DESERET LANGUAGE
and
LINGUISTIC SOCIETY

Selected Papers from the
PROCEEDINGS

THIRTEENTH ANNUAL SYMPOSIUM

26-27 March 1987
Brigham Young University
Provo, Utah
ACKNOWLEDGEMENTS

We would like to thank the Brigham Young University College of Humanities for the generous support of the Thirteenth Annual Symposium of the Desert Language and Linguistics Society. We are grateful to those who took part in any way in organizing, chairing sessions, presenting papers or attending the seminar.

We are particularly grateful to our guest speakers, William Labov (University of Pennsylvania) and Pardee Lowe (Government Testing Specialist). Published papers which cover the material presented by William Labov are available through the Brigham Young University Linguistics Department (2129 JKHB, Provo, Utah 84602).

The symposium program with names of authors and papers is given on the following page. The Table of Contents contains the names of authors and papers which were submitted for publication in the proceedings. Individual authors are solely responsible for the content and accuracy of their respective papers.

Special thanks is given to Connie Payne for her help in preparing this publication.

Diane Strong-Krause
Program Chair, 1987
Thursday, March 26

Bruce Brown
Stanley Feldstein
Daniel Sanderson
Gail Caldwell
Ray Graham
Bruce Brown
Kim Olea
Zhang Jie
Annela Teemant
Sante Matteo
Camille S. Williams
Grant M. Boswell
Robert F. Norton
Matthew R. Sorenson
Marianne McCormick
Gary D. Prideaux
Marianna Di Paolo
William Labov
Bruce L. Brown
Richard N. Williams
Robert Norton
George S. Barrus
Royal Skousen
Valerie Sturm
Valerie Sturm

Vocal Expression of Emotion: Comparisons of Judge Accuracy, Linguistic Properties, Subjective Reactions, and Acoustical Analyses
Recognition of Emotion in Voice: A Cross Linguistic Perspective
Determining Vocabulary to Include in Language Learning Materials: An Example with Marketing Terms
The Beast, the Hieroglyph, and Pizza: Vico on Language and Poetry
Linguistic Approaches to Shakespeare
The Socio-Political Origins of the Modes of Discourse
Similarities and Differences between Korean and American Discourse Patterns
Complex, Interactive Speech Events
Discourse Constraints on the Syntax of Temporally Ordered Events
Vowel Categorization as a Reflection of Language Change
Keynote Speaker--Do Americans Understand One Another? The Consequences of Linguistic Diversity
Semantic Space Comparisons of Cross Cultural Stereotyping
Describing Language Analogically
The Phonemic Nature of ASL
Application of Kurylowicz's 4th Law to ASL
Chauncey C. Riddle  The Logic of Meaning
I. Maraimalai  Morphological Changes of Tamil Words in Government Administration
Frank Otto  Technology and Language in the 21st Century
Larry G. Childs  An Introduction to PeriPhrase: A Linguistic Programming Language
Woodrow R. Trathen Wick R. Miller  Computer Aided Instruction in the Introductory Linguistics Classes at the University of Utah
William Labov  Seminar--The Study of Cross-Dialectal Comprehension

Friday, March 27

Cheryl Brown Ray Graham John Robertson Bruce Derwing  Three Papers on Acquisition and Attrition of the Lexicon: A Panel Discussion
Martha L. Smith Bruce Derwing  Spelling and Morpheme Recognition: An Experimental Study
Marian McMaster  Do Not unto Others as You Would They Should Do unto You or: The Case of Misplaced Communication
Marvin H. Folsom  A Discussion of the Guidelines for the Translation of the Standard Works
Dan W. Higinbotham  Morpho-LFG
Patricia L. Reed  Professional Translators--Vital to Success in International Business
Pardee Lowe  Keynote Speaker--Proficiency and Its Critics
Steven Sternfeld Yong Min Zhu  The Immersion Model as the Basis for Beginning FL Instruction: A Progress Report on First-Year College Chinese
Eva Spooner  Schema Theory Applied: Strategies in Vocabulary Development, Reading and Writing
Kenneth E. Herbert  You Had To Be There: Does Residence in a Target Language Environment Influence Acquisition of Grammatical Structure?
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During the approximately 140 years since the main body of Mormons moved westward and settled in the valleys of the Great Basin, many factors have served to separate the Utah group from others with a similar heritage and name. This has been true, in particular, for those who, remaining in the Midwest, coalesced to form the Reorganized Church of Jesus Christ of Latter Day Saints, the second largest of the groups which claim descent from Joseph Smith and his teachings. At various times the factions have been distinguished doctrinally, organizationally, culturally, and in other ways. However, one very interesting distinguishing feature has been neglected—that of language. Yet the language of the two groups takes in many of the other characteristics and shows perhaps as well as anything else how much these two groups differ and in which areas.

As many have pointed out, one of the most compelling problems for all the Mormons during the nineteenth century was to create an acceptable cultural identity. The Utah church did this by isolating itself geographically as well as psychologically in order to build its own version of the "Kingdom of God." Despite an ever-decreasing isolation, this "Kingdom" mentality lasted well into the twentieth century, allowing the church to develop its unique cultural patterns relatively undisturbed.

On the other hand, there were numbers of members who remained behind in various of the places in which the church had built earlier, such as Kirtland, Ohio; Nauvoo, Illinois; and Independence Missouri, and for these people, the challenge was to try to develop a unique identity within the confines and despite the interference of other, often hostile, Christian groups. At the same time, this identity also had to be created with relation, and at times in response, to the culture which was evolving in the West, that of the largest group of Mormons, who considered themselves the only legitimate group to carry on the work started by Joseph Smith. Clare D. Vlahos points out that:

the Reorganized Church's identity problem was not caused by an inability to be convincing in its claims. Nor was it primarily a case of internally synthesizing diverse elements into a homogeneous belief structure. Rather, in building an identity the Reorganization did so in relation to two sometimes conflicting external influences. It wished to be reasonable to gentiles and legitimate to Mormons. It stumbled because it could not always be both.

However, despite this statement, in many ways the Reorganized Church of Jesus Christ of Latter Day Saints has, in fact, blended both Mormon and gentile, and specifically Protestant, cultures in its orientation to Christianity, so that it has, indeed, created its own identity, somewhere halfway between the two. This is particularly evident in the language used in its in-group written materials.
From the very beginning of Mormonism, one of the most important concepts was that of the priesthood. The basic offices were spelled out by Joseph Smith in The Doctrine and Covenants, and they have remained fairly constant in both the Utah and Missouri groups ever since. However, quite a number of additions have been made as the organizations have grown and as circumstances have changed, so that now there are considerable differences in certain areas. One minor difference is in spelling. Just as the Utah group spells its name The Church of Jesus Christ of Latter-day Saints, as opposed to the Reorganized Church of Jesus Christ of Latter Day Saints, so the Utah spelling for the higher priesthood is Melchizedek, while the Reorganization spells the name Melchisedec.

Other differences are more substantial. Although both priesthood organizations have a First Presidency and a Council of Twelve, the Reorganization also has the Standing High Council, which has jurisdiction in some policy and judiciial matters (The Priesthood 35). The office which the Utah church refers to as a patriarch is also called evangelist by the Reorganization. Although Melchizedek and Aaronic are used in common, the Utah church generally calls them priesthoods, while the Reorganization says orders. Differences also arise because of the fact that in the Utah church the offices of the Aaronic priesthood have become those conferred upon young men from the ages of twelve to eighteen or nineteen, and consequently they do not carry as much prestige as they do in the Reorganization, where those offices are filled by adults and carry more specific ecclesiastical responsibilities. This is one of the areas in which the Reorganization has moved closer to mainstream Protestantism than to Utah Mormonism.

Related changes in terminology which also bring the Reorganization closer to Protestantism have to do with the functions of the priesthood within the group. For example, the 1982 edition of The Priesthood Manual states that:

Thoughtful consideration of the gospel shows . . . that our ministry is not only a call to communicate knowledge but also to be witnesses of divine grace. . . . In a real sense the priesthood member must become the embodiment of Divine Grace. . . . Skill in ministry, however, will also require actual pastoral care of members of the church and nonmembers. As priesthood members seek to qualify for ministry their training programs will . . . be in conjunction with actual ministry. (17-18)

Since the Utah church avoids such terms as ministry, pastoral or pastor, and grace, it is clear that this is one of the areas in which the Reorganization has developed in a different direction. On the other hand, discussions of the priesthood as the "legal authority to represent God," and the "authority to . . . bring about the kingdom of God on earth" (The Priesthood 28) show the original and continued relationship of Reorganization doctrines with those of the Utah church.

It is interesting to note that some of the divergences in terminology between the two groups occurred as early as the Nauvoo period. Those members who ultimately coalesced into the Reorganization repudiated the actions of the Nauvoo period of church history: the institution of polygamy as well as the doctrines of baptism for the dead, the gathering, and the endowment (Vlahos 180). Naturally, the terminology associated with these activities is absent from the Reorganization vocabulary, but important in that of the Utah church. Another term which arose in the Nauvoo period and so is unique to the Utah church is ward as a term for the local geographical and ecclesiastical unit. The comparable term in the Reorganization is congregation. On the other hand, the term stake came into use in the Kirtland period, the era accepted as doctrinally
valid by the Reorganization, and so the term is used by both groups. Similarly, conference, president as the leader of a stake, bishop, and high council, are common terms, although not always with similar denotations. A Reorganization bishop, for example, is a stake or regional officer, rather than a congregation leader, while the person who leads the local group is usually a pastor or minister, as is also true in Protestantism. One area in which the terminology is quite different in the Reorganization is that dealing with people who serve as proselytizers. Whereas the Utah church uses the term missionary, sometimes with a qualifier such as work, or health, the Reorganization uses a qualified descriptive phrase: Young Adult Two-year Contractual Assignee, Retired Person Contractual Assignee, Term Contractual Assignee. Both groups use the term field, although the Utah church primarily uses it to refer to specific areas of missionary activity, while the Reorganization employs it in a more general sense of any region overseen by an apostle. However, there is a considerable amount of ambiguity in the use of the term for both groups. Other organizational terms, of course, have entered the vocabulary of each group independently in the intervening years, some of them similar. Both groups, for example, have districts and regions, although the geographical boundaries indicated by the terms are not always similar.

Besides priesthood and structural terms, many others show the great cultural differences between the Reorganization and the Utah church. Again, some of these stem from the Nauvoo period. For example, the accepted scriptures of the Utah group are called the Standard Works, or the Four Standard Works, while those of the Reorganization are the Three Standard Books. The Pearl of Great Price having been given by Joseph Smith in Nauvoo. The traditional name of the health code, the Word of Wisdom, although belonging to the Kirtland period, is not accepted as scripture by the Reorganization, because the Doctrine and Covenants itself states that it is "not by commandment or constraint, but by revelation and the word of wisdom" (89: 2). However, guidelines have been accepted regarding the use of intoxicants and tobacco which contain an interesting mixture of Mormon and Protestant terminology:

This conference deprecates the use of intoxicating drinks (as beverages), and the use of tobacco, and recommends, to all officers of the church, total abstinence.

The addiction to tobacco is clearly a detriment to the physical and spiritual life of a Christian steward, although such addiction of itself is not a test of membership in the church. (The Priesthood 60-61)

Other cultural patterns, also belonging to the Nauvoo period, are different in the Reorganization as well, usually more like those of the orthodox Protestants. The Relief Society, was organized and named by Joseph Smith in Nauvoo, and has endured, although not without problems or changes, in Utah Mormonism ever since. On the other hand, in the Reorganization, there has been no enduring general church organization addressing itself to the needs and problems of women, and both terminology and ideology are much closer to Protestantism. One women's leader, for example, stated that, "Everything must be done under the eye of an elder.

...I protest such an idea" (Cassie B. Kelley qtd. in Goodyear 245). Arguments for the participation of women in the priesthood, as is now common in a number of Protestant churches, are summarized by Goodyear as well, and they incorporate much non-Mormon terminology. (247).

The most noticeable linguistic differences between Utah Mormonism and the Reorganization, however, are in language dealing with those cultural patterns which developed after the move to the Great Basin. Terminology for the youth programs, the
Primary, the Sunday School is all, in some ways, unique to Utah Mormonism, and is not shared by the Missouri group, which is, in these areas, again closer to Protestantism in its use of general terms such as church school. Doctrinal terminology also solidified after the division, so most doctrinal phraseology is either very similar or very different, depending on whether the doctrine, with its specific terms, was accepted before or after the split. If it was instituted before 1844, the language is probably quite similar, whereas after 1844 the language of the Utah church shows the result of its long isolation in the West, while that of the Reorganization shows the influence of its Protestant surroundings. Just as the language associated with priesthood offices is a good example of the former, that linked with the various ordinances and worship activities demonstrates very well the latter.

One of the areas in which Utah Mormon terminology differs considerably from that of the rest of Christianity is in the manner of referring to sacraments. The Utah church accepts only one sacrament, that which most Protestants call the Eucharist or the Lord's Supper. The meeting in which this ritual takes place is called Sacrament Meeting, showing the significance of the activity. In the Reorganization, however, as in most Protestant terminologies, as well as that of the Roman Catholics, a number of rituals and ordinances are called sacraments. "The sacraments are an extension of the ministry of incarnation in which God uses human nature and material things to express himself tangibly in humankind" (The Priesthood 205). Not only is the difference in the use of the word sacraments evident in this passage, but also other words which are not a common part of the religious vocabulary of Utah Mormonism, but are very much a part of Protestantism: ministry and incarnation, as well as the idea of God expressing himself tangibly in mankind. Another statement shows an interesting mixture of Mormon and Protestant language and actions: "The sacraments . . . include baptism, confirmation, the Lord's Supper, blessing of children, ordination, administering to the sick, marriage, and patriarchal blessing" (The Priesthood 208). Both the use of sacraments and the Lord's Supper reflect Protestant usage, while the blessing of children rather than christening them, administering to the sick, and patriarchal blessing are typical Mormon terms.

The ordinances themselves also show this mixture of Mormon and Protestant influences. The recommended Reorganization wording for the prayer of confirmation, for example, is:"We your brethren, having been commissioned by Jesus Christ, place our hands upon your head to confirm you and ask God to grant the gift of the Holy Spirit. In this act we extend to you membership in the Reorganized Church of Jesus Christ of Latter Day Saints" (The Priesthood 219). Utah Mormons would find no fault with the first phrases, but would add a statement about the priesthood authority of the speaker, and would command the candidate to "receive the Holy Ghost," rather than asking God to grant the gift of the Holy Spirit. Similarly, instructions for conducting Communion services include: "Elements of the service include a short message, scripture reading, a pastoral exhortation, prayer, and the blessing and serving of the Lord's Supper. It includes an oblation offering for the poor and needy" (The Priesthood 226). Since the sacrament is a part of the weekly worship service in the Utah church, instructions for special services are unnecessary, and certainly they would not include a pastoral exhortation nor an oblation offering. Both of those terms are more appropriately Protestant.

One particular sacrament is very different in the Reorganization than in the Utah church—marriage. The Utah church has always considered the proper marriage to be one solemnized in a temple "for time and all eternity," and quite an extensive vocabulary has grown up around that concept and practice. However, that is clearly not appropriate in the Reorganization:
Marriage in the church is considered a lifelong commitment as indicated by the phrase "during your lives" which is required as a part of each wedding ceremony in the church. . . . Prior to Joseph Smith's death in 1844 speculation regarding the eternal nature of marriage was present within the church. Suffice it to say that the Reorganized Church has always rejected the view that marriage covenants are valid after death. (The Priesthood 243)

Because of this rejection, the terminology surrounding marriage and the family in the Reorganization are very close to those of orthodox Protestantism.

Another important area also shows much closer ties with Protestantism than with Utah Mormonism: the terminology for the physical accommodations.

Most worship sanctuaries are arranged to facilitate an observer role by the congregation rather than a participant role; rows of fixed pews are arranged so the worshiper sees the minister, the chancel, and, sometimes, the choir. In recent years, there has been an attempt to eliminate the problem of looking at the backs of people's heads by arranging the sanctuary "in the round," where the seats complete a full circle around the chancel or altar.

(Maurice Draper qtd. by The Priesthood 136)

Here, words such as sanctuary and chancel are definitely not used by Utah Mormons, nor minister, of course, and altar would also be questionable. Utah Mormons would speak of the chapel, the pulpit, and perhaps the choir loft, quite a distinct set of terms.

It is clear, then, that the Utah branch of Mormonism and that of the Reorganization share a good many doctrines and practices, as well as the terminology to deal with them. However, there are also far-reaching differences. As Vlahos points out, in the early days of the Reorganization:

It was important . . . to be accepted by gentile culture and for that reason an image of propriety and decorum was part of its apologetics. . . . It was particularly important for Joseph III to redeem his father's name and for the church to gain federal recognition of differences between the Reorganized and Utah churches, both for removal of penalties and for the sake of image. (182)

Thus, the Reorganization deliberately began the repudiation of the events and practices, not only of Nauvoo and later periods in church history, but even of some of the happenings of Kirtland, such as the Kirtland banking scheme. At the same time, it had to distinguish itself from the Protestantism of the surrounding population, and it did so primarily through "the presence of the six principles of the gospel, the New testament officers, and the gifts of the Spirit" (Vlahos 180). All of these had to be stated in clear language, and so a new terminology emerged, originally taken from early Mormon sources, but incorporating the language of the orthodox Protestants in order not to appear threatening to them. In the meantime, the Utah group, growing in relative peace and isolation, was also developing its own cultural patterns that required expression. Now, over one hundred years later, those differences in language are perhaps the clearest indication of the true distinctions between the two groups.
Semantic Space Comparisons of Cross-Cultural Stereotyping

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In this paper we will report the preliminary results of the Twenty-one Nation Stereotype Study. The intent of the twenty-one nation study is to make a careful quantitative comparison (using multivariate graphical methods for examining semantic spaces) of cross-national stereotypes. In particular, we will be comparing the stereotypes expressed by respondents from a number of nations as they rate their own and twenty other nations on a set of twenty paired-opposite adjectives. Our colleagues in each of twelve nations have now gathered these stereotype ratings from male and female student subjects and also from male and female middle-aged white collar and male and female middle-aged blue collar subjects. Some preliminary analyses have been completed and will be reported here. But before we do so it will be helpful to provide a context by summarizing some of the previous attempts to investigate national and ethnic stereotypes.

