

1 Adult native language knowledge is complex

Understanding the problem

The first point of departure is just acknowledging the fact that the knowledge that adults have about their native language is extraordinarily complex. They know what sentences are and aren't good examples of their language. When something isn't, they know it, but they may or may not be able to articulate what is wrong.

- (1) * Dog the cheese the ate.
- (2) * What did John laugh after Mary read?
- (3) * Who did John say that bought cheese?
- (4) # More people have been to London than I have.
- (5) Every professor talked to one of his students.
- (6) He thinks that the gods are punishing John.
- (7) * John thinks that Mary saw himself.

Logical problem of language acquisition

Based on the fact that children acquire the complexities of language quickly, in a uniform way and with a uniform results, and on the fact that the language environment doesn't seem to contain enough information to fully specify a system of such complexity, the consensus view has pretty much become that humans (by virtue of being human) are "tuned" in some way to acquire language. This is the "universal grammar" (UG) hypothesis.

Differentiating languages

The work in theoretical syntax is relevant here insofar as people have been trying to determine how can languages differ and how they can't. Languages share a great deal ("principles"). The points at which (adult, native) languages can differ ("parameters") are hypothesized to be relatively few in number. These are the things that a child must acquire when acquiring the target language.

- Word order: headedness (VO vs. OV) (English/Japanese)
- Word order: V2 (V2 vs. not V2) (German/English)
- Null subjects: allowed or not (Italian/English)
- Verb movement: yes or no (French/English)
- *Wh*-movement: all, one, none (Bulgarian/English/Japanese)
- Binding domain: big, small (Japanese/English)

Second language acquisition

Acquiring a second language would also require acquiring the settings for these parameters, but there are questions about what exactly is happening in second language acquisition. There is some kind of age effect, and the ultimate attainment of the target language seems to be more variable. There also seem to be effects of properties of the first language. And there are questions about whether the “logical problem of language acquisition” really applies—do those acquiring second languages “go beyond the input”? How much first language knowledge is second language knowledge?

2 First language acquisition

2.1 UG, parameters, maturation, and pragmatics

UG, parameters, maturation, and pragmatics

Having accepted the basic “UG hypothesis” as an answer to the “how can acquisition be so fast?” we are then faced with the opposite question: “if it’s ‘hard-wired,’ why does it take as long as it does?”

Certain things for which there should be ample evidence in the input nevertheless seem to take their time showing up in child language.

There are a couple of proposals we’ve seen for what causes these “delays.” One proposal is that—despite being essentially biologically programmed—there are maturational stages: certain aspects of child grammar become available only later, by analogy to the process of, e.g., losing baby teeth. Another (orthogonal) proposal is that some knowledge that can interact with grammatical knowledge is

still gained through experience with the world and/or by development of cognitive structures.

Maturation

The two main things we've seen that point to “maturation” are:

- The network of properties associated with use of non-finite verbs in main clauses.
- The ability to form “A-chains” (or, alternatively, the ability to represent verbs that lack an agent) necessary for adult-like use of passives, unaccusatives, “seems”-type constructions (raising constructions).

2.2 Root infinitives

Non-finite verbs at age two

There is widespread, cross-linguistic evidence, that children up to about age 3;0 allow the main verb in a sentence to be *non-finite* (infinitives, gerunds). This is not visible in all languages—and it seems as if a pretty reliable predictor of whether a language’s children will show these properties is whether the adult language allows null subjects. Children acquiring null subject languages do not seem to show this effect (at least not in the same way). (Some debate here.)

The relative consistency with which this disappears around age 3;0 generally supports a kind of “maturation” view of this. Furthermore, to the extent that children with Specific Language Impairment can be characterized as having a longer-lasting “root infinitive” stage (and the fact that SLI seems to have a genetic component), also suggests something like biological maturation.

