

The Acquisition of Regular and Irregular Past Tense Forms

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The spontaneous speech samples of 15 children were analyzed for appropriate use and inappropriate use and nonuse of the past tense verbal inflection. Using this data base, the following hypotheses were examined: (1) The irregular past tense form is an earlier acquisition than the regular past tense form. (2) The two types of overgeneralization errors (*goed* vs *wented*) have acquisitional relevance. (3) Partial regularity blocks overgeneralization errors. (4) The regular rule for the application of *-ed* is more likely to be overgeneralized to irregular forms such as *hit*, *shut*, and *put* than to other irregular forms. The data provided partial support for the second and third hypotheses, but no support for the first or fourth hypotheses.

In his longitudinal investigation of three children's acquisition of their first language, Brown (1973) reported that the irregular past tense inflection appeared to be an earlier acquisition than its regular counterpart (*-ed*), a finding which is congruent with other investigations of the acquisition of the past tense inflection (Cazden, 1968; Ervin, 1964). (Brown's acquisition pattern is based on a criterion of 90% current use in obligatory contexts, such that forms which achieve the 90% criterion are thought to be acquired. Thus, a child who uses appropriate irregular past tense forms in 90% of the situations in which such forms are needed is thought to have acquired the irregular past tense form. This is not to say that the irregular past tense form is a single form. Since there are many irregular past tense forms, the child who has acquired the irregular form has in fact acquired a multitude of forms.) If this acquisition pattern is correct, then it would appear that children find it easier to learn a large number of unprincipled relations (e.g., irregular generic

verbs and their corresponding past forms) than a single regular rule (such as the one which relates regular generic verbs and their corresponding past forms by adding *-ed* to the generic verb form). However, only two of the three children in Brown's sample actually achieved the acquisition criterion for the irregular past tense prior to the regular past tense, and so some question exists as to the reliability of this hypothesized acquisition pattern. Brown, however, posits that the dominant acquisition pattern is that in which the irregular past tense is acquired prior to the regular past tense. One of the aims of this paper is to test Brown's hypothesis.

The acquisition of the past tense is also interesting in that the regular inflection is commonly overgeneralized to irregular forms, resulting in errors such as *goed*, *eated*, *wented*, *felled*, etcetera (Brown, 1973; Cazden, 1968; Ervin, 1964; Slobin, 1971a, b, 1973). Two types of overgeneralization errors exist insofar as the past tense is concerned: one type in which the *-ed* suffix is attached to the generic form of an irregular verb (*eated*), and another type in which the *-ed* suffix is attached to the past tense form of an irregular verb (*wented*). These overgeneralization types would appear to be qualitatively different, and another of the

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aims of this paper is to investigate the relative frequency of these error types, as well as any interaction of frequency and age.

The overgeneralization of the regular past tense inflection is also interesting in several other regards. Slobin (1973) has suggested the following as a universal of language acquisition:

There is a preference not to mark a semantic category by \emptyset (zero morpheme). If a category is sometimes marked by \emptyset and sometimes by some overt phonological form, the latter will, at some time, replace the \emptyset .

If this is a universal of language acquisition one would expect the child learning English to cease producing correct forms such as *hit* and *put* and replace them with overgeneralized forms such as *hitted* and *putted* at some point during acquisition. This hypothesis will also be tested in the present investigation.

Slobin (1971b) has also suggested that the overgeneralization of the regular past tense inflection is influenced by a variable he refers to as *partial regularity*. Slobin points out that there are at least five types of irregular verbs: (1) those involving internal vowel change (e.g., *bite-bit*, *tear-tore*); (2) those involving internal vowel change and the addition of a final dental consonant (e.g., *lose-lost*, *say-said*); (3) those in which the final consonant is changed to a dental consonant (e.g., *have-had*, *make-made*); (4) those in which no change occurs (e.g., *hurt-hurt*); (5) those in which a dramatic change occurs (e.g., *go-went*). Slobin suggests that those verbs which exhibit partial regularity (i.e., add a final dental consonant when forming the past tense) are resistant to overgeneralization, as if the partial regularity acted to block overgeneralization errors (in the case of both regular verbs and irregular verbs which exhibit partial regularity, a final dental consonant is added, so this similarity could underlie any lack of overgeneralization errors which might be observed). The present study also tests this hypothesis.

