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Individual Differences in Language Development: Implications for Development and Language

Katherine Nelson
Graduate School and University Center of the
City University of New York

Differences in characteristics of language development that have been identified in a number of recent studies are reviewed. In these studies, some children have been found to emphasize single words, simple productive rules for combining words, nouns and noun phrases, and referential functions; others use whole phrases and formulas, pronouns, compressed sentences, and expressive or social functions. The evidence for two *styles* of acquisition and their continuity over time is examined. Explanations in terms of hemispheric functions, cognitive maturation, cognitive style, and environmental context are considered, and an explanation in terms of the interaction of individual and environment in different functional contexts is suggested. Implications for development and the mastery of complex systems are discussed.

A new consensus is emerging about the appropriate framework within which to view the important problems of language acquisition. In contrast to the prevailing view a decade ago that language development could only be understood within a linguistic, genetic, rule-testing, individual framework, students of child language today have increasingly accepted the premise of a developing social, cognitive, and communicative system within which language is gradually mastered. The implications of this shift for our view of both language and development are important, as the burgeoning literature in the journals and in such recent edited collections as Collins (1979), K. E. Nelson (1978, 1980), and Lock (1978) indicate. A sense of the richness and interest of the newer approaches can be gleaned from these sources. Here I would like to consider how the study of individual differences in development fits into this new framework and adds to it.

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Requests for reprints should be sent to Katherine Nelson, Developmental Psychology, City University of New York, 33 West 42nd Street, New York, New York 10036.

In the older paradigm, individual differences played no part nor could they. A basic assumption of the stance, derived initially from Chomsky's (1965, 1968, 1976) theories, was that grammar was innately given, operating under universal principles. To the extent that this is the case, one could expect to find a similar course of acquisition for all children, and thus variation among individuals, cultures, and language communities could only be minor and irrelevant. Evidence in favor of this position was found in the fact that similar patterns of early word combinations were found among children from different language communities (Brown, 1973; Slobin, 1973), although differences between languages were also found at later points in development (Slobin, 1973). The latter differences were considered to result from the different cognitive—not linguistic—demands of different languages. A strong argument could be made along similar lines that the similarities found reflected universal cognitive developments (Sinclair-de Zwart, 1973) rather than linguistic ones. In any event, an implicit corollary of the proposition was that any child would be representative of the language acquisition process inasmuch as that process was universal. On these grounds, the prototypical language development research design—the longitu-

dinal study of one, two, or three children—could be justified.[1]

It is not surprising that the first study to call attention to individual differences in language development was also among the first to challenge the prevailing views of syntactic development and to introduce semantics and the method of *rich interpretation*[2] into the study of early word combinations. This was Bloom's (1970) book, based on an earlier dissertation. Bloom suggested in this study that different grammatical representations were developed by different children. Although the grammatical analysis contained in this work was widely acclaimed and debated, its suggestion of different approaches was largely ignored at the time. If anything, the claims of universality grew stronger, culminating in Brown's (1973) analysis of the corpora from 17 children reported in various studies of early multiword utterances that had been completed at that time. Indeed, Brown's compendium stands as a kind of watershed, enshrining the concerns, methods, and achievements of the semantic–syntactic paradigm before the growing impact of cognitive, communicative, and pragmatic concerns had yet been much felt.

The semantic–syntactic paradigm had as its goal the description of the grammar of children's early sentences. Several corollaries followed from this. One was that a single-word utterance was considered irrelevant to the enterprise unless it could be analyzed as a sentence (e.g., Greenfield & Smith, 1976; McNeill, 1970). Another was that two-word utterances were analyzed as sentences, and thus the grammar of 2-year-old children's two-word productions absorbed the attention of the developmental psycholinguistic community for many years. The beginnings of speech in single words or in prelinguistic communication and cognition, the meanings intended and conveyed by children, the uses of language, the development of conversation, the role of mothers and others in the language community in the language-acquisition process, the comprehension of what was said, even later grammatical and metalinguistic development—all topics of intense current interest—were almost totally neglected during this period, except as they might bear on the grammatical enterprise itself (i.e., the use of meaning to interpret syntax). And of course individual differences were, with minor exceptions (e.g., Cazden, 1967), almost completely ignored.

Recently, however, a growing number of studies based on these new concerns have emphasized that important individual differences do exist in both the process and the structure of acquisition and in the speech children produce during the major period of language development, roughly from ages 1 to 5. Since the view of language acquisition as essentially maturational has been largely abandoned, such findings no longer challenge it. It is high time, then, to consider the implications of individual differences for developmental research and theory.

A recent book (Fillmore, Kempler, & Wang, 1979) reviews the nature of individual differences in language abilities and behavior primarily among adults but gives very little attention to developmental differences (except in two chapters on phonological development). In this book, various authors attempt to place in perspective the implications of individual differences for linguistic method and theory, going beyond the competence–performance distinction introduced by Chomsky (1965) to consider variations in peoples' competences. The performance–competence terms were originally used to distinguish between the underlying grammatical rules that were assumed to be the same for all speakers of a language (i.e., competence) and the on-line production and comprehension of utterances in context (performance).

Performance could be expected to vary depending on psychologically relevant fac-

[1] There is also a practical reason for the small subject design, since such research is extremely demanding in terms of time spent in collecting, transcribing, and analyzing the data. A single researcher can realistically expect to follow only a few children under these conditions. The fact that research must be carried out in this way does not, however, justify the conclusion, too often assumed, that the data so gathered are representative of all children.

[2] *Rich interpretation* refers to the use of context to interpret the child's semantic intent in producing an utterance and thus to discern the underlying grammatical relations among its terms.

tors such as memory, and performance ability could vary from individual to individual in the psychologist's sense of competence. In the linguist's sense, however, competence was assumed to be equivalent across all adult native speakers of a language. In contrast, the consensus view of the Fillmore et al. (1979) book appears to be that linguistic competence itself may vary among adult speakers; that is, different speakers may have different rule systems. Obviously, then, one of the possible implications of individual differences in child language acquisition is that different rule systems are being constructed.

