

# *Trends in Second-Language-Acquisition Research*

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*Recent concern with bilingual education has led to an increased interest in understanding the process of second-language acquisition. In this article Kenji Hakuta and Herlinda Cancino present a critical, historical overview of research on second-language acquisition. In this account the authors outline four analytical approaches—contrastive, error, performance, and discourse analysis—trace the shifts among these approaches, and demonstrate the advantages and disadvantages of each. They also show how the different approaches reflect changing conceptions of language and the nature of learners. The authors give special emphasis to the influence of first-language-acquisition research on studies of second-language acquisition, and they speculate on future research trends.*

Language provides one of the most readily accessible windows into the nature of the human mind. How children acquire this complex system with such apparent ease continues to fascinate the student of human language. The last quarter of a century in particular has witnessed a qualitative leap in our knowledge of the language-acquisition process in young children. In recent years researchers have begun extending their scope of inquiry into the problem of second-language acquisition. The motivation underlying this new endeavor is two-fold: first, it provides an added perspective on human language, and second, interest in second-language teaching and bilingual education has resulted in a greater need to understand the mechanisms underlying second-language acquisition. The focus of analysis has undergone distinct shifts in perspective as a function of our changing conceptualizations of what language is and also what the learner brings to the learning situation.

To anticipate the various approaches to be reviewed in this paper, let us enter-

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tain some ways in which one might proceed in analyzing the process of second-language acquisition. Assume that we had in our possession a year-long record of all the conversations of a second-language learner since initial exposure to the target language. One way to analyze the data, if we knew the grammars of both the native and the target languages, would be through a *contrastive* analysis of the two language structures. Where the two languages differ we would expect errors, and our predictions could be tested against the acquisition data. Another way to proceed in the analysis would be to catalogue all the systematic deviations—the *errors*—in the learner's speech from the target-language norm. These deviations, or errors, could be classified into whatever categories our theory might dictate. If we want more specific information than that provided by error data, we could examine *performance* on particular linguistic structures (such as negatives and interrogatives) and look for both the distributional characteristics of errors and correct usage of those structures. Or, we could look not just at linguistic structure but at *discourse* structure as well. For example, we could ask how linguistic forms might be derived from the way in which they are used in conversation.

Over the past thirty years second-language-acquisition research has passed through the four phases outlined above: *contrastive analysis*, *error analysis*, *performance analysis*, and *discourse analysis*. (For a review of earlier studies in this area see McLaughlin, 1977.) In this article, we summarize and critically review each of these research traditions. In addition, we discuss reasons for the transition from one form of analysis to the next, particularly that due to the influence of first-language-acquisition research.

### Contrastive Analysis

From the early 1940s to the 1960s, teachers of foreign languages were optimistic that the problems of language teaching could be approached scientifically, with the use of methods derived from structural linguistics. Essentially, the goal of structural linguistics was to characterize the syntactic structure of sentences in terms of their grammatical categories and surface arrangements. Fries (1945/1972) was explicit about the implications of this approach for foreign language teaching. He claimed that "the most effective materials are those that are based upon a scientific description of the language to be learned, carefully compared with a parallel description of the native language of the learner" (p. 9).

Claims like Fries's were reinforced by informal observations of learners' systematic errors, which seemed to reflect the structure of their native language. Although many of the errors were phonological in nature, as illustrated by the native speaker of Japanese who consistently fails to distinguish between /r/ and /l/, others clearly originated at the syntactic and morphological levels. Consider a native speaker of Spanish who says "Is the house of my mother." The Spanish equivalent would be "Es la casa de mi madre." The English utterance contains two errors, whose sources can be clearly traced back to Spanish. Spanish allows subject pronouns to be deleted. When this rule is transferred to English, "This is" or "It is" simply becomes "Is." Also, Spanish uses the possessed-possessor order; thus we have "the house of my mother" ("la casa de mi madre"). It appeared, then,

that the foreign-language learner's difficulties could be predicted from the differences in the structures of the two languages. Contrastive analysis was the label given to this comparative approach.

Principles such as imitation, positive and negative transfer, reinforcement, and habit strength were borrowed from the academic psychology of learning and incorporated into the contrastive analysis view of second-language acquisition. Pre-supposing that language development consisted of the acquisition of a set of habits, errors in the second language were seen as the result of the first-language habits interfering with the acquisition of the habits of the second. In classroom practice the principles of habit formation and interference led to the use of pattern drills in the audio-lingual method of second-language learning. On the basis of contrastive analysis, difficult patterns were predicted and consequently emphasized in the drills. For the interested reader the assumptions underlying the audio-lingual method are carefully examined and evaluated in an important book by Rivers (1964).

The comparison of the structures of languages continues to be a respectable activity within contrastive linguistics (Alatis, 1968) and has come to be conducted within the framework of transformational generative grammar. Its status as a psychological approach to the investigation of the second-language-acquisition process, however, fell into disrepute for several reasons. One reason was the unfortunate association of contrastive analysis with the behaviorist view of language acquisition, an account whose theoretical adequacy came to be seriously questioned, most notably by Chomsky (1959). In our view a more devastating reason was that contrastive analysis fared quite poorly once researchers, instead of relying on anecdotal impressions from the classroom, began collecting data in more systematic ways (Oller & Richards, 1973). From these data, analyses of learners' errors soon showed that a large proportion were not predictable on the basis of contrastive analysis. In fact, many of these errors, such as rule simplification (as in "Mommy eat tapioca") and over-generalization (as in "He writed me a letter") exhibited a striking resemblance to those made by children acquiring a first language. Moreover, learners did not in fact make all the errors predicted by contrastive analysis (Nickel, 1971; Stockwell, Bowen, & Martin, 1965). When the inadequacy of contrastive analysis as a predictive model became apparent, Wardhaugh (1970) drew the useful distinction between strong and weak versions of the approach. The strong version claimed to predict errors, while the weak version simply accounted for errors that occurred. Contrastive analysis survives only in its weak form with an obvious shortcoming; it gives an incomplete representation of the second-language-acquisition process since it can account only for some, not all, of the errors. Recently it has been incorporated into the more general approach of error analysis (Schumann & Stenson, 1975), which analyzes all systematic deviations of the learner's language from the target-language norms.