To sum up, the present investigation is concerned with the following hypotheses. (1) The irregular past tense is an earlier acquisition than the regular past tense inflection. (2) There are important differences between the two types of overgeneralizations of the regular past tense inflection. (3) At some time during the acquisition process, the child will exhibit a strong tendency to add the *-ed* suffix to irregular verbs which exhibit no change between the generic and past forms (*hit*, *cut*, etc.). (4) Those irregular verbs which exhibit partial regularity (in particular, add a final dental consonant to the past tense form) will exhibit proportionally fewer overgeneralization errors than their counterparts which do not exhibit partial regularity.

METHOD

Subjects. Fifteen children formed the sample of this study. Fourteen of the children (five females, nine males) formed a cross-sectional sample, covering the age range from 2; 6 (years; months) to 5; 6, such that two children were observed at each 6-month interval. The remaining child (Abe, the oldest son of the investigator) provided longitudinal information, participating in the study from 2; 4 to 5; 1.

Procedure. Approximately 1 hr of Abe's spontaneous speech in his home environment was recorded each week (two 0.5-hr sessions per week) from 2; 4 to 4; 1, with 0.5 hr of spontaneous speech being recorded each week from 4; 1 to 5; 1. One hour of spontaneous speech per week for 6 consecutive weeks was obtained for each child in the cross-sectional sample in order to provide a corpus from which conclusions about the child's productive capabilities could be drawn.

Each hour of speech was transcribed by the investigator the same week it was recorded. To ensure that the transcribing of the speech samples was accurate, reliability scores were obtained by having another rater transcribe randomly selected 250-morpheme-long segments (child's speech) of the first and sixth

TABLE 1

AVERAGE MEAN LENGTH OF UTTERANCE FOR EACH CHILD IN THE CROSS-SECTIONAL SAMPLE AND FOR ABE AT 6-MONTH INTERVALS

Age (years; months)	MLU					
2;6	Abe, 3.34	M.Z., 2.94	N.E., 3.62			
3;0	Abe, 3.86	I.B., 4.64	D.N., 3.05			
3;6	Abe, 5.86	H.K., 4.03	V.O., 4.23			
4;0	Abe, 4.79	K.M., 5.02	G.D., 4.24			
4;6	Abe, 5.36	F.Y., 4.66	L.R., 4.53			
5;0	Abe, 4.99	A.B., 4.08	H.L., 4.95			
5;6	—	—	J.W., 5.13	C.P., 4.97		

tapes obtained from each child in the cross-sectional sample; these transcriptions were then compared to those of the investigator. For Abe's tapes, reliability scores were obtained at various intervals. The reliability scores were quite high (from 90.4 to 100% agreement).

Mean length of utterance. Based on the procedures described by Brown (1973), the mean length of utterance (MLU) was calculated for each child. Table 1 reports the MLUs of the children in this study.

Scoring. The past tense inflection has two distinguishable meanings (Brown, 1973; Cromer, 1968; Jespersen, 1964; Joos, 1964; Long, 1961; Quirk, Greenbaum, Leech, & Svartvik, 1972; Twaddell, 1963). One of the meanings is "earlierness" (following Brown 1973), the occurrence of an action or event prior to the time of the utterance. The other meaning of the past tense inflection is that of "hypotheticalness." For example:

If a dog ate a horse, he would die.

I wish you agreed with the decision to eat burritos on Friday.

Although both the main verbs and the modal auxiliary are in the past, they do not signal earlierness, but rather suggest a possible state of affairs.

Various theorists have argued that the two meanings of the past tense inflection are not as distinct as one might believe.

Joos and Twaddell both point out that the two distinguishable senses of the past can be collapsed into a single more abstract meaning. For the meaning, Twaddell coins the term "unactual." The idea is that events named in the past tense never exist in fact as one speaks here and now. Either they existed at an earlier time or they are simply posited as alternatives to what exists. (Brown, 1973, p. 332)

However, there is no reason to assume that the two meanings of the past are aspects of a common abstract meaning. The two meanings of the past are "unactual" (i.e., nonexistent at the time of the utterance) but so are the meanings of many linguistic units (e.g., modal auxiliaries, adverbs, and prepositional phrases). Just as the meanings of these forms are (usually) distinct from one another and from the meanings of the past tense, the meanings of the past tense are distinct from one another. The past tense of earlierness signifies that an event actually has occurred even though it is unactual at the time of the utterance. The past tense of hypotheticalness, on the other hand, signifies the unactualness of the event(s) per se. Thus, while both meanings suggest the unactualness of events at the time of the utterance, one signifies that the events were actual at some past time while the other signifies that the events have never been actual. The two meanings are distinct.

For the purpose of this investigation, only those main verb forms which signified earlierness were scored (including, of course, those forms that should have been past tense but were not, e.g., *go for went*).