In 1933 Katz and Braly published what has now become the classical study of ethnic stereotyping. Their method was to present Princeton undergraduates with a very large list of trait terms and then ask them to select for each of ten ethnic groups those traits typical of each group. The Katz and Braly findings have been enhanced by two update comparisons. Replicative data were gathered and reported (Gilbert, 1951) eighteen years after the original study and then again in another eighteen years (Karlins, Coffman, and Walters, 1969). These longitudinal comparisons are particularly valuable, but the studies have not been without flaw. The "trait checklist" approach can be very misleading.

What does a subject mean when he or she characterizes Germans, for example as "efficient", "extremely nationalistic" and "scientifically minded" or Jews as "shrewd", "mercenary", "industrious", "grasping" and "intelligent"? When a respondent attaches a trait name to a particular group in studies such as these, there is the danger of the misleading and pejorative implication that he or she believes that all or most members of that group have that characteristic. It has generally been assumed or concluded in these studies that respondents judge ethnic groups unfairly and without regard to individual variability within the group. By 1951 it seems that the word had got out, and at least some subjects were sensitive to this implication. In the 1951 and 1969 follow-up studies, substantial numbers of the student respondents refused to carry out the stereotyping task. Many of them expressed the opinion that characterizing ethnic groups in this way is misleading, and perhaps even unethical, crass and ignorant.

McCauley and Stitt (1978) had an ingenious way of determining more precisely what such trait characterizations of ethnic groups mean to the persons who make them. Rather than just having subjects circle or
"check off" the appropriate traits for each ethnic or national group, they had them estimate the percent of, for example, Germans who are "efficient", or "nationalistic" or "scientifically minded", and to also estimate the percent of people in the world generally who are. When done in this way it becomes clear that subjects are much more reasonable in their stereotypes than had generally been supposed from the Katz and Braly results and the results of the similar follow up studies. McCauley and Stitt's subjects on the average estimated, for example, that 63.4 percent of Germans are efficient, whereas 49.8 percent of the people of the world generally are. Similarly, they estimated that 56.3 percent of Germans are extremely nationalistic, and 43.1 percent scientifically minded, compared to 35.4 and 32.6 respectively for people of the world in general. Obviously, respondents are not nearly so unreasonable in their stereotypes as had been supposed.

Lambert and his colleagues (Lambert, Hodgson, Gardner and Fillenbaum, 1960; Lambert, Anisfeld and Yeni-Komshian, 1965; Lambert, Frankel and Tucker, 1966, for example) have taken a very different approach to studying attitudes toward ethnic groups, national groups, and even dialect groups, with the development of their "matched guise" technique. In the original study (Lambert, et al., 1960) recordings of bilingual speakers were presented to judges both in their English and in their French "guise." The judges then rated the speakers on paired opposite adjectives, thinking that they were just rating a group of separate individuals. Since each speaker is his or her own control, appearing in both guises, any differences in personality ratings can be attributed to covert prejudice.

The matched guise method of measuring ethnic group prejudice has two advantages over the Katz and Braly method. First, like the McCauley and Stitt procedure, this method requires that subjects give a quantitative indication of how the group in question compares to other groups, in contrast to the misleading "all or nothing" selection of traits used by Katz and Braly (1933), and Gilbert (1951), and Karlins, et al. (1969). Second, since the respondent is not aware that the same subjects appear in the two linguistic guises, the matched guise technique obtains reactions that are more tacit, or covert, and perhaps less guarded than those that are called forth by a direct attitude questionnaire. In Lambert's words, the matched guise technique "appears to reveal judges' more private reactions to the contrasting group than direct attitude questionnaires do" (Lambert, 1967). (See Brown, Warner and Williams, 1985, for a discussion of the matched guise in terms of the currently popular hypothesis of so-called "unconscious mental processes").

Perhaps the main disadvantage of the matched guise method is that it presupposes that the respondents are familiar enough with the dialect or language in question to recognize that the speaker is, for example, Jewish, or French Canadian, simply from listening to the monologue. This restricts the range of national groups or ethnic groups for which the investigator can obtain stereotype information for any given set of respondents. As we shall see, this restricted range can lead to mistaken conclusions: differences between the ratings
given to the two contrasting groups can seem larger and much more important than they really are, an error in emphasis not unlike the Katz and Braly fallacy. There have been many matched guise studies over the past 27 years (see Lambert, 1967; Giles and Powesland, 1975; Ryan, 1979; and Barlow, 1983 for reviews), and a coherent and interesting pattern of results is beginning to congeal. The twenty-one nation study reported in this paper can be viewed as an extension of the matched guise findings to include national groups for which respondents may not have sufficient linguistic recognition to express their stereotypes through the matched guise design. It uses a paired-opposite adjective rating format of the kind used in the various matched guise studies, but with the ratings being given to the abstraction of each named national group rather than direct ratings of speakers from each group.

The twenty-one nation study began as a consequence of some of the findings of Seiji Shibata's (1982) dissertation work. The major intent of Shibata's study was to examine the hypothesis that Japanese students of English who are more proficient in the English language and who have a greater acquaintance with American culture will also have a more correct apprehension of the relative stereotypes Americans hold toward ethnic groups within their country. It is a reasonable enough hypothesis, but it did not turn out to be true. All of the groups of Japanese students, regardless of their measured English proficiency or cultural sensitivity were surprisingly accurate in their estimates of American stereotypes toward American ethnic groups. But their accuracy can be easily explained as projection of their own stereotypes (albeit accurate projection) since their own measured stereotypes are incredibly similar to those of Americans.

These relationships are shown in Figures 1 and 2, both of which are graphical representations of the Shibata data using the principal components biplot. (See Brown, Williams and Barlow, 1984; and Brown and Walters, 1987, for explanations of the rationale of biplots and how to read and interpret them.) The biplot of Figure 1 graphically displays three things: (1) the stereotype ratings given each of the fourteen ethnic groups by Americans, (2) the estimates the Japanese subjects make of those ratings, and (3) the Japanese subjects' own stereotype ratings of the groups. Notice that in this kind of plotting which preserves the absolute mean differences between the American and the Japanese ratings, the Japanese ratings on the whole are about two and a half standard deviation units further to the left (toward the closed, quiet, meek and careless end and away from the outgoing, jovial end) than the American ratings. But this is with one exception: Anglo-Americans are seen as extremely outgoing and jovial, especially when compared to the other groups.

Figure 1 shows the difference between Japanese and Americans in absolute ratings, but it fails to make clear the amazing similarity in relative patterns of ratings. When we plot both the Japanese and the American data relative to their respective means (make the mean ratings for the Japanese judges and those for the American judges coincide), as shown in the biplot of Figure 2, we can see that the differences in relative pattern are slight. Besides the extreme ratings given to
Figure 1. A comparison of the ratings given to the fourteen ethnic groups by all American judges, all Japanese judges, and the Japanese estimates of American ratings: differences in anchor points (Centroids) shown for the three.

Note for Figure 1

These symbols are used to show the factor score location of the ratings of the fourteen ethnic groups for American ratings, Japanese ratings, and Japanese estimates of American ratings:

- Judgments by Americans
- Judgments by Japanese
- Japanese Estimates of Judgments by Americans

The three circles on the figure show the mean and two standard deviation radius for each of these three kinds of judgments. That is, the solid line circle and perpendicular axes are for the American judgments. The interaction of the axes is the centroid (two-dimensional mean) of the American ratings of the fourteen ethnic groups, and the solid circle circumscribes two standard deviation units away from this centroid. The dashed circle and axes show the centroid for Japanese judgments and the two standard deviation radius around that centroid. The dotted circle and axes shows the centroid of the Japanese estimates of American judgments and the two standard deviation radius.
Figure 2. A comparison of American judgments of the fourteen ethnic groups with the Japanese judgments of them, plotted with the Japanese centroid coinciding with the American one to show the similarity of relative pattern.
Anglo-Americans by the Japanese subjects, the only really major differences are that the Japanese see Japanese-Americans and Mexican-Americans as more toward the outgoing and jovial end of the figure than Americans do and they see Jewish-Americans and Black-Americans as less outgoing and jovial than Americans do.

After completing these results, the great question for us was whether there is also great similarity between the Japanese and the Americans in their relative stereotypical evaluations of national groups, or whether the effect is restricted to stereotypes toward ethnic groups in America? (With hindsight of the preliminary twenty-one nation study results, to be summarized below, it is now clear that the first is true, Japanese and Americans are also very similar in their relative evaluations of other nations.) The second great question for us was whether this Japanese/American cross-cultural comparison is an unusual one because of the close economic and cultural ties that have developed between the Japanese and the Americans in recent years, or whether all nations of the world have considerable agreement in relative stereotypes of one another. Shibata and Brown (see Brown, 1982) thought that the Japanese/American connection is an unusual one, and that one would expect radical differences in stereotypes among other nations. We will discover in what follows that they were wrong, that there is incredible similarity among all of the nations sampled in their stereotypes of the nations of the world.

Shibata and Brown's rationale was that there has been a great deal of Japanese modelling upon the United States both economically and culturally in recent years (witness for example the popularity of the Japanese T.V. series "The American Scene"). Also, Brown, Strong, and Rencher (1975) in their account of how the matched guise studies led to their own series of acoustic studies of the personality/speech connection, did a principal components meta-analysis of some of the early French Canadian matched guise studies and found that whereas male French Canadian and male English Canadian respondents seem to have high agreement on "competence" adjectives in that both rate the English guises higher than the French guises on competence adjectives, they were in total disagreement on "benevolence" adjectives with each rating their own group as more benevolent. On the basis of these observations, it seemed reasonable to expect that French Canadians and English Canadians would also hold cross-national stereotypes that differ markedly from one another. And if this diversity of view is found between two cultural nations within the same country, how much more diversity of view, we reasoned, should characterize the broad range of nations of the twenty-one nation study. However, in our preliminary analysis of the first data to come in we were very surprised to find incredible agreement across nations.

The first analysis of preliminary data was performed in October of 1986. At that time we had received, coded and processed comparative data for only six nations: Germany, Korea, French Canada, Great Britain, Lebanon, and Thailand. But even from the analysis of these six, there is a great deal of information. We will summarize only a small part of it here.

The biplot of Figure 3 displays the semantic space for grand means
Figure 3  Biplot display of the ratings given to twenty nations on twenty paired-opposite adjectives, averaged over respondents from Germany, Britain, Lebanon, Thailand, Korea and French Canada.
over all six nations for the ratings given to the twenty-one nations on the twenty paired opposite adjectives. In other words, it indicates how all six of these nations, on the average, rate the twenty-one nations. Notice that all of the vertical adjective vectors such as "bold" (at the top) vs. "meek" (at the bottom), "self-sufficient" vs. "sharing", etc., are related to competence. But it is interesting that neither end of that vertical cluster could really be said to be completely negative. The nations at the top of this axis (such as Germans, Japanese and Israelis) are seen as careful, conscientious, hardworking active and bold, but also as some things that could be construed as slightly negative: aggressive, ambitious, self-sufficient and strong-willed. The nations at the bottom of the axis (such as Indians, Mexicans, Nigerians, Thais, Brazilians and Syrians) are seen as relatively apathetic, lazy, weak-willed and careless, but also as some things that are positive: sharing, carefree, easy-going and meek.

The horizontal adjective vectors can also be construed as having both positive and negative aspects on the right as well as the left. The nations at the right of the figure (such as Americans, French and Italians) are seen as being relatively liberal, outgoing, open, cheerful and jovial, while those on the left (Indians, Chinese and Russians) are seen as being relatively closed and gloomy. But those on the left are also seen as being more quiet, inward and conservative, and there is the implication that they are more deep and contemplative whereas the ones on the right may be seen as more shallow. Those adjectives should be included in any further studies of cross-national stereotypes.

The diagonal cluster of paired opposite adjectives, that extent from the upper left to the lower right, is an interesting one. It places the Russians, Japanese and Israelis (composed, serious, disciplined, determined, rational and committed) as the ones who take life very seriously, in cultural opposition to the Mediterranean and Romance languages groups, the Mexicans, Brazilians, Greeks and Italians, who are seen as romantic and fun-loving (free, romantic, flexible, friendly and emotional).

The position given to Americans in this semantic space is intriguing: they seem to be unique exemplars of those who are both fairly high on the hard-working/ambition vertical cluster and also fairly high on the horizontal jovial/cheerful cluster. Opposite to this is the position given to Indians (from India). They are seen as relatively high in the quiet/inward end of the horizontal cluster and near the bottom of the vertical cluster in the "easy-going and lazy but sharing and carefree" direction.

Traditionally, stereotype rating methods have produced pictures of intergroup perceptions that are more unilaterally negative than the one we have here. Perhaps one reason for that is that such methods, when they use paired-opposite adjectives, usually derive them rationally to be proper and clear opposites, such as "self-sufficient" vs. "dependent". In this study, we used a group of paired-opposite adjectives that were empirically derived by Shibata in his dissertation. Specifically, he had American subjects consider ethnic
groups three at a time with the three questions:

"Which two of these three are most alike?"

"How are they alike?" (This gets one adjective of the pair.)
and

"How does the third group differ from them?" (This gets the other adjective of the pair.)

This is the triad comparisons method derived by Kelly (1955). It is probably much more effective in obtaining functionally useful paired-opposite adjectives, the terms in which subjects actually think, than the traditional rational adjective-pairing methods. We would argue that the semantic space of Figure 3, produced by it, where any corner of the space can be thought of as positive from a particular point-of-view, is a much more adequate representation of how nations actually perceive one another, than the pictures usually given in stereotype research.

Our argument for this particular semantic space over the more pejorative ones of traditional approaches to measuring stereotypes would be considerably strengthened by convergent information using still other methods. We plan to eventually re-run the twenty-one nation study but with a two-pronged method using open-ended hermeneutic methods (Brown, Williams and Bhagat, 1986; Georgi, 1985; Harre and Secord, 1972) and also an adaptation of the McCauley and Stitt (1978) procedure. For the hermeneutic data we will have respondents in each of the nations give a brief spoken description of people from each of the twenty-one nations and then have these spoken descriptions transcribed. The transcriptions will then be given to a team of "judges" who will first read all of them, with an eye toward constructing a series of scales that capture the differences. The scales will then be reduced to a manageable set and used by the judges to make scaled ratings of the descriptions. These ratings can then be processed with the biplot method to create a semantic space comparable to Figure 3.

This partial capturing of the information in the open-ended descriptions will be complemented with the McCauley and Stitt type of data. We will have the respondents in each nation estimate the percentage of persons in each nation who are "militaristic", "shrewd", "efficient", "scientifically minded", etc. in much the way McCauley and Stitt did, but then we will also include some estimates of more objective things, like what percentage of them are divorced, or live in privately owned homes, or have their own automobiles, or regularly attend church. In other words, we will also obtain their estimates of some things that can be checked for accuracy (using some of the available international survey data). This will allow us to not only create a convergent semantic space (to be compared to the original twenty-one nation space of Figure 3 and the hermeneutically created semantic space) for the view that people from each nation have of one another, but it will allow us to assess accuracy and the patterns of distortion that are characteristic of the perceptions of each national group of respondents.
The results shown in Figure 3 were first presented last fall (Brown, 1986) at the national meetings of the National Council for Geographic Education, in Chicago. This figure is a very interesting one for geographers, for it corresponds very well to a map of the world. In a broad sweep, it can be seen that the vertical dimension corresponds to a contrast between tropical nations (toward the bottom) and more northern or temperate zone nations (toward the top). The hypothesis that a temperate climate is in some way a causal factor in high economic production is a familiar one in geography circles. The horizontal dimension corresponds roughly to an east/west distinction, with the western nations being rated as generally more outward, more socially oriented, and the eastern nations being rated as more inward and contemplative.

Figure 4 is a biplot of the results for one group of respondents, those from Beirut, Lebanon, compared to the average of all six national groups. In other words, this figure shows how the respondents from Beirut differ from the six-nation averages in their stereotypic perceptions. For the most part they are in general agreement with the overall mean pattern. A notable exception is their rating of themselves. They see themselves as much more "western" than others see them; much more toward the jovial, cheerful, outgoing, open, outgoing and liberal end of the horizontal dimension. In the ratings others give to them, their nearest semantic neighbors are the Syrians, Thais and Nigerians: they are seen as an Arab nation. In their own assessment, their nearest semantic neighbors are the Italians, Greeks and French: they see themselves as cosmopolitan citizens of the Mediterranean. For one who has lived among them, this squares with reality. Many of the citizens of Beirut trace their ancestry back to Europeans from the time of the crusades, and they are a very cosmopolitan people of mixed origin. If we had data from some of their geographic neighbors (such as Syrians, Saudis, Cypriots or Israelis) we may see that they are much more aware of this than our British, German, Korean, French Canadian and Thai respondents.

The second noticeable divergence in Figure 4 of Lebanese perceptions from the six-nation average, is that the Lebanese move the Germans, Japanese, Israelis and Russians much more up into the upper left quadrant than the others. In other words they see them as more composed, disciplined, determined, rational, and committed (and perhaps militaristic) than others do. It is interesting that this is in clear contrast, the cultural opposite, to the free, romantic, flexible, friendly, and emotional Mediterranean group with which they identify.

Five additional comparative biplots like Figure 4 exist for the British, German, Korean, French Canadian and Thai respondents. They will not be reported here, both because of space limitations, and also because those stories belong to the colleagues in each of those nations who gathered those data. We hope to have all of the results in print within a year in an edited book where each colleague writes the chapter for his or her nation's data. In addition to the adjective rating data reported here, we also have accuracy data where each respondent was asked to identify the geographical location of each nation and each
Figure 4. A biplot comparison of Lebanese ratings with the average ratings by respondents from all six nations.

