Wh-movement, CPH (L2A)

LX 454/754 Acquisition of Syntax

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L1 vs. L2 outcomes

It is kind of a given that in L1A, all acquirers achieve essentially the same steady state grammar.

For L2A, it's not as clear. L2 speakers seem to differ one from another in their ultimate attainment, even where they started from the same L1—and those endstates differ from what a native speaker of the language has.

There is a sensitive/critical period early in life where one absorbs languages. And it ends. There seems to be a big advantage to L1A within the critical period—perhaps absolute. And there seems to be *some* kind of advantage to L2A within the critical period.

Native-like vs. UG constrained

There are three possible outcomes of L2A, two of which could tell us that L2A is UG-constrained:

Convergence. They wind up with the same basic grammatical system as a native speaker of the L2 has. **UG-constrained divergence.** They wind up with something different, but still with properties that class it as a natural language.

Unconstrained divergence. They wind up with something that is not UG-constrained at all (as we might expect would happen if we were just talking about explicit learning and habit formation).

Subjacency constraints on question formation

When forming a *wh*-question, we saw last time that there are some reasons to believe that when the *wh*-word winds up far from its presumed starting point, it moves up through embedded clauses in small steps.

(1) What did John say [[exactly __] that Mary stole __]?

Part of our understanding of this effect is that ***wh*-movement cannot take a *wh*-phrase too far**. There is a limit ("locality") on the distance over which you can move a *wh*-phrase. This limiting factor is often referred to as "Subjacency."

Islands

Certain configurations can wind up "trapping" a *wh*-phrase—making the distance it would need to travel to escape too far. These are generally referred to as "islands."

The standard islands we come across are (a) relative clauses ("complex NP islands") like (2) and (b) adverbial modifiers ("adjunct islands") like (3).

(2) a. Mary met [the man who saw XXXX].
b. * Who did Mary meet [the man who saw __]?

(3) a. John coughed [until Mary gave XXXX to him].
b. * What did John cough [until Mary gave __ to him]?

Islands vs. UG

This "locality" property of movement has been taken to be something that follows from properties of UG. Currently, people mostly take Subjacency to be a universal principle. However, there are languages where the effects of islands are much harder to detect.

In general, languages in which *wh*-phrases don't need to move on the surface (Chinese, Korean, Japanese, . . .) have no problem having a *wh*-phrase inside what would be an island. Why?

- Islands constrain movement, and there's no movement.
- There is *always* movement (sometimes invisible), but *invisible* movements are exempt from Subjacency constraints.

Wh-in-situ and island insensitivity

(4) Mary-wa [John-ni nani-o ageta hito-ni] atta no?
Mary-TOP John-DAT what-ACC gave man-DAT met Q
'Mary met the man who gave what to John?'

(5) Mary-wa [John-ga nani-o yomu mae-ni] dekaketa no?
Mary-TOP John-NOM what-ACC read before left Q
'Mary left before John read what?'

(6) ni xihuan [shei xie de shu]?
you like who write DE book
'Who do you like the book that *t* wrote?'

(7) ta [yinwei ni shuo shenme hua] hen shengqi?
you because you say what word very angry
'What was he angry because you said *t*?'

Options taken, options not taken

If UG is viewed as primarily a template for the *acquisition* of language knowledge (not as part of the system itself), then we might view the acquisition of, say, Chinese, as involving taking the option *not* to incorporate Subjacency (on the grounds that it is irrelevant, since there is no movement) into the grammar.

This is something like what we might suppose for phonemic discrimination—infants can generally distinguish between members of a wider phonological inventory than they wind up able to separate. English has no phonemic retroflex /r/, so native speakers wind up losing the ability to make the distinction.

Are discarded options gone?

Under this kind of view, it becomes interesting to ask: Will native speakers of Chinese be able to distinguish between island-violating movement and island-compliant movement in L2 English? If the option of Subjacency has been discarded, and if UG itself is not involved in the acquisition of the L2 grammar, then it should be impossible for the L2 grammar to include Subjacency constraints unless they arise from some kind of contact with UG.