Two reasons underly this decision. First, it seemed that a discussion of the acquisition of the hypothetical meaning of the past belonged in a discussion of other forms which express hypotheticalness rather than conjoined to a discussion of the past meaning of earlierness. Second, Brown's investigation of the acquisition of past tense centered on the meaning of "earlierness," although not intentionally. Brown reports that for the period of acquisition for the children in his investigation, the meaning of earlierness was the only one

intended by the children's use of the past. Brown looked for evidence that the children used the past to express other meanings, but found none. So in order to compare the present findings with his, the present analysis of past tense forms has been limited to those that express "earlierness."

Following Brown and Cazden, forms that might have been past participles in perfectives or passives without the auxiliary (e.g., *I seen it*) were omitted from the analysis. Deviating from their example, though, forms such as *cut* and *hit* which have the same form in both the present and the past were included in the analysis. (Note that this scoring decision increases the success rate for irregular forms, which in turn increases the probability that the irregular past will appear as an earlier acquisition than the regular past.) Nonetheless, the data are compatible with those presented by Brown, and meaningful comparisons are possible.

The past tense data were coded according to the following syntactic categories: (1) regular verb form base without the necessary *-ed* suffix (*walk* for *walked*); (2) regular verb form base with the *-ed* suffix (*walked*); (3) irregular verb form base when past tense form is appropriate (*eat* for *ate*); (4) irregular verb form base with the *-ed* suffix (*eated* for *ate*); (5) irregular past tense verb form (*ate*); and (6) irregular past tense verb form with *-ed* suffix (*wented*).

RESULTS AND DISCUSSION

Regular versus Irregular Forms

Brown reports that the irregular past form was acquired by Adam when his MLU was approximately 2.75, by Sarah when her MLU surpassed 2.25, and by Eve only when her MLU had passed 4.00. The regular past form came in after a MLU of 4.00 for Adam and Sarah and at approximately MLU 3.50 for Eve. Two of the three children achieved criterion on the irregular form before the regular form. However, Brown is here unclear as to exactly what scoring criterion he used,

except that it refers to proportion of use in obligatory contexts.

This is well and good insofar as simple use (e.g., *wanted*) and nonuse (*want*) is concerned, but what about forms such as *goed* and *wented*? These errors are qualitatively different from errors of omission (*eat* for *ate*, *walk* for *walked*) and from correct regular past tense forms (*walked*) and irregular past tense forms (*ate*). For the present analyses, it was decided to score forms such as *goed* and forms such as *wented* as instances of regular past tense usage (since they are certainly creative and would seem to be manifestations of the child applying the regular past tense rule to inappropriate verbs) and as instances of incorrect irregular past tense forms (they are certainly incorrect irregular forms). The proportions of correct use in obligatory contexts reflect this decision and are reported in Tables 2 and 3.

Thirteen of the children in the cross-sectional sample achieved the 90% criterion on the regular past tense inflection. The child who did not achieve criterion (M.Z.) had an MLU of 2.94 and, on the basis of Brown's findings, one would not have expected M.Z. to have acquired the regular past tense inflection. All

TABLE 2

PROPORTION OF CORRECT USE IN OBLIGATORY CONTEXTS OF THE REGULAR PAST TENSE INFLECTION AND THE IRREGULAR PAST TENSE FORMS FOR THE 14 CHILDREN IN THE CROSS-SECTIONAL SAMPLE

Subject	Regular past tense	Irregular past tense
N.E.	97.6	60.2
M.Z.	44.6	58.4
D.N.	100.0	66.7
I.B.	99.1	67.8
H.K.	100.0	68.0
V.Q.	100.0	60.0
K.M.	100.0	85.9
G.D.	98.2	73.5
F.Y.	100.0	73.9
L.R.	100.0	88.3
A.B.	90.8	60.5
H.L.	100.0	98.7
J.W.	100.0	94.6
C.P.	100.0	98.9

TABLE 3

PROPORTION OF CORRECT USE IN OBLIGATORY CONTEXTS FOR THE REGULAR AND IRREGULAR FORMS OF THE PAST TENSE FOR ABE AT DIFFERENT AGES^a

Age (years; months)	Regular past tense	Irregular past tense
2; 6	64.3	57.1
3; 0	100.0	54.5
3; 6	100.0	84.5
4; 0	100.0	59.1
4; 6	100.0	95.8
5; 0	100.0	79.8

^a The above information for each month from 2; 5 to 5; 0 is available from the author.

of the other children had MLUs above 3.00 and 12 of the 13 children had MLUs above 3.50 (11 of these having MLUs above 4.00), so the finding that they all were competent with the regular past tense form is consistent with Brown's findings. Likewise, Abe had achieved the 90% criterion on this form by age 2; 9 and maintained it thereafter, his MLU at age 2; 9 being 3.86.