Key:
- ○ = average ratings by respondents from all six nations
- ● = Lebanese ratings of other nations
- ○ = Lebanese rating of themselves
nation's approximate population. In the final published form, we plan to have extensive analyses for each nation comparing accurate and inaccurate respondents, white collar vs. blue collar, male vs. female, and middle-aged vs. college student respondents. (In the Lebanon data we also have categorization according to the religion and sect of the respondent, so that these very interesting comparisons can be made.)

The respondents in each nation also rated each of the twenty-one nations on how similar each is to their own on four things: (1) beliefs and traditions, (2) form of government, (3) national prosperity, and (4) art and music. Similarities matrices for each of these four and also for a Pythagorean combination of them can be analyzed with the technique known as multidimensional scaling (Shepard, Romney and Nerlove, 1972) to give semantic spaces that can be compared to biplot spaces like those in Figures 3 and 4 of this paper. Much analysis remains to be done, particularly now that we have received data for an additional five nations.

We will close with one final observation. We were most anxious to see what the French Canadian data would show, given our previous findings that French Canadians and English Canadians differ substantially in their ratings of one another on benevolence adjectives, and our expectation that Franco and Anglo respondents would have radically different semantic spaces from one another. To our surprise, the French Canadians, like the Lebanese respondents already summarized, had only minor differences from the six-nation average. (In fact, all six of the national groups analyzed so far had only relatively minor variations on the overall pattern, and we therefore fully expect that this will also be true of the remaining nations.) It should be emphasized that this is not some kind of artifact of the measurement methods or data analysis method used. We used exactly this same kind of methodology (Bhagat and Brown, 1987) in a study of interfaith perceptions in India. However, in that study Moslems and Hindus were found to be at opposite poles of the semantic space in their perceptions of one another, of Christians, of Sikhs, etc. But there is something about the perceptions of nations (as contrasted with perceptions of faiths) that stabilizes and is very similar cross-nationally.

So, how do we reconcile these rather small differences in national stereotypes to the earlier French Canadian vs. English Canadian matched guise findings. When we examined the French Canadian perceptions our vision was transformed. The old matched guise findings were confirmed, but in a surprising way. It should be mentioned that we don't have English Canadians as a stimulus group in this study, but we can examine the French Canadian response to the British (perhaps a semantic near neighbor to English Canadians). The British were moved to the left by the French Canadian judges (toward Koreans, Chinese and Russians) and the French Canadians moved themselves to the right and down, next to the Italians (and, by the way, not too far from the Continental French and the Americans). In other words, the matched guise findings that French Canadians see themselves as less competent than English Canadians is consistent with this pattern, as is the finding that they see themselves as higher than Anglos on "benevolence" type adjectives,
but the additional twenty-one nation context suggests some alternative readings. Rather than the usual interpretation of a "cultural inferiority complex" on the part of male French Canadian respondents, these results can be seen as a statement of "we are more romantic, playful, jovial, and friendly in comparison to the gloomy, disciplined, serious, composed, and generally uptight English Canadians".

These observations, as well as these quantitative results, are preliminary and primitive. We expect to continue to be surprised and learn a great deal before this first twenty-one nation study is completed. A multivariate graphical data analysis system, Explorer I (Brown and Walters, 1987), is currently being developed and will be used for analyzing the twenty-one nation study results in greater depth. It is based upon the biplot method but is much more powerful in that it includes three dimensional rotation, visual multivariate analysis of variance (for comparing between group to within group variation), and a whole zoo of additional methods for creating semantic spaces, and unfolding the data from the biplot (which shows the overall gestalt of the data) right down to graphical representations of each single data point. "Panning for gold" (a method for stabilizing multivariate data before analysis), "ordered profiles of boxplots", "ordered dyadic profiles with hinges", "ordered topography of histograms", "tables of multivariately ordered means", "discriminant function biplots", "biplot of canonical residuals", are a few of the methods under development. They will open possibilities for data of the kind gathered in the twenty-one nation study, that were beyond imagination two or three years ago. Fortunately, their development has coincided with the gathering of these data.

References


Vocal Expression of Emotion: Comparisons of Judge Accuracy, Linguistic Properties, Subjective Reactions, and Acoustical Analyses

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There has been a considerable amount of work in the past twenty-five years on the topic of vocal expression of emotion, as evidenced by a comparison of Kramer's (1963) classic review and Scherer's (1986) review twenty-three years later of studies in that area. However, there is much left to be done, and in some ways we are only now beginning to enter an era of extensive careful emotion research. Most of the work has been correlative, and much of it has been crude, loose and somewhat artificial. There are still many more questions than firm answers. Few studies have made use of the precise acoustical analysis methods that have been developed in the past thirty years. Even those that have are lacking either in terms of having a limited sample of vocal emotion (Williams and Stevens, 1972), or only the most rudimentary use of acoustic methods (Van Bezooijen, 1984).

In this paper we will give a very brief preliminary report of a series of studies that employ a very extensive and expensive set of recorded emotion portrayals that was produced by Feldstein in the early 1960s. This set consists of six professional actors' and six professional actresses' portrayals of eight emotions each (anger, fear, joy, sadness, depression, hate, nervousness, and neutral) in a naturally-sounding and lengthy monologue. These 96 emotion portrayals (twelve actor/actresses times eight emotions) are superior to those used in previously reported studies in terms of skill of the actors/actresses, quality of the recordings themselves, length of the monologue, and "believability" (how realistic the emotions sound).

With respect to believability, it is important to note that when subjects in our studies listen to one of the emotion portrayals, they invariably think that it is a recording of natural speech. We have used a single emotion testing paradigm that takes advantage of the naturalness and believability of these recordings. That is, since exactly the same monologue is used in each emotion by each actor/actress, a listener subject would immediately know that the recording is not natural if he or she were to listen to more than one emotion and make comparisons. In our single emotion studies, we typically have five subjects assigned to listen to one of the emotion portrayals and then respond to that portrayal on a computer terminal in six ways: (1) the subject describes the speaker's emotion in his or her own words, (2) the subject chooses which of eight emotions this one is closest to, (3) the subject listens to the recording again and rates the utterance on each of eight emotion scales according to how much of
each emotion is judged to be present, (4) the subject listens to the recording a third time and gives a description in his or her own words of what the speaker is like as a person, (5) the subject rates the speaker on fourteen adjective scales descriptive of personality trait characteristics, (6) the subject listens to the recording a fourth time and gives a description of the vocal properties of the utterance, (7) the subject rates the utterance on twelve adjective scales descriptive of vocal properties.

This produces a great deal of information of a realistic kind (since the recording seems to subjects to be natural rather than portrayed emotion), but it also is expensive in terms of requiring many subjects. Rather than using all 96 emotion portrayals, we used a subset of 64, but with an average of five subjects to each rating group, this still required 320 subjects. Also, in order to test the effect of attributional context we did this under two conditions, one in which subjects are told that they are hearing an excerpt of a psychotherapy interview, and one in which they are told that they are hearing an excerpt of a conversation in a New York City bar. This requires 640 listener subjects, 320 for each of the attributional contexts.

In addition to the single emotion rating studies, we have also used the tape in comparative emotion studies, where a typical subject only has two tasks: (1) to guess the emotion being portrayed, and (2) to rate the portrayal for how much of each of the eight emotions is present. In this paradigm, each subject listens to many portrayals and can thus give comparative ratings with a common baseline. Obviously this common baseline advantage comes with some costs. The subjects are immediately aware that these are portrayals rather than natural emotion, since the monologue is the same for each speaker and for each emotion portrayal.

In addition to the single-emotion paradigm studies and the comparative-emotion paradigm studies using American listener subjects responding to these American actors/actresses, we have also gathered cross-cultural data. We have used the comparative emotion paradigm to examine listener accuracy in identifying emotions and to gather listener impressions both with a Latin American group of listener subjects (Paraguay) and also with an Oriental group of listener subjects (Taiwan). We have also gathered some single emotion paradigm data in Paraguay.

In summary, this series of studies is producing five major kinds of data: single-emotion paradigm subjective ratings data, comparative-emotion paradigm subjective ratings data, cross-cultural subjective ratings data, and acoustic analysis data. In the remainder of this paper we will report some of the results of the first of the five, the single-emotion paradigm subjective ratings data, and describe somewhat the ways in which the acoustical analysis is proceeding. However, first, we will present a secondary analysis of some important recently gathered cross-cultural data on self reports of emotional experience that will provide a context for our results.
About five years ago, Klaus Scherer and Harold Wallbott and their colleagues began a cross-cultural questionnaire of the subjective reminiscences subjects have of emotional experiences. These data are some of the most important ever gathered on emotion and will provide a foundation for much of the emotion work to be done in the coming decades. Essentially, they had each subject identify in his or her life an experience that typifies each of seven emotions (joy, fear, anger, sadness, disgust, shame, and guilt). Each subject then wrote a brief description of each of the seven experiences and made questionnaire ratings of each experience in seven of the eight areas shown in Figure 1: experience/control, physiological symptoms, nonverbal reactions, verbal behavior, situation, responsibility, and coping. (The eighth area in Figure 1, reactions/symptoms is a comparative summary of the information from the physiological symptoms area and that from the nonverbal reactions area.) Figure 1 was produced by our secondary analysis, using a principal components biplot, of the information reported by Wallbott and Scherer (1986, Tables 3, 4 and 5). (See Brown, Williams and Barlow, 1984, Brown and Walters, 1987, and Brown, Williams, Norton and Barrus, this volume, for explanations and examples of the biplot method.)

The first thing to notice from this figure is that the semantic space for emotions changes considerably depending which aspect of emotion one is considering. For example, when one is considering the intensity, duration, control, frequency of occurrence, etc. of emotions (the first biplot in Figure 1), we get quadrilateral extreme points of joy (hi intensity/duration, hi frequency), sadness (hi intensity/duration, lo frequency), shame (lo intensity/duration, lo frequency), and disgust (lo intensity/duration, hi frequency). The vertical dimension is intensity/duration, with those emotions at the top of the biplot being high intensity/duration and those at the bottom being low in intensity duration. The horizontal dimension is frequency (how often each occurs, inferred from average time since occurrence) with the emotions on the right (anger, disgust and joy) being more frequent than those on the left (sadness, fear and shame). Notice that the "hide/control" dimension extends from upper right to lower left, with joy being very low in hide/control, but shame being very high.

For physiological symptoms we get a triad grouping with joy being typified by warm, pleasant bodily symptoms; fear by perspiring, cold, shivering and heart-rate/breathing changes; and sadness and disgust by tense, trembling muscles, lump in throat and stomach troubles. On the other hand, nonverbal reactions have a triad of joy, anger and sadness. Joy is typified by the "moving toward" others kinds of nonverbal gestures and laughing. Anger is typified by "moving against" gestures with screaming/yelling, abrupt bodily movements, gesture changes, voice changes, and facial expression changes. Sadness is typified by withdrawing, "moving away from" kinds of gestures and crying/sobbing. The reactions/symptoms biplot (number 5 in Figure 1) is a comparison of the seven emotions in terms of whether they tend to be typified more by physiological symptoms (more involuntary), or by nonverbal reactions (more voluntary). As might be expected, anger is the emotion most typified by the more voluntary nonverbal reactions (followed closely by joy) and fear is the emotion most typified by the more involuntary
Figure 1. Eight biplots comparing emotion self-report responses across eight domains: a principal components secondary analysis of Wallbott and Scherer's (1986) data from 2235 respondents in 27 countries.
Figure 1 continued
physiological symptoms.

For situation (biplot number 6 in Figure 1) we again get a triad of emotion types, with joy being typified by expected, pleasant situations of positive self-esteem/confidence. Anger and fear are typified by unfair situations in which personal relationships change negatively and plans are hindered. Shame, guilt, disgust and sadness are typified by unexpected, unpleasant situations in which behavioral is seen as immoral and self-esteem/confidence is lost.

Very related to this is the question of responsibility (biplot 7 of Figure 1), and again we have a triad, but a very different one with shame and guilt in one prong of the triad (typified by "self" responsibility), anger and disgust in another (typified by "other people" being responsibility, including a potpourri all the way from close friends/relatives to "the authorities), and fear and sadness in the lower prong (typified by nonhuman causes). Notice that joy is not really in any of these three responsibility "prongs".

The question of how one copes with each emotion (biplot 8 of Figure 1) is also somewhat triadic in arrangement. Joy is by itself with "no action necessary." Guilt, shame and anger are off to the left where the person believes he or she could positively influence, or escape, or "pretend nothing important had happened." Sadness and fear are down toward the bottom where the person saw himself or herself as dominated and powerless to do anything.

The only biplot in Figure 1 not yet discussed is biplot 4, verbal behavior, the one potentially most relevant to our emotion/speech project. This one might be easier to interpret if it were rotated 45 degrees counterclockwise so that "lengthy utterances" (which is at about 2:00) would be at the top. Notice that we get two rather major dimensions defining this space. The first is the "lengthy utterances" versus "silence" dimension extending from the top right to the bottom left. Anger and joy are typified by lengthy utterances and all of the others (but especially fear and sadness) by more silence or short utterances. The second dimension, perpendicular to it, and extending from top left to bottom right, is a speech disturbances (typifying shame and anger) as opposed to an implied freedom from speech disturbances (typifying disgust and joy, both of which are very much under control).

These biplots of Figure 1 summarize an incredible amount of information. We computed them on the basis of Wallbott and Scherer's reported means and proportions from a total of 2235 subjects, and average of about 83 subjects each from each of 26 nations. But the most exciting and important data from the standpoint of our cross-cultural study of mutual intelligibility of emotion portrayals will be the biplots that are constructed to show the contrasts among the 26 nations in their typifying of the seven emotions in each of these eight domains. That will truly create an invaluable foundation for understanding the mutual intelligibility of emotions across cultures. But even at this point, we are now prepared to appreciate that the emotions differ from one another in subtle and multidimensional ways.
Figure 2 presents the data from our single-emotion paradigm subjective ratings study. Shown are the average ratings given to the actors (the "male" end of each connected triad) and the actresses (the "female" end of each connected triad) on each of the eight emotions portrayed. The unfilled circle between these two is their average, that is, the average for each emotion regardless of whether it is portrayed by a male or a female. The three biplots correspond to three kinds of ratings: ratings of vocal properties, personality trait ratings of the speaker, and ratings of each utterance according to how much of each of the seven emotions is judged to be present.

The vertical dimension on the vocal properties semantic space has to do with how dynamic the voice sounds, with the top of the biplot being typified by articulate, loud, fast, and high-pitched speech (primarily anger, but to a lesser extent joy and fear), and the bottom of the biplot being typified by slurred, soft, slow, and low-pitched speech. The horizontal dimension is primarily a reflection of breath control problems at the left (fear and nervousness) as opposed to the more controlled, full and fluent voice at the right (neutral and hate and male joy). It is interesting that male joy, male sadness, and male depression (as well as the male average in general) is more free of the breath control problems than the corresponding female emotions, but for anger this is reversed with female being more free of breath control problems. It is also interesting to notice that hate in this biplot is right in the middle of a cluster with joy and neutral. Does that mean that hate sounds like joy and neutral emotion to subjects. Most certainly not. It is the case that they are not readily distinguishable on the particular vocal properties scales used for this biplot. Our challenge is to find the dimensions (considered either vocally or acoustically) that do differentiate them. Notice in the personality trait ratings biplot that hate is at opposite ends of the semantic space from joy and neutral, showing that subjects can certainly differentiate them when given the right rating scales to do so.

The vertical dimension in the personality trait ratings space is primarily speaker competence, with positive competence at the top (strong, self-assured, intelligent, etc.) and negative competence at the bottom (weak, self-doubting, unintelligent, but guileless) at the bottom. The horizontal dimension reflects benevolence/kindness/goodness, with the positive end of this dimension at the right (kind, polite, flexible, likeable, placid) and the negative end at the left (unkind, impolite, rigid, unlikeable, temperamental). Of course, the portrayals of hate and anger are at the extreme left, the negative end of this dimension, and neutral and joy are at the right. With respect to the vertical dimension, a positive competence impression is given by the joy, the neutral and the anger portrayals, while a negative competence impression is given by the nervous, depression, sadness and fear portrayals.

The last semantic space to be considered is a curious one. It deals with the question of how much of the eight emotions is judged to be present in each of the others. That is, how much "crosstalk" is
Figure 2. Three biplots comparing male and female speakers in the received ratings of their eight emotion portrayals in each of three domains: vocal properties ratings, personality trait ratings and ratings on emotion scales.
there among the emotions. We are not surprised to see that joy and neutral are together and are at the end of each of the other dimensions that reflects little of any of the negative emotions. We are also not surprised to see depression and sadness together and opposite to joy. But the third corner of the triad is an interesting one. Not only are anger and hate together, but fear is with them, with all three being typified by the highest ratings on four dimensions: much anger, much fear, much hate, and much nervousness. That means that to these listener subjects, the fear portrayal seems to also have quite a bit of anger and hate in it; and the anger portrayal seems to also have quite a bit of nervousness and fear in it, etc. Note that nervousness is midway between the sadness/depression cluster and the anger/fear/hate cluster.

We can now clearly see the difficulty in linguistically, acoustically, and semantically/subjectively typifying the emotions. It is like the old story of the blind men describing the elephant (the one touching the tail says an elephant is like a rope, the one touching the a leg says that an elephant is like a tree trunk, etc.) What we find linguistically, subjectively and acoustically is very much tied to the dimensions of focus that we choose. But, being basically optimistic types, we will go ahead anyway.

As a first pass on the acoustic analysis of these tapes we are making long term power spectra of each emotion portrayal for each of the actors and actresses. We will also compute straightforward dynamic properties such as mean fundamental frequency, variance of fundamental frequency, mean amplitude and variance of amplitude. We also have a couple of more exotic methods we plan to try. It may be a long shot, but we think that there may be systematic differences in the way steady state vowels are pronounced in portraying each emotion: more closed in the sadness/depression cluster and more open in anger and joy and perhaps even fear. We think that this will show up in Labovian type F1 by F2 plots (see for example, Labov, 1972, p. 76). The multivariate graphical methods we have developed over the past twenty years (Brown, Williams and Barlow, 1984; Brown and Walters, 1987), of which the biplots of Figures 1 and 2 are an example, will be used to create holistic spatial representations of each of the total pattern of measured acoustic dimensions. We also are beginning work with a new multivariate graphical technique developed by Clifford A. Pickover (see a description by Peterson, 1987), that uses a lattice walk procedure for converting waveforms into six-petalled flower-like symmetric dot patterns that are amazingly subtle in differentiating the acoustic properties of sounds and making similarities in pattern visually accessible.