### Error Analysis

Chomsky's (1957) formulation of language as a powerful set of transformational

rules was received with enthusiasm by many psychologists, and its impact on the study of language acquisition was almost immediate. By the early 1960s researchers began reporting the regularities in the speech of young children and showed that these regularities could be characterized by a set of rules, a grammar (Brown & Bellugi, 1964b). What motivated much of this research was the assumption that the end state of the developmental process is a transformational grammar. Strictly speaking, however, the grammars that were written to describe children's speech were not transformational. Nevertheless, the system of rules reflected in children's utterances was most impressive, particularly some rules for which no adult model seemed to exist. Many of the regularities were morphological in nature, such as "wented" and "hissself," but others were syntactic, for example, "Where he can go?" Although such utterances are errors from the viewpoint of adult grammar, their systematic occurrence in protocols from children gave convincing support to the notion that they were part of each child's developing grammar or linguistic system. The child's errors, rather than being considered products of imperfect learning, came to be regarded as inevitable results of an underlying, rule-governed system which evolved toward the full adult grammar. From this new perspective the child, in the eyes of researchers, gained the status of an active participant in the acquisition of language.

The influence of early first-language-acquisition research on second-language-acquisition research can be found in the error-analysis approach, best represented in collections by Oller and Richards (1973), Schumann and Stenson (1975), and Svartvik (1973). Many investigators noted similarities between the types of errors reported in the first-language-acquisition literature and the errors made by second-language learners. These errors could not be accounted for within the contrastive analysis framework. On the basis of this similarity, researchers speculated that the processes of first- and second-language acquisition are essentially the same (Corder, 1967; Dulay & Burt, 1972; Richards, 1973). Like children learning their first language, second-language learners were characterized as proceeding through a series of intermediate grammars (Corder, 1971; Nemser, 1971; Selinker, 1972). At any given time the learner was credited with having an "interlanguage," a genuine language in the sense that it consists of a set of systematic rules that can be described in a grammar. An interlanguage incorporates characteristics of both the native and the target language of the learner. Today, the goals of error analysis are twofold: to describe, through the evidence contained in errors, the nature of the interlanguage in its developmental stages and to infer from these descriptions the process of second-language acquisition.

The majority of studies in error analysis attempt to classify the errors made by learners. Generally, errors are divided into two categories: interference (or *interlingual*) errors and *intralingual* errors. Interference errors, those errors whose sources can be traced back to the native language of the learner, are the ones that contrastive analysis addressed. An important difference, however, is that within the framework of error analysis these errors are not interpreted as products of the first-language habit interfering with the second-language habit. Since the language-acquisition process is seen as active hypothesis testing on the part of the learner,

interference errors are interpreted as a manifestation of the learner's hypothesis that the new language is just like the native language (Corder, 1967). Unlike interference errors, intralingual errors arise from properties of the target language and can be found among children learning it as their first language. Their errors include errors of simplification as well as overgeneralization.

Several researchers have investigated the extent to which learners make errors of each type. In two widely cited papers Dulay and Burt (1973, 1974b) report a study in which they considered two competing hypotheses about the nature of second-language acquisition. The first was that second-language acquisition was essentially the same as first-language acquisition. The alternative hypothesis was the one embodied in contrastive analysis, which viewed second-language acquisition as the acquisition of habits (Lado, 1957). Dulay and Burt's implicit assumptions were that intralingual errors constituted evidence for the first hypothesis, while interference errors were evidence for the alternative hypothesis. Notice that their interpretation of interference errors differed from other workers in error analysis. Using an elicitation device called the Bilingual Syntax Measure (BSM), Dulay and Burt collected speech samples from 179 Spanish-speaking children learning English with varying amounts of English-as-Second-Language instruction in three different areas in the United States. They tallied errors that could be "unambiguously" classified as being either interference, intralingual (defined as similar to those reported in the first-language literature), or unique (neither of the two). The results were dramatic and straightforward: of the 513 unambiguous errors only about 5 percent were interference, while 87 percent were intralingual, and the remainder were classified as unique. Dulay and Burt interpreted this finding as evidence that "children do not use their 'first language habits' in the process of learning the syntax of their new language" (1974b, p. 134).

Dulay and Burt's results can be interpreted in at least two ways. If we accept their assumption that interference errors constitute evidence for a habit-formation hypothesis, their data make an overwhelming argument against this explanation of second-language acquisition. On the other hand, if we take the viewpoint that interference errors are not products of habit formation but rather a form of active hypothesis testing and language transfer (Corder, 1967), a different conclusion emerges. Dulay and Burt's data might be interpreted as evidence that very little language transfer occurs—that is, the learning of the first language has very little influence on the learning of the second.

Whatever theoretical perspective one might take, however, two underlying assumptions in the study make both of the above interpretations questionable: 1) that an error is an appropriate unit of analysis, and 2) that equal weighting should be given to interference and intralingual errors. These assumptions are seriously called into question when one considers that all omissions of grammatical morphemes—including noun and verb inflections and other high-frequency morphemes such as the verb *be*—were classified as intralingual errors. Although Dulay and Burt do not provide the exact figures, there were many instances of these kinds of errors. Since interference errors generally involve either larger constituents or changes in word order, the two types of errors appear to originate from sources whose relative opportunities for occurrence are significantly different. Further-

more, interference errors may appear in the speech of learners only at specific points in development, and a cross-sectional sample might not capture learners at critical developmental levels.

Other studies in error analysis attempt to compare the proportions of interference and intralingual errors in adult learners. Corder (1975), citing Duskova (1969), reports that there is a larger proportion of interference errors for adults than Dulay and Burt (1973, 1974b) found for children. Duskova (1969) analyzed errors made in English composition by adult Czechoslovakians and reported that roughly 30 percent of the 1,007 errors collected were interference and the remainder intralingual. A closer look at the breakdown of her data, however, reveals that many interference errors were omissions of articles, a part of speech for which Czech does not have an equivalent. In the Dulay and Burt analysis, omissions of articles were considered intralingual errors, since children learning English as their first language also omit articles. When one tallies the interference errors according to Dulay and Burt's criteria, the proportion in Duskova's study is reduced to 5 percent. Despite differences both in the ages of the subjects and in the data collection instruments (speech versus composition), this figure is comparable to the Dulay and Burt results.