Other alternative or additional implications are possible, however. Of course, individual differences might be only differences in the rate of acquisition of similar rule systems, perhaps reflecting underlying differences in intellectual functioning. (It is important to note in this regard, however, that variations in early language ability do not reliably predict later intelligence test scores.) Individual differences might reflect something like cognitive styles, matters of performance variability but not competence. Such style differences might in turn reflect personality and motivational factors, environmental influences, or both. On the other hand, individual differences in development might suggest different possible learning sequences or strategies.

An additional consideration is that differences in developmental patterns might persist throughout development and into maturity, or they might disappear as the system reached maturity. If these variations were primarily a function of personality or cognitive style or if they reflected the construction of different rule systems, one would in fact expect to see increasing differentiation as the system became more complex. If, however, they reflected learning strategies or sequences, one would expect them to disappear as the system is mastered. Since we know that there is considerable variation in language ability and use among adults, this question can be restated as one of whether developmental variations are functionally related to later variations. Before sorting out these various possible implications, we need to consider first where and what are the differences in question.

The Nature of the Differences

Much of the recent work revealing differences in approach to language can be summarized in a set of polarities: word versus phrase, referential versus expressive, cognitive versus pragmatic, nominal versus pronominal, and analytic versus gestalt. As used here, these are not formal linguistic terms but functional psychological ones. Furthermore, they have not been the starting points of analysis but rather the synthetic outcomes. Their relevance was prefigured in a study focused on the presyntactic stage of learning to talk (K. Nelson, 1973). In that study, 18 children were followed longitudinally from approximately 1 to 2½ years of age. The study utilized records kept by mothers as well as tape recordings of language used by mother and child during monthly visits in the home and periodical probes of such developments as comprehension, imitation, categorization, and reference. A major outcome of the study was the finding of individual approaches to the tasks of learning the language. These approaches were reflected in a number of ways, first in the kinds of words and phrases children learned and used during the single-word period.

For most of the children (called *referential*), early vocabularies consisted of a large proportion of object names (i.e., nouns) with some verbs, proper names, and adjectives. For a large minority (called *expressive*), however, vocabularies were more diverse, with a large number of social routines or formulas (such as "stop it," "I want it," "don't do it") included among the nouns, verbs, and adjectives. Because of these phrases, the vocabularies of the latter children included pronouns and grammatical functors as well as nouns, although whether these terms could be considered "vocabulary items" was problematic, since they were usually embedded in what appeared to be unanalyzed formulas or routines rather than novel constructions. These two primary characteristics, representing content (vocab-

ulary) and form (word or phrase), also appeared to be related to pragmatic factors of use, although this factor was less clear-cut. Expressive children tended more often to be second born and to come from less highly educated families. A plausible case can be made that the conditions of language use are different in the environments associated with these factors (see discussion below), although systematic observations of differences in function were not carried out with this sample.

Nominal–Pronominal

The identification of a child as expressive or referential in the 1973 study was made at approximately 19 months (or when a 50-word vocabulary had been acquired). Differences that persisted until at least 30 months were discovered in later analyses (K. Nelson, 1975, 1976). Although mean length of utterance (MLU) did not differ between the two groups of children at 2 or 2½ years, size of vocabulary did, with the referential children using significantly greater numbers of different words than the expressive children. In addition, the expressive children used pronouns preferentially in sentences, whereas the referential children used primarily nouns in their early multiword utterances. This difference tended to disappear as the referential children began to use more pronouns in more complete sentences at the later age and MLU stage (over 2.5 words).

At about the same time that the first report from the 1973 study was published, Bloom (1973) described variations in the one-word period among the children who had been the subjects of her earlier grammatical analysis of multiword utterances (Bloom, 1970). On the basis of her observations, Bloom proposed that there were two routes to two-word speech and that these were associated with different characteristics of the children's later two-word constructions as well as with differences in later usages and in the use of imitation. She observed that some children seemed to utilize relational terms (such as "all gone") whereas others used more substantive terms (usually nominals such as "dog" or "flowers"). She also found that the relational children produced pivot-open[3] constructions and used more imitations and more pronouns (Bloom, Lightbown, & Hood, 1975). The substantive children used subject–verb–object sentence constructions (or reduced forms of such) and nouns rather than pronouns and did not imitate.

The use of pronouns rather than nouns by expressive[4] children is especially interesting. Its implication is that the child can refer to objects, people, and actions (using the "pro-form" *do*) without specifying them. The semantics involved in the two uses is quite different. First, the lexicon must be less differentiated. "It," to take the simplest case, may refer to any object, whereas "ball" must refer to objects specified by their appropriate properties. To use object terms, the child must have built up concepts appropriate to the words, but to use pronouns the child need only make the general distinction between people and things. It is true that the I–you distinction involves an ability to understand the deictic relationship (i.e., the shift in reference dependent on speaker role), and he–she–they requires differentiation according to sex and number. However, these are very general distinctions compared with the fine-grained analysis required for distinguishing "dog" from "cat," for example, or "truck" from "car." Which is considered to be more difficult depends ultimately on one's notion of complexity (see Anglin, 1977) or on one's notion of whether the child is engaging in feature combining and generalizing or in differentiation. And these in turn depend on knowing where the child starts. The evidence seems to indicate at least that for some children it is easy to learn nouns

[3] Pivot-open constructions describe the type of sentences many children first produce in which one word (the pivot) occurs in great frequency in fixed positions (first or last) in combination with a variety of other words (the open class). Although this description was originally proposed as a first grammar, it was later abandoned as an explanation in that it failed to fit much of the data, among other reasons (see Brown, 1973).

[4] The division of children into two groups is a descriptive convenience. Throughout the article, expressive, pragmatic, pronominal, and gestalt will be considered roughly equivalent terms, in contrast to referential, mathetic, nominal, and analytic (see discussion in text).

but less easy to learn pronouns, and for other children the opposite is true. The question is why this is so.