Perhaps a year from now we will know a great deal more than we know now about the acoustic concomitants of emotion and their subjective significance cross-culturally.
References


In this paper, I will attempt to do two things: 1) explain briefly the claims of four current SLA theories, and 2) discuss the implications of those claims for lexicon acquisition.

**Explanation of Krashen's model**

The four SLA models which will be explained include those espoused by Krashen, Schumann, Lamendella, and Hatch. Krashen's model is probably the currently best known. It contains several specific hypotheses and has been expounded in many different places. The exposition of the model which I will be using is one which was given in an article by Krashen in 1981 entitled, "The 'Fundamental Pedagogical Principle' in Second Language Teaching." In this paper, Krashen lists five specific hypotheses. The first is the "Acquisition-Learning" hypothesis. This hypothesis states that there are two ways of developing skill in a second language: acquisition and learning. Acquisition is a natural subconscious process similar to the process used in first language acquisition and it is not affected by error correction. Learning is a conscious process involving instruction and error correction.

The second hypothesis is called the "Natural Order" hypothesis. This hypothesis claims that structures are acquired in a "predictable order" regardless of the order in which they are presented in the classroom.

The third hypothesis which is part of Krashen's model is the "Monitor" hypothesis. This hypothesis claims acquisition has the main role in any language production and that learning only contributes in a minor "editing" or "monitoring" function. In other words, we first generate what we want to say on the basis of what we have acquired and then, if we have time and reason to focus on form, and if we know an applicable rule, we will fix what we have generated so that it conforms to the rule.

The fourth hypothesis, called the "Input" hypothesis, claims that we acquire language, "not by focussing on structure but by understanding messages" (p. 54). It also claims that the best way to teach is to provide comprehensible input (input which is $i + 1$ or just one small increment beyond the current knowledge of the learner) and that the best input is not tinkered with in order to specifically aim at $i + 1$.

The final hypothesis included in Krashen's model is the "Affective Filter" hypothesis. This hypothesis claims that several affective variables relate directly to success in second language acquisition. These factors include anxiety (which should be low), motivation (which
should be instrumental in "necessity" environments and integrative in "luxury" environments), and self-confidence (which should be high).

Krashen summarizes his model with what he calls "The Fundamental Principle in second language acquisition;" namely, "people acquire second languages when they obtain comprehensible input, and when their affective filters are low enough to allow the input 'in'" (p. 57).

**Implications of Krashen's model for lexicon acquisition**

Now let's examine the implications that Krashen's model has if it is applied to lexicon acquisition. We will begin with the "Acquisition-Learning" hypothesis and ask whether this dichotomy seems as true for lexicon as for syntax. Several questions help clarify the issue. For example, if we ask whether the second language lexicon can be acquired subconsciously without instruction, there is no question but what the answer is "Yes." The millions who have gone abroad and returned with spatterings of foreign words attest to this as do those who have read foreign texts and learned words without looking them up. So far the model seems to apply. And what about learning? Can second language words be learned? Thousands of textbooks with word lists and millions of students who have used them or lists of their own making attest to this. The issues become less clear when we follow the implications of Krashen's theory further. Is there a real difference between second language lexicon acquisition and second language lexicon learning? More importantly, can learned words become "acquired"?

Here the issue is more messy. What does it mean with regard to the new word you looked up in the dictionary and tried to memorize? Does that word never get so it flows naturally in production or does it only flow naturally in production after it has been seen in lots of other contexts and is, thus, acquired? If this latter explanation is true, does that imply that acquisition triggers learning (Why did you look up the word in the first place?) or that learning speeds up acquisition (Did it help in any way to look up the word?) or that the whole foray into the dictionary and learning was a waste of time? The answers to these questions have implications not only for second language lexicon acquisition but also for first language acquisition as we use dictionaries in similar ways in our native languages. Maybe these issues draw us back to more basic ones, such as the question of whether second language learning is any different from first language learning. The answer to this basic question seems much less clear with regard to the area of the lexicon even than it is with regard to other areas of language.

The second hypothesis in Krashen's model claims that grammatical structures are acquired in a predictable order. Krashen (1981) discusses how many critics of his theory have pointed out the fact that this claim is limited in its scope to just a few points of morphology. Krashen argues with his critics saying that some studies have broadened the list of morphemes studied (Krashen, Sferlazza, Feldman and Fathman, 1976; Turner, 1978; and van Naerssen, 1981, for example), but also by pointing out work by Scarcella (forthcoming) showing that there was a natural acquisition order in a different language domain, namely, discourse. Following these ideas for the purposes of this paper, what would it mean
in terms of second language lexicon acquisition? Is lexicon acquired in some particular order just as morphology is or discourse is regardless of instruction or language background? If so, what would the order be based on—semantic field? frequency? saliency of some type?

The lexicon is a much larger set to be learned than morphology or even syntax. Would it be nonsense to make claims about natural order of acquisition with regard to the lexicon simply because of learnability issues (you can’t learn something without sufficient examples of it) or does the natural order boil down to a general frequency issue (as Larsen-Freeman claimed for the morphology acquisition order)? If it comes down to a specific frequency issue (the frequency with which any particular individual hears a word), then there would be no universal acquisition order. We are left with an acquisition principle instead.

Other questions arise as we examine the third hypothesis, the "Monitor" hypothesis. This hypothesis says that we generate first from our unconscious or acquired language and then fix it with our learned language if we have time, focus on form, and if we know the rule. This is somewhat of a puzzle with regard to the second language lexicon. Do we generate second language only from "acquired" vocabulary and are all of our further word searches scrambles through our "learned" vocabulary? What does that mean when we generate first language and then have obvious word searches? Do we have acquired and learned vocabularies in both first and second languages or does this hypothesis not make sense with regard to the lexicon because the lexicon is so meaning-centered rather than form-centered? Is the "monitor" purely a syntax phenomenon not applying to broader issues of second language acquisition?

The fourth hypothesis is the input hypothesis which claims that people acquire by understanding messages which are just slightly beyond their level of competence. Krashen also claims that input should not be crafted (at least for structure) in order to get i + 1 but that a variety of situations will allow comprehensible input to come out in just the right proportions. It seems natural to think that vocabulary will be acquired if it appears in comprehensible contexts. This, after all, is one of the main reasons that reading is used for vocabulary development in the first language. It is less clear whether the lexicon in the input could be crafted in some way. This question is tied to the earlier questions of whether there is an acquisition order with the lexicon and, if so, what the basis of the order is. Furthermore, vocabulary is always much more at the heart of any message than structure is, so isn't just stating that the message must be comprehensible already suggesting that the vocabulary presented will be deliberately chosen in some way?

The final hypothesis in Krashen's model is the "Affective Filter" hypothesis which says acquisition, presumably including lexicon acquisition, is better with low anxiety, appropriate motivation, and greater self-confidence. Here the questions to be asked are somewhat different from those asked of the other hypotheses. For example, with the anxiety issue, some research into first language lexicon acquisition has shown quite clearly that high anxiety may facilitate word learning. Words which have produced embarrassment of any kind for learners seem
to be words which are never forgotten. So does the affective filter work in the same way with lexicon acquisition? I will leave the issues of motivation and self-confidence for others to examine the implications. Overall, I think it is quite clear that Krashen's model is much less explanatory when we think of lexicon acquisition than it is when we consider syntax acquisition.

**Explanation of Schumann's model**

Schumann's model is entitled "The Acculturation Model" and I am using his exposition of it from the Gingras volume (1978) as a basis for my explanation. In the model Schumann argues that two groups of factors--social factors and affective factors--combine into a single variable which is called acculturation, and that this variable is the "major causal variable" in second language acquisition. Schumann chooses these two groups of factors over other possibilities which he names, including personality factors, cognitive factors, biological factors, aptitude factors, personal factors, input factors, and instructional factors. Furthermore, he makes his claims only for natural language learning, that is, learning without formal instruction.

Schumann says that the social variables going into the acculturation model include social dominance, adaptation, enclosure, cohesiveness, size, congruence, attitude, and intended length of residence. The affective variables include language shock, culture shock, motivation, and ego-permeability. Schumann claims that when certain conditions are met with regard to all of these factors, second language acquisition will be greater. An unspoken assumption of the model seems to be that more friendly interaction will take place if the conditions are met and that more friendly interaction will inevitably lead to more second language learning. Schumann argues that the only way that instruction could override the strength of the acculturation factor is with radical steps such as the Foreign Service Institute or the Army language schools employ: student selection, intensive (five hours or more per day) instruction, extended periods of study, very small classes, well-trained teachers, specially prepared materials, and a wash-out system.

**Implications of Schumann's model for lexicon acquisition**

Now let's look at the implications of Schumann's model for lexicon acquisition. Essentially all that is being said is that more lexicon will be acquired if social and affective factors exist which bring the two language societies into more contact. I think it is hard to argue with such a claim. I also think it is hard to be satisfied with such a claim, for what has it really explained? Do we know any better how the lexicon is acquired? Is it purely a frequency issue--because you interact more, you see and/or hear more words? Is it a context issue--because you are with native speakers, words are found in context where their meanings can be observed? Is it a friendliness issue--the friendlier your interaction with native speakers, the more you learn?

How can we explain the acquisition of some words in the lexicon and not others--do the same factors named immediately above influence the quality (exact selection) of the lexicon acquired as well as the quantity? Also, I think it is evident that the radical steps in instruction which Schumann claims are necessary if instruction is to
override acculturation do not have to be so radical for lexicon acquisition to take place. Learners can read books and pick up words; they can make their own lists and learn words; they can get tapes and learn words. How much lexicon they acquire may very well depend more on instructional factors or input factors or cognitive factors or personal factors. The main causal claim for acculturation is weak when lexicon acquisition is considered.

Explanation of Lamendella's model

The third language acquisition model to be examined is one proposed by Lamendella. I will use Lamendella's description of the model in his article entitled, "General principles of neurofunctional organization and their manifestation in primary and nonprimary language acquisition," as the principle basis for my explanation of the model.

One of Lamendella's main claims is that there are neurophysiological functional systems; that is, there are particular anatomical structures and/or physiological processes which handle particular functions. The communication function is shared by limbic and neocortical systems. The limbic system basically handles nonverbal information while Broca's area handles speech production and Wernicke's area handles speech recognition. Higher level brain structures (the neocortex) are less genetically determined and more capable of "high degrees of individual learning" and "have the capacity to develop new, non-wired-in information frames and skill schemata.

Lamendella claims that, just as there is a "metasystem" for communication, there is also a "metasystem" for cognitive information processing. He thinks it is very likely that the two metasystems share subsystems and are highly integrated. Both systems have several levels which develop as a process of human development and the development of a new level in either of the metasystems may add new information to old, integrate old information with new, differentiate or specialize to a particular function, or superimpose a new "template" entirely.

When an individual attempts to learn a new language, there is likely to be a reversion to a lower level in the communication metasystem or, particularly in a formal instructional setting, the individual may not use the communication metasystem at all, but use the cognitive metasystem instead.

Implications of Lamendella's model for lexicon acquisition

What implications are there in Lamendella's model for lexicon acquisition? To begin with, it suggests that there should be somewhere in the human body, and more especially in the brain, where the lexicon would be stored. This idea seems to fit with facts that neurolinguists have found. Electrical charges in particular areas of the brain will produce voicing of particular words. However, we are still left with the problem of how the words got there, whether first and second language lexicons are generally in the same place or distinctly separated, and whether first and second language lexicons are hooked with anatomical/physiological correlates in the same manner. Further puzzles arise as we try to figure out how certain words (cusswords in particular) are assigned to the limbic system while other words are not. Also, do
we know what happens to cusswords in a second language? Are they also assigned to the limbic system?

If it is true that the higher level brain structures can learn quickly, producing new information frames (for reception) and new skill schemata (for production), are second language words any harder to learn than first language words? If so, why? Might it be a problem with a faulty information frame (based on inability to hear the sounds of words correctly or to grasp their meanings) or a faulty skill schemata (based on inability to produce sounds of words correctly) or both? Do strange sounds make learning some words more difficult than learning others? There is some evidence that words with difficult sounds are learned even in a first language much later than words with less difficult sounds and that bilingual children learn the phonologically easiest word for an object or a concept first regardless of which language it is in.

Also if it is true that second language learners might switch to the cognitive metasystem rather than the communicative metasystem, why does that happen? What consequences does it have in the lexicon? If it is producing less than native-like speech, what can be done to ensure that the communicative metasystem handles the new language input?

As can be seen, Lamendella's model does allow for discussion of lexicon acquisition and not just syntactic acquisition. Nonetheless, the application of the model raises more questions than it answers.

Explanation of Hatch's model

Hatch has called her model the "Experiential" model. I am using a paper about the model written by Hatch and Hawkins as the best explanation of the model. Briefly, these are the main points of the model.

First, Hatch claims that there are three integrated mental systems of knowledge—the social, the cognitive, and the linguistic. She implies that these systems will have neuroanatomical correlates (p. 3). Further, Hatch says that there is an interactive relationship between internal mental systems and external experience and "that language develops as a result of the external experience that continually feeds the internal mental systems" (p. 20). She points out that the experience can be incidental or intentional to language learning. With these two principles in place the Hatch model is then built on adaptations of ideas first proposed by Shank and Abelson (1977) and Kempen and Hoenkamp (1981).

Shank and Abelson have pointed out that in any learning, the learner builds a "knowledge structure" that serves to organize events and make them understandable for him or her. Any knowledge structure can be built, revised, or added to. These authors say these things take place as we build up specific "scripts" or "appropriate sequences of events in a particular context" (p. 41.) The scripts are built up out of plans which are defined as "sequences of actions that are intended to achieve a goal" (p. 72). Notice that a script is location or environment specific while a plan is location general. Hatch and Hawkins point out that we learn possible applicable plans through our experience. One
very important part of building scripts is the learning of the appropriate language to use at each point in the sequence.

Hatch and Hawkins say that, if language learning is to take place, the learner must recognize that there are new elements in his/her experience and figure out where and how the new information is generalizable. Using the ideas of Incremental Procedural Grammar, Hatch and Hawkins make claims for an internal "conceptualizer" which decides what needs to be communicated and presents it to the "Formulator" which must find the best pragmatic and syntactic structures for the ideas and give them to the "articulator" which is responsible for saying the utterances. They claim that the formulator will use any resources available to it--memorized chunks of language, rules, information from the LI, etc. However, the formulator will also note when there has been a gap in what was needed. Later the formulator may "find" the very thing in the current experience that had been missing in the expression of some previous idea. The formulator will then store the gap filler for use in the future. Thus, the recognition of new elements in the experience (whether in the language, cognitive, or social domain) leads to learning.

Implications of Hatch's model for lexicon acquisition

As can be seen, the Hatch and Hawkins model has very direct implications for the learning of the lexicon. The model implies that lexicon learning (as well as learning of other features of the language) takes place because of two things--one internal and one external. Internally there must be some cognizance of the fact that something new is needed. Externally the opportunity to find what is needed must present itself.

Nevertheless, this model still leaves gaps in explanation of what happens with lexicon acquisition. How would it explain, for example, the incapability of learners to retain words which they want very much to remember for future use? And why are some gaps so obvious to the adult language learner while others are filled so naturally that no gap is even noticed? These and other questions need exploration.

Conclusion

At the outset I said that I was going to describe four models of second language acquisition and then look at their implications for the acquisition of the lexicon. I did not say why, and I would like to make that purpose explicit now. As linguists, we have seemed to focus very strongly on syntax, morphology, and phonology and very little on the lexicon and yet the lexicon seems to be the very touchstone by which language acquisition is gauged in the world. Notice that it is first words of babies which are recorded in baby books, not first phonemes, or first uses of normal word order. The world recognizes the acquisition of lexicon as the sign that language is being acquired. The same is true of second language learning also. As Higgins and Johns (1984) have pointed out, if a speaker says something to non-linguists using English pronunciation and English syntax but German words, they will say that he or she is speaking German, not English. If the speaker says something using German pronunciation and German syntax, but English words, they will say that he or she is speaking English (p.13). I
propose that explanation of lexicon acquisition be one of the main standards, if not the main standard by which we judge second language acquisition theory. Until lexicon acquisition is explained, we still have some explaining to do.

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An Introduction to PeriPhrase,
a Linguistic Programming Language

Larry G. Childs, A.L.P. Systems

PeriPhrase is a high-level computer language developed in recent years by A.L.P. Systems in Provo for use in various natural language processing applications. PeriPhrase is used for several different projects within A.L.P. Systems, and is also commercially available. This paper is only intended to give the reader a flavor for PeriPhrase. It is not a complete nor even a particularly systematic description of the language. However, on the basis of a few representative examples, I hope to provide a general idea of what it is like to work with this string processing language. These examples will be based largely on my work in machine translation from German to English at A.L.P. Systems.

In my work, I use PeriPhrase to build up a syntactic phrase structure tree for each sentence in a German text. The function of this tree is to serve as the basis of a transfer grammar (also written in PeriPhrase) which turns the sentence into English structure. For example, the phrase structure tree for the following sentence would look something like this.

```
  s
 /   \\
np  subj
   /   \\
art n  np
      /       \\
  v       art n

Den Mann  biß  der Hund
The man   bit   the dog.
```

Note that this phrase structure tree may seem a little unusual in that it does not map the verb and the direct object into a VP like most traditional transformational grammars do. I bring this up to make the point that the PeriPhrase language is designed as a generalized tool. It does not dictate that any particular model or theory of grammar be used. The shape of the tree and even the names of the nodes are left entirely up to the person writing the PeriPhrase programs.
Statements in PeriPhrase are in the form of linguistic rules. These rules consist of a pattern matching section, which searches for elements in a sentence, and a rewrite section, which builds a tree structure on the elements that were matched, thus building up parse trees like the one shown above.

