

THE ROLE OF EXTRINSIC FEEDBACK
IN INTERLANGUAGE FOSSILIZATION
A DISCUSSION OF "RULE FOSSILIZATION: A TENTATIVE MODEL

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This paper, a discussion of the model presented in Vigil and Oller (1976), relates to one parameter of "fossilization" in interlanguage (IL) learning: the role of "extrinsic feedback." The notion of "extrinsic factors" in second language acquisition is defined, and permanent *fossilization* is carefully distinguished from temporary *stabilization* of IL forms and systems. Six tentative conclusions about the role of extrinsic feedback in IL fossilization are presented and discussed in light of the hypotheses made by Vigil and Oller.

In an important paper presented in this journal, Vigil and Oller (1976) make the first explicit and testable theoretical claims regarding *fossilization*, a concept central to the "Interlanguage (IL) Hypothesis." The persistent failure of the vast majority of adult learners to achieve complete mastery of a second language is a phenomenon whose existence appears to be generally accepted by researchers in second-language acquisition, as well as by many second language teachers. If this is so, the detailed attempt of Vigil and Oller (1976) – henceforth "V & O" – to come to grips with a theoretical model of fossilization merits serious consideration. It is in this spirit that we present the following discussion.¹

In their paper, V & O have made explicit theoretical claims regarding the *source* of fossilization in second language learning. As discussed in Selinker and Lamendella (1978), this issue is only one of a number of important parameters of a comprehensive theoretical explanation of fossilization. In that paper, we also discuss in some detail the *nature, object, manner, and persistence* of fossilization, as well as the *point* at which fossilization begins

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¹ Much of our discussion here has been presented in interim form in Selinker and Lamendella (1978) within a much larger context. H. Douglas Brown commented extensively on an earlier version of this paper, and we wish to thank him for his insights and his kindness; we also thank Cecilie Hoffman for helpful comments on a final draft.

(cf. Selinker and Lamendella, in prep.). V & O place an emphasis on pragmatic interaction factors that serve to either "reinforce" or "destabilize" the current rule structures employed by the learner to exchange information (i.e., what they call the "cognitive" dimension) and to express a notion of self in relation to "valued" others (i.e., what they call the "affective" dimension):

"It is argued that expected negative feedback on the cognitive dimension of language usage is the principal de-stabilizing factor in the development of learner grammars. When the configuration of feedback to the learner becomes predominantly expected positive feedback on the cognitive dimension it is predicted that the learner's level of proficiency will tend to fossilize. Thus, the tendency toward fossilization of either correct or incorrect forms is governed by feedback principally on the cognitive dimension. However, if feedback on the affective dimension is not predominantly as expected, and predominantly positive, the feedback on the cognitive dimension will lose much of its force." (V & O, p.281)

The body of our paper presents six tentative conclusions that we have arrived at regarding the role that *extrinsic* feedback plays in the fossilization of a learner's IL system. In general, by "extrinsic" factors, we refer to those characteristics internal to the individual learner which are oriented toward the external environment, and which act as the interface between the learner and the environment in which IL learning takes place (see Scovel and Lamendella (1978) for development of this and related concepts). The basic theoretical approach underlying our discussion has been presented in Selinker and Lamendella (1978). After listing our six conclusions on the role of extrinsic feedback in IL fossilization, we present a brief discussion of each in relation to the model which V & O describe and end our paper with a general summary.

Six Conclusions on the Role of Extrinsic Feedback in Interlanguage Fossilization

- (1) *Internal factors* constitute the domain of control over the onset of fossilization.
- (2) The *interactive needs* of particular learners constitute the most direct source of fossilization and may be considered to provide the fundamental *lower bound* on fossilization.
- (3) *Selected portions of the learner's utterances* may be differentially reinforced via extrinsic feedback.

- (4) Fossilization in interlanguage learning *cannot* be accounted for solely (or even primarily) in terms of a need for particular sorts of feedback.
- (5) Reinforcement may take place separately for *communicative competence* versus *grammatical correctness*.
- (6) Extrinsic feedback per se plays a problematic role in primary language acquisition, and the term fossilization should *not* be applied to the *stabilized adult NL grammar*.

V & O present a model of fossilization which focuses on the interactive feedback conditions controlling which linguistic rules of the learner's IL are the potential objects of fossilization at any given time. They stress an important parameter of the information available to the learner when they describe the hypothetical interplay of varying proportions of "positive-negative-neutral" and "expected-unexpected-neutral" feedback. Such feedback is presented to the learner as the result of utterances he or she formulates in communicative interactions. Their "cybernetic" model incorporates testable hypotheses concerning the means by which a second language learner comes to discover which aspects of his or her IL are adequate and which are inadequate.