Analytic Versus Gestalt

Table 1 shows a tabulation of some of the many studies that have recently addressed the question of individual differences in language acquisition and the dimensions along which differences from the "standard" account have been identified, including the word–phrase and nominal–pronominal factors just discussed. It is of some interest that many of these investigators commented on their surprise at the appearance of a characteristic previously undocumented in the literature. Brannigan (Note 1) and Peters (1977) have particularly nice accounts, accounts that are understandable given the strong expectation from previous literature that the 15-month-old child may say "doggie," "bow-wow" or "mommy" but will not say "I don't know where it is" (Brannigan, Note 1), "what do you want?" (K. Nelson, 1973), or "I like goodnight moon" (Peters, 1977). Investigators who hear such expressions from 1-year-olds are likely to conclude that they are overinterpreting an unintelligible sound sequence to fit the situation. It is only as these sequences are repeated in similarly appropriate situations that it becomes obvious that the child is using speech meaningfully. But what kind of speech?

Brannigan (Note 1) refers to utterances of this kind as "compressed sentences," which is a good descriptive term for sequences that are executed very rapidly, contain no pauses between words, and have greatly reduced phonological forms. Peters (1977) refers to it as "gestalt language," indicating that it is aiming at whole phrases or sentences rather than single words. I originally (K. Nelson, 1973, p. 25) referred to it in terms of stereotyped units after Lyons's (1969) discussion, units that can be combined into larger units but are not themselves analyzable. Others have referred to formulas and formulaic routines (e.g., Fillmore, Note 2). The criterion for identifying expressive children in my sample included the use of more than six formulas of this kind before reaching the 50-word level. Such use was as typical of expressive speech as object labeling was of referential speech.

Some examples of this type of language are:

"I don't know where it is"
"I'll get it"
"Is it go back" (Jonathan, 17–20 months, from Brannigan, Note 1)

"Open the door"
"I like read *Good Night Moon*"
"Silly isn't it?" (Minh, 14–19 months, from Peters, 1977)

"I don't want it"
"What d'you want"
"Don't do it" (Rebecca, 16 months, from K. Nelson, 1973)

These gestalts have the characteristic of being wholistically produced without pauses between words, with reduced phonemic articulation, and with the effect of slurred or mumbled speech but with a clear intonation pattern enabling the listener to construct the target utterance *in context*. These utterances are representative of anything but clear articulation. An emphasis on intonation and form as opposed to clear phonemic realizations of content was also noted by Dore (1974) between two children whom he designated as "message" and "code" learners, respectively.

Thus far, then, we have noted three recurrent characteristics that frequently appear to go together. On the one hand, learning and use of nouns (object labels) early in the second year, clear articulation of words of one or two syllables, and later two-word substantive combinations; and in the other case the learning and use of pronominals, whole phrases, and poor articulation but clear intonational patterns.

There is at least one other characteristic of early language use that has been associated with these two styles. This is the use of *dummy* terms in early sentences. A much noted example of this was Bloom's (1973) Allison, who produced a form /WIDə/ that she combined with single words during the late one-word and early two-word period but for which there was no clear referent. The use of dummy terms (such as "uh uh" in

Table 1
Summary of Major Studies of Nonreferential Children

Study	*n*[a]	Age[b]	Other child characteristics	Language characteristics: Semantic	Syntactic: Formulas	Syntactic: Dummy terms	Syntactic: Pronouns	Syntactic: Other	Function	Learning strategies	Other
K. Nelson (1973, 1975)	8 (18)	11–30	Less well-educated families or 2nd born; 3M, 5F	Few nominals, smaller vocabularies	X	X	X		Interpersonal, less object naming, more self-reference	Slower rate of vocabulary acquisition, more imitation, whole phrases	Poor articulation
Clark (1974)	1 (1)	27–30	M		X					Whole sentence use and recombination; imitation	
Bloom, Lightbown, & Hood (1975)	2 (5)	24–30[c]	M				X	Pivot-open sentences		Imitation	
Ramer (1976)	3 (7)	15–23	Middle-class male; 1. firstborn, 2. 2nd born		X	X		Verb-complement relations		Slow	
Lieven (1978)	1 (3)	20–26	F, 2nd born	More "notice" & recurrence; less locative action & attribution	X			Lacked word rules	Get attention		Repetitive
Peters (1977)	1 (1)	7–24	Second-born M	Fewer nominals	X	X	X		Two types: Gestalt, analytic	Whole phrases, intonational contour	Poor articulation
Horgan (in press)	15 (30)	30–48	Academic families	Fewer adjectives				More main verbs; more auxiliaries, lower NP length		Slow learners	Better comprehension, more varied construction
Brannigan (Note 1)	2 (3)	17–20	M		X	X	X	Wh-Q, contractions, do, negatives, articles	Social situations	Phrase targets, compressed sentences	Poor articulation, shift in strategy
Horgan (in press)	1 (1)	15–36	Academic family, F	Few nominals	X			Pivot-open	Tuned to function of questions, not content		

Note. M = male, F = female. NP = noun phrase; Wh-Q = wh question.
[a] Number of nonreferential children in sample; total sample in parentheses.
[b] In months.
[c] Approximate.

combinations like "uh-uh down") by some nonreferential speakers was noted by K. Nelson (1973) and has subsequently also been noted by Brannigan (Note 1), Peters (1977), Leonard (1976), and Ramer (1976). These terms seem to be serving the function for the child of filling out the sentence frame. They reinforce the notion suggested by Peters and by Brannigan that some children are aiming at sentence targets rather than single-word targets from the beginning.

Pragmatic Versus Cognitive Functions

Before considering various explanations for these pervasive differences in developing language, it should be noted that they may not be characteristic of individual children at all but of the same children at different times and in different contexts. While the K. Nelson (1973) sample was divided on the basis of the subjects' most characteristic vocabulary, it was not claimed nor was it intended that all children were exclusively one type or the other. Indeed, there appeared to be a continuum from highly referential to highly expressive, and many children appeared to employ aspects of both styles.

Recently, Peters (1977) has given an excellent description of the way in which a single child used the two styles in different contexts. The gestalt style (expressive) was used in social contexts when the child and another were engaged in free play and interactions or in speech contexts that Halliday (1975) would define as pragmatic—instrumental, regulatory, and interpersonal, whereas the analytic style (referential) was used in specifically referential situations such as reading books with mother. The two styles were apparently extremely well differentiated and highly context specific. These findings strongly suggest that there are functional differences between the two types of early speech and that one type may be more appropriate in certain contexts than the other. This in turn suggests why one child might learn one style more readily than another.