The rules may be as simple as:

\[ \text{ART N} \Rightarrow \text{NP[...]} \]

which says that when an article (ART) and a noun (N) are found in a sentence, a noun phrase node (NP) is created, and all of the pattern elements on the left-hand side of the rule (namely, the ART and the N) become constituents of the new NP node ([...]). In practice, however, the rules tend to be somewhat more complicated than this, and employ a wide variety of features besides simple pattern matching which make them very powerful but also sometimes very complicated, indeed.

One commonly used feature is that of modifying the pattern elements with "attributes". For example, in German it is not sufficient merely to say that an article and a noun form a noun phrase; different types of noun phrases (such as dative plural or nominative singular) are formed from different types of articles and nouns. The first rule below indicates that a nominative singular NP is formed from an ART whose inflectional ending is "er", and a masculine singular N. The second rule forms an accusative singular NP from an ART with an "en" ending and a masculine singular N.

\[
\begin{align*}
\text{ART(ending=er) } & \star \text{ADJ N(number=sing, gender=masc)} \\
& \Rightarrow \text{NP[...]}(\text{number:=sing, case:=nom}). \\
\text{ART(ending=en) } & \star \text{ADJ N(number=sing, gender=masc)} \\
& \Rightarrow \text{NP[...]}(\text{number:=sing, case:=acc}).
\end{align*}
\]

Another feature introduced in these rules is that of the optional pattern element. The "\star" ("Kleene star") in front of the adjective (ADJ) means that any number of adjectives (including zero) may occur between the article and the noun in the sentence.

PeriPhrase rules do not have to be context-free, as can be seen in the following example:

\[ \text{NP(case#nom) V NP(case=nom)} \Rightarrow 1 2 3:=\text{SUBJ}. \]

The numbers on the right-hand side of the rule are called pronouns and refer to the pattern elements on the left-hand side. For example, in this rule, the pronouns one through three refer to the first, second and third pattern elements on the left-hand side respectively. The only effect of this rule is to rename the nominative NP node to subject (SUBJ), if that NP is found in the context of NP, verb (V), nominative NP. The="#" used with the attribute of the first NP is a "not" operator, and in this
context means "match on any NP whose case is not nominative."

A variation of this would be to create a SUBJ node above the nominative NP node, as is the case in the above tree, rather than merely renaming the NP node. This would be done by the following rule:

\[
\text{NP}(\text{case}\#\text{nom}) \lor \text{NP}(\text{case}=\text{nom}) \Rightarrow 1 \ 2 \ \text{SUBJ}[3].
\]

The square brackets indicate the immediate constituents of the nodes on the right-hand side, and can be used to create rather complex tree structures in just one rule. For example, the rule below not only creates a new SUBJ node above the nominative NP, it also maps all of the elements of the pattern into a sentence (S) node. This one rule along with the two previous rules which created NP's is sufficient to create the phrase structure tree that was shown above.

\[
\text{NP}(\text{case}\#\text{nom}) \lor \text{NP}(\text{case}=\text{nom}) \Rightarrow S[1, \ 2, \ \text{SUBJ}[3]].
\]

In order to illustrate still more PeriPhrase rule features, let us now look at the following rule whose function is to map up strings of adjectives (ADJ) into a single ADJ node.

\[
\text{ADJ \ ADJ} \Rightarrow \text{ADJ}[...].
\]

For example, if a sentence contained four adjectives in a row, represented here by "ADJ ADJ ADJ ADJ", the above rule would create the following tree structure:

```
      ADJ
     /   \
    ADJ   ADJ
   / \   /  \
  ADJ ADJ ADJ ADJ
```

This shows the recursive nature of PeriPhrase rules. As long as a rule matches a pattern in a sentence, it continues to be applied until the sentence elements have been modified sufficiently that the rule no longer matches any string of elements in the sentence.

In actual practice, this rule is likely to be a bit more complicated because strings of adjectives are generally punctuated by commas and/or conjunctions in German as well as in English, as can be seen in "tired, hungry(,) and poor." The rule to show that either a comma (COM) or a conjunction (CONJ) must occur between the adjectives is shown below:

\[
\text{ADJ (COM | CONJ) ADJ} \Rightarrow \text{ADJ}[...].
\]
To make this rule even more general, we could put a '*' in front of the braces like this '*{COM | CONJ}', which indicates that commas and conjunctions are optional intervening elements.

This particular type of rule can also be used to show another useful PeriPhrase feature, namely that of attribute variables. In German, adjectives can have several different inflectional endings (such as "e" or "en"), and this rule should only apply in German if both adjectives in the rule have the same ending. It doesn't matter which ending it is, as long as it is the same for both adjectives. This restriction can be put in the rule by means of a variable, as seen below:

\[
\text{ADJ(ending=endvar)} * \{\text{COM} | \text{CONJ}\} \text{ADJ(ending=endvar)} \\
\Rightarrow \text{ADJ} [...].
\]

Whatever ending the first ADJ has is loaded into a variable which we have called "endvar", and the attribute restriction on the second adjective is that its ending must be the same as the ending stored in the variable endvar.

Actually, the recursiveness of the individual PeriPhrase rules comes because they are combined into various groups of rules called "packets", which are recursive. As long as at least one rule in a packet fires, i.e. succeeds in matching, the rules in that packet are applied again until none of them fire any more. At that point, the next packet is tried. And on a larger scale, the group of packets which constitutes a PeriPhrase program is also recursive, i.e. the group of packets is tried repeatedly until none of the packets in the group fire any more.

There are many more details involved with the control mechanism of when to apply rules to a sentence, as well as many ways of modifying this control mechanism. For example, the number of rules that the PeriPhrase program writer chooses to put into a packet can greatly affect the order in which the rules of the program are applied, and there are ways to change the order in which packets are tried depending on which rules have fired. However it would go far beyond the scope of this paper to discuss the control mechanism in detail here. Let the following simple example suffice to show some of the power inherent in the recursive nature of PeriPhrase.

In German it is not uncommon to have noun phrases and prepositional phrases nested inside other noun phrases and prepositional phrases, as in the following phrase:
under der von den Römern gebaute Brücke
under the by the Romans built bridge

which can be translated as "under the bridge built by the Romans." This whole tree structure can be built with just the following three rules because of the way that rules recur in PeriPhrase.

DET *ADJ N => NP.
PREP NP => PP.
PP ADJ => ADJ.

In the simplest case, these three rules could be put into one packet, but because the packets are recursive as well, the same tree structure could be created by putting each of these rules inside different packets.

Two other extremely important features of PeriPhrase are "complex rules" and "actions." An action is a computer program or function which is external to PeriPhrase itself, and which can be called from PeriPhrase rules. Actions are written in standard programming languages (I use the C language in my work), and are used to check information, query the user, and even duplicate the functions of PeriPhrase rules themselves.

A good illustration of one use of actions is in conjunction with complex rules. A complex rule is one in which there are two or more rewrite sections. To explain this, let us look at following German sentence which has two valid syntactic parses:

Gestern wurde der Onkel von meinem Freund weggeschickt.
Yesterday was the uncle of my friend sent away.

In English, the two possible readings can be expressed as:

Yesterday, the uncle of my friend was sent away.
and
Yesterday, the uncle was sent away by my friend.
In the analysis of the German source sentence, the question of which parse to use hinges on whether the prepositional phrase (PP) is a post-modifier of the NP, or whether it is a separate sentence unit. These two possible parses for the same pattern can be indicated by a complex rule that would look something like this:

\[
\text{NP(case=nom) PP(npm:\text{mod}:=\text{no}); check\textunderscore conjoined}(x) \\
\Rightarrow \text{choose}(x) \\
\{ \\
\text{NP}[...] \\
\mid \\
\text{1 2(npm:\text{mod}:=\text{no})} \\
\}.
\]

The "npm:\text{mod}" attribute here, which indicates whether the PP can modify the previous NP, is merely a device to keep the rule from going into an infinite loop if the second rewrite section is chosen. If it were not there, the second rewrite section would not change the sentence elements in any way, and therefore the pattern section of the rule would continue to match infinitely.

In order to decide which rewrite section to use, this rule makes a call to an action routine which we have called "check\_conjoined". The purpose of this action is to return either a "1" or a "2" in the variable "x", which the PeriPhrase rule then uses to decide whether to choose the first or second rewrite section respectively.

This "check\_conjoined" routine could be written in several ways. One possibility is to have it automatically return a default value, based perhaps on a statistical analysis of which parse is the most common. In the interactive system that I use, a routine of this sort would typically query the user. In such an interactive mode, the action could be written to present the German sentence on the screen with the noun phrase and the prepositional phrase highlighted, and then ask the user whether the prepositional phrase modifies the noun phrase. The user's response would then be passed back to the PeriPhrase rule, the appropriate rewrite section would be chosen, and the PeriPhrase analysis would continue.

Another possibility which is planned but not yet actually implemented is to make complex rules junctures for "backtracking". This is a mechanism by which alternate parse trees are built up so that every possible parse of a sentence can be represented by its own tree. It is planned that after PeriPhrase built a parse tree based on one of the rewrite sections for a complex rule, it could "backtrack" until it found such a juncture, and then build trees based on the other rewrite possibilities for that rule. Building all possible parse trees and then rejecting the ill-formed ones is a standard parsing technique for resolving apparent ambiguities and recognizing true ones.
As I mentioned earlier, I also use PeriPhrase to perform the transfer from German to English. There are three basic transformation operations which can be performed on a PeriPhrase parse tree, namely reordering, deletion, and insertion of nodes.

In the sentence "Den Mann biß der Hund," whose parse tree was shown above, it is necessary to reorder the subject and the direct object when translating into English. After the parse tree has been built up, then a rule such as the following would match and reorder the sentence to the correct English word order:

\[
S[\text{NP, V, SUBJ}] \Rightarrow [4, 3, 2].
\]

Note that the square brackets on the left-hand side indicate the tree structure to be matched. In other words, this rule will match if it finds an S node which has NP, V, and SUBJ as its immediate constituents. Note also that in reordering a non-terminal node such as NP, PeriPhrase automatically reorders the entire tree structure which is under that node.

A node can be deleted simply by putting a minus sign in front of its pronoun on the right-hand side of a rule. When translating from German to English, it is often necessary to delete the commas which delimit subordinate clauses as in:

Der Mann weiß, daß der Hund beißt.

which translates as:

The man knows that the dog bites.

If the parse tree structure for the subordinate clause looked like:

```
SC
  COM SCONJ SUBJ V
```

then a very simple rule for deleting the comma would look like this:

\[
\text{SC}[^\text{COM}, ^\text{SCONJ}, ^\text{SUBJ}, ^\text{V}] \Rightarrow [4, 3, 2].
\]

The final transfer function is that of insertion of terminal nodes into the tree. In translating from German to English, for example, the possessive relationship which is expressed by the genitive case in German is often expressed by the preposition "of" in English, as in:

die Frau des Bürgermeisters

the wife the mayor
which could be translated as:

the wife of the mayor.

The following rule both inserts the word "of" on the terminal level and creates a prepositional phrase structure above it:

\[
\text{NP NP(case=gen)} \Rightarrow 1 \text{PP["of"]=PREP, 2].}
\]

There are many other aspects of PeriPhrase which could not be covered in a paper of this scope. For example, not all of the operators used in the pattern matching section were mentioned. Only a superficial description of the control mechanism for applying rules was given. And the PeriPhrase development environment with its excellent and comprehensive debugging facilities was not even discussed. However, more complete descriptions are available for those who are interested in actually using the language. This paper will have served its purpose if the reader has gained a feel for what I, as a user, have found to be a very useful and also very exciting language with which to work.

Notes:


Structure of the Syllable and Syllable Length in Spanish

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Willis C. Fails
Brigham Young University

The purpose of this paper is to present data concerning syllable length in open versus closed syllables in Spanish. This research is part of an ongoing project on acoustic values of the syllable. Curiously enough, much remains unknown on this vital, yet taken for granted, phonetic concept. Our own incipient research has been presented on other occasions, but little is being done on the syllable in other centers.

It is not our current purpose to provide new insights into the definition of the syllable; our objective is to supply new data concerning syllable length in Spanish. We will therefore assume the existence of the syllable and will use the classical phonetic rules of Spanish syllable division in determining the syllabification of our tokens. Consequently, the syllables in our materials all contain vocalic nuclei and may or may not contain consonantal limits. For the present study, we deliberately eliminated tokens containing diphthongs due to their varied structure. In measuring the length of the syllables, we included both the vocalic nucleus and its consonantal limits.

Previous Studies

There have been several studies dealing with the matter of syllable length. The scope and intent of these are extremely varied and their results are at times contradictory. The most common concept that has emerged is that there are languages that are 'syllable-timed' and others that are 'stress-timed.' According to Pike, English is an example of a language that is stress-timed. This means that the rhythm of English goes from stress to stress. This produces a stressed syllable that is considerably longer than an unstressed one.

She was as in-sens-i-tive as she was beau-ti-ful.

Note that the long syllables are all stressed and that the short syllables are all unstressed.

The Romance languages have been generally considered to be syllable-timed. In his book on the intonation of American
English, Pike used Spanish as his prime example of a 'syllable-timed' language. The Spanish equivalent for our English example is 'Ella era tan insensible como era hermosa.' The pattern of stressed syllables would be:

\[
\text{E-lla e-ra tan in-sen-si-ble co-mo e-ra her-mo-sa.}
\]

Note that all the syllables are theoretically of the same length regardless of stress.

Portuguese has been the only language mentioned in the literature as a possible exception to the general categorization of the Romance languages as 'syllable-timed' languages. Authors such as Peter Ladefoged mention French as an example of a 'syllable-timed' language.

Previous Studies on Syllable Length in Spanish

There have been a few studies which have related to the issue of syllable length in Spanish. The earliest were done by Tomás Navarro Tomás, who wrote three articles in the Revista de Filología Española on the length of accented vowels (1916), unaccented vowels (1917), and consonants (1918). In 1922, he published a study dealing directly with syllable length based on readings of the poetry of Rubén Darío. In his study, Navarro used three separate informants who were speakers of unspecified peninsular dialects. His conclusions were that Spanish syllables varied greatly in length according to whether they were stressed or not, the stressed syllables being much longer.

In his study of read breath groups, Samuel Gili y Gaya concludes that there is a general psychological tendency to syllable-timing, but that there are mitigating physiological factors such as style, number of unstressed syllables between stresses and complexity of the syllable. His research was based on the recording of one reading of a prose passage presumably by a peninsular informant. In 1980, Pointon reanalyzed Gili y Gaya's materials and found that the difference between stressed and unstressed syllables amounted to a 50% increase for stressed over unstressed syllables.

Pierre Delattre conducted a comparative analysis of syllable length in English, Spanish, French and German in 1966. Unlike previous studies which had been based on kymograms and oscillograms, Delattre's research was carried out using spectrograms of a five-minute segment of free speech. Although he does not
specify the number nor origin of his informants, they were presumably Latin American. His results in general showed that closed syllables tended to be longer than open ones, that stressed syllables tended to be longer than unstressed ones and that unstressed, open syllables tended to be of the same duration regardless of their position.

In 1972, Carroll Olsen studied a recording of a speech by Octavio Paz.\textsuperscript{11} His overall conclusion was that Spanish is syllable-timed. He recognized that there are differences in length, but the differences are much smaller than in English, for example.

In his review article of all of the above research, Pointon noted that there are many factors which influence the length of the syllable. These include stressed versus unstressed syllables (Navarro); speed of movement of the articulators from sound to sound, style, the number of unstressed syllables between stresses and the complexity of the syllable (Gili y Gaya); open versus closed syllables (Delattre); rhythm pattern, sound sequence, structural sequence and length sequence (Olsen). Pointon also mentioned other factors which bear on syllable length such as dialect, elements measured (vowels versus consonants with or without transitions), sense groups versus breath groups versus isolated words, tempo, and number of informants. Still other factors, particularly sociolinguistic ones, would add other dimensions. Pointon concluded that Spanish is neither syllable-timed nor stress-timed. He felt that it is 'some form of segment-timing, in which the number and type of segments in each syllable, together with the presence or absence of stress, determine the duration of a syllable.'

In earlier studies, Clegg & Brannen\textsuperscript{12} and Clegg & Fails\textsuperscript{13}, we determined that: 1) Tonic syllables are longer than atonic syllables in non-final positions by 50%. 2) The difference in length among all the atonic syllables only amounted to 13%, indicating great consistency in non-final atonic positions. 3) Absolute final syllables are 123% longer than syllables in other positions. 4) Stressed final syllables are 35% longer than unstressed final syllables. 5) We found a general correlation between length and voicing in all syllables where the following consonant was voiced. The more voiced the consonants (sonorants versus unvoiced stops, for example) the longer the preceding syllable. Ladefoged reports a similar phenomenon for English vowels.\textsuperscript{14}
Our Study

Basic Spanish phonetics texts generally assume that Spanish is 'syllable-timed.' The stated implication is that native speakers of Spanish will take the same amount of time to utter each syllable regardless of its stress, position or complexity. The scant and obscure technical articles on the subject, Navarro, Gili y Gaya, Delattre and Olsen, however indicate that there are differences in syllable length. Because these works are obscure and because their focus has been elements other than the syllable itself, new studies into the syllable are necessary.

In order to further investigate the syllable in Spanish, we have collected data in the form of both a questionnaire and free speech. We have submitted a portion of the questionnaire to spectrographic analysis. This work presents an analysis of findings to date. The purpose of this part of the research is to examine variation in syllable length according to syllable type. We do not propose to settle here the issue raised by Pointon as to whether or not Spanish is syllable-timed. Subsequent analysis of the free-speech portion of our data will allow us to determine the variation of length according to syllable form and position within the phonetic group.

Methodology

Much discussion has taken place over the use of data from free speech versus questionnaires. We felt that we could use a questionnaire for two reasons. First, Clarke found no appreciable difference in acoustic parameters between free text and read materials. Second, a questionnaire composed of a word list provides a uniform ratio of examples that would require an enormous equivalent of free speech samples to duplicate.

The basic phenomenon we wanted to work with was the syllable type (open and closed). Our questionnaire contained a list of 20 words that produced each vowel /a,e,i,o,u/ in each of these environments.

