

CHILDREN'S ACQUISITION OF IDIOMS IN THE ENGLISH LANGUAGE

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Idiomatic comprehension was studied in four groups of 20 subjects each, ages six, nine, and 12 years, and adult. Each subject was read 10 sentences which could be interpreted literally or idiomatically. Following each sentence, the subject chose the two pictures that were closest in meaning to the sentence heard. This procedure generated 800 pairs of selections for analysis. The results indicated a (1) significant difference between literal and idiomatic choices regardless of the subject's age or the voice of the sentence, (2) significant difference between literal and idiomatic choices as a function of age regardless of the voice of the sentence, and (3) significant voice-by-choice interaction indicating that voice affected the choice of literal or idiomatic picture representations.

A characteristic of the English language is its ambiguity. For example, the sentence, "The boy chased the dog with a stick," may be interpreted as either the boy had the stick or the dog had the stick; either interpretation is a reasonable possibility. The perception of ambiguity in sentences has received increased attention recently. Thorne (1966), Garrett (1970), Carey, Mehler, and Bever (1970), and MacKay (1970) have provided experiments and discussion on the topic. According to these authors, there are two primary positions in the selective processing of ambiguous sentences. The first is the context in which the sentence occurs. This approach stresses that the semantic reading a listener assigns a sentence is determined both by the previous experience of the listener and the context in which the sentence is heard. With respect to the second position, the semantic reading of the sentence may be determined by the linguistic structure of the sentence itself. This makes use of specific processing mechanisms for selectivity priority assignment or may be tied to the relationship between deep and surface structure configurations.

Among the ambiguous structures a child is exposed to are idioms and idiomatic usage. These structures usually have two distinct semantic representations, literal and idiomatic. Katz and Postal (1963) defined idioms in the following manner: "The essential feature of an idiom is that its full meaning, and more generally the meaning of any sentence containing an idiomatic stretch, is not a compositional function of the meaning of the idiom's elemen-

tary grammatical parts." Similarly, Fraser (1970, p. 22) defined an idiom as "a constituent or series of constituents for which the semantic interpretation is not a compositional function of the formatives of which it is composed." However, Chafe (1968) has suggested more of a processing distinction for idioms when he comments that "idioms are semantic units like other semantic units, but that they require conversion into arrangements of other semantic units before they are further encoded into sound." Chafe (1968, p. 122) also points out that some idioms have only idiomatic meaning and no literal counterpart while others have both literal and idiomatic meanings.

Chafe (1970) states that literal meanings (that is, cumulative or additive meanings) are acquired first in language preceding idiomatic meaning acquisition. That is, a child learns "He kicked the bucket" means something like "He struck the pail with his foot" before he is aware it can also mean "He died." He has proposed that young children may have a "primitive symbolization system" such that there is a one-to-one correspondence between their conceptual units (meaning or reference) and communication symbols (morphophonetic representation). However, because of the constantly increasing size of the semantic inventory during language acquisition and because of the finite limitations imposed by a phonetic system, a one-to-one relationship between meaning and phonetic representation cannot be maintained. As a result, Chafe points out that the practical limitations imposed by a simple, one-to-one relationship must give way to some new mechanism for meaning-to-sound representation as the child continues to advance in his language acquisition. Chafe labels this mechanism *duality* which separates semantic units from phonetic units. Duality permits concepts and symbols to develop independently thus eliminating the finite limits imposed by the primitive, and earlier useful, one-to-one relationship. Apparently, a mechanism such as this or very similar to this is necessary if more than one meaning is ever to be assigned to a single phonetic string.

Much of the past research about children's semantic acquisition has come from studies investigating meaning in relation to single-word stimuli. Because idioms represent a unique form of semantic acquisition in that they present a special form of ambiguity, this study was undertaken. The primary focus of interest is directed toward simple description of literal and idiomatic meaning acquisition as a function of age. Secondarily, information is also presented comparing acquisition of active and passive voice variations of idioms across age.

METHOD

Subjects

Eighty subjects participated in this study. They were divided into four equal groups according to age. The four ages were six years (range 67-73 months, mean 70 months), nine years (range 104-111 months, mean 107

months), 12 years (range 138-149 months, mean 145 months), and adults (range 18-25 years, mean 21 years). These particular ages were selected as a result of preliminary investigation which indicated them to be a representative sampling of subjects ranging from initial levels of idiomatic acquisition to competent adult speakers of English who had attained the maximal level of idiomatic acquisition. The selection criteria required the subjects' parents and the subjects to be native speakers of English. For each age group, approximately half were males and half were females.