Distinguishing finite and non-finite

Poeppel & Wexler (1993) demonstrated that children (acquiring German) in the “root infinitive” stage do distinguish between finite and non-finite verbs. Their result shows that children do have a pretty complex syntax (and are able to get the finite verb into second position, which for adults requires a pretty complex syntactic representation), and that they are not just confused about what finiteness is. But they nevertheless allow main verbs to be non-finite.

This also forms part of the basis for the hypothesis that children have actually set most of the language-specific parameters very early on, before we can really test them on it. And for the hypothesis that essentially a full adult syntactic system is already in place as well.

Null subjects

At the same time as children are producing non-finite main verbs, they are also likely to leave out the subject, even in places where it cannot be left out in the adult language. Both nonfinite main verbs and missing subjects seem to stop appearing at about the same time, suggesting that they are linked.

It has also been shown that missing subjects are much more common with non-finite verbs than with finite verbs. In fact, one common explanation of missing subjects has split the phenomenon into two separate components, one that relies deeply on the appearance of the non-finite verb, and another that relates to development of pragmatic competence.

Case errors

Also during the “root infinitive stage,” children (particularly evidently in English-acquiring children, on subjects) tend to make case errors. In response to these facts, Schütze & Wexler (1996) proposed that the basic cause of “root infinitives” involves two somewhat independent possibilities in child syntax: the ability to omit tense features, and the ability to omit agreement features.

Coupled with an understanding of how the features of a verb correspond to the morphological form it takes on (in English, in particular, the 3sg present morphology requiring both types of features), Schütze & Wexler (1996) showed that the patterns we see can be predicted pretty accurately. Legendre et al. (2002) further showed an independence between the two types of features (and apparent competition).

Object effects? Verbal morphology? Verb raising?

At around the same age, kids acquiring Korean misplace negation, perhaps due to something like the same cause (object movement interacting with UCC>). In Swahili, verbal morphology seems to explicitly show the options predicted by ATOM (and related approaches). In Korean, we saw possible evidence that the

verb raising parameter gets set essentially by chance, in the absence of evidence.

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2.3 Subjects and movement

Passives

Another place where children's grammar seems to be non-adult-like is in constructions like passives, unaccusatives, and "raising" ("seems"-type) constructions, where the verb does not have an "external argument" (usually agent) in the syntactic structure.

- (8) [The sandwich] was eaten _ .
- (9) [The rock] fell _ .
- (10) [John] seems [_ to like cheese] .

Maturation with passives

The ability to produce and comprehend passives seems to develop at a later point than the restriction to using finite verbs in main clauses. Children are still having "trouble" with passives even around age 5. There is some debate in the field as to whether this is really maturational (if it is, it should not matter what language is being acquired whether passives are possible before age 5), and about what the right characterization of the syntactic issue is ("A-chains" or lacking an external argument)—there is still work to be done.

2.4 Learning pragmatics

Pragmatics

There are also some non-adult-like phenomena in child language that have been attributed not to a child's lack of syntactic knowledge (or that some structure has not "matured"), but rather to the child's understanding of how one interacts with the world. The idea is that, to the extent that some grammatical constructions rely on information about pragmatics, children might produce non-adult utterances not because the syntax is incomplete but because the triggering information from pragmatic sources is non-adult-like.

Other minds, egocentricity

One type of explanation along these lines might have a kind of maturational basis, although it has to do with maturation of a cognitive concept, rather than of something grammatical. (Or, perhaps, it isn't maturational but derived from the environment, but it is still relatively consistent across children.)

One proposal in this vein is that children don't appreciate (or can't really conceive) the difference between what's in their mind and what's in other people's minds (or, indeed, that other people might have different minds). As a consequence of this, children can be seen as much more willing to consider some referent or bit of information as "old news," and then treat it as such syntactically.

Finite null subjects

This was the basis of one of the explanations for missing subjects early on. Some are missing because the verb is non-finite, but some are missing because children consider the referent to be (super-)old news (a "very strong topic"), coupled with a hypothesis that even adults can leave such topics out. But for adults, it is highly constrained, whereas for children, very strong topics are common.