The use of a word list differs from the approach of previous studies, some of which were concerned with segments other than the syllable. One of the difficulties they encountered was the determination of syllabic limits. These determinations were further complicated by phonosyntactic transitions typical of the syllable but difficult to delineate with the equipment and techniques utilized by earlier researchers. Measurement by syllable rather than by phone eliminated the question of transitions except between syllables. This means that the sonorants
that tend to complicate vowel/consonant boundaries were included neatly in their separate syllables.

In selecting our informants, we maintained a uniform sociological level. The six informants were all female, from the same generation (ages 21 to 27) and from the same socio-economic level (middle class). We wanted to compare persons from different dialect areas, hence we selected informants from different general areas in the Americas. The dialects chosen were: Argentine (Buenos Aires), Chilean (Santiago), Colombian (Bogotá), Salvadoran (San Salvador), Puerto Rican (San Juan), and Mexican (Mexico City).

We asked the informants to read the questionnaire and recorded them in an acoustic studio on a Sony cassette recorder. We made contour sonagrams of the recordings on a Digital Sonagraph Model 7800, analyzing the first 4000 Hz. We measured the syllables for duration using a ruler calibrated in millimeters, including both the consonants and vowels that belonged to the syllable in question.

After measuring the syllables physically, we factored this measurement against the 5.12 seconds of speech recorded on a sonagram displaying the acoustic information from 0 to 4,000 Hz. This recording time converted into a physical measurement of length is equal to 317 millimeters. Converting the time (5.12 seconds) into milliseconds (5120 ms) and dividing by the 317 mm, we derived a factor of 16.1542 ms/mm that we used in calculating the actual duration of each syllable.

We averaged the results for this study, individual by individual and position by position. The individual results were, in general, the same as the average for all of the informants, that is, no instance varied appreciably from any other. We also did our analysis speaker by speaker to mitigate individual differences. The words were measured, the measurements then totalled and an average determined.

Results of the Study

A study designed to specifically examine open versus closed syllables showed that stressed closed syllable were 13% longer than stressed open syllables in 'minimal pairs.' The unstressed closed syllables were 55% longer than unstressed open syllables (pretonic) in 'minimal pairs.' An average of stressed and unstressed closed syllables versus stressed and unstressed open syllables showed an overall 34% increase in length for closed syllables over open syllables.
AVERAGES OF SYLLABLE LENGTH
IN FINAL PHONOLOGICAL POSITIONS

<table>
<thead>
<tr>
<th>Vowel</th>
<th>OPEN</th>
<th>CLOSED</th>
<th>OPEN</th>
<th>CLOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>359 ms</td>
<td>359 ms</td>
<td>249 ms</td>
<td>323 ms</td>
</tr>
<tr>
<td>e</td>
<td>389 ms</td>
<td>394 ms</td>
<td>260 ms</td>
<td>291 ms</td>
</tr>
<tr>
<td>i</td>
<td>357 ms</td>
<td>441 ms</td>
<td>260 ms</td>
<td>318 ms</td>
</tr>
<tr>
<td>o</td>
<td>363 ms</td>
<td>415 ms</td>
<td>268 ms</td>
<td>281 ms</td>
</tr>
<tr>
<td>u</td>
<td>336 ms</td>
<td>420 ms</td>
<td>275 ms</td>
<td>317 ms</td>
</tr>
</tbody>
</table>

**AVG.** 361 ms 406 ms 262 ms 306 ms

Further data on stress showed that in final position, stressed closed syllables were 27% longer than unstressed closed syllables. In final position, unstressed closed syllables were 48% longer than unstressed open syllables.

AVERAGES OF SYLLABLE LENGTH
IN OPEN VS. CLOSED SYLLABLES

<table>
<thead>
<tr>
<th>Vowel</th>
<th>OPEN</th>
<th>CLOSED</th>
<th>OPEN</th>
<th>CLOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>275 ms</td>
<td>334 ms</td>
<td>132 ms</td>
<td>204 ms</td>
</tr>
<tr>
<td>e</td>
<td>376 ms</td>
<td>485 ms</td>
<td>179 ms</td>
<td>220 ms</td>
</tr>
<tr>
<td>i</td>
<td>220 ms</td>
<td>309 ms</td>
<td>141 ms</td>
<td>210 ms</td>
</tr>
<tr>
<td>o</td>
<td>257 ms</td>
<td>315 ms</td>
<td>141 ms</td>
<td>207 ms</td>
</tr>
<tr>
<td>u</td>
<td>265 ms</td>
<td>333 ms</td>
<td>139 ms</td>
<td>239 ms</td>
</tr>
</tbody>
</table>

**AVG.** 279 ms 355 ms 146 ms 216 ms
Summary

In summary, the our study shows the following: 1) Closed syllables average 34% longer than open syllables in 'minimal pairs.' 2) Stressed closed syllables average 27% longer than unstressed closed syllables in 'minimal pairs.' 3) Again, we found a general correlation between length and voicing (as did Ladefoged for English vowels in all syllables where the following consonant was voiced. The more voiced the consonants (sonorants versus unvoiced stops, for example) the longer the preceding syllable.

Much work remains to be done on the syllable. We still need to study the effects of different types of following consonants and the effect that complex syllable form (V, CV, CVC, CCVC, etc.) has on syllable length. The many manifestations of intensity remain to be related. Additionally, we wish to compare these findings with those we will obtain from free speech samples. In the realm of spontaneous speech, such factors as phonosyntactic syllables, phonetic groups and sentence or emphatic stress must also be considered.

Through all of this data and that which we have projected, the question raised by Pointon still remains to be answered. Our data shows that the traditional concept of 'syllable-timing,' interpreted to mean syllables of the same length, is unacceptable. Hopefully, the results obtained in future investigation will lead to an answer to the 'timing' of Spanish.

Endnotes


5 Tomás Navarro Tomás, "Cantidad de vocales inacentuadas," Revista de Filología Española (1917) 4, 371-388.

6 Tomás Navarro Tomás, "Diferencias de duración entre las consonantes españolas," Revista de Filología Española (1918) 5, 367-393.

7 Tomás Navarro Tomás, "La cantidad silábica en unos versos de Rubén Darío," Revista de Filología Española (1922) 9, 1-29.

8 Samuel Gili y Gaya, "La cantidad silábica en la frase," Castilla (Valladolid, 1940) 1, 287-298.

9 Pointon, p. 294-295.


14 Ladefoged, p. 223.


Spanish Sibilant Evolution
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During the Middle Ages Spanish had six sibilants in its phonological system. The sixteenth century marked a time of great change in the medieval sibilant system. The purpose of this investigation is to analyze and document the processes that transformed the medieval sibilants into the two sibilant systems known today. This investigation will deal with the sibilants anciently represented graphically as {ç, z, s, ss}, and the way in which they evolved by means of four processes: deaffrication, devoicing, deapicalization, and interdentalization. The phonemes that will be dealt with will be the following:

/ʒ/ voiced, apico-dental affricate. Written [z]
    (fazer, hazer)
/ʃ/ unvoiced, apico-dental affricate. Written [ça, ço, çu, ci, ce]
    (brago, cerca)
/ʂ/ unvoiced, apico-alveolar fricative. Written [s-, -ss- -Cs- (followed by a consonant)] (passar, señor)
/ʑ/ voiced apico-alveolar fricative. Written [-s- (intervocalic)] (rosa, prisión)

Deaffrication

Deaffrication of the affricate sibilants, /ʒ, ʂ/ written {z, ç}, marks the first evolutionary change in the Spanish sibilant system. During this phase /ʒ/ and /ʑ/ lost their affricative quality to become respectively /s/, and /z/. Since the phonemes corresponded with their written form, one may find evidences of this process in the writings of the time. The apparent confusion and mixed use of {z} with {s}, and {ç} with {ss} is evidence that deaffrication was taking place. In 1419 one author writes "diesmo" in place of "diezmo," and "çatan" instead of "satan;" In 1487 one may see "Andrez" written instead of "Andrés." The poet Juan de Padilla Cartujano (1468-1522) rhymes {s} with {z} and {ç} with {ss}. Juan de Valdés in 1535 notes the confusions in spelling and in the pronunciation of {z} and {s}:

«Esse es vicio de las lenguas de tales que no les sirven para la asperilla pronunciación de la z y ponen en su lugar la s, y por hazer dicen haser, y por razón, rasón y por rezio, resio, etc.»

When the affricates, /ʒ/ and /ʑ/, became the fricatives, /z/ and /s/, they were no longer in opposition to the apico-alveolar fricatives, /ʒ/ and /ʂ/ in terms of their manner of articulation. Those who maintained the apico-alveolar articulations, /ʑ/ and /ʂ/, still felt an opposition, not in the manner of articulation, but in the place of articulation.

The first signs of deaffrication are found in Andalusia. Lapesa believes...
that this phenomenon started in Seville and in the Atlantic coast and later spread to cover all of Andalusia. The same thing occurred as a separate phenomenon in the north, and in the septentrional plateau, but at a later date. Zamora uncovered an interesting observation of deaffrication:

Quizás el testimonio más significativo es el de Arias Montano....Estaba matriculado en el colegio de Santa María de Jesús, en Sevilla, en 1546-47....En 1588, Arias Montano escribe sobre la pronunciación de los Sevillanos, y dice que «siendo él joven, su pronunciación era la misma que la de los castellanos de ambas Castillas», pero veinte años después (es decir en 1566) «truecan la s por la z, y al revés, la z o ç castellana por la s» y añade: «La antigua y común pronunciación todavía (en 1588) se guarda entre buena parte de los viejos más graves» y «que no pocos de los jóvenes mejor educados la practican».

The process of deaffrication started in the fifteenth century and continued throughout the sixteenth century, until it became firmly established at the beginning of the seventeenth century. There are indications that the voiced affricate, /z/, lost its affricative quality before the unvoiced affricate /s/. The examples already cited testify to the deaffrication of the voiced affricate, /z/, since they have to do with spelling confusions between the [z] and the [s], and not between the [ç] and the [ss]. Examples of deaffrication of the unvoiced affricate /s/ were found later. Amado Alonso postulates that deaffrication took place first in word final position, then in intervocalic position, and finally in post-consonantal position and word initial position, "conquering progressive resistances." According to his chronology {z} and {ç} were pronounced as linguodentals until the sixteenth century. Towards the middle, and more specifically at the end of the sixteenth century, these affricates lost their affricative quality, starting with the voiced member, /z/.

Deaffrication of /s/, which was a later phenomenon, did not become widespread until the beginning of the seventeenth century: In 1607 Pedro Martínez, commenting on the way Spaniards spoke, said that they pronounce "ratio", "ratiso." Kaspar Schoppe noticed something similar in 1613-1614. He heard Spaniards say "Dsidsero" for "Cícero." In 1618 Bautista de Morales maintained that there was still a distinction in the pronunciation of the {z} and the {ç}.

Deapicalization: THE BIRTH OF CECEO AND SESEO

There are various hypothesis regarding the origin of the apico-alveolar fricative, /s/. Alonso taught that it had its roots in the Iberian substratum and calls it the Iberian "s". Otero is of the opinion that the apical-alveolar fricative did not exist in Medieval Spanish, but that one of the steps in the castilization of Romance was the apicalization of the dental fricative, /s/. He attributes this process to the Basque influence in Castile.

This theory that the dental fricative suffereded a modification in its
place of articulation, transforming itself into an apico-alveolar fricative, becomes weak in view of other findings. There is evidence to show that the apico-alveolar fricative existed not only in Romance but also in other non-Latin, Indo-European languages. If emigrants to the Americas used the apico-alveolar fricative, it is possible that one may find remains of it in America. There are, in fact, pockets of apical-alveolar /h/ in parts of Colombia, Puerto Rico, and Peru. Jungemann provides further evidence for the early existence of the apical-alveolar /h/. He believes that old descriptions of Romance can be interpreted more clearly if the pronunciation of [s] is considered apico-alveolar instead of linguodental. If this is true, the idea that the apical pronunciation of the /h/ is due to a pre-Roman substratum is made void. In that case, the third step in the development of the Spanish sibilants is not the addition of an apical element, or apicalization as Otero suggests, but rather, the loss of the apical element, or deapicalization. In Spanish, deapicalization took place in the south, while the north retained the apical-alveolar articulation of the [s].

Chronologically, deapicalization started after deaffrication, but before devoicing. When the affricates, /ç/ and /s/ lost their affricative characteristic, the resulting phonemes, /z,s,z,s/, grew phonologically closer. Llorach explains what usually happens as a result of such a drawing together:

La tendencia de la «economía» del sistema fonémico obliga a la lengua a buscar el aprovechamiento de un número mínimo de distinciones fonológicas cuando una oposición diferencial tiene escaso rendimiento..., el sistema de la lengua tiende a perder esta distinción y reducir los dos fonemas a uno solo... cuando dos fonemas de gran rendimiento pueden confundirse por la proximidad de sus realizaciones fonéticas, la lengua tendrá a alejarlos entre sí, cambiando la realización fonética de uno de ellos.

In the case of Andalusian, the apical element was lost, and [s] and [ss] were articulated with a variety of dental and interdental articulations. What was referred to as "ceceo", "ceceo", or "zezeo" in the sixteenth and seventeenth centuries was the adoption of the dental articulation given to [z] and [ç], to [s] and [ss] which before were apico-alveolar, or in other words, the loss of the apical articulation. More specifically, "ceceo" or "ceceo" was the use of any dental articulation usually given to [ç] to pronounce [ss]. "Zezeo" was the use of any dental articulation given to [ç] to pronounce [ss]. With the rapid arrival of devoicing "zezeo" became quickly extinct, transforming itself into "ceceo".

"Seseo" is another term that is usually brought up when talking about Spanish sibilant confusion. In the seventeenth century it did not refer to the Andalusian phenomena of deapicalization, but to the Catalonia and Valencia habit of dropping the dental sibilants in favor of the apico-alveolar ones. That is, [ç] and [ç] were given an apico-alveolar articulation instead of a dental one. In the case of Valencia and Catalan, apicalization took place; in Andalusia deapicalization occurred. In Castile the distinction between linguodental and apico-alveolar sibilants was maintained.
Areas that had experienced deaffrication, deapicalization, and devoicing were now able to consolidate the old articulations of \{z,ç,s,ss\} into a single phoneme. This phoneme, however, had a wide variety of dental and interdental articulations. What is known today as "seseo" is the neutralization of the four medieval sibilants, /s,ζ,²,ζ/ by means of deapicalization, into a variant of /s/ with a "siseante" timbre. "Ceceo", then, is the neutralization of the ancient sibilants into a variant of the interdental fricative, /θ/, or of the dental fricative, /s/ with a "ciceante" timbre. Both "ceceo" and "seseo" are outcomes of the same Andalusian phenomena anciently called "ceceo" or "zezeo".19

The process of deapicalization, like the other processes discussed, occurred mainly during the sixteenth century. According to Lapesa, around the year 1500 the "s" of Seville and surrounding areas was apico-alveolar. In about 1584 the "s" had already lost its apical characteristic and adopted a dental articulation.20 Fontanella sets an even earlier date for this occurrence. According to her, the equalization between apicals and dentals started earlier, and became generalized in the fifteenth century. It is difficult to set a date for deapicalization, but it can be said with some certainty that it happened before devoicing and after deaffrication.21

**DEVOICING**

A short time after /²/ and /§/, (\{z\} and \{ç\}), began to lose their affricative quality, which process started in Andalusia, another evolutionary process was heard in Castile: the devoicing of the voiced linguodental and apico-alveolar fricatives, /z/ and /z/, which were represented in spelling by the letters \{z\} and \{s\}. In regions in which deaffrication had already taken place the voiced fricatives were devoiced: /z/ > /s/ and /ζ/ > /§/.

In zones that had not yet undergone deaffrication, the voiced dental affricate, and the voiced apico-alveolar fricative were devoiced: /²/ > /§/ and /ζ/ > /§/. In regions that had undergone deaffrication, and deapicalization, the voiced dental fricative was devoiced: /ζ/ > /s/. For those who maintained the distinction between the linguodental and the apico-alveolar sibilants, deaffrication caused no spelling confusion since the distinction in place of articulation was kept. Deaffrication caused orthographic confusion only for those who did not distinguish between the linguodental and apico-alveolar sibilants. The confusion was manifest in spelling confusions between \{z\} and \{ç\}, and between \{ç\} and \{ss\}. However, devoicing of the voiced sibilants, caused confusion even for those speakers who differentiated between apico-alveolar and linguodental sibilants.

What makes the matter a bit more complicated is that deaffrication, and devoicing occurred during a relatively short period of time. For some time there were areas in which the sibilants had been devoiced, some areas where they had been disaffricated, and other regions in which they had been both disaffricated and devoiced. On top of that, within each of these three areas, there were also areas that had experienced deapicalization, and differentiated
linguodentals and apico-alveolars, and regions that did not. The spelling confusions found in any given area evidence which processes were taking place in that region. In regions that made no distinction between linguodentals and apico-alveolars, like Andalusia, the orthographic confusions were more numerous than in distinguishing regions like Castile.

The first evidences of devoicing are found in Castile at the beginning of the fifteenth century. Santa Teresa de Jesús writes "deçir" with {ç}, instead of "dezir" with {z}, and "matasen" with a single {s} instead of "matassen" with {ss}. The Andalusian, Juan de Baraona y de Padilla describes the devoicing tendency of the Castilians:

Quanto a la .S. y la .Z. se les puede corregir [i.e. the Castilians] (sic) la blandura con que las pro[n]unciian, porque la .s. senzilla no saben diferenciar de la doblada, ni de la Z en medio, o principio de parte de la c con cedilla: como entendiera cualquier que los oye, si tiene pratica desto. Los Andaluzes que aciertan a hablar bien, como de naturaleza tienen las lenguas ásperas, danles su fuerça a estas letras, y aun aqueces demasiada.

The softness mentioned is a reference to the lack of voicing, while the strong pronunciation refers to the voiced fricative.