However, our earlier qualification still holds for the interpretation of the results of these studies of adult learners. The theoretical significance attached to interlingual and intralingual processes should not be considered proportionate to the number of the respective error types found in the learner's speech. An analogy with studies of first-language learners serves to illustrate this point. Children overgeneralize rules as in "I goed home," and they simplify their speech into telegraphic form as in "Fraser come Tuesday" (Brown & Bellugi, 1964a). In total speech output there is probably a far greater proportion of oversimplification errors. Yet, no one would argue on this basis that simplification is the more important of the two processes in language acquisition. In fact the errors of overgeneralization in first-language learning are fine examples of the child's rule-governed behavior. Similarly, interference errors in second-language learning are fine examples of language transfer and should be regarded as such in their own right. Such errors strongly point to areas of dynamic interplay between the two languages.

Other studies of errors are taxonomic, generally classifying errors as interference, overgeneralization, and simplification. Such studies include Politzer and Ramirez's (1973) and Cohen's (1975) analyses of the speech of Mexican-American children learning English and a fine paper by Selinker, Swain, and Dumas (1975) analyzing errors in French made by English-speaking children in a language-immersion program (see Swain, 1974). A similar approach in adult studies was used by Jain (1974), Richards (1973), and Taylor (1975).

To summarize thus far, research in error analysis has revealed evidence for three general taxonomic categories of errors: interference, overgeneralization, and simplification. Of these error types, interference errors do not appear with strikingly high frequency. Second-language learners make a large number of overgeneralization and simplification errors; they bear a striking resemblance to errors made by first-language learners. And finally, there appear to be errors which are unique

to second-language learners. These findings are of interest because they suggest the reality of distinct processes resulting in the respective types of errors. It is difficult, however, to see how the extent to which these error types occur would be of any empirical value until they are weighted according to their relative opportunities for occurrence. Such attempts, and also attempts at classifying errors with respect to their gravity (James, 1974), should prove informative.

All of the studies cited above used cross-sectional samples; very few studies have followed Corder's (1967) suggestion that errors should be studied longitudinally. Such analyses are needed to tell us whether specific types of errors might be prevalent at specific points in the course of development and whether errors in a learner's speech disappear abruptly or gradually. One of the few studies examining the pattern of interference errors over time was carried out by Cancino (Note 1). Her subject, Marta, a five-year-old Puerto Rican girl, was acquiring English through natural exposure to the speech of English-speaking peers. The data consisted of biweekly, spontaneous speech samples of two hours each, obtained over a period of eight months. In her analysis Cancino classified all instances of possessives (excluding possessive pronouns and adjectives) as being one of the following five types:

- 1) possessor-possessed order, with 's supplied, e.g., "Freddie's frog,"
- 2) possessor-possessed with 's omitted, e.g., "Freddie frog,"
- 3) possessed-possessor order, with preposition *of* supplied, e.g., "Frog of Freddie,"
- 4) same as (3) except with *of* omitted, e.g., "Frog Freddie," or
- 5) possessed-possessor order, with Spanish preposition *de* supplied, e.g., "Frog de Freddie."

The distribution for each category, displayed in Table 1, reveals a clear pattern of development.

TABLE 1  
*Distribution of Possessives used by Marta. Samples are Bi-weekly.*

Sample	's supplied	's omitted	of supplied	of omitted	de
1					7
2		3			8
3		1			1
4		1			
5		5			
6		7	3		
7		2	6		1
8	2	1			
9	5	1			
10	7				
11	9				
12	8	1	1		
13	7		1		
14	5		1		1
15	5	1			

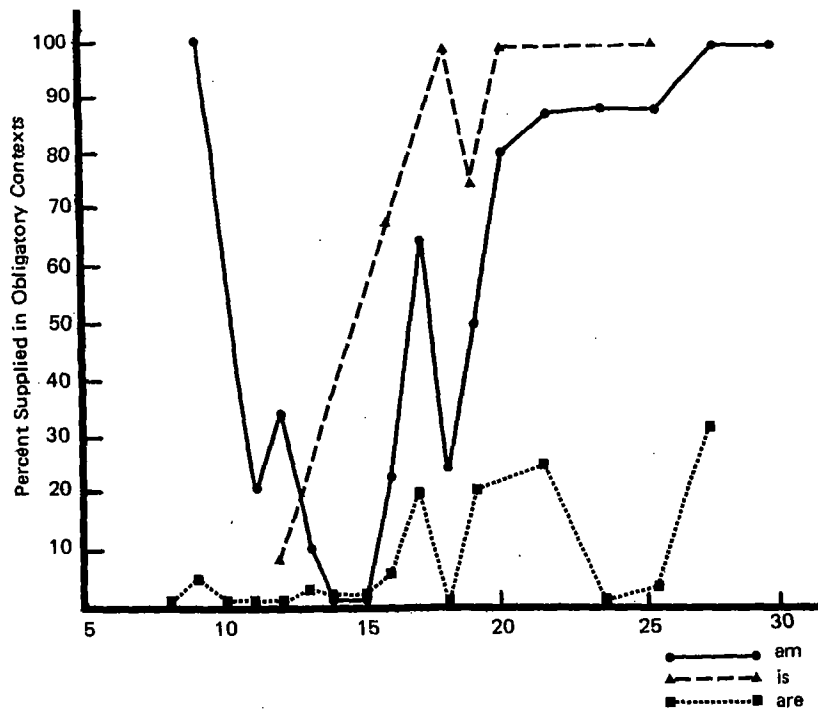
Source: Cancino (Note 1).