The usages of the irregular form do not provide as much support for Brown's findings. Brown found that this form was acquired as early as MLU 2.25 but at least by MLU 4.00 and concluded that the irregular past form was an earlier acquisition than the regular form. Only three of the children in the cross-sectional sample achieved the 90% criterion for the irregular past, even though the scoring of forms such as *hit* served to increase the success rate for irregular forms (two other children had a success rate of over 85%). Similarly, Abe did not achieve even a relatively stable 90% success rate until age 4; 5, 20 months later than he had done so for the regular form. These findings suggest that the irregular form is in fact much more difficult to acquire than is the regular form, contrary to Brown's hypothesis.

Overgeneralization Errors

Once the child has achieved some sufficient amount of control of the regular past tense

form, he begins consistently to make two types of errors with irregular past tense forms. The child may now attach the *-ed* suffix to an irregular generic verb form (*eated*) or he may attach the suffix to the past tense form itself (*ated*). All of the children in this study made one or both of these types of errors, even if they had not achieved the 90% criterion on the regular form (M.Z. and Abe prior to age 2; 9). The fact that overgeneralization errors occurred prior to achievement of the 90% criterion suggests that this may be too stringent an acquisition standard. However, M.Z. and Abe (prior to age 2; 9) frequently used the generic form of irregular verbs when a past form should have been used, but this was rare for children who had achieved criterion on the regular past inflection (as it was for Abe after age 2; 7).

Apparently, once the child has gained stable control of the regular past tense rule, he will not allow a generic verb form to express "pastness," which eliminates errors such as *go*, *eat*, and *find*, but results in errors like *goed*, *eated*, and *finded*, as well as *wented*, *ated*, and *founded*. [The child's creative use of the regular past tense form finds expression in forms other than overgeneralizations to irregular forms. For example, Abe (3; 2) produced *We just eat lunched* (lunch-ed) to express the fact that we had just finished dining, and he used *fired* at age 3; 6 to mean *set fire to*. He also produced *I'm glad Mommy borned me* at age 4; 7. I.B. (3; 1) used the term *bonk* to mean *hit* and occasionally produced utterances such as *I bonked you real hard*. H.L. (5; 0) produced *You axed the wood and I didn't ax it* to refer to the unfairness of the woodchopping assignments, and C.P. (5; 8) used *rocked* twice to refer to past rock throwing.]

The types of overgeneralization errors which children make provide some clues as to the processes which may be involved in the acquisition of the past tense inflection. As shown in Tables 4 and 5, early on in the acquisition process children seem to have a greater tendency toward making errors of the

TABLE 4

PROPORTION OF OVERGENERALIZATIONS OF THE REGULAR PAST TENSE INFLECTION BY THE 14 CHILDREN IN THE CROSS-SECTIONAL SAMPLE

Subject	Overall proportion of overgeneralization	Proportion of overgeneralizations consisting of generic irregular verb and <i>-ed</i> (e.g., <i>eated</i>)	Proportion of overgeneralizations consisting of past form and <i>-ed</i> (e.g., <i>ated</i>)
N.E.	36.6	26.9	9.7
M.Z.	5.3	5.3	0
D.N.	33.3	33.3	0
I.B.	31.5	25.0	6.5
H.K.	32.0	26.0	6.0
V.Q.	38.9	31.1	7.8
K.M.	14.1	12.9	1.2
G.D.	26.5	13.7	12.8
F.Y.	26.1	15.2	10.9
L.R.	11.8	1.1	10.7
A.B.	35.5	14.5	21.0
H.L.	1.3	0	1.3
J.W.	2.8	0	2.8
C.P.	1.1	1.1	0

base form + *-ed* variety (e.g., *eated*) than of the past tense from + *-ed* variety (e.g., *ated*). The nine youngest children in the cross-sectional sample showed this tendency, as did Abe until age 4; 0 (with the exception of age 3; 2). However, later in the acquisition process, children appear to make more errors of the *ated* type than the *eated* type. Four of the five oldest children in the cross-sectional sample showed this disposition, as did Abe during the last half of his fifth year.