**INTERDENTALIZATION**

In Andalusia, the early confusion between the group of dental sibilants, \(/\z, \tilde{s}/\) \((\z, \z)\), and the group of apico-alveolar sibilants, \(/\tilde{s}, \tilde{z}/\) \((\tilde{s}, \tilde{ss})\), eventually led to the fusion of the two groups into a single phoneme. On the other hand, in Castile, the distinction between the two groups was maintained since early times. This has led the Castilians to maintain the distinction until present times. The Castilians kept the apico-alveolar pronunciation of \(s\) and \(ss\) but then began to distance the dental group \(z, \z\) from the alveolar one. Distancing the dental group, by changing its palce of articulation, was necessary since the only difference between the two groups was their point of articulation. The articulation of the graphemes \(\z\) and \(z\) experienced various dental articulations with "ciceante" and "siseante" articulations during for a season, until they abandoned their dental place of articulation and adopted a new interdental position. And thus, the interdental fricative, \(\theta\) was born.

The first description of a "ciceante" sibilant was given in 1501, and was considered a type of "ceceo". In 1560 and again in 1578, the pronunciation of \(c\) and \(\z\) was described as the interdental sibilant, \(\theta\). The interdental pronunciation of \(\z\) and \(z\) became general throughout the seventeenth century, becoming firmly established in the eighteenth century. Lapesa explains the necessity for the creation of this new sibilant:

...al hacerse fricativas las antes africadas \(\z\) y \(z\), las oposiciones \(\z/s\) sorda y \(z/s\) sonora perdieron uno de sus rasgos diferenciales: para mantenerlas en la lengua general fué necesario acentuar otra marca diacrítica que reforzase la distinción entre los fonemas
opuestos; y así se hizo cada vez más ciceante la articulación de ç y z para mayor contraste con las siseantes puras s,ss.²⁸

Some believe that the Castilian conservation of this distinction is due to the influence of the Basque language. Basque influence has already been thought to have affected the loss of the initial /f/, and the confusion between {b} and {v}.²⁹ Basque maintained the same opposition between linguodental and apico-alveolar sibilants as Old Spanish; the dental fricative, /s/ was opposed to the apico-alveolar fricative, /ʃ/ in place of articulation; the voiceless affricate, /ʒ/ was opposed to the dental fricative, /s/, in manner of articulation. MacMurraugh affirms that Basque speakers helped Spanish speakers to maintain the distinction between the sibilant groups:

Since the Basque speakers of Spanish easily distinguished the fricative /ç/ and /s/ thanks to the same contrast in their primary language, they provided the decisive brake against the merger which occurred in the South; the monolingual Spaniards then advanced the articulation of /ç/ to increase the phonetic distinction which they did not perceive as easily as the Basques.³⁰

Interdentalization was the last step in the series of processes that was able to evolve the medieval sibilant system into the two systems known today. With the publication of the Diccionario de autoridades in 1726, the ancient graphemes {z,ç,s,ss}, that no longer reflected their modern pronunciation, were eliminated or restricted to certain contexts. The {ss} was dropped in favor of the {s}, and {ç} was also abandoned. The use of {z} in spelling was restricted to final word position, followed by a consonant or before {o,u,a}. [Ç] when followed by {o,u,a} was to be pronounced as the voiceless velar stop, /k/, while when it was followed by {i} or {e} it rendered the interdental fricative, /θ/.³¹

In the space of about a century and a half, by means of the four processes treated here, the four sibilants, /ʃ,ʒ,z,ç/ were reduced to /s/ in most of Andalusia and all of America, and to /θ/ and /ʃ/ in most of the rest of Spain. Perhaps the most interesting result that this series of processes created was the retention of the distinction between linguodental and apico-alveolar sibilants in Castile, and the transformation of the latter into the interdental fricative, /θ/.

NOTES


5. Lapesa, Historia, pp. 283, 284, 373.


16. Lapesa, Ceceo, pp. 88-89.


18. Lapesa, Ceceo, pp. 77-78.


20. Lapesa, Ceceo, p. 86.


25. Lapesa, Ceceo, p. 81.

16th Century Spanish Sibilant Reordering—Reasons for Divergence

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Sibilant Convergence

Prior to the 1950's most Romance linguists assumed a predorsalveolar [s] articulation for the IE (or at least Latin) /s/ and attributed the apico-alveolar [s] of the regions of Old Castille to a Basque or Iberian substratum influence on Peninsular pronunciation (Lapesa, Historia 4, note 24). This argument was based on common usage today in the majority of the modern Romance languages and 'supported' by the articulatory descriptions of Latin grammarians.

Since then many linguists have expounded the opposing view of an apico-alveolar [s] pronunciation extended throughout the Roman empire, and have presented an abundance of evidence to confirm their claim. In an article entitled "Concerning Some Slavic and Aryan Reflexes of IE s" André Martinet postulates the apico-alveolar [s] as the main allophonic variant of IE /s/ (92). Both Jungemann and Galmes de Fuentes contest the 'predorsality' of Latin /s/, and base their arguments in part on the vagueness of the traditional articulatory descriptions. Indeed the terse statements "dentibus repressis" and "dentibus verberatis" are not only ambiguous, but may equally apply to alveolar sounds as the latinists themselves often described them (Galmes de Fuentes 121). In addition, the above mentioned linguists argue in favor of the apical formation as a better explanation for the preclassic rotacism of Latin /s/ (Jungemann, cited in Solá 463 and Galmes de Fuentes 121).

Valuable testimonies are also offered at later stages as the new Romance languages make contact with foreign peoples. Joos supports an apical pronunciation in Old French based on 12th century loan words adopted into English which substitute the alveopalatal [ʃ] for the apico-alveolar [s] (225). Similar transcriptions by the Jews and Moors would infer the same articulation in Iberia. They consistently transcribed the IE /s/ with 'shin', the Arabic phoneme representing an alveopalatal pronunciation. This phenomenon was generalized and came to be known as 'xexeo', or the Moorish tendency to hear the apico-alveolar [s] articulation as a prepalatal sound. Charles H. Stevenson, commenting on the apico-alveolar [s] in Iberia, generalizes its distribution to all of the Peninsula of the 9th-12th centuries (27). In his book Las sibilantes en la Romania, Galmes de Fuentes meticulously demonstrates the existence of apico-alveolar [s] even in the languages east of the Spezia-Rimini division.
In all, it would be fair to state that the apico-alveolar [s] articulation represented the main allophonic variant of Latin and possibly IE /s/ despite its near extinction in the majority of the Romance languages today. However, the apico-alveolar pronunciation did not go out without a fight, and was a major factor influencing sibilant reordering in the Middle Ages. We shall especially see how the peculiar physiology of this sound may have played a determining role in the case of the Spanish division.

While IE /s/ remained rather constant throughout the Latin and Romance periods the same cannot be said of the new dental affricate /ʧ/ (⟨ç⟩). Its origins may be traced to the Vulgar Latin 'Yodization' of the voiceless dental and velar occlusives as these came in contact with a high front vowel or semivowel. Its development followed a general forward movement in the place of articulation from velar [k] > prevelar [kj] > palatal [ç] > dental [ʧ]. Also affected was the manner of articulation changing from occlusive [k] > stop + glide [kj] > affricate [ç] and [ʧ].

As the dialectal Romance evolved into the modern Romance languages in the Middle Ages the oppositional contrast IE /s/ : affricate /ʧ/ was still quite distinct, if not in place then certainly in manner of articulation (fricative : affricate). This distinction has endured to the present in the Eastern Romance languages, but a strong spirantization movement in the West resulted in a minimization of distinguishing features in the contrast. With the final loss of any vestige of occlusion in affricate /ʧ/, phonological distinction from IE /s/ became tenuous and difficult to maintain.

The new pair of fricative sibilant phonemes differed only slightly then in manner of articulation: [ç] (⟨ /ʧ/⟩ predorso-alveolar vs. [ʧ] (⟨ IE /s/⟩) apico-alveolar. In this respect Amado Alonso describes both articulations as apical which would reduce even further the distinction. However, Galmes de Fuentes argues convincingly for a predorso-alveolar pronunciation for the new phoneme /ç/ based on a reanalysis of the early Spanish grammarian descriptions, foreign sound approximations, and an expert interpretation of Arabic correspondences (13).

To complicate matters there arose from Romance a new prepalatal phoneme /ʃ/ which generally derived from Latin X, PSY, SSY, and other combinations. The prepalatal /ʃ/ sibilant also infringed on the IE /s/ domain precisely because of the apical nature of the latter. This conflict was intensified in areas where a strong fricativization resulted in a high functional yield between these two phonemes. Where IE /s/ had once enjoyed centuries of phonemic isolation it was now losing territory on both sides of the acoustical spectrum.
Sibilant Confusion and Resolution in Romania

By retaining the plosive element of the affricate /s/ the Easterly Romance languages were thus able to maintain a phonemic distinintion between affricate /ʂ/ : IE /s/ (MacMurraugh 455). The Latin #C + e/i was fossilized at /ɕ/ palatal affricate in Italian and Rumanian while VL (TY, CY) stopped at /ʒ/ dental affricate for both languages. The voiced counterpart affricate /ž/ produced between vowels endured in Italian but reduced to a fricative status /ʒ/ in Rumanian. Curiously this last step caused no phonemic problems in Rumanian as the IE /s/ never sonorized in this language (Iordan 180). The proximity of IE /s/ to prepalatal /ʒ/ created pressure towards phonetic separation as the apical pronunciation gave way to the predorsal variant. This might explain the scarcity of the apico-alveolar allophone [ʂ] in these regions today.

By the 14th and 15th centuries the Western Romance languages were struggling to separate the series /ʒ/ predorso-alveolar − /ʃ/ apico-alveolar − /ʒ/ prepalatal and its corresponding sonorous trio. This intermediate stage of minimal phonemic separation demanded resolution based on the structural principles governing sound change. Certainly varying pronunciation modifications vaciliated over a long period of time and preceded a later phonemic reclassification once the change was generalized. The particular solution chosen by the different Romance languages depended not only on the sounds involved, but how these 'fit' into the phonological inventory in question.

French underwent rapid sibilant leveling that was probably accomplished by the late 14th century although dialectal variants may have continued into the 16th century (Joos 231). The solution was a merger of IE /s/ and the new predorso-alveolar /ʒ/ in favor of the predorsal pronunciation and a retention of the prepalatal /ʃ/. This process is adequately described by two different theories. In the first, Jungemann evokes a high functional contrast between the apico-alveolar pronunciation [ʂ] of IE /s/ and prepalatal /ʃ/ as they come into opposition both in word initial and medial positions (cited in Solá 463). Joos on the other hand cites the conflict between predorso-alveolar /ʒ/ and the apico-alveolar variant [ʃ] of IE /s/ where the latter suffers aspiration and disappearance, the phonemic quality being conserved through a compensating lengthening of the preceeding vowel (229).

A rather early deaffrication occurred not only in French but also in Catalán and Portuguese probably dating back to the 13th century (Stevenson 29). All three of these languages conserve a strong prepalatal element /ʃ/, which in theory would favor the loss of the apico-alveolar allophone [ʂ] of IE /s/ in benefit of the newly assibilated predorsal /ʒ/ for maximum separation of phones and clarity in the phonological system (Galmes de Fuentes 97). As we have seen, this is precisely what happened in French. The same could be said for Portuguese, but only partially, as the geographic diversity of this country allowed for differences in
sibilant resolution. Catalán, on the other hand, settled on a unique solution.

Contrary to the expected neutralization of sibilants towards the predorsal variant, Catalan preferred the apico-alveolar pronunciation resulting in a šešeo in the regions of Catalonia, Valencia, and neighboring Provençal. In an excellent treatment on the subject, Galmes de Fuentes reveals extenuating circumstances in the phonological structure of Catalán to explain this divergent result. He presents chronological data documenting the disappearance of the voiced affricate /ʃ/ > predorsal /ʒ/ > 0 especially in a position preceding a tonic syllable. This sonorous companion of affricate /ʃ/ ([ʃ]) not only disappeared in intervocalic position but also vocalized word finally (101). The result was an imbalance in the phonological system as the pair of apical sibilants proved more resistant than the lone predorsal surd during the deciding moments of sibilant merger and reduction (101).

For the main cultural center of Lisbon and southward the Portuguese sibilant solution mirrored that of the French predorsal šešeo. Again the high oppositional contrast of the prepalatal /ʃ/ with the apico-alveolar variant [ʃ] of IE /s/ tended to favor a predorsal settlement (Galmes de Fuentes 111). It should be noted that the sonorous companion predorsal /ʒ/ has been preserved not only in Portuguese, but also in Catalan and French.

The fact that a zezeo, whether apical or predorsal, is maintained in the 'other' languages of the Iberian peninsula indicates that the desonorization was subsequent to the deaffrication. Some have questioned the validity of this argument since sibilant devoicing was a regional (Castilian) phenomenon and thus could not affect these distinct languages. Yet further evidence is provided by Judeo-Spanish and Andalusian Spanish which both used zezeo during the 15th century. The former has preserved the mark of voicing through separation and isolation, while 'Andaluz' eventually devoiced in line with the Castilian norm.

The north and eastern regions of Portugal and Galicia have historically had less contact with the cultural center of Lisbon and more so with Castille. The historical fact is not lost on the linguistic reality. This area essentially followed the Castilian pattern maintaining sibilant distinction over an extended period of time. More recently however, literary influence has erased for the most part this sibilant distinction (Galmes de Fuentes 109). The final result is a predorsal (and in some cases - apical) šešeo in imitation of the Lisbon 'educated' or, in some areas, an interdental /θ/ : predorsal /ʃ/ type opposition consistent with Castilian.

Even so, there remains a small pocket of conservative resistance in the extreme north of Portugal where phonological distinction between the predorsal and apico-alveolar sibilant
quadruplet has continued to the present day. This has only been possible, as Galmes de Fuentes explains, through an articulatory exaggeration of the minimal distinctive features that phonemically separate the two pairs (109). In the case of the predorsal an intensifying of the sibilant matrix was carried to an extreme, while the prepalatal character of the apicals was emphasized by increasing its grave timbre (107). This apico-prepalatal, exaggerated /s/ is not confused with the dorsoprepalatal /ʃ/ since the special phonological structure of Northern Portugal places these two sounds in very low oppositional contrast.

The Spanish Case

The meridional resolution of Andalusian Spanish is similar to neighboring Lisbon. Again there existed a rather high functional yield between the prepalatal and apical sibilants. In Portuguese it occurred with the surds while in Spanish it was the voiced pair, prepalatal /ʃ/: the apico-alveolar pronunciation of /z/ (Galmes de Fuentes 112). In order to maximize this sound distinction, the apico-alveolar articulation merged with the predorsal /ʃ/ yielding a çeceo and zezeo and later devoiced to eliminate the sonorous companion.

In Castille as in Northern Portugal the old distinction between sibilant phonemes was preserved in spite of the minimal auditory differences. Rafael Lapesa concurs with Galmes de Fuentes in the need for modification of the sounds produced so as to increase their distinguishability. Lapesa explains that as the predorsal /ʃ/ is intensified the convex tongue flattens and fronts to an interdental position with 'cieante' timbre /θ/ ("Ceceo" 89). This process corresponds with Galmes de Fuentes' description of an 'exaggerated, more sibilant' predorsal /ʃ/ produced in distinguishing Northern Portugal.

What is curious about the Spanish case is why these two distinct roads to sibilant resolution were taken by dialects with exactly the same phonological structure and core of phonetic realizations. The split in Portuguese may be explained by alterations in the dialectal phonological inventories resulting in high yield and low yield conflicts and hence seseo or distinction. The same cannot be said of Spanish.

The existing literature is silent on the matter, either glossing over it, or completely avoiding the issue. Kilburn MacMurraugh (among others) has attempted to explain the distinguishing Castilian resolution with a Basque adstrat influence. As with most substrat theories, it is difficult to concede it the determining influence that it purports to affect. The question remains why the divergence?

Articulatory Habits and Physiology

Many Romance philologists have indicated the importance of historical events in the precipitation of linguistic division during the Spanish Golden Age. Manuel Alvar cites the changing of the capital from the old Toledan court to Madrid and the rising social
importance of Seville (among other elements) as influencing factors in the extension of devoicing and repartition of seseo (52-53). In his article "Sobre el ceceo y el seseo andaluces", Lapesa concludes that the diverging treatment of sibilants in Castille and Andalusia can be directly linked to problems of communication, a changing lifestyle, and the rising importance of Seville as a prestigious cultural-linguistic center (94).

What is clear is that there was a newly emerging "Sevillian norm" that gained prestige and territory as the expanding Imperial Spain based its center of operation and exploration of the New World around the port city of Seville. It was during the Golden Age that meridional Spanish was diverging from Castilian in its treatment of the sibilant phonemes, and in the centuries that followed it would generalize this and other linguistic elements that would make it unique. Today 'Andaluz' is considered one of the major dialects in contrast with Castilian Spanish.

I believe that the cause for the linguistic differences in general may be traced to the developing pattern of articulatory habits of these two dialects. The unique characteristics of Castilian Spanish are a crisp articulation base with a high degree of tenseness in the articulatory muscles, an increasing intensity level, strong consonantism, pure vowels, retention of the intervocalic fricative element, etc. Andalusian Spanish, on the other hand, was developing in another direction. The key features composing its articulation base include a quite relaxed articulation, less tenseness of the articulatory muscles, a wider range and variety of vowel sounds, loss of the intervocalic fricative element, a greater occurrence of sibilant aspiration, and more vocalism as opposed to the Castilian consonantism.

Although still the same language these divergent bases of articulation give the two dialects a very different 'sound'. In addition, as Quilis states these (differing) articulatory habits may have an effect on the development of diachronic sound changes (Curso 34). In the case of the Spanish sibilants their ultimate resolution may have been influenced not only by the articulation base, but also by the particular physiology of the apico-alveolar pronunciation [s] within this overall context.

An examination of the physiological character of the apico-alveolar [s] reveals a high degree of muscular tension involved in the formation of this sound in isolation. The concave hollowing of the tongue calls for muscular excursion in the raising of the back of the tongue, firmness in raising the tongue apex to the alveolar region, and a general tenseness in the slight lowering and forward movement of the mandible as the tongue dorsum dips down. This tenseness could ultimately be measured and shown to be greater than the more lax predorso-alveolar [s] articulation.