Form–Function Relation

Unfortunately, with the exception of Peters' (1977) study, there have been few direct observations of the relation between language function and language form. Some recent evidence from an experiment designed to study the process of word learning (Ross, Nelson, Wetstone, & Tanouye, Note 3) is relevant to this question. In this study, 20-month-old children were taught nonsense labels for unfamiliar objects in a series of four learning sessions carried out in the laboratory in a standard manner. Each object was introduced by the experimenter and named by her at standardized intervals in normal sentence contexts while the child interacted with the toy, experimenter, mother, or observer. The sessions were videotaped for analysis, and the language used by the child was transcribed and coded by a trained assistant skilled in interpreting child language.

The mean MLU of the 20 children whose language use could be analyzed over three or four of the learning sessions was 1.43, with a range from 1.0 to 2.25. Productive language forms were analyzed along a number of dimensions, the most relevant one for the present purpose being the relative use of nouns and pronouns. Such usage has been shown to be a consistent style difference in the various studies reported previously (see Table 1). Among this group there was a very balanced distribution of this variable, with 7 of the children using predominately pronouns (a noun/noun + pronoun ratio of .33 or less), 7 children using predominantly nouns (a noun/noun + pronoun ratio of .67 or more), and 6 children falling in the midrange. (This outcome supports the conclusion to be discussed below that the difference in question reflects a continuum rather than a dichotomy.) Nominal–pronominal status was not related to MLU, amount of verbalization, or the receptive learning of object names, although it was related to amount of labeling, as would be expected.

Language functions in the third learning sessions were coded for the subjects who fell into the two extreme groups and who produced a sufficient number of utterances. There were five nominal users (N) and five pronominal users (P) who met the requirements. Language function was coded from the videotapes according to categories devised for this analysis based on Halliday's

(1975) description of pragmatic and mathetic functions (see definitions given in Table 2). Reliability of coding into these categories by two coders showed 85% agreement.

Two categories were identified as primarily referential or object-oriented (name–refer and comment–describe). Two were identified as primarily personal–social in orientation (personal and interactive) and two combined social- and object-oriented functions (instrumental–regulatory and show–give–take). The hypothesis based on previous research was that the pronominal speakers would use primarily personal–social functions and the nominal speakers would use primarily referential functions. Mean scores for the two groups are shown in Table 2. As can be seen, there were large group differences in three of the four categories in question in the predicted direction, whereas there were no differences in the two categories that integrated social and object functions.

When the personal and interactive categories were combined, there was a nonoverlapping distribution between the two groups, with the pronominal speakers using these functions much more frequently on the whole than the nominal group (means of 27.5% and 11.7% respectively). The outcome for the combined referential functions was less clear, although in the predicted direction. Individual children within the groups showed different patterns, some pronominal children using the name–refer category to a large extent (38%), whereas some nominal children used it relatively little (4%). The group difference was therefore not significant.

Table 2
Analysis of Speech Functions of Nominal and Pronominal Children in Concept Learning Session

Functional category	% of total utterances	
	Nominal	Pronominal
Name–refer (N–R) (Child names or refers to object, e.g., points and says "that")	24.6	13.02
Comment–describe (C) object (Child names a property, action of the object, or state)	9.52	9.44
Instrumental-regulatory (I-R) (Child attempts to regulate the action of another or use another to achieve an end)	33.38	33.03
Show–give–take (S-G-T) (Child engages other in showing or exchanging object)	20.76	17.00
Personal (P) (Child describes own action or state)	11.00	21.81
Interactive (I) (Child establishes or maintains contact with another)	.74	5.70

Note. $n = 5$ for both nominal and pronominal groups.

The fact that there were not consistent differences between the groups in the use of the referential functions probably reflects situational constraints. That is, the context of the word-learning study was such that the child's attention was constantly directed to the objects to be learned. Thus, naming and referring was the expected or "framed" language use. A child who might not ordinarily choose to talk about objects might feel constrained to do so in this situation. On the other hand, the personal and interactional uses were not specifically called out. The group difference in these functions thus probably reflects a true difference associated with the language form differences. It is interesting to note also that it was only the pronominal children who used negative utterances. For three of the pronominal children, 33% or more of their utterances were negatives (e.g., "no," "I don't want it") whereas only one of the nominal children used any negatives (4%). Negatives in this situation may be an extreme form of personal–social expression.

Thus, under standard conditions of observation, there is evidence that the nominal and pronominal styles are associated with functional preferences. Most children used all functions (although four N and two P children did not use the interactive function). The difference, then, was not one of competence but of what the child preferred to talk about. In turn, what the child talks *about* has implications for *how* he or she talks—that is, the forms used.

It should be emphasized, however, that the nominal form difference was not an artifact of the emphasis on personal–social speech

by one group and not the other. Pronouns were used in all functions by pronominal speakers and vice versa, as the following examples from two children illustrate[5]:

Nominal: Want mobol. (P) Mommy get mobol. (I–R) I turn nutty. (P) Put linky back. (I–R)

Pronominal: Put inna box. (I–R) I put back. (P) Cover it. (P) This. (N–R) It's stuck. (C–D)

A partial replication of these results can be found in Furrow's (1980) study of the use of social and asocial speech among 2-year-olds studied in their homes during a free-play session. Using a similar functional analysis, he found that nominal-type speakers engaged in significantly more referential speech ($p < .05$) and pronominal children used more personal functions ($p < .01$). The referential functions difference, however, held only for children at an early level of language mastery (MLU < 2.00).

The results of these exploratory analyses cry out for further replication and for complementary functional analysis of children's speech over a wider range of situations. At this point, they provide preliminary support for the hypothesis that at the beginning of language learning, form and function interact in mutually influential ways.

