

TRANSITION IN LANGUAGE ACQUISITION

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1 Introduction

Within the minimalist framework, optionality is predicted not to occur "The basic economy-of-derivation assumption is that operations are driven by necessity they are 'last-resort,' applied if they must be, not otherwise " (Chomsky 1992:45) This is because principles such as Procrastinate, which requires delaying operations until LF if possible since this is less costly computationally, and Greed, which dictates that constituents should only undergo operations if these are in their own self-interest, run counter to such a notion. While dispensing with optional operations may be fine from a theoretical perspective, the practical problem this poses is that optional operations abound in L1 acquisition, L2 acquisition, and historical change. This paper offers an explanation for the prevalence of optionality by suggesting that it is the catalyst for allowing transition from one steady-state grammar to another, and is a fundamental property of interim grammars. Section 2 presents examples from acquisition and historical change in which optionality occurs, and Section 3 spells out the proposed solution.

2. The data

2.1 L1 acquisition

Children acquiring their first language have been found to exhibit optionality during the transition to an adultlike grammar. For instance, a German-speaking child at 23 months sometimes used structures with preverbal negation, as in (1a), in which the verb has not moved, and other times ones with postverbal negation, as in (1b) in which the verb has moved in front of the negative marker (Déprez & Pierce 1991:49). Thus, while verb movement is obligatory in the adult grammar, for the child it is optional at this stage.

- (1) a Neich putt mache
not broken make
b Macht nicht aua
make not hurt

Similarly, a German child aged 27 months alternated between *wh*-questions that were verb-final and involved no verb movement and ones that had the verb in second position and thus exhibited verb movement (Tracy 1994:10). Of the 22

recorded wh-questions at this age, 6 were verb-final, as in (2a) and 16 employed verb-second, as in (2b). Clearly, verb movement is optional for the child at this stage.

- (2) a was der gerne will
 what he gladly wants
 "What would he enjoy doing?"
 b. was will der denn
 what wants that-one then
 "What would he enjoy doing?"

2.2 L2 acquisition

Optionality also has been found to occur in second language acquisition. For instance, French learners of English who were given a grammaticality judgment task on adverb placement accepted adverbs both in preverbal position, consistent with the English [-verb movement] setting, as well as in postverbal position, in keeping with their French [+verb movement] setting (White 1991). Of those tested, 31.65% accepted both patterns (3a) and (3b) below, even though only the former is acceptable under a no-movement setting.

- (3) a Linda always takes the metro.
 b *Linda takes always the metro

Similar results have been found with Dutch speakers learning French word order (Hulk 1991). The numbers alongside examples (4) and (5) give the percentage of learners who accepted each sentence pattern. As can be seen, the 9th and 10th graders (first- and second-year learners, respectively) accepted both (4a) and (5a), which are grammatical under French's [-head-final] and [-verb-second] settings, as well as (4b) and (5b), which are ungrammatical in French, but acceptable under Dutch's [+head-final] and [+verb-second] settings.

| | 9th | 10th | 11th college | |
|--------------------------------------|-----|------|--------------|-----|
| (4) a. Jean a mangé les fraises | 42 | 86 | 100 | 100 |
| b *Jean a les fraises mangé | 73 | 40 | 2 | 0 |
| (5) a Hier Jean mangeait les fraises | 38 | 80 | 100 | 100 |
| b *Hier mangeait Jean les fraises | 92 | 50 | 32 | 10 |

The same kind of optionality has also been observed for Arabic speakers acquiring English relative clause structure (Bolotin 1995). While 93% of the children and 88% of the adults tested accepted sentences of pattern (6a), which are

correct under English's [+movement] setting for relative clauses, 64% of the children and 81% of the adults also accepted the structure in (6b), which is allowed under the [-movement] setting of their native Arabic

- (6) a. This is the man that holds the ladder that the woman climbs
 b *This is the man that holds the ladder that the woman climbs it