First, the Spanish word *de* is used in producing English utterances (Type 5). Next, word order indicates the appearance of obligatory contexts for the English form 's—that is, contexts in which adult norms clearly require the form (Type 2). After that, *of* replaces *de* (Type 3) and finally 's is gradually supplied in obligatory contexts (Type 1). As far as we are aware, this is one of the clearest empirical illustrations of an interplay between the native language and the target language. Two points should be made here. Interference errors, at least for the possessive form, appear primarily in the earliest stages of acquisition. If, for example, Marta's speech had been sampled at a later point in development as part of a cross-sectional study, interference errors might not have been found. In addition, errors do not seem to disappear abruptly. On the contrary, use of the correct forms appears to be quite variable, and development is gradual.

The pattern of gradual acquisition can be illustrated graphically. Figure 1 plots curves for several grammatical forms acquired by Uguisu, a five-year-old Japanese girl learning English in a natural setting, who was observed over a fifteen-month period (Hakuta, 1976). The graph plots over time the percentage of instances

FIGURE 1

Acquisition curves for the three allomorphs of be (*am*, *is*, *are*) as the auxiliary to the verb *gonna* (e.g., *I'm gonna eat this one*) in Uguisu, plotted as percentage supplied in obligatory contexts over time. Each sample represents a two-week interval. (Hakuta, 1975)



Source: Hakuta, 1975.



when a given form was supplied in obligatory contexts. In terms of errors, each curve represents the complement of errors of omission for a given morpheme. It is clear in this case that for each linguistic item errors disappear slowly and gradually. This pattern, which is characteristic of first-language acquisition (Brown, 1973), may very well hold for second-language learners' acquisition of any sort of linguistic item (Cazden, Cancino, Rosansky, & Schumann, 1975; Hakuta, 1975). Such variability in the usage of linguistic forms, even for a single learner at a given point in development, makes it difficult, if not impossible, to write grammars for corpora of utterances.

The above studies examined errors in production, but it is possible that learners might simply avoid certain linguistic structures on which they would be likely to make errors. Perhaps learners avoid particular structures due to differences between their native language and the target language. Error analysis cannot detect this type of language transfer. Schachter (1974) has provided some convincing evidence of such avoidance by looking at relative-clause constructions in the English compositions of adult learners. Using contrastive analysis, Schachter predicted positive transfer of such construction interference for one group and negative transfer for the other. Surprisingly, the negative-transfer group made fewer errors than the positive-transfer group, which suggests that there was no interference. This counter-intuitive result, however, can be accounted for by the simple fact that the group for which positive transfer was predicted produced twice as many relative-clause constructions as the group for which negative transfer was predicted. The negative-transfer group made fewer errors because they were avoiding such constructions, a fact that the traditional method of error analysis would have obscured. Recently, Kleinmann (1976) found that groups of adult Arabic and Spanish speakers learning English avoided producing a variety of constructions (passives, infinitival complements, direct-object pronouns, and present progressives) for which contrastive analysis predicted difficulties. Hakuta (1976) compared relative-clause constructions in the spontaneous speech of his subject, Uguisu, with those of Cancino's subject, Marta, and found that, as predicted by contrastive analysis, Marta produced more relative clauses. Other writers have also suggested that avoidance may account for some of their data at both the syntactic (Swain, Note 2) and the lexical levels (Tarone, Frauenfelder, & Selinker, 1976).

Contrastive analysis was, in effect, consumed by error analysis because the evidence of interference errors it used failed to account for the learner's non-interference errors. Along similar lines, error analysis does not appear to provide a methodology with adequate sensitivity to detect phenomena such as structural avoidance. With increasing sophistication in the methods available to infer knowledge from performance, error analysis is currently in the process of being incorporated within an attempt to describe the learner's overall performance, not necessarily restricting the scope of analysis to errors alone. This line of work, *performance analysis* (Svartvik, 1973), once again bears the marks of work in first-language acquisition.

### Performance Analysis

At the time that researchers of second-language acquisition were focusing on error

analysis, first-language-acquisition researchers were beginning to provide rather elegant descriptions of the development of linguistic structures in children. Two studies in particular have had a profound influence in shaping the direction of second-language-acquisition research: Klima and Bellugi's (1966) study on the acquisition of negation and Brown's (1973) study on the acquisition order of grammatical morphemes. Both studies based their analyses of performance on longitudinal spontaneous-speech samples from three children—Adam, Eve, and Sarah—learning English as their first language. The studies were important in that they were longitudinal, and documented regularities across children in the acquisition of grammatical morphemes and negation. For the first-language-acquisition researcher these findings were appealing because they hinted at universal aspects in first-language-acquisition processes. For the second-language-acquisition researcher the studies provided norms against which to compare the acquisition of the same structures in second-language learners of English. The research also provided the motivation and methodology to search for universal orders of acquisition of structures across second-language learners. This method was a novel way of testing for the role of language transfer.

Within the framework of performance analysis there has been considerable research on the acquisition of negation and grammatical morphemes in second-language learners of English. We restrict our review to these two types of structures. Less studied, but equally interesting for analysis are *prefabricated utterances*, utterances that are learned as wholes without knowledge of internal structure but that have high functional value in communication. We will end our discussion of performance analysis with a consideration of such prefabricated utterances.

### *Negation*

Klima and Bellugi (1966) described characteristics of three stages in the development of English negation among first-language learners. In Stage I children's negation consists of a negative particle—generally, "no"—placed outside the sentence nucleus to produce such utterances as "No Mommy go" and "no eat." In Stage II the negative element moves into the sentence nucleus and takes forms such as "can't," "not," and "don't" (as in "Mommy don't like tapioca"). However, these negative elements are not full auxiliary verbs, since they lack inflection and flexibility. In Stage III the full form with inflection for tense and number is used.

Among studies of the development of negation in second-language learners, Milon's (1974) report on Ken, a five-year-old Japanese boy learning English in Hawaii, has attracted considerable attention in the literature. Milon claimed that it was possible to apply Klima and Bellugi's (1966) stages for the development of negation in first-language learners in order to summarize Ken's development. He therefore concluded that Ken acquired the English negation system in the same way as first-language learners. Milon's application of Klima and Bellugi's stages to his data involved dividing the protocols into three periods roughly corresponding to the first-language stages. In his tables he reports the percentage of utterances within each of these periods that are accountable by the rules for each of the first-language stages.