Regarding fossilization in particular, V & O base much of their model on the assumption that 'adequate' IL rules (those which underlie utterances eliciting positive and expected feedback) will tend to "stabilize" in their current form, while 'inadequate' rules will tend to "destabilize" and trigger an attempt to modify them. Basically, V & O claim that it is the point at which the learner begins to receive "predominantly" positive expected feedback in reaction to his or her attempts to exchange information which directly controls the point at which any given linguistic rule tends to stabilize (with positive feedback on the "affective" dimension seen to act as a kind of facilitating condition).

- (1) *Internal factors* constitute the domain of control over the onset of fossilization.

In attempting to understand the role of "feedback-loops" in IL learning, we believe that it is necessary to distinguish potentially available feedback versus corrective and noncorrective feedback that actually becomes part of the *intake* of a particular time. External conditions of any type can be relevant to language acquisition *only* as filtered through the current set of extrinsic and intrinsic learner characteristics. In any given interaction, the learner may or may not be operating with either conscious or unconscious "expectancies" about the "likely reaction" of the

“audience” to his or her linguistic productions, and, as often as not, may pay absolutely no attention to the corrective feedback potentially extractable from the reaction of TL speakers. According to the tentative model V & O present, it is feedback along the “cognitive” and “affective” dimensions, considered as internalized by the learner, which bears the principal responsibility for prompting the learner to either modify the current IL or not. While they would no doubt agree that intrinsic learner characteristics such as motivation, attitudes, acquisition and communication strategies play a role in fossilization, it is extrinsic feedback conditions to which they assign the controlling influence in this statement of their model.

We, on the other hand, believe that while feedback of various sorts is a necessary component of an adequate theoretical explanation of successful IL learning, it should not be considered apart from those ontological factors determining the specific role feedback can play. For example, V & O suggest that a given linguistic rule would tend to stabilize whenever a “predominance” of positive expected feedback on the cognitive dimension was received (subject to the sort of feedback received along the affective dimension). Assuming that the term “predominance” has its normal meaning of some statistical majority, it is necessary to wonder precisely which percentage of any type of feedback constitutes a “predominance” in the abstract: 51%? 58%? 63%? More than absolute percentages of different types of feedback, it seems reasonable to us to believe that the percentage of positive feedback which might actually be correlatable with rule stabilization can only be understood relative to a particular learner in particular circumstances. A learner who wants or needs very little from TL speakers might find his or her IL adequate at the point when only 20% of positive expected feedback on the “cognitive” dimension was received. Another learner, one with greater needs and/or aspirations, could conceivably be content only at the point when 80% of positive expected feedback is received. Even for the same learner, we see no reason why stability could not be reached at the phonological level of language structure before a “preponderance” was attained, while at another level stability could be reached long after a “predominance” of positive expected feedback.

- (2) The *interactive needs* of particular learners constitute the most direct source of fossilization and may be considered to provide the fundamental *lower bound* on fossilization.

The foundation upon which V & O's feedback model rests is the assumption that somehow receipt of a predominance of positive expected feedback on the cognitive dimension ipso facto prompts the stabilization of the rules in question. There is, however, no reason to accept this claim as stated and several reasons not to. No doubt, particular percentages of different types of feedback are relevant to the point of fossilization in some learners, but extrinsic feedback should not be viewed as providing a general handle on the point when fossilization is *first* likely to arise. In our opinion, linguistic rules in the IL will first tend to stabilize (but *not necessarily fossilize*²) at the point when the learner's *interactional needs* are being met. It is the learner's needs vis-a-vis TL speakers which pick out the proportions and percentages of different types of feedback that are acceptable. A given learner may continue to produce many developmental and transfer errors relative to the TL even though a predominance of negative feedback may still be being received. Nevertheless, when the learner is communicating adequately for his or her own real-world purposes, the "permeability"³ of the current IL could end, as marked by the concomitant cessation of further development in the learner's communicative competence in TL interactions. We believe, with V & O, that rule stabilization is tied most directly to the attainment of an IL which does lead to an adequate degree of interactive success, defined in relation to a given type of learner. It is the satisfaction of the interactive needs of the learner relative to TL speakers which could reasonably be considered to provide the lower bound on the first point when fossilization could (but would not necessarily) set in [cf. Lamendella (1977), p.189]. While this *interactive needs* hypothesis has not been empirically verified, in the interim it seems to us to constitute the most plausible working hypothesis.