Consistency and Inconsistency With Later Development

There is evidence from a number of studies that a shift in style of use may take place developmentally. Brannigan (Note 1) traced such a shift from phrases to single words for his subjects, and Horgan (1978) reported a shift from an expressive to a referential strategy at 19 months by her daughter. (However, her daughter apparently retained expressive characteristics throughout the language learning period, as described in Horgan, in press.) Such a shift also fits the pattern of results found in the study of larger groups such as those of K. Nelson (1973, 1975) and Bloom et al. (1975). In the Nelson study, correlations of later language characteristics with early style tended on the whole to be low and nonsignificant at 24 and 30 months, with the exception of vocabulary size and the noun–pronoun use strategy.

In contrast to these apparent shifts, varying strategies have been observed at later periods that seem to be related to the early differences, such as the sentence reconstruction approach reported by Clark (1974) and the variations among toddlers and preschoolers reported by Horgan (in press). Moreover, there are indications in Wolf and Gardner's (1979) work and in Starr's (1975) report, both based on longitudinal studies, that similar stylistic differences persist beyond the second year. Peters' (Note 4) report (discussed below) clearly traces a relation between the early and later strategies that are not apparent in the correlational statistics.

Horgan (in press) reports on differences found among preschoolers that she identified as early "noun lovers" or "noun leavers" (i.e., referential or expressive) in the use of noun phrases in referential communication.[6] Horgan's most interesting and provocative report, however, concerns the longitudinal study of her own daughter, Kelley, an expressive child (or leaver) whose use of language throughout the preschool years was unusual in several respects. She was highly sensitive to language patterns and used language in a playful, social–personal mode. Although she labeled objects, she did not ask for the names of things, preferring to assign her own nonsense names in the Humpty Dumpty mode of making words mean what you want them to. Her production of questions was similarly idiosyncratic. In other words, the specific characteristics that identified her as expressive at the outset did not themselves persist, but apparently related characteristics persisted throughout the language-learning period. As Horgan notes, in line with the observations of Peters (1977), Brannigan (Note 1), and Dore (1974), Kelley was sensitive to the form, the tune (the pattern of the language) and was precocious with respect to manipulating these aspects.

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[5] "Mobol," "Nutty," and "Linky" are names for the object concepts to be learned. Letters in parentheses indicate the functional coding of the utterance as defined in Table 2.

[6] These differences are reminiscent of those reported by Bernstein (1970) among boys from different socioeconomic classes.

On the other hand, she appeared to be indifferent to its content; she did not view it as a particularly useful referential tool.

Thus, although the evidence for the persistence of style differences is rather weak, this may reflect primarily the lack of good longitudinal data following children through the preschool years. To the extent that the differences observed reflect differences in the approach to the learning task itself, we would expect them to disappear. However, to the extent that they reflected individual style differences (as suggested by Horgan, in press), they would be expected to persist over time. And if they reflected on conditions in the environment, they would persist or disappear depending on the persistence of similar conditions. These possibilities are considered next in the context of the various explanations that have been advanced to account for the phenomena.

Explaining Individual Differences in Language Development

In a recent study, Peters (Note 4) cites four factors that may account for the strategy differences discussed above: individual makeup, type of input, type of speech expected by the environment, and perception of speech function. In considering these here, it should be emphasized that, like Peters, I am not attempting to decide among them. Style or strategy differences may be multiply determined. Moreover, different patterns of acquisition-related factors may produce different styles. Although I have spoken of two seemingly coherent "packages" of early language characteristics, it has not yet been shown in any reliable empirical way that these are actually two distinct styles. What may need to be explained are a number of sometimes correlated but logically independent variations. This possibility will be examined further in the section on the language-learning task.

Individual Makeup

In a recent theoretical discussion, Bates (1979) examined some of the data discussed above in terms of a hypothesized three-factor theory of symbolic development displayed phylogenetically as well as ontogenetically. The two cognitive factors are identified as *analytic*, which is related to the means–ends analysis of language and is also essential to tool using, and wholistic or *gestalt* processing, which is associated with imitation. The third factor is *communicative* intent. Bates noted that these three factors may be related to competencies associated differentially with the two hemispheres of the brain, the analytic mode with the left and the wholistic patterning with the right. Similar hemispheric function proposals have been put forth by Peters (1977) and Horgan (in press). Bates made the further suggestion that it is only when the three components become integrated that language—in the species or in the child—emerges. She noted that individual differences may result when there is an asymmetric development in the different components. A child who is relatively more advanced in analytic-type skills may rely on these in early language acquisition, whereas a child whose gestalt processing is relatively advanced may become a skilled user of whole phrases.

Bloom's discussion of individual variation (Bloom & Lahey 1978) strongly implies also that there are two distinct and regular paths toward language competence, one a pronominal strategy and one a nominal strategy, which she apparently views as matters of cognitive style. Bloom claims that both paths (and individual variations in general) are aimed at the adult target language; that is, they represent one aspect of the language to be learned but do not ordinarily head in a direction that is at odds with the end state. The implication seems to be that there is one adult end state, a position that is not supported by recent evidence (Fillmore et al., 1979). Moreover, it is hard to conceive of convincing evidence that would show that a child was *not* headed in the general direction of adult competence.

Wolf and Gardner (1979) describe individual differences in all aspects of symbolic development that appear to implicate distinct cognitive styles associated with temperamental differences. They distinguish between patterners (similar to the referential–analytic groups described here) who consistently focus their attention on the object

world, use other persons largely as means to ends, and use language to pick out physical properties; and *dramatists* (expressive–gestalt) who are socially oriented and use language to establish communication. These differences were displayed by the children they studied in symbolic play as well as in language use, including metaphoric uses, throughout the preschool period.

The emphasis on a social versus object orientation as the basis for early language differences has been suggested in a number of reports, but I have been unable, either in my own studies or in those of others (except Wolf & Gardner, 1979) to find good evidence that expressive speakers are somehow more socially oriented in general. This hypothesis needs further confirmation.

Environmental Conditions

An alternative to the neurological differential, maturation of skill, or style explanation of the differences displayed is that they are determined by environmental conditions of learning. The suggestion that their appearance varies with educational status and sibling order (K. Nelson, 1973) as well as related differences found by Allen (Note 5) in different social class groups point in this direction. Peters (Note 4) also notes differences between the linguistic environments of firstborn and later born children as well as differences in the learning environments of children from different linguistic communities.

