Morphological Deficits in Children with Specific Language Impairment

Many language-learning difficulties exist across the population, and these all manifest themselves differently and first appear at different ages. Leonard, Bortolini, Caselli, McGregor, and Sabbadini conducted an experiment that included only children (ranging in age from 2.5 years to 6) who had been diagnosed as having SLI: specific language impairment. These children have normal intelligence, motor development, hearing, and emotional development, but they experience serious difficulty in relation to language. The exact difficulties within the group vary individually, but many of the children have an especially strong weakness in grammatical morphology. The impairment tends to concentrate within families, which points to a genetic link, although this could also be due to environmental factors. The etiology of SLI is unknown, but many interesting hypotheses have been proposed.

Described in some detail in the paper are several previously-studied theories as to why this group of children experiences these specific language problems. Two focus on processing limitations: the first states that "weak" syllables and final consonants are deleted from the children's speech because of their shorter duration, and the second states that the sparse morphology of English favors word order over morphemes. The authors of the present study admit that these hypotheses fit most of the available data from previous studies, but they believe that a "more precise explication of limited-processing capacity is needed" (154). They instead choose to test a hypothesis that is based on the underlying grammar of SLI children rather than processing factors. The missing feature hypothesis asserts that certain syntactico-semantic features are actually missing from SLI children's grammars. This would result not only in the absence of morphophonemic rules but also in the absence of all these features in all manifestations of language. However, the children may still produce phonetic forms

corresponding to these features in their speech; there is just no evidence that the form actually functions as the feature.

In order to test this hypothesis, the experimenters gathered groups of English-speaking and Italian-speaking SLI children, along with controls that matched in age and mean length of utterance (MLU). Italian was chosen as the basis for comparison because of its large number of grammatical morphemes "whose appropriate use clearly require the presence of features in the underlying grammar" (155). The English-speaking children's usage of six morphemes was measured in both obligatory and inappropriate contexts and the Italian-speaking children were tested (again on six morphemes) on both production and comprehension in obligatory contexts. Production was tested by asking the children to describe pictures, and relevant contexts were drawn from these. Comprehension was tested by displaying a set of four pictures, two of which could be dismissed on lexical grounds, one only by morphology, and asking the child to select the correct answer to a question. According to the missing feature hypothesis, SLI children would use morphemes in obligatory contexts less frequently than normal children and would also use them in inappropriate contexts more often. In the comprehension experiment, findings supporting the missing feature hypothesis would involve chance-level performance in choosing the correct answer to the question.

The results of the English-speaking children gave some support to the missing feature hypothesis, but some parts of the findings were contradictory. ESLI children scored significantly lower than the controls on four out of six of the obligatory contexts. The irregular past had unusual results, but these were explained by the fact that these items could very well involve lexical memorization rather than the use of grammatical morphemes. Only articles did not show the predicted discrepancy between ESLI and the controls' performance. In other words, five out

of six of the hypotheses were confirmed. On the inappropriate contexts, however, the results were quite different. No significant differences were found between ESLI and normal children in these cases. This is quite a direct violation of the missing feature hypothesis, as it predicted that SLI children would not distinguish between correct and inappropriate places to use a given morpheme. In this way, all six of the hypotheses were disconfirmed, and the experimenters determined that the missing feature hypothesis could not explain specific language impairment for English-speaking children.

The Italian-speaking children gave even less support to the missing feature hypothesis in both contexts examined. Three out of six of the obligatory contexts showed no noticeable differences between ISLI and the control children. Articles, third person plural inflections, and adjective-noun agreement were very similar between groups, providing no relevant evidence for the hypothesis. The test of comprehension provided even less support. In this case, only articles and clitics showed a significant amount of difference. Furthermore, only the clitic results were held to really matter, since the performance on articles could be explained by chance. That is, since out of the four choices, two of the foils could be eliminated for lexical reasons, performance of above 50% would provide counterevidence to the missing feature hypothesis: the correct choices in 62% of the situations fell into this category for articles. Thus, missing features had no role in the impairment of the ISLI group.