SAI as an English-particular rule

Just as Subjacency is seen as something made available in one's language toolkit to put in one's native language grammar if necessary, the rule of Subject-Auxiliary Inversion is seen to be an "English-specific" rule, not something provided by UG, but a kind of historical holdover.

So, in summary: Subjacency is taken to come more directly from UG, SAI from whatever source language-particular rules come from.

Age of arrival

Johnson & Newport (1991) studied native speakers of Chinese (adults) whose first exposure to the L2 ("age of arrival") was at different ages. Including those who arrived as adults, but have been in an English-speaking context for at least 5 years.

J&N 1991 goals

Johnson & Newport wanted to compare the ability of native speakers of Chinese (a *wh*-in-situ language) to learn/use Subjacency (a universal principle, provided by UG) and SAI (an English-specific rule, supposed to be part of English over and above UG).

The idea is that if universal principles are provided by UG and there is a "critical period," young learners (within the critical period) might have "access" to it, whereas older learners might not (given that the L1 did not make use of Subjacency).

J & N 1991: Study 1

- declarative controls
- Subjacency violations
- *wh*-questions satisfying Subjacency
- SAI error ("English-specific")
- simple *wh*-question controls (filler)

Subjacency violations covered a number of possible settings for "bounding nodes." (This is a dimension along which even languages that show overt evidence for Subjacency can differ along. It has to do with where the "escape hatches" are).

Study 1 results

Adult learners (Chinese → English) did much worse (accepted ungrammatical sentences) than native speakers.

L2er's did better on SAI than on Subjacency; Subjacency doesn't seem "privileged."

Response bias was ruled out; there is a slightly better than chance influence of Subjacency in L2'ers.

L2'ers seem to accept sentences that exemplify violations of Subjacency with bounding nodes that hold in all languages.

They verified that Subjacency violations *were* by asking for answers—so we could tell where *wh*-words moved from.

Study 1 commentary

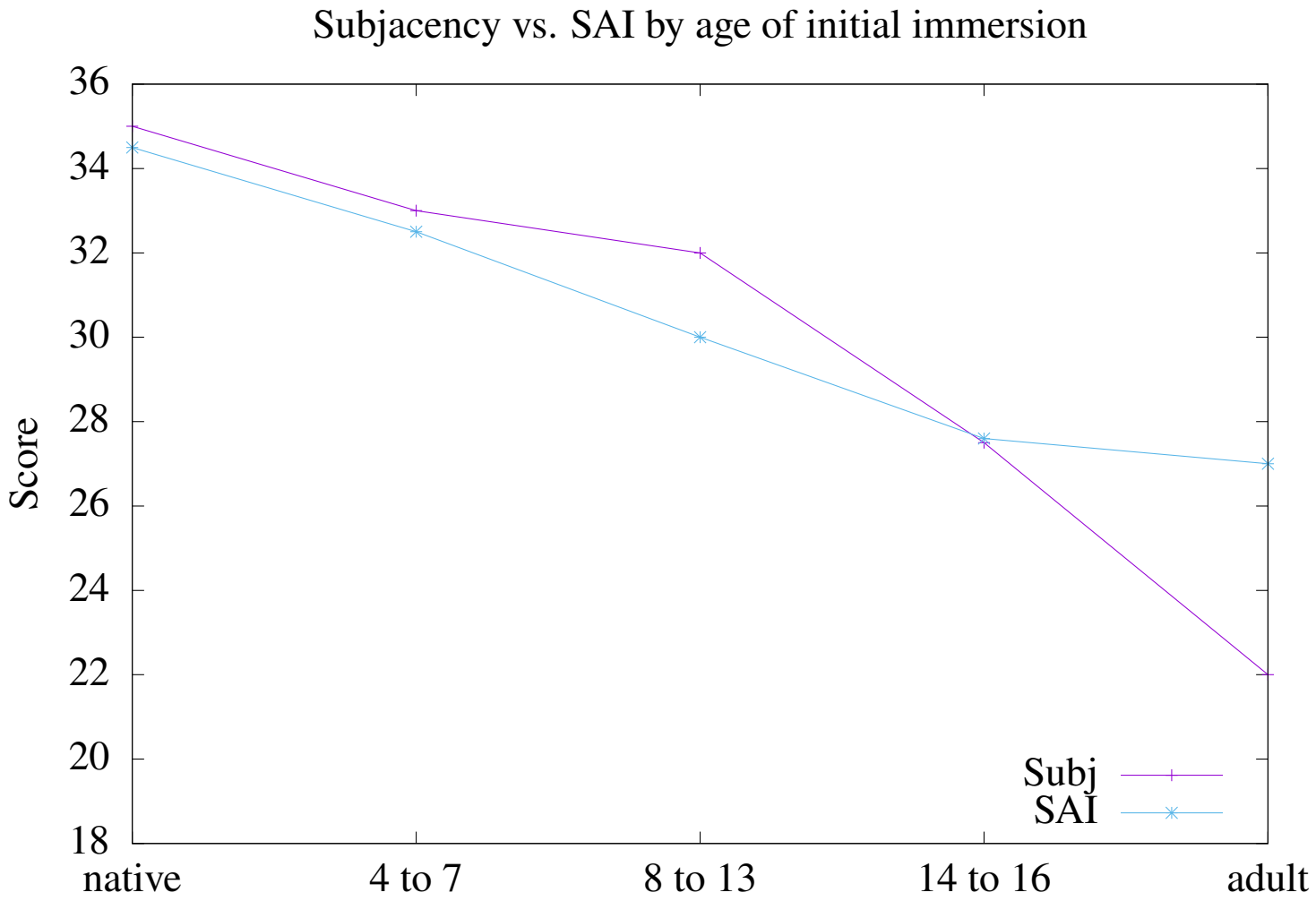
So, the adult learners didn't do well at all on Subjacency tests—and not even better on Subjacency than SAI. And the actual responses didn't seem to follow from a mis-setting of the bounding node parameters either.