Before discussing what these error patterns might mean in regard to the acquisition of the past tense, it should be noted that the observed differences reflect age-related tendencies (and perhaps sampling variables) which may interact with individual differences. So although the claim that children initially make many more errors of the *eated* type than the *ated* type seems well supported by this study, the corresponding hypothesis that older children make more errors like *ated* than they do errors

TABLE 5

PROPORTION OF OVERGENERALIZATIONS OF THE REGULAR PAST TENSE INFLECTION BY ABE^a

Abe (years; months)	Overall proportion of overgeneralization	Eated, type of overgeneralization	Ated, type of overgeneralization
2; 6	2.4	2.4	0
3; 0	45.5	36.4	9.1
3; 6	15.5	14.4	1.1
4; 0	40.9	13.6	27.3
4; 6	4.2	2.8	1.4
5; 0	20.3	0	20.3

^a The above information for each month from 2; 5 to 5; 0 is available from the author.

like *eated* is clearly only a tendency. One of the oldest children (C.P.) did not show this tendency, and Abe vacillated between the *eated* and *ated* error-type forms throughout his fifth year.

Nonetheless, there does seem to be an age-related change in the types of overgeneralization errors of the past tense which children make. The observation that children initially make more errors of the type exemplified by adding *-ed* to the generic form of an irregular verb (e.g., *eated*) suggests that when children first begin to overgeneralize the past tense inflection, they are more likely to apply it to forms which they have not yet analyzed as semantically expressing pastness. Thus, children attach the inflection to forms like *eat* more often than to forms such as *ate*. Although the children who have achieved criterion on the regular past tense inflection most likely "know" that *-ed* is a syntactic marker which expresses pastness,¹ they also know that irregular past tense forms have the same semantic import and so do not usually append such forms with *-ed*.

Older children, however, may have a stronger notion about the necessity of using a regular syntactic marker to express a semantic function and so are more prone to attach the

¹ Antinucci and Miller (1976) have reported that during the initial acquisition of the past tense, children use the past tense only in those situations where the verb refers to an immediate past event which resulted in some present different end-state (e.g., *the lamp broke*), a finding which is compatible with that reported by Brown (1973). These findings suggest that children who are beginning to use the past tense use it to refer to a new present end-state rather than to a past event and so may not be using past tense verbs to express "pastness." However, all of the children in the present investigation had passed this initial stage of acquisition for the past tense and used past tense forms to refer to past events qua past events as well as to past events that resulted in a new present end-state. In fact, eight of the children in the cross-sectional sample used past tense forms to refer to pastness more often than to new present end-states, as did Abe at various occasions. Apparently, once a child has learned to use past tense forms to refer to pastness as well as to new present end-states, the frequency with which he does so depends on the events about which he feels a need to refer.

regular syntactic marker to an irregular past tense verb (such as *ate*), even when attaching the inflection results in semantic redundancy.

We see, then, that age-related differences exist in the types of overgeneralization errors which children produce. There are also two other important findings in regard to the overgeneralization errors.

First, the data provide little support for Slobin's (1973) universal regarding the replacement of a null syntactic marker with a realized syntactic unit. Of the 14 children in the cross-sectional sample, eight never applied the *-ed* suffix to irregular verbs which have the same past and present form (e.g., *hit*, *cut*), even though they had many opportunities to do so. Five children applied the regular suffix to such verbs from 14.3 to 25% of the time they had opportunities to do so, and one child made such errors on 66.7% of the possible occasions. Overgeneralization of the regular suffix to these sorts of verbs, then, does not occur to any greater extent than does overgeneralization to other types of irregular past tense verbs (see Table 6). Table 7 shows Abe's frequency of overgeneralization of *-ed* to "nonchange" irregular verbs and illustrates that the incidence of such errors also varies with age. One can reasonably conclude on the basis of these data that Slobin's hypothesized universal may in fact reflect a universal tendency, but this tendency is also reflected in a more general tendency (avoid exceptions, and thus overgeneralize), also hypothesized as a universal by Slobin. It appears that the hypothesized universal concerning only forms which are unmarked for particular semantic functions may be unnecessary, since it is subsumed under a more general tendency.

The data on overgeneralizations also allow a consideration of the notion that partial regularity will block overgeneralization. To test this notion, the data were analyzed in terms of the five types of irregular verbs. These data are summarized in Tables 6 and 7.