Stimuli

The stimuli used were 10 common idiomatic strings considered to have dual meaning (two distinct semantic representations generated by the same string, one literal and the other idiomatic). The strings used were as follows:

- | | |
|--------------------------|---------------------------|
| 1. He kicked the bucket. | 6. He chewed the fat. |
| 2. He pulled her leg. | 7. He buried the hatchet. |
| 3. He broke the ice. | 8. He broke her heart. |
| 4. He spilled the beans. | 9. He hit the sack. |
| 5. He faced the music. | 10. He passed the buck. |

All verbs were transitive and verb tense was held constant.

Four pictures were drawn to represent each of the 10 strings. For each string, one picture represented the literal meaning of the string (L); a second picture represented the idiomatic meaning of the string (I); a third picture represented a literal variation for the string meaning which pictorially changed only the verb, not the subject-actor or the object-receiver (LV); and a fourth picture represented a variation on the idiomatic meaning for the string (IV). For example, as shown in Figure 1 for the string "He kicked the bucket," the literal picture (L) showed a scene of a boy kicking a bucket; the idiomatic picture (I) showed a boy who had died ("He died."); the literal variation picture (LV) showed a boy throwing a bucket; and the idiomatic variation picture (IV) showed a boy who had jumped ("He jumped.").

Presentation

Ten subjects randomly selected from each age group were read 10 idiomatic strings, each string containing an idiomatic expression in the active voice (for example, "He kicked the bucket.") The other 10 subjects in each group were read the same set of stimuli in the passive voice (for example, "The bucket was kicked by him."). As each stimulus string was read, the subject was shown the four pictures for that stimulus. Each subject was directed to select two pictures which meant the same as the stimulus string. The examiner then recorded each subject's choices for all 10 stimuli. The

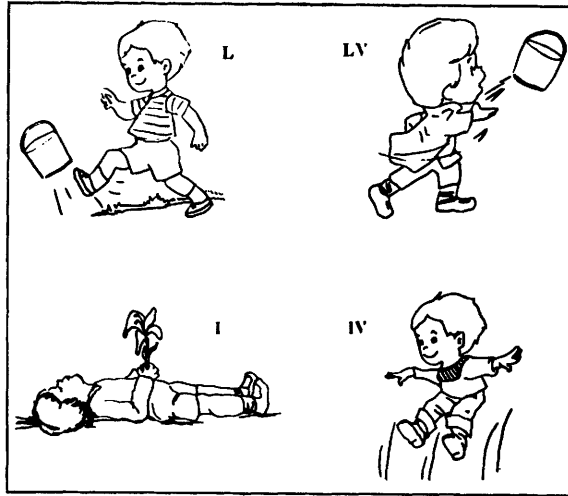


FIGURE 1. Exemplary pictures for the idiom, "He kicked the bucket."

order of pictures as well as the order of string presentation was randomized for each subject.

To determine if the subjects were selecting pictures for any reason other than on the basis of best or closest meaning, a control group consisting of five six-year-olds, five nine-year-olds, five 12-year-olds, and 10 adults were shown the same picture stimuli. The procedure for the control group was identical to the experimental group except that no string was read. These control subjects were directed to select two pictures which they liked best or preferred most. The task was repeated for all 10 sets of pictures. All control group responses were recorded in the same manner as the experimental group data for later analysis.

RESULTS

The data were recorded of the two pictures each subject chose. The primary questions of interest in this investigation were as follows: (1) Is there a difference between literal and idiomatic choices?, (2) Is there a difference between literal and idiomatic choices as a function of age?, and (3) Is there a difference between literal and idiomatic choices as a function of sentence voice?

An analysis of variance (Winer, 1962) was performed on the relative proportions of literal and idiomatic responses derived from each subject's choice of two pictures (if a subject chose both an L and an I picture as the two pictures which were closest in meaning to the sentence read, one count was recorded for L and one count for I). The basic structure of the analysis was

a three-way, fixed-effects analysis with repeated measures on one factor, choice. Since the data were proportions, an arc sine transformation was performed prior to the analysis (Winer, p. 229). The three factors were age (six years, nine years, 12 years, and adult); choice (literal-L and idiomatic-I) and voice (active-passive). There were data from 10 subjects in each of the 16 cells which were the arc sine transformations of the proportions for each subject.

The analysis of variance indicated that there was a significantly greater number of literal than idiomatic choices ($F = 780.92$; $df = 1, 72$; $p < 0.001$). There were also significant interactions of age and choice ($F = 27.91$; $df = 3, 72$; $p < 0.001$), of voice and choice ($F = 8.31$; $df = 1, 72$; $p < 0.01$), and of age, voice, and choice ($F = 8.52$; $df = 3, 72$; $p < 0.001$). Thus, this analysis indicated that not only were literal and idiomatic choices significantly different from each other, but that this difference changed with age and for the two forms of active and passive voice.