In order for Milon's claim to be justified, there must be a majority of utterances within each of Ken's periods to be accounted for by the rules of the corresponding first-language stage. Even a cursory examination of Milon's published tables, however, indicates that this is not the case. The Stage I rule, which involves placing the negative particle outside the sentence nucleus, accounts for well over half the utterances not only for Ken's period I, but also for periods II and III as well. In addition, only 9 percent of the utterances within Ken's Stage III are accounted for by Klima and Bellugi's Stage III rules.

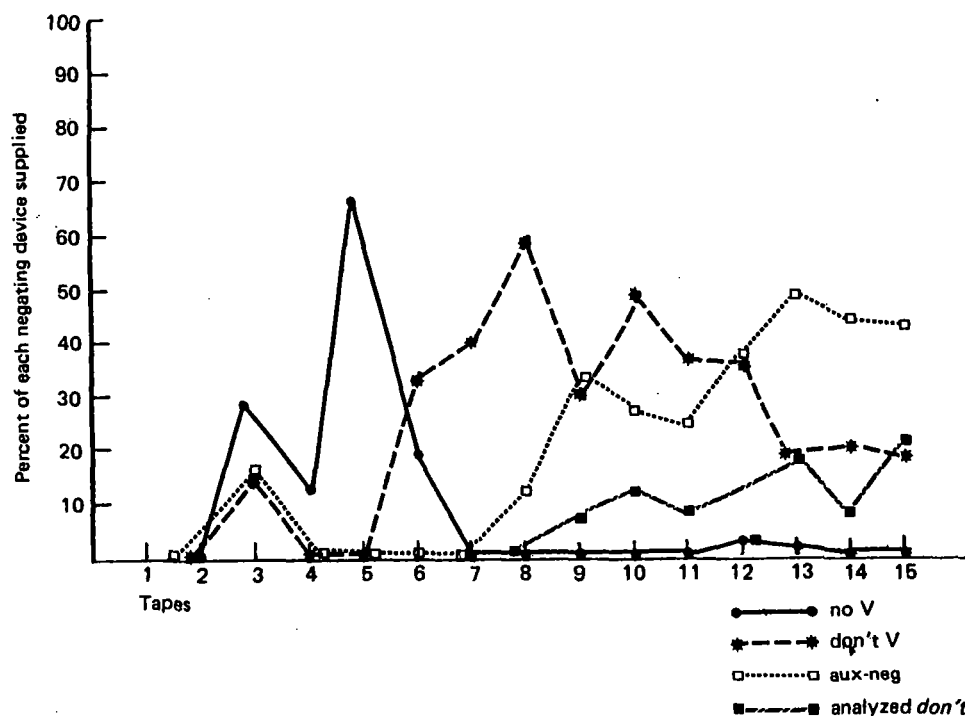
Cazden et al. (1975) conducted a rigorous descriptive study of negation in the acquisition of English by six native speakers of Spanish: two adults, two adolescents, and two children. For each sample they calculated the proportion of occurrence for each of four utterance types and their relative frequency over time. Each of these utterances "peaked" in usage at a certain point in acquisition. Although some subjects never attained the more advanced forms, the order in which the forms emerged was the same for all subjects. In the first form of negation to appear, "no" preceded the verb, such as in "Carolina no go to play." Notice that this form corresponds to Klima and Bellugi's Stage II rule in that the negative element is internal to the sentence (*no + verb*). There was no evidence that these second-language learners went through anything resembling Klima and Bellugi's Stage I, where the negative element is external to the sentence nucleus. The next acquired form was characterized by utterances in which "don't" preceded the verb, such as "He don't like it." The third form, *aux-neg*, included all negative auxiliaries, such as "can't" and "won't," but not the inflected forms of "don't." The final form, which Cazden and colleagues called *analyzed don't*, was essentially the full adult system. For illustrative purposes we include the graph of one of their subjects, Marta, in Figure 2.

Cazden et al. (1975) argue on the basis of their data that the *no + verb* forms represent "the Spanish speakers' first hypothesis . . . that negation in English is like negation in Spanish, hence the learners place *no* in front of the verb" (p. 32). This finding would easily have been obscured had the researchers simply classified learners' utterances according to Klima and Bellugi's stages, since *no + verb*, *don't + verb*, and *aux-neg* all correspond to their Stage II, and *analyzed don't* occurs in Stage III. This might have forced the conclusion that there was no transfer from Spanish. Other studies have also noted *no + verb* utterances in Spanish speakers learning English (Adams, 1974; Butterworth, 1972; Wong-Fillmore, 1976).

There is an alternative explanation for the *no + verb* construction other than as the product of transfer from Spanish. Klima and Bellugi (1966), Bloom (1970), and Lord (1974) have all reported such forms in the speech of first-language learners. Perhaps it is not necessary to invoke transfer from Spanish to explain these utterances. Data from Gillis and Weber's (1976) two Japanese children and from Uguisu (Hakuta, 1976), however, suggest the transfer interpretation to be the correct one. None of the three children produced the *no + verb* construction, thus making this form likely to be unique to speakers of Spanish. Milon (1974) reports the construction of his Japanese subject, Ken, but there is a simple explanation: Ken was exposed to Hawaiian Creole English, which has this form of negation.

FIGURE 2

Development of negation in Marta showing proportion of each negating device to total negatives in each sample.



Source: Cazden et al., 1975.

Where does this leave us with respect to the development of negation? We now feel confident that *no + verb*, due to language transfer, is a common developmental step in Spanish speakers learning English. It is worth emphasizing once again that if Cazden et al. (1975) had simply tried to categorize their data into Klima and Bellugi's stages for first-language learners, this finding would not have been revealed. Their conclusion would have been that the learners went through Klima and Bellugi's Stages II and III. Indeed, this conclusion appears to be consistent with all the studies reported above, but it is too general to be of any value. All it tells us is that at first the auxiliary verb (e.g., "don't," "isn't") is unmarked for person or tense, and later that it becomes fully marked. There is no evidence for Stage I, which is theoretically the most interesting stage.