Study 2

Johnson & Newport then looked at how second language learners fared with respect to Subjacency ("UG") and Subject-Aux Inversion ("English-specific") and what effect "initial age of immersion" had. They were looking for evidence of a critical period for language learning (in the form of "learning" the syntactic principle of Subjacency).

- What's the effect of initial age of immersion?
- 21 speakers Chinese → English with initial ages between 4–16.
- 21 more with initial ages between 17–25.

Study 2 results



Study 2 commentary

They conclude: Their results are incompatible with the view that nothing's different between late and early L2 acquisition.

There seems to be a more rapid drop-off of ability to use that putative universally available principle of Subjacency in one's L2 if initial immersion is after 14 years old.

But what question are we answering?

White (2003, ch. 8) points out that J&N91 are really asking a different question:

Does age-of-exposure/immersion affect a L2'ers achievement of the *grammar of L2 that a native speaker would have*?

Answer seems to be yes. But does that mean the ultimate grammar (for late learners) is UG-unconstrained?

Of course not, at least to the extent that there are languages for which native speakers could behave like J&N's L2'ers.

A possible interpretation

Chinese allows topicalization, not derived by movement.

(8) zheben shu [[du guo *pro* de] ren] bu duo.
this book read ASP *pro* C man not many
'This book, the people who read (it) aren't many.'

If a fronted *wh*-phrase is reanalyzed a a kind of topic with a null resumptive pronoun, a language that looks like English without Subjacency would be the result. And it would still be UG-compliant (Hawkins & Chan 1997).

Disagreement

Despite all of this, there are still those who maintain that there *isn't* a critical period.

The primary evidence broth in favor of this is that we can *find* isolated, rare instances of people who have learned a second language in their adult years (after a critical period should be over) who pass for native speakers on various kinds of tests.

(What are we to make of this kind of evidence?)

White & Genessee (1996)

W&G suggest that the results of previous studies are not really *representative of what level of competence is achievable*.

Instead, let's find people who are likely candidates (near-natives) and test them (and compare their initial ages of immersion).

Their tests were grammaticality judgments and question formation tasks testing Subjacency and also measuring reaction time.

Results

Group	Age groups				
	0–7	8–11	12–15	16+	Totals
Near-native	22	7	7	9	45
Non-native	6	5	11	22	44

Discussion

Their subjects seem to distribute as you'd expect, though, in the results—the young learners are the near-natives, the old learners are the non-natives.