On the basis of the prediction that partial regularity will block overgeneralization errors, one would expect *VC* + *dnt* verbs (those

TABLE 6

PROPORTION OF OVERGENERALIZATIONS WHICH OCCURRED FOR FIVE DIFFERENT IRREGULAR VERB TYPES IN THE SPEECH OF THE 14 CHILDREN IN THE CROSS-SECTIONAL SAMPLE

Subject	Vowel change	Vowel change + <i>dnt</i>	Final consonant to /d/	No change	Total change
N.E.	41.2	13.3	50.0	20.0	53.8
M.Z.	5.9	17.6	0	0	0
D.N.	100.0	0	—	—	—
I.B.	38.4	11.1	36.4	14.3	42.9
H.K.	19.6	31.2	0	33.3	0
V.Q.	50.0	27.8	61.5	15.4	14.3
K.M.	18.2	15.8	5.6	0	0
G.D.	36.8	17.4	23.2	66.7	10.0
F.Y.	34.8	75.0	0	0	16.7
L.R.	16.9	5.0	—	0	0
A.B.	40.0	50.0	23.1	25.0	45.5
H.L.	0	8.3	0	0	0
J.W.	7.7	12.5	0	0	0
C.F.	2.6	0	0	0	0
Mean proportion	23.6	16.3	12.7	11.9	15.1

TABLE 7

PROPORTION OF OVERGENERALIZATIONS WHICH OCCURRED FOR EACH OF THE FIVE DIFFERENT IRREGULAR VERB TYPES IN ABE'S SPEECH^a

Age (years; months)	Vowel change	Vowel change + <i>dnt</i>	Final consonant to /d/	No change	Total change
2; 6	10.0	0	0	0	—
3; 0	64.7	7.1	0	100.0	85.7
3; 6	30.4	10.0	8.3	0	25.0
4; 0	50.0	33.3	0	—	—
4; 6	2.4	0	33.3	11.1	0
5; 0	40.0	12.5	0	0	0

^a The above information for each month from 2; 5 to 5; 0 is available from the author.

involving a vowel change and addition of a final dental consonant, e.g., *left*) and *FC -/d/* verbs (those in which the final consonant is changed to a dental consonant, e.g., *made*) to exhibit the lowest proportion of overgeneralization errors, since these types of irregular verbs exhibit partial regularity and since this partial regularity corresponds rather closely to the regularity which exists for regular verbs, in which an *-ed* suffix is added. At best, however, only partial support is found for these predictions.

For three children in the cross-sectional sample, the two classes of verbs which exhibit partial regularity exhibited proportionally fewer overgeneralization errors than did other types of irregular verbs. However, one child exhibited the opposite pattern. The remaining 10 children each overgeneralized the regular rule to one of the two partially regular verb types (four children did so for the *VC + dnt* verbs; six children did so for *FC -/d/* verbs) to a lesser extent than the other verb types, but also overgeneralized the application of *-ed*

to the remaining partially regular verb class relatively more frequently than might be expected on the basis of the above predictions.

Similarly, Abe did not provide conclusive support for this hypothesis. At varying points during his acquisition of the past tense, Abe did overgeneralize *-ed* to the partially irregular forms to a lesser extent than to the other irregular forms. At other times, he did not do so.

The above presentation rests on an analysis of individual children's overgeneralization errors. The picture remains the same at a group level of analysis. Table 6 gives the mean proportion of overgeneralization errors for each irregular verb type observed in the speech of the children in the cross-sectional sample. The two partially regular verb types exhibited fewer overgeneralization errors than the verb type which involves only an internal vowel change. However, the regular *-ed* suffix was applied to one partially regular verb type (vowel change + *dnt*) proportionally more frequently than to the no change verb type and the total change verb type. Moreover, the *-ed* suffix was applied to the remaining partially regular verb type (final consonant to /d/) more often than to the no change verb type. So the group level analysis also fails to provide unequivocal support for the notion that partial regularity blocks overgeneralization errors.

Thus, it seems that partial regularity need not block overgeneralization errors, though it may lessen the child's tendency to overgeneralize. In fact, not only did some children overgeneralize *-ed* to partially regular verbs, they also overgeneralized *-ed* to the past tense forms of such verbs, resulting in errors such as *felted*, *thoughted*, and *maded*. If partial regularity did act to block overgeneralization errors, then certainly forms such as *felted* should not occur, since *felt*, *thought*, etcetera already exhibit the partial regularity which is supposed to block overgeneralization. Of course, errors such as *felted* go against the partial regularity hypothesis only if the child