Upon seeing the quite different results between languages, the experimenters wondered if these came about because the morphemes studied in each language were different. They chose to compare the results of three morphemes (articles, noun plurals, and third person singular verb inflections) that were examined in both languages. According to the missing feature hypothesis, the two groups of children should perform equally poorly on these three morphemes because, “in

spite of the surface differences between English and Italian, features such as person and number are nonetheless required" (170). The results of this between-language analysis supported the missing feature hypothesis only in the third person singular inflection, where ISLI children performed significantly better than ESLI children. Plurals and articles, however, showed no strong differences between languages. These mixed results provide no support for the hypothesis, only some discredit on one of the three morphemes.

Several interesting points are raised in the short "general discussion" section at the end of the paper. The first is the fact that all ESLI children showed 50% or higher use in obligatory contexts for at least one grammatical morpheme. In other words, no child performed badly on all six of the morphemes. The only way to ascribe this "spotty use" to a theory of missing features is to assume that the correct forms are memorizations. However, this idea is disconfirmed by the fact that several ESLI children produced overregularizations of the past tense, as well as many other findings. The idea that certain forms are memorized, in fact, is proposed several times by the experimenters, and the vast majority of times it is denied as a suitable explanation in a given situation. The one time it is accepted as an explanation is in the case of English irregular past tense forms, when it explains how ESLI children's performance is as good as that of the controls.

Next, some previous studies concerning inappropriate contexts of grammatical morpheme production are mentioned. According to the experimenters, using this measure is "much less common in the literature" than merely examining obligatory contexts (173). They bring up two previous studies that have covered it, however, one of which was conducted by Leonard, an author of the present paper. By analyzing these two studies, they have deduced that the missing feature hypothesis has not been suited to the results found in inappropriate contexts. The fact that previous research matches up with conclusions reached in the present paper gives

justification for the results and reduces the likelihood of sampling error on the part of the experimenters. They felt the need to refute this, since others might claim that the children studied were too young to give an accurate representation of SLI. That is, "the prevalence of morphological deficits among this clinical population will be higher at younger ages, and thus children with less severe and performance-based morphological deficits will be included in larger numbers" (173). The experimenters, however, cite studies showing that 50% to 80% of SLI children first identified in the preschool years continue to display language deficits many years after they are diagnosed. This reduces the probability that the sample children do not truly have SLI.

The last two pages of the paper suggest some alternative hypotheses as to the etiology of SLI that have not yet (at least when the paper was written) been studied cross-linguistically but that appear somewhat promising. First is the idea that SLI children might be unusually weak in expressing agreement relations. This explanation was drawn from a study of German-speaking SLI children and seems to fit the data quite well. One might expect, since this type of difficulty relates to the grammar of a child, that it could apply to SLI children speaking other languages; but it does not seem applicable to Italian-speaking SLI children. In contrast, the theory that ends the paper, which the experimenters seem to be endorsing as a more probable solution to the problem, implicates difficulties with Infl as the culprit. Normally-developing children often leave out many grammatical elements related to Infl, so it would make sense that ESLI children would exhibit less use overall of Infl-related elements. In fact, the results of Loeb and Leonard's study supported the idea that ESLI children are especially slow in acquiring Infl. Although this explanation works quite well with respect to ESLI children, it does not seem compatible with Italian. The "uniform verb morphology of Italian might make Infl more accessible to learners of

that language," given that some details of verb morphology seem much easier for ISLI children to learn than ESLI ones (175). Furthermore, the fact that there are bigger discrepancies between the language of ESLI and normal English-speaking children than between ISLI and normal Italian-speaking children has yet to be explained. Because of all these issues, even though the Infl hypothesis might work, it is far from certain.

This experiment raises many possible explanations for SLI, even though it disproves (at least for its sample group) its original hypothesis. Still, at the beginning and end of the paper, the authors acknowledge that different mechanisms may be responsible for different children's impairments. "SLI children do not constitute a homogeneous group": difficulties can vary by elements of language and severity, for example (152). Consequently, "the heterogeneity seen in the population of children with specific language impairment certainly allows for the possibility of varying sources of difficulty" (174). In other words, every explanation may correspond to a subset of SLI-afflicted individuals. There may be no true, definitive etiology behind the condition.

Reference

Leonard, L. B., Bortolini, U., Caselli, M. C., McGregor, K. K., & Sabbadini, L. (1992). Morphological deficits in children with specific language impairment: The status of features in the underlying grammar. *Language Acquisition*, *2*(2), 151-179.