A recent analysis of the speech used by mothers to their 2-year-old offspring identified as expressive or referential in the K. Nelson (1973) study reveals a significant relationship between the mother's noun/pronoun ratio and the child's, thus suggesting that there is consonancy between the language the child is exposed to and the language he or she learns along this dimension (Furrow & Nelson, Note 6; see also Wells, 1980).

Despite some variations in this dimension, it appears that most parents in our society (working class as well as middle class according to Miller, Note 7) typically tend to provide children with single words to refer to things in their world. That is, they provide the child with a referential context and a referential language. In contrast, Schiefflin (1979) has described a culture in which mothers try to teach children the appropriate formulas for dealing effectively with peers and older children. Although probably few adults in our culture engage in similar teaching, no doubt many simply assume that the child will learn language without direct tuition and therefore by default provide the environmental conditions for the child to pick up socially useful phrases as well as single words. As an example, Blake (Note 8) has described the close relationship between the pragmatic language used by a black mother–child pair in which the mother used speech primarily to transmit social information and supported the child's similar uses.

As noted earlier, Peters (Note 4) also suggests that what others expect the child to learn affects what the child does learn about the language. For example, whereas mothers in our society "read" books to teach their beginning talkers object labels, children in Vietnam may be expected to learn first the honorific pronoun system.

That the language environment provided by the parent may be significant is suggested also by Lieven (1978), who analyzed the speech of two mothers whose children had quite different speech styles. Beth, a second born, had speech that could be characterized as expressive, whereas Kate, a firstborn, was more clearly referential. Both mothers adjusted their speech to their children along lines found to be generally characteristic of adult language to children, that is, short sentences and more imperatives and interrogatives than found in speech to adults.

The interaction styles of the two mothers differed, however. Kate's mother responded to her utterances 81% of the time, whereas Beth's mother responded only 46% of the time. Kate's mother tended more often to respond with questions; there was more turn-taking in their conversations. Beth's mother more often responded, when she did, with a ready-made word or phrase, with a correction, or with a comment that ignored the child's utterance. In her summary of the two children's styles, Lieven (1978) says:

> These two children appeared to be using language for different ends. Kate talked slowly and coherently about things happening around her and objects in her environment, while Beth devoted more time to using her speech to try and engage her mother's interest. (p. 178)

This description is consonant with the notion that children adopt different strategies and styles because they have different hypotheses about what language is used for. Obviously such hypotheses must be based on their experience with language in use.

Thus, how and why mothers use language may be as important for the child's pattern of acquisition as what kind of language they use. For example, the mother who has a 3- or 4-year-old to cope with, as well as a 1- or 2-year-old, will use characteristically different language in interaction with both children than will the mother who has only one child of 1 or 2 years. A larger percentage of the function of language that the younger sibling hears is likely to be directive and centered around the child's own activities—to be, in effect, pragmatic and expressive. Thus, the child is likely to conclude that language is a pragmatic medium that is useful for social control and social exchange, and this conclusion is likely to be shored up by exchanges with siblings. On the other hand, a child who is exposed to a mother who teaches through relevant questioning is likely to conclude that language is basically a cognitive or referential medium.

Language Function and the Language-Learning Task

Speech in different functional contexts displays different features. As various linguists and sociolinguists have recently pointed out (e.g., Gumperz & Tanner, 1979), an enormous amount of social speech is formulaic in character. Thus, the function of the language that the child is exposed to is reflected in its form. The mother who labels and responds to questions makes it easy for the child to break language into its component parts, to become a word user. Social-control language, on the other hand, is likely to be heard in clumps that are not easily broken up; for example: "D'ya wanna go out?" "I dunno know where it is." "Stop it." Segmentation of such sequences is difficult, but the tune, as Peters (1977) would say, is easy to learn.

Peters's (Note 4) recent analysis of the "units of language acquisition" and Fillmore's (Note 2) description of "preassembled parts" in the adult language are both relevant to this analysis. The language to be learned is traditionally thought of in terms of two basic units, the word and the sentence. In oversimplified but basically correct terms, words are learned as unanalyzed wholes, whereas sentences must be constructed from parts (i.e., words).

Two problems arise with this description. First, words are not readily identifiable as separate parts in the speech stream, and second, many sentences are preassembled and can be used appropriately without further analysis or reconstruction in a new context. In other words, the difference between words and sentences is not as great as traditional accounts have implied. The first problem for language learners is to isolate the parts that they will work with. They next need to learn what occasions of use the parts are appropriate to and finally how to construct new wholes out of old parts. Although the traditional account has children first learning words and then constructing sentences, as we have seen, the process may proceed in a different fashion. There are two accounts in the literature that suggest how children may proceed beyond the early stages using preassembled parts.

Clark (1974) reported a study in depth of her own son's strategy for the acquisition of grammar using a juxtaposition of well-practiced sentence fragments or routines, producing errors that resulted from the failure to make internal adjustments in the unanalyzed fragments. Some examples from her work: "I want *you get a biscuit for me*"; "I don't know *where's Emma gone*"; and "Don't stand *baby's on hand*"—(Clark, 1974, pp. 5–6.) The italicized passages are Clark's identification of the preformed segments. She suggests that "the process of modifying a practiced sequence internally is psychologically more complex than the process of collocating linguistic units" (p. 7). That is, acquiring whole phrases that can be put together in this way may allow children

to say more and more completely what they mean than they would if they had to construct an utterance from scratch. The use of formulas appears to be consistent with an imitative approach to language learning as well as with more social contexts of learning and use.

L. Fillmore's (1979) analysis of the learning strategies of second-language learners sheds further light on the social conditions that are important to first-language learning as well as the formulaic strategy. She studied five Spanish-speaking children between 5 and 7 years of age who were learning English as a second language in a natural school setting. They employed both social and cognitive acquisition strategies, and the implementation of the latter was dependent on the success of the former. For example, she gives as the first important social strategy: Join a group of native speakers. If there is no motivation to communicate within a social group, the child's cognitive strategies cannot be utilized. For most first-language learners, the natural group of native speakers are the family members and the motivation to speak in the group is ready-made.