knows that *felt* contains a past meaning. As is noted in Footnote 1, all of the children in the present investigation consistently used irregular past tense forms to express "pastness." Moreover, oftentimes the same child who produced *felted* (for example) would also use *felt* or even *feeled* in other past appropriate contexts, sometimes using one form (*felted*) in one utterance and then another form (*felt*) in the next utterance, and perhaps even changing back to the first form in the next utterance. Such instances suggest that children do realize that forms such as *felt* do express "pastness," since they use these forms in the same contexts in which they use forms such as *felted* and *feeled* (i.e., contexts which require a past tense form). However, this vacillation from one form to another raises another question which is not easily resolved. Why do children change from form to form, sometimes in successive utterances, if they view these forms as semantically equivalent (which seems to be the case)? Perhaps this phenomenon is partially due to the child's tendency to engage in linguistic play. And perhaps it is due partially to some conflict between the child's current rule system and the speech he hears from adults. The child may have little knowledge of the exceptions to the rules he has formulated, yet the fact that he is continually exposed to these exceptions in his linguistic environment may lead him to maintain some of these exceptions in his own speech, and so with time learn that the irregular forms are the correct forms.

MLU versus Age

MLU was a better indicator of the child's success on the regular past tense form than was chronological age. The Spearman ρ was .42 for chronological age and success on the regular past (a nonsignificant relation), but the correlation between MLU and success on the regular past was slightly higher, $\rho = .57$, $p < .05$. For the irregular past forms, however, MLU was not a more reliable indicator of success than was chronological age. The correlation between success on the irregular past and MLU was .81, $p < .01$, whereas the

correlation between success on the irregular past and chronological age was .79, $p < .01$. The difference between the two correlation scores is miniscule. Why is MLU a better indicator of success on the regular past than is chronological age but not a better indicator of success on the irregular past?

The difference is due to the different types of learning that are necessary for success on the two forms. The child learns a rule for the application of the regular past tense form, but must learn the relation between *each* irregular verb base form and its corresponding past form. The child learning a rule must infer the rule from his experience with relevant linguistic forms and, although it is far from clear how such rule induction occurs, the process is clearly different from one that involves learning the relations among a multitude of individual forms. The data on spontaneous usage suggest that inferring the regular rule is easier than learning all or even most of the irregular forms, and the reason that MLU is a better indicator of success on the regular past than is chronological age lies in the fact that some children apparently infer rules earlier (and perhaps on much more limited data) than do other children. However, success on the irregular past tense requires some sufficiently large amount of exposure to the forms and it is likely that it is precisely because success on the irregular past requires learning each individual form rather than discovering a general rule that chronological age is as good a predictor of success with the irregular form as is MLU. The longer a child has been around, the more experience he has had with irregular past forms.

A general prediction, then, might be that when a general rule must be acquired (as for the regular past tense), MLU will be a better predictor of the child's language sophistication than will chronological age. Conversely, when a variety of individual forms must be learned (as is the case for the irregular past and all vocabulary acquisition), then chronological age will be as good a predictor of success for those forms as will MLU.

SOME CONCLUDING REMARKS

The first past tense forms used by the child appear to be irregular forms such as *fell* and *broke* (Brown, 1973; Ervin, 1964; Slobin, 1971b). Soon after the child has produced some correct irregular past tense forms, he begins to produce forms such as *walked*, *helped*, *buyed*; and *goed* (Ervin, 1964; Slobin, 1971b). In fact, Slobin and Ervin both report that in some cases forms such as *buyed*, *comed*, and *doed* were observed before any correct regular past tense forms (at the time this investigation began, Abe was already producing some correct regular past forms, so I am not able to ascertain whether Abe first used the *-ed* suffix in conjunction with irregular or regular verbs). So the child first produces correct irregular past tense forms and later makes errors with these same forms, often adding *-ed* to the base form (*goed*) or to the irregular past form itself (*wented*). Why should the child make errors such as *goed* and *wented* if he has previously used the correct form *went*?

It seems likely that children first use irregular forms such as *went* as syntactically unanalyzed but semantically appropriate forms.² That is, the child uses *went* in correct situations because he has learned that *went* is used in those situations, not because he believes that *went* is the past tense form of *go*. Because of the frequency of the irregular forms in his linguistic environment, the child learns when some of the individual forms may be used and thus occasionally uses them appropriately. At the same time that the child

² Here "syntactically unanalyzed" is meant to refer to those instances in which the child does not realize that an irregular past form is a past form of the corresponding irregular generic form, so that a syntactically analyzed irregular past form is one which the child realizes is related to the generic form. A child who uses an irregular past form correctly is likely to have semantically analyzed the form, but need not have ascertained that the past form is in fact related to the generic form even though they share a common meaning. So part of the acquisition of irregular past forms consists of the child learning that irregular generic forms have past forms or, more accurately, that each irregular generic form has an irregular past form.