- (3) *Selected portions of the learner's utterances* may be differentially reinforced via extrinsic feedback.

V & O state that those grammatical rules which are involved in an unsuccessful communicative attempt will tend to destabilize. They also claim that those rules involved in successful communication attempts would tend to stabilize, whether "correct" or not. While this seems plausible in general, there is a serious question about how the learner would come to discover what "successful" versus "unsuccessful" interactions are, and what it is about the

² See the SUMMARY for the distinction between "stabilization" and "fossilization."

³For a detailed discussion of the important notion of "permeability," see Adjemian (1976).

utterance he or she produces that results in an interactive failure. In particular, it must first be established by the learner that a breakdown in communication occurred (*not always obvious*), and that the breakdown occurred for linguistic reasons rather than for nonlinguistic reasons. If they react negatively at all, TL interlocutors may react negatively to the truth value of an utterance and *not* to its grammatical form. They may also react negatively to a violation of some cultural taboo, or to a non-standard way of looking at things, with the linguistic form of the learner's utterance being neither here nor there. How does the learner discover the object of negative feedback when it is received?

A conservative estimate suggests that a typical utterance might involve a minimum of 50 rules of linguistic structure at the *allophonic, phonemic, morphophonemic, lexical, syntactic, semantic* and *pragmatic* levels. Do all 50 rules and all levels of language structure become de-stabilized when there is a failure of communication involving some utterance? V & O seem to answer yes, but many of these same rules would likely have just been reinforced in preceding interactions, and will again be identified as adequate by the "success" of subsequent utterances. We must conclude that there is little value in considering utterances as linguistic monoliths which are accepted or rejected by TL speakers in toto.

We must also disagree with V & O when they claim that partial communicative success cannot be achieved by the learner's speech efforts. For example, a given utterance may have successfully conveyed the speaker's desire to buy some article of clothing without successfully conveying exactly which item was desired. Our guess is that it would take a great number of different communicative failures and successes for the learner to get a cross-fix on those particular linguistic features which are indeed inadequate. A learner would need to notice, process, and store the results of corrective feedback on that item a "sufficient" number of times in order to make it possible for learning to eventually take place in the manner V & O propose.

- (4) Fossilization in interlanguage learning *cannot* be accounted for solely (or even primarily) in terms of a need for particular sorts of feedback.

When one begins to calculate the number of face-to-face interactions which would seem to be necessary in order to provide sufficient feedback for each of the thousands of linguistic features which the learner must acquire, the number of interactions involved is astronomical and seems to be well beyond the actual

number possible for most real people. Even considering the possibility of implicational hierarchies such that a modification of some rule "x" entails a concomitant modification of some rule "y", theoretical perspectives focusing solely, or even primarily, on extrinsic conditions of learning must stand agape at the capacity of many learners to achieve successful IL learning in an amazingly short period of time on such a paucity of data. Particularly when it leaves a learner far from TL norms, fossilization in second language acquisition is of interest in large part because, for many learners who seemingly possess the ability and opportunity to learn, it represents a failure to accomplish an amazing feat we ordinarily take for granted.

Perhaps more amazing to any position relying heavily on extrinsic feedback factors is the number of people who learn impressive quantities of TL linguistic structure from books or classes without ever having face-to-face interactions with TL speakers. Granting that self-monitored feedback can play a role and that reading a book is interaction of a sort, pushing V & O's feedback model to its logical conclusion, one would have to believe that to the degree that positive feedback from native interlocutors contributes to successful second language learning, a learner who never spoke could learn very little. In fact, learning in a face-to-face interactional void can lead not only to passive comprehension skills, but also to (latent) production skills in the TL, as evidenced by the performance of some learners upon a first real-world exposure to TL communicative exchanges. As V & O note, an adequate feedback model of second language acquisition would necessarily take explicit account of how feedback on the learner's understanding of what TL speakers say contributes to second language acquisition. This issue involves the serious question of whether ILs really involve just a single grammar, or whether there are separate recognition grammars and separate production grammars that, while integrated for some purposes, operate autonomously to allow differential capabilities for producing and recognizing TL utterances.

- (5) Reinforcement may take place separately for *communicative competence* versus *grammatical correctness*.

Impressionistically, it seems that some learners can communicate a great deal of information after having acquired only a little TL knowledge, while there are others with a great deal of knowledge of TL rule structures who can communicate very little.