Before closing this section on negation, it should be pointed out that the universality of Klima and Bellugi's stages has been questioned even in first-language learners. Bloom (1970) and Lord (1974), for example, failed to find evidence for Stage I in their subjects. It is easy to overlook the fact that research in first-language acquisition is also still in its infancy. Owing to the tentative nature of the first-language findings, the second-language researcher needs to approach the task of comparing the two processes with extreme caution.

### *Grammatical Morphemes*

With the exception of work by Cazden et al. (1975) the first- and second-language studies mentioned above were distributional, but not in a rigorously quantitative sense. If we are to obtain more accurate descriptions of learner performance, quantitative studies are particularly important. Grammatical morphemes, which include the articles (*a, the*), the copula and auxiliary *be*, and the noun and verb inflections, lend themselves to quantitative analyses. They afford a particular advantage to the researcher because of their high frequency, which is generally independent of the topic of discourse. Furthermore, contexts where they are obligatory (i.e., clearly required according to adult standards) are easily identifiable. For example, "two book" clearly requires the plural morpheme-s.

Brown (1973) analyzed fourteen morphemes in data collected longitudinally from three unacquainted native speakers, Adam, Eve, and Sarah. Defining acquisition as the point at which a given morpheme occurred in more than 90 percent of obligatory contexts for three consecutive samples, he found that they were acquired in a roughly invariant order. De Villiers and de Villiers (1973) substantiated this finding in a larger, cross-sectional first-language sample. When Brown (1973) analyzed these morphemes according to semantic complexity and transformational cumulative complexity, he found that both factors predicted the obtained order but that they could not be separated.

Since the findings on first-language learners were so dramatic and the method was easily applicable to second-language speech samples, a plethora of performance studies on second-language learners has been carried out in the last three years. Some have been longitudinal (Hakuta, 1974a, 1976; Gillis, 1975; Rosansky, 1976; Cancino, Note 1; Mulford, Note 3) and others cross-sectional (Bailey, Madden, & Krashen, 1974; Dulay & Burt, 1973, 1974a, 1974c; Larsen-Freeman, Note 4). Longitudinal second-language studies generally have determined the order of acquisition of grammatical morphemes according to Brown's 90 percent criterion described above. In the cross-sectional research the standard procedure is to rank-order the morphemes according to the performance of the entire group. The latter procedure, of course, assumes that all individuals in the sample exhibit the same acquisition order. After obtaining a rank order in either longitudinal or cross-sectional studies, a comparison can be made across learners with different native languages.

Dulay and Burt (1974a) compared the order of acquisition of eleven morphemes for a group of Chinese and Spanish children learning English. They found the order of acquisition to be nearly identical between the two groups, although it was quite different from that established for children learning English as a first language (Brown, 1973; de Villiers & de Villiers, 1973). This similarity in the orders is a striking result in light of the differences between Chinese and Spanish. For example, Chinese, unlike Spanish, has no linguistic marking equivalent to English articles, but both groups performed equally well in supplying these morphemes. A more astonishing result has been obtained from adults receiving formal instruction in English as a second language. The order obtained was again approximately the same as the order found by Dulay and Burt, despite the fact that these adults

spoke various native languages (Bailey, Madden, & Krashen, 1974; Larsen-Freeman, Note 4).

Complicating the results in the above studies is the fact that the speech samples were not spontaneous but were elicited with a device called the Bilingual Syntax Measure (BSM) (Burt, Dulay, & Hernandez-Chavez, 1973). One BSM procedure involves asking the subject in the pretest to point to each object in a set of cartoon pictures with the request, "Show me the —." Perhaps the reason why articles are easy in this task is that they are modeled for the subjects. Thus, the test itself may have influenced the outcome. A pilot investigation by Porter (Note 5) of children learning English as their first language buttresses this idea. Porter administered the BSM with these children and found their order resembled the second-language-learner's order more than it did the order found by Brown!

Rosansky (1976) questioned whether results obtained from a cross-sectional study would correlate well with a longitudinally derived acquisition order. Using longitudinal data from Jorge, a native Spanish-speaking adolescent, she compared the order of acquisition of the morphemes (longitudinal) with the relative accuracy of the use of the morphemes at a given point in development (cross-sectional). Rosansky found that Jorge's longitudinal order did not correlate with his cross-sectional order, and thus she concluded that cross-sectional orders could not be assumed to be the same as longitudinal orders.

However, there are two problems with Rosansky's results. First, she was able to compare the order of only six morphemes, since Jorge did not attain the 90 percent criterion longitudinally for the other morphemes studied. Second, Jorge was supplying all six morphemes in well over 90 percent of their obligatory contexts by the time of the cross-sectional sample. Since grammatical morphemes in general tend to fluctuate within the range between 90 and 100 percent once they attain the 90 percent criterion, Rosansky's failure to find a correlation with the longitudinal order could have been the result of this random fluctuation.

If we compare the order of acquisition of grammatical morphemes for Rosansky's subject, Jorge, with the order obtained in the Dulay and Burt study, the Spearman rank-order correlation coefficient ( $\rho$ ) is +.91. Cancino (Note 1) found that the longitudinal order for Marta compared favorably with Jorge's ( $\rho = +.88$ ) and correlates highly with that of Dulay and Burt's subjects as well ( $\rho = +.93$ ). Another piece of evidence comes from Mulford (Note 3), who studied the longitudinal-acquisition order for Steinar, an Icelandic boy. The correlation coefficients of Steinar's order with the orders of Jorge, Marta, and Dulay and Burt's subjects respectively are +.90, +.85, and +.82. Thus it might seem that there exists a universal order for acquisition of these morphemes.