To evaluate the directionality of these data, the relative proportions are graphically shown in Figure 2. As this figure illustrates,

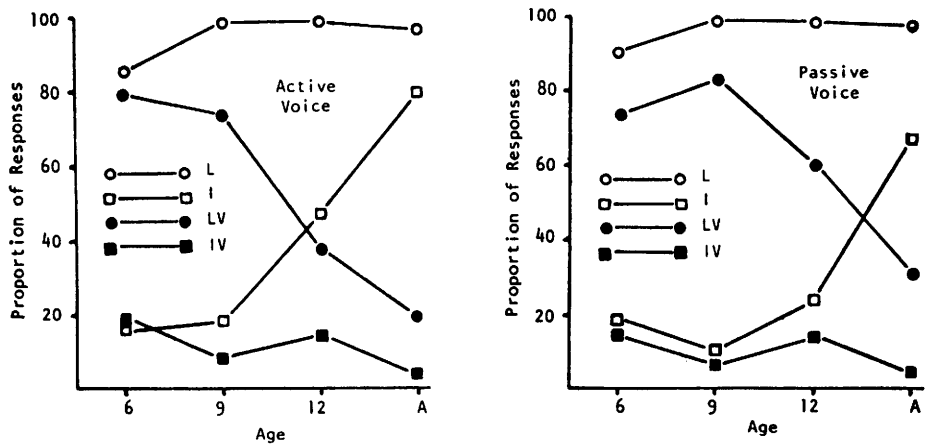


FIGURE 2. Relative proportions for the active and passive voice by age and by choice.

the relative proportions of literal choices remained relatively stable across ages regardless of voice. However, in both the active and the passive voice, the idiomatic choices showed a trend to increase with age while the literal variation choices tended to decrease with age. Since the IV choices are relatively stable across age as were the L choices, the increment of I choices is nearly all attributable to the decrement in LV choices.

Data from the control group are presented in Table 1. While no formal statistical analysis was performed on these data, it was important to consider the possibility that one type of picture might have been more preferable than another type. We interpret the data in Table 1 as suggesting no reason to

TABLE 1. Relative proportions of choices for the control group.

Choices	Age of Subjects			
	6	9	12	Adult
Literal (L)	0.56	0.56	0.46	0.55
Idiomatic (I)	0.50	0.34	0.64	0.56
Literal variation (LV)	0.58	0.66	0.44	0.41
Idiomatic variation (IV)	0.36	0.44	0.46	0.48

suspect that one type of picture was more preferable than another since there is no consistent pattern evident.

DISCUSSION

Our results indicate that the literal meaning of idiomatic strings is acquired first by children followed by idiomatic meaning acquisition at a significantly later age. As Figure 2 illustrates, there is little change in literal meaning acquisition beyond the age of six while the acquisition of idiomatic meaning does not accelerate until after age nine. This strong preference for literal meaning by the younger children is supported further by noting the change in literal variation (LV) choices across age. Six-year-old children chose a high proportion of literal variation pictures in comparison with their choices of either idiomatic (I) or idiomatic variation (IV) pictures. However, as the age of the children increases, there is an increasing preference for the choice of idiomatic meaning while there is a concurrent decreasing preference for the choice of literal variation meaning. This suggests that children at the age of six arrive at a sentence meaning by use of a "literalization" strategy and apply this strategy even when a picture only partially represents the literal meaning of a sentence.

In this particular study, the literal variation picture portrayed the same actor acting upon the same receiver as did the literal picture, the difference between the two being only in the nature of the action for the verb. The verb was the target for variation since precise illustration of verb forms is more difficult than precise illustration of noun forms. The literal variation picture did not, apparently, present an obvious direct contradiction to the sentence read. In this connection, it would be of interest to systematically vary the degree of literal variation to see if the individual elements (subject, verb, and object) exert a differential effect upon choices as a function of age.

Several explanations may be offered for this differential acquisition of literal meaning over idiomatic meaning. This result might be interpreted as a lack of idiom usage by adults during their interaction with children. This minimal exposure position suggests adults speak to children using literal meanings much of the time, and that this lack of exposure is responsible for the slow acquisition of idiomatic meaning. Even though adults may use a substantial

percentage of literal meaning strings with children by comparison to idiomatic meaning strings, adult-to-adult usage to which the child is also exposed likely would not have the same ratio of literal to idiomatic. Considering the fact that nearly all children are exposed to substantial amounts of adult-to-adult speech, it appears that a frequency of exposure explanation is not particularly appealing as a means to account for these results.