Fillmore (1979) goes on to point out that to be successful learners, children must make the most of what they have and use limited language widely whether it is strictly appropriate or not. In this connection, she observed that each of the children she studied acquired a few formulaic phrases that they made do with for some time in appropriate play situations, for example:

Lookit.	I wanna play.	Liar, panzon fire.
Wait a minute.	Do you wanna play?	It's time to clean up.
Lemme see.	Whaddya wanna do?	OK, you be the X, I'll be the Y.
Gimme.	I gotta hurry up.	I'll tell you what to do.
Let's go.	I get 2 turns.	Shaddup your mouth.
I don't care.	Whose turn is it?	Beat it.
I dunno.	You have to do it this way.	Knock it off.
You know what?	I'm gonna tell on you.	

These phrases were then gradually broken apart and recombined with other words or parts of other formulas. For example, "How do you do dese?" (Time 1) was used at Time 2 to produce "How do you do dese in English?" "How do you do dese flower power?" "How do you do dese little tortillas?" This learning and using strategy is, of course, similar to that identified by Clark (1974) and may be used to at least a limited extent by many first-language learners.

This strategy is most useful when the child wishes to *use* language in the ongoing activities of a social group, as emphasized by L. Fillmore (1979), in contrast to *learning* a language as a cognitive object. As noted earlier, intuitively it has seemed that those children whose language is primarily expressive, pragmatic, or gestalt use their language in more purely social contexts for one reason or another. Such children may acquire useful phrases because these phrases are appropriate in group situations. Although parents may sometimes provide the conditions under which such phrases are acquired and used, most frequently it seems that older children and peers provide both the conditions and the ready-made language of this kind. Indeed, most of the relevant examples from my sample come from children with siblings or other close peer relationships.

Thus, the claim is that it is in the framework of social interaction that children learn language, and the nature of the particular kinds of interaction dictates not only the function and content of the language but which parts will be learned first and how those parts will be put together or broken down for reassembly.

Because most children learn language in a variety of contexts for a variety of purposes, most children will exhibit aspects of both formulaic and analytic approaches in their early language. It should also be emphasized that the two approaches to the task both involve analytic and synthetic operations as well as pattern learning. As L. Fillmore (1979) suggests, the mastery of formulas provides the child with the internalized

sequences for applying analytic operations, comparing component parts, and reconstructing new wholes from old. For the word learner, the analysis comes first. It appears that children can master language in either way and probably in both at once. Thus far, however, the general research tack has ignored the formula approach almost entirely in favor of the analytic (which is, of course, the favored "scientific" style). What we need is to recognize the importance and function of both alternatives and thereby to construct a balanced account of the acquisition process.

Discussion

In brief, the argument here is that the child does *not* build up language by analyzing its parts in terms of lexicon, syntax, phonology, and pragmatics. Rather, the child acquires the language according to contextually determined parts. The context of language use will determine the function of presented utterances, their relationship to nonlinguistic conditions, the form of sentences, and their relative analyticity in presented form. The child will accumulate language knowledge based on these various exposures. He or she will subject accumulated knowledge (examples) to analysis to determine first units and then combinatory rules (L. Fillmore, 1979; Peters, Note 4).

Because functional contexts are correlated with frequency of particular forms and constructions and because different children are exposed differentially to various types of contexts, different children will begin to put different parts of the language system together initially, and the course of acquisition will look different for different children.

One point that must be emphasized again is that this is not an argument for two distinct patterns, however intriguing such a possibility may be and however prevalent the tendency to dichotomize the data. Certain characteristics seem to go together, as noted throughout this article, but most children present a mixture of these characteristics. They put the parts together bit by bit. The extremes show us more clearly what the bits are.

What remains to be considered in this article are the implications of these variations for developmental theory in general and for the development of the language system in particular. We will consider the former within the context of the latter.

The transition from no language to facile speech is a dramatic one—perhaps the most dramatic one in the development of the child. The various ways that children negotiate this transition do not represent mere oscillations around a mean or spurts and lags in development; rather, it has been shown that different children approach this complex system in different ways and put different parts together in different combinations. In contrast to stage theories that focus on the stable points at which there is similarity among children, the study of transitions is likely to uncover rampant dissimilarity.

It is in fact in transition periods that one must look for the creative, constructive dynamic of development. Minor transitions will show minor variations. Major ones will show major variations, and the move from sensorimotor functioning to language functioning is one of these major transitions that has implications for all aspects of cognitive and social functioning and development. The individual differences displayed here reflect the interaction of system characteristics, child characteristics, and characteristics of the learning context. As the system is mastered, differences can be expected to diminish. What remains will be the residual effects of emphasis or enduring style differences. This, it is suggested, is typical of system development, and language development is therefore a paradigm case within which the complexities of developmental interaction can be viewed (Nelson & Nelson, 1978).

The transition to language involves the mastery of a complex, integrated system that is presented to the child in terms of examples within the context of participatory interactions. Analysts have found it convenient to divide this system into different parts—syntax, semantics, pragmatics, and phonology—but the child cannot divide the language in this manner. Rather, in learning any part of it, children must learn bits of all of these at once. Nonetheless, they must segment the language in some way if they are to master it. I suggest that the naturally occurring dif-

ferences among children in the way they do this have the potential to reveal important facts about the language as well as about development. Let us consider again briefly the differences we have noted for the clues they offer in this respect.

Substantives Versus Proforms

Probably the most frequent and readily observable difference in early development among English language learners is the noun versus pronoun acquisition strategy. The traditional account claims that the child first acquires words referring to particular entities and events in the world and only later the more abstract and general proforms (pronouns, demonstratives, "do") to stand in place of the more concrete-referring terms. In contrast, the child using a pronoun strategy learns abstract or general terms first and uses them in a wide variety of referential contexts. In some sense it is a highly efficient strategy. On the other hand, it fails when the referents are not obvious.

What does this tell us about the language system children are learning? The noun strategy emphasizes the lexical system, that is, the sense of individual words, in a way that the pronoun strategy does not. The latter allows the child to concentrate on other aspects of the language. Moreover, a successful social here and now language does not require a large repertoire of substantive forms but rather a few formulas and general frames and proforms that can be widely applied. Therefore, the vocabulary can be quite limited, and the learner can concentrate on how to use common syntactic forms—questions and negatives, for example, in addition to imperatives. These effects have been seen in several studies (e.g., Bloom et al, 1975; K. Nelson, 1975).