The existence of a universal order, however, is not supported by analyses of Uguisu's longitudinal order (Hakuta, 1974a, 1976). Resembling none of the above orders, Uguisu's development indicates some interference from Japanese which does not have articles and plurals. A comparison of Uguisu's order with those of two Japanese children studied longitudinally by Gillis (1975) reveals that the three children's orders all differ and that none of them correlates with Dulay and Burt's subjects' order either. One reason for this lack of similarity may be that

Gillis (1975) only reports on the verb-related morphemes and excludes some morphemes such as articles and plurals. Nevertheless, if there indeed is a universal order, the results should not vary according to the particular items chosen for investigation.

We can probably conclude, though, that among all second-language learners of English there may be a tendency to acquire morphemes in a certain order, determined by factors such as their frequency of occurrence (Larsen-Freeman, 1976) and their perceptual salience or distinctiveness (Wagner-Gough & Hatch, 1976). For example, the progressive *-ing* may be acquired early because of its high salience and high frequency, while the regular third-person indicative *-s* (as in "she comes") with its low frequency and low salience is acquired relatively late.

Another factor influencing acquisition, semantic complexity of the morphemes (Brown, 1973), may vary depending on the learner's native language. For example, the English articles *a* and *the* ("a book" versus "the book"), require rather sophisticated semantic discriminations for their proper use (Brown, 1973; Maratsos, 1971). If a native language makes those contrasts, as Spanish and French do, the learner may already possess the semantic discriminations necessary for using English articles. On the other hand, a native speaker of Japanese or Chinese does not make those discriminations and must learn them in order to make the definite/indefinite contrast. That articles in English have the highest frequency of all grammatical morphemes and appear in a highly predictable position, before nouns, also affects their acquisition. Thus articles may appear early even in Japanese or Chinese learners but with confusions along the definite/indefinite dimension.

Although articles appeared early in her speech, Uguisu had great difficulty with the definite/indefinite contrast, as evidenced by many errors (Hakuta, 1976). Marta and Jorge, on the other hand, acquired articles early and had little difficulty with the definite/indefinite distinction. Their greatest problem appeared to be within the indefinite category, where they initially used *one* rather than *a*, reflecting transfer from the Spanish indefinite articles *un* or *una*. Frauenfelder (1974), who studied the acquisition of gender marking among English-speaking children in a French immersion program, found that although the children made many errors in gender on articles, they never confused the definite/indefinite contrast. That Dulay and Burt found their Chinese learners acquiring articles so early might be attributed to the scoring method: they did not differentiate between *a* and *the*. Finally Fathman (Note 6), who administered an oral-production task (SLOPE) to Korean- and Spanish-speaking children, found a generally similar ordering on various grammatical forms for these two groups. A close look at her data, however, shows a very large discrepancy in the children's performance on articles: the Korean children, whose language has no article equivalents, performed poorly.

Thus, we conceive the order of acquisition of English grammatical morphemes as resulting from an interplay of at least two factors. One factor, consisting of variables such as frequency and salience, seems to direct the order of acquisition toward a universal order. But a second factor, transfer from the native language,

modulates the order so as to produce differences between learners of different language backgrounds.

*Routine Formulas and Prefabricated Utterances*

Since grammatical rules operate on units or constituents within a sentence, it was only natural for researchers interested in grammatical structure to focus on those utterances that indicated the learner's knowledge of individual constituents. In so doing, they excluded from their analysis utterances that seemed to be routine formulas (such as "What's this?" and "I don't know") learned as wholes through imitation. Huang (1971) related a delightful anecdote about the use of such a routine formula. Paul, a Taiwanese boy, used his first English utterance, "Get out of here," as a formula in roughly appropriate situations for warding off unwanted company. Another example is one of Uguisu's first utterances, "Not in particular!" which was used for the purpose of turning down offers of food. Variants of routine formulas are prefabricated patterns (Hakuta, 1974b), sentences such as "This is —," where nouns can be inserted into the slots. Most investigators have reported in passing the existence of either routines or prefabricated patterns (Adams, 1974; Butterworth, 1972; Cazden et al., 1975). These patterns have not received close attention, because the central focus of study has been on grammatical structure. This lack of emphasis on prefabricated forms was reinforced by the apparent failure of the process of imitation to account for language acquisition (Chomsky, 1959; Ervin-Tripp, 1964; but see Bloom, Hood, & Lightbown, 1974).

If language were to be viewed from the perspective of communication, however, prefabricated utterances take on an added theoretical significance (Hakuta, 1976). Huang (1971) found a considerable amount of prefabricated utterances in Paul's speech. This led him to postulate imitation as an important process, although it was considered to be less important than, and independent of, the process of rule-formation. Uguisu's speech, particularly in the early stages, also contained many prefabricated patterns (Hakuta, 1974b). Such patterns may have value in sustaining second-language learners' motivation by enabling them early on to express a variety of meanings. Since the "breakdown" of these forms is gradual and similar to the acquisition of grammatical rules, the use of prefabricated patterns may motivate the learner to search for internal structure (Hakuta, 1976).

In a recent dissertation on English acquisition by five Spanish-speaking children, Wong-Fillmore (1976) found that over half of the children's utterances contained prefabricated forms. She argued that through the gradual analysis of such forms, later linguistic structure developed: "All of the constituents of the formula become freed from the original construction, [and] what the learner has left is an abstract structure consisting of a pattern or rule by which he can construct like utterances" (p. 645). For example, Wong-Fillmore's subject Nora learned the question, "How do you do dese?" early in development and used only this form. During the next period she attached a noun or prepositional phrase to this form, and created such questions as "How do you do dese flower power?" and "How do you do dese in English?" Later she learned to slot other verbs into the pattern "How do you



———?” and produced such forms as “How do you like to be a cookie cutter?” Nora then began alternating “How do you ——” with “How did you ——.” In the last period of observation, she was constructing utterances like “How you make it?” and “How will take and paste?” Although Fillmore's examples are provocative, the principles used by the learner to analyze the prefabricated forms need to be specified; the traditional problem of the emergence of syntax remains to be solved.