One could argue that there is an absence of a contextual referent for the idiomatic meaning while the literal referent may be contextually represented. This suggests that the lack of a contextual referent (idiomatic meaning) makes that meaning acquisition more abstract and therefore more difficult than the literal meaning. Also, this abstraction position might be supported by another interpretation. The attachment of meaning to individual language units during the acquisition process may proceed from the smaller units, such as words, toward longer and longer units, such as phrases and sentences. This proposes that sentence meaning is a summation of its respective parts which, according to the definitions cited earlier, is the literal meaning of a sentence. However, idiomatic meaning is not a sum of the respective sentence parts, but is a semantic translation of a whole phrase or sentence string. This whole translation versus the sum-of-parts translation is apparently more difficult, more abstract, or involves processes not used in the sum-of-parts translation. For these reasons, it is acquired later in the language acquisition process.

There is always the possibility that experimental results are an unintended artifact of the experimental procedures. From this point of view, it might be argued that some of the pictures were more easily interpreted or were more meaningful to the younger children and were therefore chosen on that basis rather than on an idiomatic meaning basis. Indeed, this is a possibility since there is no absolute way of determining the basis of a subject's choices. However, if this were the case instead of a semantic acquisition basis as proposed in this study, then one must argue that the pictorial representations themselves were unequal with no appeal to their meaningfulness or their semantic translation. It is the pictures and not their meaning to which the younger children were reacting. Reference to Table 1, which presents the control group data, indicates there was no pattern to the choices of the pictures for the four groups of subjects. Based upon this information, it seems unlikely that there was some systematic effect of the pictures under the experimental conditions which was not apparent under the control condition.

Younger children often do not carry out experimental tasks as well as older children. Any experimental attempts to describe the acquisition process as a function of chronological age must labor with this issue. In terms of this study, the youngest children were able to perform the task of selecting the literal picture with nearly the same accuracy as that of the older children and adults. This fact suggests that the nature of the task itself was probably a negligible contributor to the differential results obtained. Since these results coincide reasonably well with the ages during which the syntagmatic to paradigmatic shift occurs (Entwisle, 1966), these two phenomena of semantic

acquisition may be interrelated and possibly outgrowths of the total semantic acquisition process.

Comparison of the relative proportions of idiomatic choices in Figure 2 indicates idiomatic meaning acquisition is different for the active and passive voice across age. At six years of age, there is virtually no difference between the active and passive forms for idiomatic choices; both are poorly understood. However, beginning with the age of nine, the choice of idiomatic meaning for passive constructions was less preferable than the choice for active constructions. The difference between the active and passive forms for the idiomatic choices is essentially constant for ages nine, 12, and adult. However, the choices for the literal variation pictures across ages show a different pattern for the active and passive forms. At age six, there is no apparent difference between the LV choices for active and passive. However, at age nine there is a slight decline in preference for LV choices in the active voice, but there is an increase in preference for LV choices in the passive form. For the two remaining ages, 12 and adult, there is a cooccurring sharp decline for LV choices in both active and passive constructions. Since the relative proportions for choices of L and IV pictures in either the active or passive constructions were near overlays of each other, the statistically significant voice-by-choice interaction (BC) is apparently attributable to the difference between the I and LV choices across age for the active and passive voices. These data indicate that listeners will accept the passive form of these idioms almost as willingly as the active form even though it is quite unlikely that the subjects have ever heard any of these idioms expressed in the passive.

Fraser (1970) has postulated a "frozenness" hierarchy for idioms which outlines varying degrees of acceptance for general classes of transformational operations. According to Fraser, there are seven levels of frozenness ranging from unrestricted (accepts any transformational operation) to completely frozen (accepts no transformational operation). Even though five of the 10 idioms used in this study were chosen to represent idiom types which would not accept the passive transformation, this did not prove to have any appreciable effect on the results. Perhaps various transformational operations have less effect upon idioms than has been suggested in the literature. Continued experimental study of this result appears necessary in order to resolve the issue.

These results also provide information about the effects of adding meaning to sentence strings where meaning already existed. Figure 2 fails to show any indication that acquisition of idiomatic meaning interferes in some fashion with the already existent literal meaning. Apparently, there is little or no confusion created by the addition of a second meaning since the proportion of literal meaning choices remains constant for the ages of nine and 12. Parallels for this semantic duality may be found among children in the age range of eight to 12 when they discover puns, jokes, and riddles. This acquisition of idiomatic meaning which begins about the age of nine may signal

the beginnings of a total process of semantic duality which is characteristic of adult language and may be regarded as a milestone in a child's acquisition of adult language.

Children's selection of the idiomatic meaning for idiomatic strings takes place later in the process of acquiring language than their selection of the literal meaning for idiomatic strings. Prior to the time the child acquires a dual semantic capability, he or she will "literalize" nearly all inputs. Perhaps this chronology for one aspect of semantic acquisition may suggest processing or structural peculiarities of value when studying other aspects of semantic acquisition.

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