Overuse of definite determiner, topic clitics

This can also be seen as a way to understand why children seem to overuse definite noun phrases early on, in places where an adult would have used an indefinite noun phrase. Definite noun phrases mark old information, and more things are old to a child.

We also looked at clitics in Albanian, which appear with old information of this sort, and which seem to be overused by children early on as well (Kapia 2010).

Dissociation in SLI

Comparing children with SLI and typically developing children on the use of null subjects and case errors (Schaeffer et al. 2002), the properties associated with the root infinitive stage seem to persist for SLI children, but properties associated with pragmatics seem to be matched.

Binding theory

We also looked at development of binding theory, particularly “Principle B” (which for adults prevents *John saw him* from meaning ‘John saw himself’), and saw that early on, children would allow what appear at least to be Principle B violations. This is particularly problematic because it is not clear that Principle B is learnable from positive evidence. However, Chien & Wexler (1990) showed that when pragmatics can be excluded, children invariably obey Principle B, and suggest that the apparent violations of Principle B are actually not, but rather violations of a pragmatic principle requiring two noun phrases that share a referent to share an abstract index.

2.5 Learning semantics

Quantifier interactions

Our theories of the adult semantic competence includes how it interacts with syntax. Quantifier ambiguities like in *two horses jumped over every fence* are understood to arise from the operation of Quantifier Raising, a (hidden) syntactic movement akin to (silent) *wh*-movement.

Investigations into whether children (4) can do QR oscillated in their results. (No, there’s an Isomorphism effect; except, yes, pragmatics can help overcome this.) Kids seem to be able to handle ACD.

3 Second language acquisition

Source and type of language knowledge

The acquisition of a second language can also be studied with the tools from theoretical linguistics, to try to learn what we can about the characteristics of second language acquisition and knowledge itself, and also to compare it to first language acquisition.

One major difference between first and second language acquisition is that in second language acquisition, there was a prior language (or, for native bilinguals, perhaps a concurrently developing language). So much attention has been paid to the question of what “transfers.” And in comparison to first language acquisition, from this formal linguistics perspective, how much is attributable to characteristics of UG?

Universal properties

Kanno (2002) found that L1 English L2 Japanese subjects mostly follow the native Japanese pattern for where case markers can be dropped, something that was not taught in class and was even misleadingly characterized in their textbook. However, the distribution of case markers in native Japanese is hypothesized to be governed by a universal principle of language (the Empty Category Principle). According to this proposal, the ECP exists in all languages but explains rather different-looking things (case marker drop in Japanese, *that*-trace effects in English).

Universal properties

Kanno’s (2002) findings do *not* really tell us to what extent the process of acquisition in second language draws on UG (as it does in first language acquisition), but it *does* strongly suggest that the knowledge of an L2 has the “same shape” as a native language within the mind.

Parameters

Conceptually, the question of the extent to which L2A (“SLA”) is constrained by (and perhaps driven by) UG in the same way child acquisition is would seem to be potentially explorable by looking at parameter settings that differ from the L1. In the L1, one parameter value is chosen. If a L2’er can acquire a different setting (which has to mean that all expected consequences follow), we have evidence mainly that people can learn things (if consequences lacking) or that people

can come to know a language with different parameter settings (if consequences present).

Verb raising in French and English and child L2

White (1991) and Trahey (1996) reported on French speaking students immersed in an intensive English program, partly comparing instruction methods on the verb movement parameter (order of verb and adverb/negation). But the main findings was: children do seem to be relatively adept at picking up where the adverb goes with respect to the verb, except that it seemed that acceptance of pre-verbal adverbs and rejection of postverbal adverbs were independent. And testing the students a year later found them to be not different from uninstructed students.

So either setting parameters is hard or it's not possible (or this wasn't the method, or something).

Reflexives and V2

We did see a couple of results, however, that at least conceptually provide better evidence for UG involvement: these are cases where a L2'er winds up with a system that represents a possible parameter setting, but is shared neither by the L1 nor the L2.