Their results from the GJ task showed that their categorizations of the subjects were right—the near-natives performed like native speaker controls, and often significantly different from the non-native speakers. The QF task showed the same thing.

Discussion (cont'd)

W&G's conclusion: It is possible for ultimate attainment to be native-liek (to the point where you can't experimentally tell a near-native from a native speaker). And there seems to be no particular effect among the near-natives of initial age of immersion.

The age effect must be due to something else other than a "loss of UG."

(Of course, English and French are a lot alike—is this an artifact of that? Did these L2'ers do so well because they could carry their parameter set over from French almost wholesale?)

So, where are we?

There is lots of evidence from neuroscience that some aspects of brain development *ear* subject to critical periods.

The evidence may not quite manage to show that late learners *cannot* reach near-native levels.

So is this inconsistent with a biological explanation?

Or, is it simply that the near-natives had to make use of something other than a (full-strength) LAD to get there?

DeKeyser (2000)

Adopts the familiar hypothesis that early language learning is due to unconscious, automatic, "implicit" acquisition and late learning relies on more conscious "explicit" learning.

Note: there is a similar distinction one can make between explicit and implicit knowledge (automatization, cf. driving a standard transmission car). These are two different things. One could imagine explicit learning procedures might still lead to implicit knowledge (cf. driving a standard transmission car).

Predictions

Basic prediction of the CPH: Late learners no longer have the implicit learning mechanism that early learners had. They must rely on analytic explicit learning procedures to start language.

There are individual differences between people in their analytic and verbal abilities.

Therefore:

- All late-learning achievers of near-native status must have high verbal ability.
- Early-learning achievers of (near-)native status will not show any effect of verbal ability.

The study

DeKeyser ran a Johnson & Newport-like study to see if these correlations hold.

Tested 57 native speakers of Hungarian, all in the US for at least 10 years. (Hungarian: non Indo-European, quite different from English in many respects. Almost no exposure to English prior to moving to an English-speaking country.

Used modified version of Johnson & Newport's grammaticality judgment task, then tested on a Hungarian verbal aptitude test.

Results

Aptitude test

- Average 4.7 and st. dev 2/79.
- 6 or above (+.46) was considered "high aptitude."
- Resulted in 15 indivuduals.

Aptitude scores did not correlate with

- Age of arrival
- GJ test score (whole group)
- GJ test score (early learners only < 16)

Did correlate significantly with GJ test score (late learners only $\geq$ 16)

Test items: high correlation

(9)
a. Tom working in his office right now.
b. Tom is reading book in the bathtub.
c. The beauty is something that lasts forever.
d. I need to get some informations about the train schedule.
e. What Martha is bringing to the party?
f. Who you meet at the park every day?
g. I want you will go to the store now.
h. The student eats quickly his meals.

Test items: low correlation

(10)
a. The dinner the man burned.
b. The woman the policeman asked a question.
c. The students to the movies went.
d. Bites the dog.
e. Knows John the answer to that question?
f. The girl cut himself on a piece of glass.

Discussion

So, different things seem to be differently affected, but there *are* significant age-of-arrival effects on many of the items.

Looking now at the few late learners who did achieve a high test score, we find that the all (but one) had high verbal aptitude test scores too.

Discussion (cont'd)

Early learners got high test scores regardless of their aptitude scores; the only late learners to get high test scores had high aptitude scores.

Years of schooling did not correlate with GJ scores.

Exactly as predicted if post-CPH learners have to rely on more explicit learning mechanisms to learn a second language.

But *note!* that this doesn't mean that there isn't some kind of implicit learning happening—only that it seems to be facilitated by explicit learning.

DeKeyser's conclusions

Some structures, still, showed no correlation with aptitude—everybody got them, regardless of age-of-arrival, regardless of aptitude.

Why? DeKeyser suggests it is a function of *salience*. SAI and *do*-support in yes-no questions (initial), pronoun gender (corrected), basic word order (initial, final). Maybe.

Conclusion: A critical period exists and constrains *implicit* learning mechanisms.