Pragmatic communicative competence involves strategies for getting across messages, the judicious use of nonverbal limbic gestural complexes, general knowledge of the world, knowledge of TL culture, etc. A comprehensive account of the role of feedback in second language learning would need to distinguish in a systematic way between feedback on communicative competence versus feedback on the nature of the linguistic features produced by the current IL. Certainly the two domains are interrelated, linguistic knowledge being part of what is accessed by communicative competence, but it is possible to incorporate new linguistic features into the IL without advancing in pragmatic communicative capabilities. Similarly, it seems one could advance in the skill of getting messages across without adopting any new linguistic features into the IL. An effective learner could well allot more attention to the factors involved in communicative competence than to the acquisition of grammatical rules per se. It is clear that the substantial failure of traditional methods of second language pedagogy has come about to some large degree because of an emphasis on grammatical correctness to the exclusion of a concern for communicative skills. For some purposes, feedback on the latter is likely to be more important than feedback on the former. We must therefore disagree with the conclusion of V & O that the recent de-emphasis of grammatical correctness in second language pedagogy is illfounded. Many linguistic features have no direct impact on the linguistic exchange of information beyond contributing to the redundancy which characterizes natural language. Granting that these features tend to be precisely those which many second language learners neglect, many learners do eventually acquire them. This leads us to conclude that interactive "cognitive" feedback on the capacity of the current linguistic rules to successfully communicate the information content of messages cannot in and of itself provide an explanatory context for cessation or continuation of progress in the acquisition of a natural language.

- (6) Extrinsic feedback per se plays a problematic role in primary language acquisition, and the term fossilization should *not* be applied to the *stabilized adult NL grammar*.

By V & O's definition, the use of the term fossilization would apply to child primary language acquisition as well as to child and adult nonprimary language acquisition:

"We will extend the notion of fossilization to any case where grammatical rules, construed in the broadest pragmatic sense,

become relatively permanently incorporated into a psychologically real grammar." (V & O, p.282).

Significantly, during primary language acquisition, children continue to progress in a series of idiosyncratic grammars [a type of "infrasytem" in the terms of Lamendella (1977)] toward the adult norm. Children in the process of primary language acquisition clearly adopt into their grammars new grammatical features which have no direct effect on their ability to convey conceptual messages. Also, parental feedback on the correctness of the grammar implicit in the child's utterances seems to be provided less often than feedback on the truth value of their utterances. To a significant degree, children continue the process of primary language acquisition independent of any direct influence of extrinsic feedback on grammatical correctness.

In our view, the probable reason for the average human infant's continued progress in primary language knowledge and overall communicative competence is likely to be an innate, genetically based imperative, actualized with the maturation of the appropriate level and type of neurolinguistic information processing system. In effect, the child appears to be genetically programmed to attempt to become an indistinguishable native speaker of the language of the environment as an aspect of their adoption into the local culture [cf. Lenneberg (1967), Lamendella (1977)]. In general, of course, children do not achieve adult norms fully, particularly in certain speech registers. If they did, there would probably be a good deal less historical change in language than actually occurs. Every generation, as a generation, establishes a new grammatical consensus that is slightly, but often significantly different from that of the preceding generation.

One terminological issue that must be resolved is whether to consider as fossilization the cessation of further development that characterizes primary language acquisition once children have attained adult norms for their geographic, social, and generational speech community. [cf. Brown et al, 1968.] Given that a normal range of linguistic interaction continues, progress continues at the child's own maturationally determined rate in spite of the fact that the current grammar often permits the satisfaction of the child's needs at a particular developmental stage [on this latter point, see Lenneberg (1967)]. Negative reinforcement (in the form of a failure of the interlocutor to understand the child, corrections, expansions, etc.) in and of itself seems to have little direct power to cause the child to modify the system currently being employed [cf. in Clark and Clark (1977), several examples

of parents' unsuccessful attempts to get a child to modify particular linguistic forms]. When the child is eventually ready to reconstitute the grammar, such feedback becomes only one component of the "data base" which supports a restructuring of the old grammar.

Perhaps more significant for our purposes here is the fact that negative reinforcement in the form of the parent's cultivated ability to understand what a child intends to communicate does *not* have the result of causing the child to fossilize far from adult norms. For example, it frequently happens that a child's idiosyncratic label for some common object becomes the normal household word for that object and yet the child moves on to adopt the standard adult word (even while the parents may continue to use the child's old word among themselves). Thus, extrinsic interaction factors do *not* seem to have the controlling influence in facilitating or defacilitating the child's current grammatical usage except within the constraints imposed by the child's intrinsic developmental schedule. Eventually, in their own time, children become full-fledged native speakers of the language(s) of the environment, but the implication is clear: *extrinsic feedback factors cannot be the principal determiner of linguistic rule stabilization in primary language acquisition*. Thus, as a terminological choice, we wish to consider the stabilization which takes place in primary language acquisition once adult norms are established to constitute a special case, distinct enough from what occurs in nonprimary language acquisition to merit a separate terminological label.