is using the correct irregular past forms, he is also inappropriately using the generic verb forms of these same irregular forms when he should be using the past forms. For example, the child initially uses *went* correctly but at the same time occasionally uses *go* when he should use *went*. Later, the child comes to use *goed*, *wented*, and *went* and so must learn that the only correct past tense form of *go* is *went*. Since children produce forms such as *goed*, *went*, and *wented* at the same point in development, it is not the case that the acquisition of the regular past rule extinguishes correct irregular forms such as *went* and only results in forms such as *goed* and *wented*. Since both correct and incorrect forms of the same verb are often used simultaneously by the child, his task becomes even more complicated. Not only must the child somehow channel sufficient information from his linguistic environment to learn that an individual irregular past tense form is related to a specific generic form, he must also learn that the incorrect forms he produces on the basis of his regular rule are errors. The child must learn both the former and the latter without the benefit of much direct aid, since it is fairly well documented that parents do not correct ungrammatical forms, but rather untrue statements (Brown, Cazden, & Bellugi, 1969), a pattern which was also observed in the present investigation.

It is possible that by the time the child has acquired the rule that generates regular past tense forms, his knowledge of irregular past tense forms has increased such that he now recognizes that some of the irregular past forms are syntactically past and so will not attach the *-ed* suffix to these past forms. However, the child may not yet have analyzed any of the irregular past verb forms as the only past forms of their respective generic forms. That is, the child may know that *went* is syntactically and semantically past and so will not produce *wented*, but at the same time may not know that *went* is the only past form of *go* and so will frequently produce *goed*. If this conjecture is correct, then the child who has competence with the

regular past tense form may know that a few of the irregular past forms that he uses are indeed syntactic past forms, but still must learn for most of the forms that they are syntactic past forms and that each is the only past tense form of a particular verb. The available evidence indicates that this knowledge is acquired tediously, in a piecemeal fashion. The child must learn the relation between each irregular base form and its past form and so will learn that irregular past forms are exceptions to the general rule one by one, such that overgeneralization errors will be eliminated verb by verb, over a long period of time.³ It is the number of irregular

³ The notion that this learning occurs one verb (and perhaps one overgeneralization error type) at a time is based on the assumption that the relations between irregular generic and past tense forms are unprincipled. However, MacKay (1976) has suggested that irregular past tense forms may be created from irregular generic forms via the application of derivational rules, such that the relations between irregular generic and past tense forms are not unprincipled, but instead reflect levels of complexity which correspond to the number of changes needed to go from the generic form to the past form. Regarding acquisition, this notion suggests that "complex" irregular past forms will be acquired later than "simple" irregular past forms (complex forms requiring more rules than simple forms). This hypothesis is not readily testable by analyzing spontaneous speech samples, since a child may be producing irregular past tense forms as previously heard and memorized units rather than as the product of derivational rules. The problem is the same as that in which the child uses the *-ed* suffix in conjunction with only regular verbs. In such cases, one cannot accurately decide if the child possesses a rule underlying the use of the *-ed* suffix since he only produces forms which he could have heard and memorized for future use. This exemplifies the importance of overgeneralization errors for the diagnosis of the acquisition of regular rules. If in the process of learning irregular past tense forms children learn derivational rules, one might reasonably expect these rules to be reflected as overgeneralization errors in the child's speech. No such errors were observed in the speech of the children in this investigation, perhaps due to the relatively young ages of the children. Slobin (personal communication) has reported that such errors are very rare and that they occur only toward the end of morphological tense acquisition. Slobin's observation in conjunction with the data of the present investigation suggests that, at least early in the acquisition of the irregular past tense forms, such forms are not produced via the application of a set of derivational rules.

forms that renders this task a large one and makes the irregular past tense form a more difficult acquisition than the regular past tense form. While the acquisition of the regular past tense rule is acquired relatively early, the acquisition of the irregular past tense forms continues past the fifth and sixth years of age. [Menyuk (1963, 1964, 1969) has noted errors with irregular past tense forms in first graders and Slobin (personal communication) has stated that such errors persist into the tenth and eleventh years of life.]

In conclusion, it is clear that the child faces many problems in the acquisition of irregular linguistic forms. Not only must the child induce the rules which underlie the use of regular linguistic forms, he must also learn the exceptions to these rules. It is likely that learning these exceptions involves as much (or more) inferential activity as does the learning of the regular rules, and so the acquisition of irregular forms is but another instance of the child's remarkable ability for language acquisition.

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