MacLaughlin (1998) showed that in terms of binding properties of anaphors, Japanese L1 English L2'ers stopped off in a Russian-like system before reaching an English-like system. Hulk (1991) showed that Dutch L1 French L2'ers seemed to stop off in an SVO V2 language before getting to SVO non-V2 from SOV V2.

Definiteness effect

White et al. (2009) looked at L2'ers ability to acquire constraints against English definite/strong NPs in *there is...* constructions, where languages differ in terms of whether these are available in negative sentences. Untaught, the subjects still pretty much got the English system, without any evidence of transfer at least by the "intermediate" stage.

Ultimate attainment, critical periods

Johnson & Newport (1991) showed that late-learners seemed to overaccept Subjacency violations, and there was kind of a qualitative shift between the success of L2'ers who started learning the L2 pre-15 and post-15. Though there are questions.

4 And...

Tick tock

And here is where I ran out of time if I'm going to print this handout before class. Other thoughts?

Ohter topics: Code switching, learnability, disjunction scope, argument structure tranfer.

References

- Chien, Yu-Chin & Kenneth Wexler. 1990. Children's knowledge of locality conditions in binding as evidence for the modularity of syntax and pragmatics. *Language Acquisition* 1: 225–295.
- Hulk, Aafke. 1991. Parameter setting and the acquisition of word order in L2 French. *Second Language Research* 7: 1–34.
- Johnson, Jacqueline & Elissa Newport. 1991. Critical period effects on universal properties of language: The status of subjacency in the acquisition of a second language. *Cognition* (39): 215–258.
- Kanno, Kazue. 2002. The status of a nonparametrized principle in the L2 initial state. *Language Acquisition* 5: 317–332.
- Kapia, Enkeleida. 2010. *The role of syntax and pragmatics in the structure and acquisition of clitic doubling in Albanian*. Ph.D. thesis, Boston University.
- Legendre, Géraldine, Paul Hagstrom, Anne Vainikka & Marina Todorova. 2002. Partial constraint ordering in Child French syntax. *Language Acquisition* 10(3): 189–227.
- MacLaughlin, Dawn. 1998. The acquisition of the morphosyntax of English reflexives by non-native speakers. In M.-L. Beck (ed.) *Morphology and its interfaces in second language knowledge*, 195–226. Amsterdam: John Benjamins.
- Poeppel, David & Kenneth Wexler. 1993. The full competence hypothesis of clause structure in early German. *Language* 69: 365–424.

- Schaeffer, Jeannette, Galina Gordishevsky, Galit Hadar & Aviya Hachohen. 2002. The dissociation between syntax and pragmatics: Evidence from English SLI. In Joao Costa & M.J. Freitas (eds.) *Proceedings of GALA 2001*, 223–230. Lisbon: Associacao Portuguesa de Linguistica.
- Schütze, Carson & Kenneth Wexler. 1996. Subject case licensing and English root infinitives. In Andy Stringfellow, Dalia Cahana-Amitay, Elizabeth Hughes & Andrea Zukowski (eds.) *BUCLD 20: Proceedings of the 20th Annual Boston University Conference on Language Development*, vol. 2, 670–681. Somerville, MA: Cascadilla Press.
- Trahey, Martha. 1996. Positive evidence in second language acquisition: some long-term effects. *Second Language Research* 12(2): 111–139.
- White, Lydia. 1991. Adverb placement in second language acquisition: some effects of positive and negative evidence in the classroom. *Second Language Research* 7: 133–61.
- White, Lydia, Alyona Belikova, Paul Hagstrom, Tanja Kupisch & Öner Özçelik. 2009. Restrictions on definiteness in L2 English. In Jane Chandlee, Michelle Franchini, Sandy Lord & Gudron-Marion Reiner (eds.) *BUCLD 33: Proceedings of the 33rd annual Boston University Conference on Language Development*. Somerville, MA: Cascadilla Press.