### Discourse Analysis

The focus of research in both first- and second-language acquisition has shifted only recently to language in the social context. It would be somewhat unfair, however, to claim that earlier researchers did not pay attention to the role of discourse in the language acquisition. Brown (1968), for example, succinctly stated:

It may be as difficult to derive a grammar from unconnected sentences as it would be to derive the invariance of quantity and number from the simple look of liquids in containers and objects in space. The changes produced by pouring back and forth, by gathering together and spreading apart are the data that most strongly suggest the conservation of quantity and number. The changes produced in sentences as they move between persons in discourse may be the richest data for the discovery of grammar. (p. 288)

Current work on discourse analysis can be roughly divided into two approaches (de Villiers & de Villiers, in press). Researchers employing the first approach (Garvey, 1975; Keenan, 1975) investigate rules of discourse, such as turn taking in dialogue. Discourse rules are considered to be another aspect of language that the child must master more or less independently of syntax. The second approach (Antinucci & Parisi, 1975; Bates, 1976) assumes fundamentally that all language is pragmatic, obeying “rules governing the use of language in context” (Bates, 1976, p. 420). Researchers operating in this vein have investigated the emergence of various pragmatic functions, such as declaratives and imperatives, in very young children. They claim that syntax and semantics can ultimately be seen as derivatives of pragmatics, although it is difficult at this point to envision the specific process of derivation.

In the case of the second-language learner, we certainly would not expect to be able to study the emergence of the various pragmatic functions, since they are by definition universal and, presumably, acquired at a very early age. An interesting approach, however, would be to analyze a given pragmatic function over time. Tracing the development of the linguistic forms that the learner uses for the expression of a function might well reveal orderly and lawful patterns. In addition, such an analysis might reveal interesting differences across native speakers whose languages differ in the linguistic forms chosen for the same pragmatic act. In a sense, this approach would be a contrastive analysis of the way different languages map pragmatic functions onto linguistic forms. We believe this would be an extremely fruitful line of investigation, but it has not been pursued. What is sorely

lacking before any such inquiry is an explicitly spelled out theory of pragmatics (Fraser, Note 7). The few studies on discourse reported in the literature have made only preliminary attempts at outlining the structure of discourse and the mechanisms underlying its regulation.

Hatch (in press) found that Huang's (1971) subject Paul initiated discourse by first identifying the topic, waiting for the other person to attend or speak, and then making some further comment. Repetition of the other speaker's previous utterance, (Hatch, in press; Keller-Cohen, in press) has received some attention. We suspect that this is the major way in which prefabricated forms (Hakuta, 1974b; Wong-Fillmore, 1976) enter the learner's speech repertoire. A variant on the process of repetition is incorporation (Wagner-Gough, 1975; Wagner-Gough & Hatch, 1976), as illustrated in the following dialogue with Homer, an Iranian child:

Adult: Where are you going?

Homer: Where are you going is house.

(Wagner-Gough & Hatch, 1976, p. 304)

Hatch (in press) has noted that a topic is broken into parts dictated by the constraints of conversation. The following example taken from a Japanese child, Takahiro, shows the learner taking apart and reassembling these various parts in the course of dialogue (Hatch, in press).

Takahiro: this  
          broken

Adult: broken

Takahiro: broken  
          This /iz/ broken.  
          broken

Adult: Upside down.

Takahiro: upside down  
          this broken  
          upside down  
          broken

Based on such examples, Hatch speculates that "one learns how to do conversation, one learns how to interact verbally, and out of this interaction syntactic structures are developed." This is essentially the same argument made by Wong-Fillmore (1976) for the emergence of syntax, and it is subject to the same criticism: the ultimate question of how exactly this happens has not been addressed. Furthermore, accounting for interference errors remains problematic, since such errors are aspects of the internal organization of language.

Implicit in studies of discourse is the importance of input. Unfortunately, rigorous empirical studies of the characteristics of input to the learner are nowhere to be seen in the second-language literature. The pedagogical implications of such studies would be powerful, since classroom instruction is essentially the manipula-

tion of input variables. Although first-language-learning research has greatly influenced second-language research, the numerous studies on mother-to-child speech in first-language acquisition (DePaulo & Bonvillian, in press; Snow & Ferguson, in press) have not generated similar studies in second-language acquisition. In an exploratory second-language-learning study, Hatch, Shapira, and Wagner-Gough (Note 8), reinforce the need for future input studies. Anecdotally comparing the input for children with that for adults, they found that the speech addressed to children by native speakers resembled mother-to-child speech reported in the first-language literature: it was simple, short, grammatical, and restricted to here-and-now topics. The speech to adults, on the other hand, possessed many of the characteristics of "foreigner talk": the omission of inflections, an abundance of pauses, and many complex sentence forms (Ferguson, in press). Furthermore, the topic of conversation often referred to something neither immediate nor present. Whatever the determining sociolinguistic factors, these observations by Hatch and his coworkers should encourage further research in this area. Such investigations may ultimately help explain the difficulty that adults have in acquiring a second language.

### The Future

Each of the four trends covered in this paper can be seen as successive attempts by researchers to create an adequate representation of the second-language-acquisition process. We began by describing contrastive analysis, which required only a comparison of the linguistic structures of the two languages. We end with the most recent trend, discourse analysis, in which the learner's status as a social being occupies center stage. Although it may take years of hard work before we develop a rigorous and sophisticated methodology for discourse analysis, the rewards will be great. For the results would create a solid link between the observed acquisition of the linguistic structures of the second language and the yet-to-be-determined variables involved in discourse.

Schumann (1975, 1976) has recently argued that there is a correlation between social factors and the degree to which one acquires a second language. These social variables rest at the heart of second-language acquisition; they determine the circumstances requiring people to acquire a second language. Along similar lines, Gardner and his colleagues (Gardner & Lambert, 1972; Gardner, 1973) have extensively explored the relationships of attitudes and motivation to degree of proficiency in a second language. While it may be difficult to see a direct relationship between these social factors and their supposed effects on the second-language-acquisition process, it is not difficult to imagine social factors influencing the types of discourse in which learners engage. This relationship is rigorously definable. Thus, we see discourse analysis as an empirical bridge to our next potential level of analysis, which might be called *sociolinguistic analysis*. Analysis at this level, we believe, would give greater acknowledgment to the complexity of the second-language-acquisition process.

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