The existence of two competing options has also been observed in phonology. For instance, a study of the English pronunciation of Japanese children who had lived in the US between five months and two years found that both the English and Japanese pronunciations were used during this period (Sekiya 1991). Table 7 gives the mean rates observed for the pronunciation of initial high r (Sekiya 1991:75-77). As can be seen, instances of both pronunciations occurred at each stage

| (7) initial high r (e.g., ruler) | beg | low int | high int. | adv |
|----------------------------------|-----|---------|-----------|-----|
| correct pronunciation | 1 | 30 | 54 | 90 |
| L1 transfer of Japanese r | 89 | 49 | 20 | 4 |

2.3 Historical change

Languages in transition also exhibit optionality during the interim stages. For instance, Modern Mandarin allows prepositional phrases both to precede the verb as in (8a), as well as to follow it, as in (8b) (Travis 1984:46). Travis suggests that this mixed headedness is the result of a shift from Archaic Chinese's SVO order to Modern Mandarin's SOV order, a process that is nearing completion.

- (8) a ta gei wo mai le chezi le
 he for me sell ASP car ASP
 "He sold a car for me"
 b ta mai gei wo chezi le
 he sell to me car ASP
 "He sold a car to me"

Another example of optionality is found in the transition from Old to Middle French. Old French was a verb-second language, and thus all sentence-initial adverbs triggered subject-verb inversion, as the example in (9a) shows, in Middle French, in contrast, some adverbs did not trigger subject-verb inversion, as (9b) illustrates (Roberts 1992:146-47). Roberts suggests that this is because verb-second was becoming optional during this stage of the language. If movement occurred,

the clauses were CPs, if not, they were AGRPs

- (9) a Lors la royne fist Santré appeller
 then the queen made Saintré to-call
 "Then the queen had Saintré called"
 b Lor oirent ils venir un escroiz de tonnoire
 then heard they come a clap of thunder
 "Then they heard a clap of thunder come"

Modern English wh-questions are also in transition (Bolotin 1995:8). Thus, alongside the traditional embedded clause that contains a complementizer in [Spec, CP] and hence has no inversion, as shown in (10a), one also hears speakers using the pattern shown in (10b) in which subject-auxiliary inversion has occurred in the embedded clause

- (10) a I wondered [_C if] he could do it.
 b I wondered [_C could] he do it (cf [_C Could] he do it?)

3 The solution

The data presented above suggest that transition in language acquisition/change is a gradual, two-step process, as diagrammed in (11), rather than an instantaneous event. Going from the initial state A to the terminal state B is done by means of an interim state that combines aspects of both A and B. Such a process involves two parts: the learning a new property, which one then adds to the original property, and then the subsequent unlearning of the original property.

- (11) state A $\xrightarrow{\text{learning}}$ state A + B $\xrightarrow{\text{unlearning}}$ state B

Such a model of the acquisition/change process is theory-independent. Thus, under a minimalist account, transition consists of adding and subtracting parameter settings, as schematized in (12). L1 learners start with the default setting, L2 learners with their L1 setting, and languages undergoing change begin with the current setting in the language. The process, however, is identical for all three: first the parameter is reset by adding on the new setting, and then it is unset by eliminating the original setting. For instance, a child acquiring a language that is [+verb-second] will add this setting to his initial default setting of [-verb-second], thereby allowing optional verb-second during the transitional phase, and will subsequently unset the parameter by eliminating the [-verb-second] setting.

| | | | | |
|-------------------|-----------------|------------------|----------------------|-------------------|
| (12) | | <i>resetting</i> | | <i>unsettling</i> |
| L1 acquisition | default setting | --> | default + L1 setting | --> L1 setting |
| L2 acquisition | L1 setting | --> | L1 + L2 setting | --> L2 setting |
| historical change | old setting | --> | old + new setting | --> new setting |

