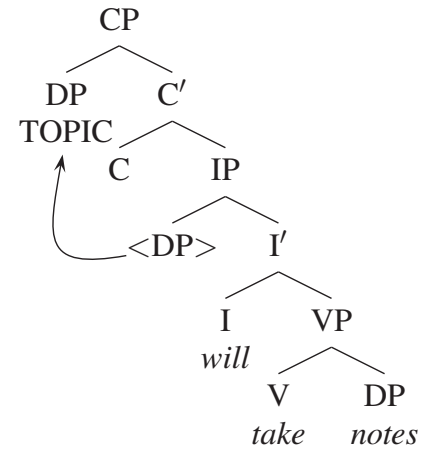
(8) Went to the store. Bought milk.

Proposal (Bromberg & Wexler): Topic-drop applies to Very Strong Topics.

Kids sometimes take (in reality) non-VS topics to *be* VS topics—which is a **pragmatic error**.

The syntax of topic drop

The idea is that only topics can be dropped. Topics move to SpecCP.



Prediction about null subjects

Root infinitives have two ways of licensing null subjects:

- PRO
- Topic drop

Finite verbs have but one way to license a null subject

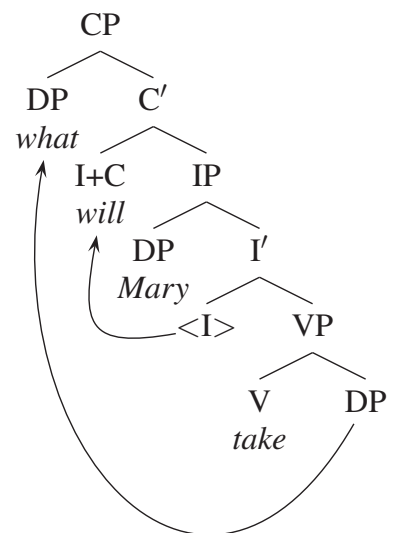
- Topic drop

So: We expect more null subjects with root infinitives (which we in fact see).

Topics vs. wh-questions

SpecCP is also the place where *wh*-words move in *wh*-questions. And we can't have two things in the same place.

So it shouldn't be possible to have a topic in a *wh*-question. Predicts: No null subjects in finite *wh*-questions for children.



B&W results

	Finite	Nonfinite
Null	2	118
Pronoun	117	131

Finiteness of null/pronominal subjects—Adam’s *wh*-questions (Bromberg & Wexler 1995).

5.2 Null subjects in *wh*-questions

English is unusual

In English, we find just what Bromberg & Wexler predicted: almost no null subject in finite *wh*-questions, but plenty in non-finite *wh*-questions.

But in most other languages that have been investigated (e.g., German, Dutch, French), there are pretty much no null subjects in *wh*-questions at all (not even with root infinitives). Why?

Dutch and French null subjects in *wh*-questions

	Null subjects	Lexical subjects
Declaratives	1012	3238
Wh-questions	10	464

Data from two Dutch children (Haegeman 1996, from Guasti 2002:161)

	Null subjects	Lexical subjects
Declaratives	488	1125
Wh-questions	2	311

Data from a French child (Crisma 1992, from Guasti 2002:161)

Why is English different?

There isn’t a well-accepted or particularly good answer for what makes English different.

But: Bromberg & Wexler (1995) showed that null subjects in English *wh*-questions seem to be pretty much exclusively with nonfinite verbs. So, what’s different between English and the other languages here has to do with whether the null subject of infinitives (PRO) is allowed in *wh*-questions.

It is possible to say “I don’t know what to buy.” So PRO is allowed in English *wh*-questions. I think it is also possible to say *Je ne sais pas quoi faire*, though. So why don’t French *children* do this? Guess: something about being an infinitive in a main clause? (“What to do?”).

6 Pragmatics

The topic drop explanation

If the Topic Drop hypothesis is basically on track, the idea is that there are two different forces at work here.

One is that null subjects are allowed by virtue of the fact that the children are in the root infinitive stage, and PRO (a null subject) is allowed with infinitives.

The other is that null subjects are also allowed by virtue of the possibility of topicalizing and then dropping the topic. This is not something that is very easy to do in adult English, but we have to suppose you can with a certain kind of (very strong?) topic. What children are doing is letting too many things be very strong topics.

Know-it-alls

What it means to be a topic in this sense is that it is something that is known by both speaker and hearer, old information, recoverable, redundant.

So, to put the problem another way: Children who allow too many things to be topics are essentially treating too many things as “known,” “old,” “given.”

One possibility that has been suggested in this kind of context: Children don’t initially quite grasp that not everybody is thinking about what they’re thinking about. (A kind of egocentrism, maybe concerns “theory of mind.”)

Pragmatics vs. syntax

Development of syntactic capability and development of pragmatic capability are conceptually rather different things. There’s no necessary reason they should develop together—and no obvious reason that being in the root infinitive stage would have any implications about pragmatic sophistication.

Pragmatics in some aspects might be something that children have to learn through social interaction (or, in the case of theory of mind, perhaps it is an actual cognitive development that only happens after a certain age—maybe a kind of similar age as the offset of the root infinitive stage).

SEP

We'll see a few developmental language phenomena that will be suggested to have roots in the development of pragmatics. And surely pragmatics develops, and must be responsible for something. However, it's also the case that theoretical analyses of what's going on in the domain of pragmatics tend to be relatively underspecified.

So far, though: Children take too much to be “old.”

Possible converging support? Children also tend to overuse the definite determiner (“the”) in places where an adult would use an indefinite (“a”)—same cause?