SUMMARY

As we understand V & O's position, we feel that they could only agree fully with our conclusions (1) and (2). As discussed in the body of this paper, we feel that conclusion (3) would be very hard to fit into their model as presented. Taken at face value, the model which V & O present stands directly opposed to conclusion (4). This is true in spite of the fact that some of the statements which appear in their paper, as well as personal statements about their model, suggest a recognition that feedback factors operate as only one contributing factor in IL fossilization. However, one finds no place for these other factors in the feedback diagram presented on p.292 of their paper. We would politely insist that this figure *is* their theoretical model, and that informal statements

expanding or altering the model should play no role in evaluating the model as it has been stated.

V & O would surely have to agree with statement (5) as phrased, but once again such agreement would put their flow chart model (p.292) in jeopardy. We would argue that this is so, among other reasons, because in their model grammatical stabilization and destabilization are dependent on "affective" and "cognitive" feedback, with no room for independent stabilization. Furthermore, there is an implicit rejection of the possibility for cognitive and affective characteristics of the learner to be stabilized and destabilized by linguistic fossilization phenomena.⁴ We can see no *a priori* reason to believe in such a one way dependence.

In considering statement (6), the second part is in essence a terminological issue. Here, we have suggested that it would be inappropriate to apply the label "fossilization" to the stabilized grammar that results from primary language acquisition. We see no determining role for extrinsic feedback in the cessation of primary language development, whereas in secondary language acquisition, we are sure (along with V & O) that it is quite important. However, we do not share V & O's conviction that extrinsic feedback factors may be identified as the primary source of fossilization in IL learning. We would further argue the necessity of carefully distinguishing "fossilization" from "stabilization." In Selinker and Lamendella (1978, pp.186-7), we draw a distinction in which *stabilization* is *observed* and is evidenced in the speech behavior of the learner. We follow V & O in identifying two types of stabilization: *relative stability* of particular linguistic forms and features versus *generalized stability* of an entire IL system. It is important to note that, as defined, the stability of linguistic forms, features, or systems may or may not be permanent. If subsequent *destabilization* is observed, then clearly all that was at issue was a "plateau" in IL learning. Only when the stabilization of observed speech behavior can be assumed to be *permanent*, does the question of fossilization arise. For us, *fossilization* is inferred rather than observed, and defined in terms of a permanent cessation of IL learning before the learner has attained all levels of linguistic

4 This may in fact be what is going on in the phenomena Schumann (1978) refers to as "acculturation," a complex set of variables that for Schumann relates strongly to the "amount" of a second language one actually learns. Though we have not dealt with it here, it seems clear to us that the "Acculturation Model" also depends heavily on "extrinsic feedback" (see Selinker and Lamendella, in prep.).

structure and in all discourse domains. In our view, the conclusion that a particular learner had indeed fossilized could be drawn only if the cessation of further IL learning persisted in spite of the learner's *ability, opportunity, and motivation* to learn the target language and acculturate into the target society (see Selinker and Lamendella, 1978).

Finally, it is important to note that, first of all, following Scovel (1977), we believe that *differential stabilization* and *differential fossilization* are not unusual and are, in fact, the norm. That is, it is not impossible in principle in a learner's IL for some *subsystems* to stabilize (and/or, perhaps, to fossilize) while other subsystems are involved in a developmental progression differentially, both according to linguistic level and to discourse domain (see Selinker and Lamendella, 1978).

A second important point is that we know of no metric or gauge by which one could point to an observed stabilized form and predict *in advance* whether it will fossilize or not. (This is surely an important point for teachers!) "Defossilization" by definition *cannot* occur, while "destabilization" of the type discussed by V & O is clearly one of the important types of "learning" in secondary language acquisition. [Cf. Selinker and Lamendella (In Preparation).]

In conclusion, we find much in common with V & O and share their goal of trying to understand the internal information processing systems that are involved in and are responsible for second language acquisition.

With them we think that it is the satisfaction of the interactive needs of the learner, both in the exchange of information and in the identification and acculturation into the target society, which establishes the *lower bound* on the point when fossilization may first arise. But, we also note that senescence constitutes an inevitable *upper bound* after which IL fossilization necessarily occurs for all members of our species. It is an open empirical question whether still earlier stages of ontogenetic development (in particular the complex of factors attending the onset of puberty) could bring an end to the average individual's ability to begin fully successful IL learning. We tend to believe that this is the case.

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