Does this difference in approach have lasting effects on the child's system? Do children maintain an indifference to precise substantive terminology and thereby slight their vocabulary building and semantic development in general? Here Bernstein's (1970) work on restricted and elaborated codes comes readily to mind, but we do not have any good indications that what is characteristic of the early language period continues to be characteristic of individual children along this dimension if their later experience is conducive to a different emphasis. For example, it not only seems likely but has been observed (K. Nelson, 1973) that a second-born child from an educated family would begin language in an expressive mode but would quickly catch up on vocabulary when that became salient.

But again, there may be conditions that are conducive to maintaining an emphasis on pragmatic speech and thus that lead the child to continued relative neglect of lexical development. The usual assumption in our culture, and particularly in our schoools, is that such neglect reflects low intelligence. This assumption is in turn reflected in intelligence testing that relies heavily on the measurement of vocabulary, but as Horgan (in press) has cautioned in this regard, this may be only a tragic reflection of our own biases.

In developmental terms, variation on this dimension demonstrates that there is no necessary movement from the particular and concrete to the more general and abstract. The child can begin at either end. He or she can choose to call every entity and event "it" (as in "I want it," "Do it") and thus name the most general category possible. Or her or she can make fine distinctions between apples and oranges and dogs and cats. We must conclude that neither possibility is more "natural"; both are available, and the child simply chooses which aspect of the world to emphasize in his or her beginning language. This choice may be conditioned by the model language, and it may have important implications for the development of the semantic system, but we know too little about such development at this point to make any firm predictions about it.

Word Versus Phrase Structure

The analytic–gestalt styles appear to divide the language stream into different-sized clumps. As discussed above, current theories of language development are based on the word strategy that moves from single words to the synthesis of combinations in sentences. In contrast, the child who begins with phrases

or whole sentences may subsequently analyze these into smaller parts for the purposes of recombination and may combine parts with other wholes to produce new statements. Most children do some of this. For some children it is a major strategy.

Clearly, both word and sentence approaches are not only possible but occur with some frequency in development, reflecting their dual primacy as linguistic structures. In developmental terms they reveal the intertwined processes of analysis and synthesis working together in various ways to break down the speech stream and build it up again in new productions.

What sort of rules is the gestalt child formulating in this process? At first, these rules must be primarily rules of use. Although little effort has gone into formalizing such rules, they seem obviously to be related to discourse rules such as those specified by Shatz and Gelman (1977), Ervin-Tripp (1977), and others. A major effort in the future must be to show how a system of productive grammatical rules can evolve from a pragmatic system of application rules. The key to this effort is likely to lie in the proposal that pattern analysis along many dimensions simultaneously or sequentially is the basic process mechanism underlying language system mastery.

Such a proposal is central to the recent theorizing of Maratsos and his colleagues (e.g., Maratsos & Chalkley, 1979; Maratsos, Kuczaj, Fox, & Chalkley, 1979), Karmilov-Smith (1978), and Peters (Note 4). It is not feasible to discuss these theories in any detail here as they are necessarily very complex. The kind of rule building that emerges is based on a complex of semantic–distributional and pragmatic–phonological factors, with fairly restricted sets of rules existing side by side until they are eventually combined in a more general system. Similar complexities have been analyzed by Labov and Labov (1978). Gestalt language, in particular formulaic usages as well as imitations, may be particularly useful to the enterprise of pattern analysis in that it enables the language learner to hold onto a bit of language internally (as well as externally), thus allowing it to be subjected to analysis over a period of time. This I take it is L. Fillmore's (1979) point about internalization. Similarly, Peters (Note 4) proposes the term *fission* for this kind of off-line processing. Moreover, if formulaic language is combined with analytic language (as it almost always is), then the latter can serve as a guide to the essential parts that the pattern analyzer needs to extract.

So far these descriptions contain many gaps and much speculation. They do suggest, however, that children who begin with pragmatic formulas do not then have to abandon this route and go back to the beginning to reformulate a grammar along traditional lines. The evidence from Horgan (in press), Clark (1974), L. Fillmore (1979), and Peters (1977) appears quite convincing on this question. Either a single theory of the construction of grammatical rules that will encompass both paths easily must be constructed or it must be shown how different developmental paths converge on similar rule systems. Again, there are hints as to how this might be done, but clearly no coherent theory exists at this point. Existing theories fail to account for all of the data.

Referential Versus Expressive Functions

Halliday's (1975) functional analysis proposed that pragmatic communicative functions appeared first in protolanguage. As we have seen, however, these functions are typical of some language learners in their early speech, whereas for others the language is used from the outset to learn and to share knowledge (Halliday's mathetic, or in my terms referential, function). In effect, these reflect the division between object and social uses of language and might be expected to rest on different systems of knowledge. The now conventional view of language acquisition is that it rests on the cognitive achievements of the sensorimotor period as outlined by Piaget. However, it is important to recognize that the child also comes to understand social relationships during the infancy period (Gelman & Spelke, in press; Kessen & Nelson, 1978; K. Nelson, 1979). The fact that some children begin to use language primarily in a cognitive context, others in the social, indicates that for the language-learning child these systems are to some de-

gree differentiated during this period. Although the correlation of language functions with language forms during development in no sense implies that the forms are derivative of the functions, it is important that when and how the child learns about the language initially is apparently determined to an important degree by what he or she supposes the language to be useful for.

Thus, we have seen that looking at different learning approaches reveals the full range of possibilities at the child's command—the particular and concrete classification as well as the general and abstract, the analytic as well as the gestalt, and the interpersonal as well as the ideational. Moreover, we note that although the child cannot divide the language as we do, learn syntax in terms of abstract markers, master semantics in terms of abstract features, move on to phonology in terms of its distinctive features, and finally master pragmatics in terms of communicative force, still the child can divide up the language in his or her own way and learn the pieces of each that fit together in appropriate contexts. I am convinced that these differential approaches to mastery tell us important things about learning, language, and how to study the developmental process. We ignore them at the risk of continued ignorance.

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