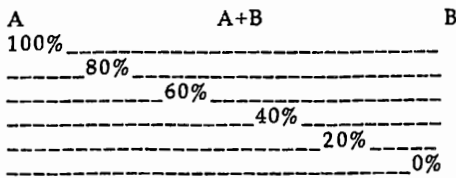
Under an optimality account, transition consists of adding and subtracting rankings of constraints, as shown in (13). In this case, L1 learners begin with the default ranking, L2 learners with their L1 ranking, and languages undergoing change start with the current ranking of the constraints. Again, the process is the same across all three: first the constraints are reranked by combining the old and new rankings, and then they are unranked by eliminating the initial ranking. For instance, if Constraint Y is ranked higher than Constraint Z in Grammar A, but vice versa in Grammar B, then reranking will entail assigning the constraints equal rankings, and unranking will involve making Constraint Z ranked higher than Constraint Y.

| | | | | |
|-------------------|-----------------|------------------|----------------------|------------------|
| (13) | | <i>reranking</i> | | <i>unranking</i> |
| L1 acquisition | default ranking | --> | default + L1 ranking | --> L1 ranking |
| L2 acquisition | L1 ranking | --> | L1 + L2 ranking | --> L2 ranking |
| historical change | old ranking | --> | old + new ranking | --> new ranking |

Speakers fluctuate back and forth between the two options, more so in the early stages, less so towards the end. Thus, the intermediate stage indicated by the label A + B actually represents a continuum of transitional grammars. The grammars at the early stages of the acquisition/change process will employ the state A option predominantly, while those in the later stages will use mostly the B option. This is schematized in (14) below.¹ The data from on Dutch learners of French (Hulk 1991) and Japanese children learning English (Sekiya 1991) given in the previous section are consistent with this idea since the beginners in both studies used almost exclusively the L1 setting, the intermediate groups used a mixture of both, and the advanced learners used the L2 setting in nearly even instances.

¹This suggests a method for determining how far along speaker or language is in the process. One can collect a corpus of data that exhibits both settings of a parameter and then compute the ratio of occurrences of the L1 setting to total occurrences. The higher the percentage of L1 occurrences, the earlier along the speaker/language is in the transition.

(14)



Optionality serves as the catalyst for this process, enabling a speaker/language to move from one stage to another. The reason for having this optional stage is that it allows the transition from one grammar to another to be more gradual. Learners can thus acquire new properties while still continuing to use old ones. If instead transition in acquisition/change were instantaneous, languages would change radically overnight, and learners would have a much more difficult task facing them.

If optionality characterizes the interim grammar, what might cause learners to eventually abandon such? From a theoretical standpoint, optional grammars offer several disadvantages. First, such grammars are less stable since speakers must fluctuate back and forth between two settings. Second, they are more complex since two rules are required for the same process when one would suffice (Keyser & O'Neil 1985). Third, optional grammars are uneconomical since they involve unnecessary operations (Chomsky 1992). And, from a practical standpoint, the fact that learners are exposed to data favoring the new option also guides them in shifting over to it.

While L1 acquisition, L2 acquisition, and language change are similar in using optionality to drive transition, L1 acquisition and language change share an important property that L2 acquisition does not, namely, that there is no compelling reason to hold onto the initial setting. In the case of L1 acquisition, children abandon the default option once they are exposed to L1 data supporting a different choice. In the case of language change, the older option is eventually eliminated since at a certain point there will be no speakers left who use it. With L2 acquisition, in contrast, L2 learners may continue using their L1 alongside of the L2. To the extent that they do, this may prevent them from completing abandoning a grammar with optionality since the influence of the L1 setting on the L2 may still be present.

4. Conclusion

Optionality is the linguistic catalyst that enables transition in language acquisition to occur. Through this process, learners and languages are able to progress from one steady-state grammar to another. Thus, while optionality might not be desirable in a stable grammar, it is a *sine qua non* of an interim grammar.

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