The very nature of apico-alveolar [s] then, would not 'fit well' within the context of a more relaxed articulation base developing in Andalusia. A gradual relaxation of the predorsal
[ʒ] articulation would create no major change while a similar relaxation of the apico-alveolar [ʒ] would lead to a gradual flattening out of the tongue. The loosened muscles would gradually drop the tongue back and tip, flattening out the concave hollow towards a more flattened or even convex formation.

The more relaxed articulatory habits of Andalusia had probably been developing and modifying the phonetic character of apico-alveolar [ʒ] centuries before the great sibilant crisis in the 1500's. This would correspond to the historical-linguistic reality as Lapesa remarks that by this time (1500's) in Andalusia many people preferred a coronal or predorsodental pronunciation of IE /s/ replacing the once apical variant [ʒ] ("Ceceo" 90). With the total deaffrication of the dental /ʃ/ (› predorsal /ʒ/) and concurrent modification of the apico-alveolar allophone of IE /s/ (now coronal), the resulting phonemic contrast was much too proximate and tenuous to hope for a separation of sounds. The result was sibilant merger as the predorsal /ʒ/ triumphed and the Andalusian seseo emerged as a distinguishing feature of this dialect.

In the regions of Old Castille the apico-alveolar [ʒ] had a much better chance of survival. The tense, exacting pronunciation scheme of Castilian accommodated comfortably the intense apical articulation. By the time of the sibilant convergence, the newly fricativized predorsal /ʒ/ (‹ /ʃ/) would not be quite so close to the apico-alveolar variant [ʒ] of IE /s/ as in the South, and within a tenser articulation base the predorsal /ʒ/ would actually become more distinct.

With the preservation of the apico-alveolar articulation [ʒ] of IE /s/ and greater phonetic distance from a tense variety of predorsal /ʒ/ the linguistic awareness of this phonemic contrast was enhanced. In an effort to secure the opposition of predorsal /ʒ/ : IE /s/ and in complete harmony with the articulation base, the distinctive features of these phonemes were exaggerated to a more extreme pronunciation in precisely the same manner as occurred in the distinguishing lands of Northern Portugal. This meant a more grave timbre for IE /s/ while a tenser, 'more sibilant' predorsal /ʒ/ pushed the tongue forward to an interdental position /θ/ and a 'ciceante' timbre similar to that of some parts of Andalusia but with the tongue much flatter.

Hence while the phonemic contrast of predorsal /ʒ/ : IE /s/ was weakened and their phonetic realizations drawn closer within the relaxed articulation base of Andalusian Spanish, the opposite effect was produced in the region of Old Castille. It may be noted that as the apical (IE) /ʃ/ acquired a more grave timbre in Castilian it probably moved closer to an alveopalatal articulation which in turn placed it in conflict with prepalatal /ʃ/. This proximity may be one of the reasons that prepalatal /ʃ/ was later retracted to the velar region (› /x/).
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1. **Unique style and language of the scriptures.**

   (a) The mind and will of the Lord is given by revelation to various peoples "after the manner of their language." It is couched in the idiom of the people and takes into account their culture, social circumstances, and educational attainments, "that they might come to understanding." (D&C 1:24)

I do not believe there is or could be any disagreement with the statement implicit in this heading. Translators generally agree that the higher the literary quality of the work to be translated the greater and more demanding the task of translation will be and that special literary forms such as poetry and chiastic structure pose special problems for translators (and readers) of the scriptures.

The first paragraph under this heading (a) presents an overriding principle governing the communication between God and man: God speaks to man "after the manner of his own language" so that he may "come to understanding" (D&C 1:24, 2 Nephi 31:3). It is not in the general but in the specific that there may be some disagreement about the application of this statement. I take it to mean that the translator would not include any word, phrase or construction that was not compatible with the internal structure of the language and which could not be readily understood by the reader. For example, the Hebrew and Greek names for weights and measures would have to be translated into receptor language equivalents or at least have an equivalent given in a footnote if they were not readily understandable to the reader. I believe it also means that it would not contain anything that would be meaningless, ambiguous, misleading, overly complicated or unnatural in the receptor language.


1. meaningless 'gird up the loins of your mind' (1 Peter 1:13)
2. ambiguous 'widows indeed' (1 Tim 5:3)
3. misleading 'three or four times' (Amos 1:3, 6, 9, 11, 13)
4. obscure 'free gift' (Rom 5:15-16)
5. unnatural 'under a bushel' (Matth 5:15)

(b) Whenever the scriptures are translated into another language they lose some of their real and full meaning.
Accordingly, those who study that which has been translated find it harder to gain the full meaning of the scriptures and thus to "come to understanding."

This second paragraph (b) of the guidelines notes that something of the "real and full meaning" is lost whenever the scriptures are translated into another language and that this loss leads to difficulty in understanding the meaning. On the surface there is little room for disagreement, but its implications are broader and deeper. First, there is the assumption that we all know what the original language of the scriptures is. We in the church do not often think beyond the English of the King James Version or the English of the Book of Mormon, Doctrine and Covenants and the Pearl of Great Price. We are so familiar with the wording, rhythm and interpretation of the biblical text in English that we sometimes forget that the Old Testament was written not in English but mostly in Hebrew and that the New Testament was not written in English but in Greek. Of our standard works, only the Doctrine and Covenants was given originally in English and there are many portions of it that are heavily indebted to the language and style of the King James Version. If we accept the statement mentioned in the first paragraph that God speaks to men after the manner of their own language then I believe it must also be true that every word of God is capable of being expressed in every language spoken by man. It has been formulated succinctly in the phrase: God's word in man's language. While it is true that something is lost in every translation, yes, even in the wording formulated by the Hebrew prophets of the Old Testament and by the Greek writers of the gospels and epistles in the New Testament, it is also true that the essence of the message can be conveyed in man's language, especially when the recipient is humble and seeks inspiration. The statement in the guidelines also implies that something was lost in the translation of the King James Version into English and that at least something was lost in the translation of the Book of Mormon by Joseph Smith. I think it also means that something, however small, was lost in the editing of Mormon and others. But it also implies that the basic, essential meaning intended by God ultimately comes through to man, especially to those who seek to discover it through his spirit. We have very little if any specific information about what the language of God is like (except that we know that God's ways are not man's ways and we expect the language of God to be somehow much better than human language). I believe we are safe in assuming that there is no invisible prompter who makes corrections in the wording recorded by the prophets. Prophets must formulate what they have experienced into their own way of expressing it. We have the direct experience of Joseph Smith and Oliver Cowdery that the translator is the one who has to "study it out." We also know that this is not an easy task because of the limitations imposed by human language (as recorded in 3 Nephi 5:18).

And I know the record which I make to be a just and true record; nevertheless there are many things which, according to our language, we are not able to write.

Additionally, we have the comment of Joseph Smith who said he might
have improved on the translation of a scripture (Mal 4:5-6) but noted that it was plain enough for his purposes (D&C 128:18):

I might have rendered a plainer translation to this, but it is sufficiently plain to suit my purpose as it stands. It is sufficient to know, in this case, that ...

I personally believe the best recommendations are: 1) to follow as closely as possible the meaning of the original text (Hebrew, Greek, English as the case may be) so as to suffer the least possible loss of meaning and 2) to remember that the word of God revealed in one language can be expressed in any other language but perhaps not in exactly the same way.

(c) Translations which follow very closely the words, phrases, and sentence structure, as well as the idiomatic expressions and literary style of the original authors, are the only translations which can convey accurately the true meaning of what the Lord revealed in the original language.

Paragraph 6 presents the crux of the problem on how to translate. The stated goal with which few if any would disagree is to convey accurately the true meaning of the revelation of the Lord in the original language but it goes on to exclude translations which do not follow the words, phrases, sentence structure, idiomatic expressions and literary style of the original authors very closely. From my own personal point of view, it is clear that a misconception about the nature of language colors this explanation of how to translate. Henry Sweet referred to it as the arithmetical fallacy (The Practical Study of Languages (New York: 1900, p. 71-73). He talks about looking at language as though it were simply a matter of filling in the numbers and adding them up.

If language were perfectly rational in this respect, we should be able to handle words like nine digits in arithmetic, and combine them into sentences at pleasure by applying a few simple grammatical rules.

Anyone who has spent time doing translating knows that it is not just simple arithmetic. We know that words for "the same thing" in two languages are not "equal to each other," unless basic meanings and connotations both correspond--and they almost never do. In a little more straightforward language: word-for-word translations are often incorrect, misleading, and even harmful. The literal concordant approach to translation simply does not take into account the essential nature of language. The guidelines exclude non-literal translations out of hand. Etienne Dolet (1509-1546) notes (as quoted in E. A. Nida, Toward a Science of Translating, Leiden, 1964, p.5-16) that word-for-word translations destroy meaning and beauty. In the introduction to The New Testament in Modern English, Revised Edition, New York, 1972), J. D. Phillips says that a translation must not sound like a translation if it is to have the proper tone (or spirit) and have the same effect on the reader.
Glassman quotes Mundhenk on the use of literal expressions (p. 60)

A translator who gives the wrong meaning in this way [by translating literally] has fallen into a very common trap: he thinks that as long as he keeps the "same" words he cannot be too far wrong with the meaning. Instead, what he has done is not translation at all—he has put a new, and therefore wrong, message into the Bible.

He goes on to say that the reason that a translator does this is because he does not really understand the original and that no one can translate a sentence if he does not know what it means in the original. This may be true in the case of unskilled translators but I believe in most cases the real reasons are much more personal and reflect a lack of confidence and insecurity on the part of the translator. Let me read from W. Schwarz (Principles and Problems of Biblical Translation, Cambridge, 1955, p. 51) concerning the traditional view of translation:

They [medieval translators] purposely created a word-for-word translation without intending to substitute for the idiomatic expressions and constructions of the Latin Vulgate those commonly used in any vernacular. [This method] ... was considered to be the surest safeguard against any alteration of the original thought. It was considered to render the contents of the Bible in its entirety without any mistake, and to protect the translator from a change of God's word and from heresy.

There we have it. They translated literally in order to protect themselves from authoritarian administrators who did not understand the nature of language.

(Jack P.) Lewis (The English Bible from KJV to NIV, Grand Rapids, 1982 p. 45), in referring to the use of italics in the King James Version to reflect the fact that a word did not correspond directly to a Greek word in the original says:

"No translation can correspond word-for-word to the language from which it was translated; one need not assume that the KJV is in error in each case where a Greek word has no corresponding word in the English translation. However, the paraphrase within the KJV should be remembered when one evaluates paraphrase in other versions.

As evidence that respected translations are literal, the guidelines note that:

(d) The King James Version of the Bible preserves Hebraisms in great number and makes almost no attempt to water down the doctrines or devise new illustrations adapted to new and different cultures.

First let me deal with the second part of the statement. I know of
no one who advocates watering down the doctrines although some may assume that is what is being done when an example is adapted to a different culture. If we focus on understanding of the original as a guiding principle we should still be able to allow other appropriate illustrations without significant loss of meaning. The assumption that the preservation of Hebraisms by the King James Version proves that it is a literal translation and that literal translations are thus the best translations requires some discussion.

Not every one is happy about the Hebraisms in the KJV of the Bible. In some instances we have been forced to learn these unfamiliar expressions and others we simply tolerate but often do not understand. To quote from Glassman, p. 51:

Commenting on the "double heart" of Psalm 12:2 (ASV), he [Ronald Knox] notes that it doesn't make much sense except as "abnormal anatomical condition, or an obscure kind of convention at bridge." Moreover, "there are hundreds and hundreds of other Hebraisms which we do not notice, because we have allowed ourselves to grow accustomed to them. We should have thought it odd if we had read in The Times 'General Montgomery's right hand has smitten Rommel in the hinderparts' [compare Ps. 78:66]; but if we get that sort of thing in the Bible we take it, unlike Rommel, sitting down. 'Mr. Churchill then opened his mouth and spoke' [Mt. 5:2]--is that English? No, it is Hebrew idiom clothed in English words."

As an example of a Hebraism (or Semitism), let us look at the phrase translated literally from the Hebrew "called his name Jesus" (Matthew 1:21, 23). We have all heard it many times, as a memory verse, especially at Christmas. When a child is born into the home of English speaking parents, they may "call" or "name" the child John or Bill (We'll call him John, We're going to name him Bill), but never "call his name John," unless of course we are alluding to the Bible and want to sound "biblical."

Lewis (p. 60) explains his views on the use of Semitisms.

The reader of the KJV comes across Semitisms that should have been converted into English paraphrases; for example, "she called his name Joseph" should be "she named him Joseph." "Die the death" should be "surely die," "son of peace" should be "peaceable man," and "man of sin" should be "sinful man." These are genitives which in Hebrew are used for superlative degree: "Song of Songs," "King of Kings," "Lord of Lords," and others. Though many of these Semitisms, under the influence of the KJV, have been naturalized into English religious usage, they are still Semitisms and would be clearer if they were rendered into idioms native to English.

Somehow those who advocate literal translation of Hebraisms/Semitisms think it beneath them or unbecoming to "paraphrase." That somehow is
a very negative activity, one to be avoided like leprosy. There are
times however, many more than literalists would admit, that a strict,
literal, word-for-word translation is not possible. If we wish to
make any sense of the original text, we will have to paraphrase. The
LXX had to paraphrase, the Vulgate had to paraphrase, KJV had to
paraphrase, they all have to paraphrase. Given the nature of
language and translation, it is inevitable. In the cases just
mentioned, we can tell by comparing the two versions very carefully
and then estimating the degree of literalness. Though we do not have
the original records from which the Book of Mormon was translated, I
believe we can infer from what Joseph Smith said ("study it out in
your mind," "sufficiently plain") that he too paraphrased, that is he
put it into words that we can understand and that represent what was
intended in the original. Paraphrase is not a watering down of
document, it is absolutely necessary if one is to convey meaning into
another language accurately and completely.

Here I would like to give an illustration of a literal error in the
KJV. The KJV pedantically follows the Greek word order and misses
the meaning of the sentence in 3 John 2: "Beloved, I wish above all
things that thou mayest prosper and be in health, even as thy soul
prospereth" instead of "Dear friend, I pray that you may enjoy good
health and that all may go well with you, even as your soul is
getting along well." (Cited in D. A. Carson, The King James Debate,
Grand Rapids, 1979, p. 94.)

Next let me present an example of paraphrase in the KJV. The Greek
expression me genoito occurs 13 times in Paul's letters. Even though
the word for "God" does not occur in the original Greek, the King
James version paraphrases and renders it "God forbid." Some of the
more sensitive might even consider this formulation a mild form of
blasphemy. It could be translated more literally (negative, 3.
sing., aorist 2, optative) "May it not be," but this literal
rendering would not be readily used or understood today. To catch
the meaning more accurately we might translate as the NIV does "Not
at all!" (Rom 3:4) or "Never!" (1 Cor 6:15).

The other side of the literalness coin is not mentioned at all in the
discussion of the KJV. As part of a long introduction, the
translators specifically mention their viewpoint on literal,
concordant translation---what some have referred to as the "cardinal
defect" of the KJV as far as theological terminology in the New
Testament is concerned. The following excerpt is from the
introduction is taken from The Authorized Version of the Bible
(1611), Cambridge, 1884, p. 300 by F. H. A. Scrivener:

Another thing we think good to admonish thee of, gentle
Reader, that we have not tied ourselves to an uniformity of
phrasing, or to an identity of words, as some peradventure
would wish that we had done, because they observe, that
some learned men somewhere have been as exact as they could
that way. Truly, that we might not vary from the sense of
that which we had translated before, if the word signified
the same thing in both places, (for there be some words
that be not of the same sense every where) we were especially careful, and made a conscience, according to our duty. But that we should express the same notion in the same particular word; as for example, if we translate the Hebrew or Greek word once by purpose, never to call it intent; if one where journeying, never travelling; if one where think, never suppose; if one where pain, never ache; if one where joy, never gladness, &c. thus to mince the matter, we thought to savour more of curiosity than wisdom, and that rather it would breed scorn in the atheist, than bring profit to the godly reader. For is the kingdom of God become words or syllables? Why should we be in bondage to them, if we may be free? use one precisely, when we may use another no less fit as commodiously?

Readers of the KJV are indeed confused by the variety of words used by the King James translators. Here is a list of some of the most common ones as listed in Lewis, The English Bible from KJV to NIV, p. 49. (The words to the right in German were chosen to correspond separately to each of the doublets in the King James Version.)

<table>
<thead>
<tr>
<th>English</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>signs</td>
<td>miracles</td>
</tr>
<tr>
<td>comfort</td>
<td>consolation</td>
</tr>
<tr>
<td>creation</td>
<td>creature</td>
</tr>
<tr>
<td>apostleship</td>
<td>mission</td>
</tr>
<tr>
<td>teaching</td>
<td>doctrine</td>
</tr>
<tr>
<td>soul</td>
<td>life</td>
</tr>
<tr>
<td>blessed</td>
<td>happy</td>
</tr>
<tr>
<td>serve</td>
<td>worship</td>
</tr>
<tr>
<td>righteous</td>
<td>just</td>
</tr>
<tr>
<td>sanctification</td>
<td>holiness</td>
</tr>
<tr>
<td>everlasting</td>
<td>eternal</td>
</tr>
<tr>
<td>authority</td>
<td>power</td>
</tr>
<tr>
<td>charity</td>
<td>love</td>
</tr>
<tr>
<td></td>
<td>rechtschaffen/gerecht</td>
</tr>
<tr>
<td></td>
<td>immerwährend/ewig</td>
</tr>
<tr>
<td></td>
<td>Nächstenliebe/Liebe</td>
</tr>
</tbody>
</table>

Lewis (p. 47) also notes that there is no logical justification for the translators choosing a limited number of verses (such as those in 1 Cor 13) and rendering agape in these as ‘charity’ (borrowed from the Latin Bible) when in all except 26 (all found after 1 Cor 8:1) of its 312 occurrences [92%] agape is rendered ‘love.’ The existence of these doublets has led some literal minded translators to look for an equivalent for each member of these pairs of words in their languages without reference to the original Greek where no such distinction is made. If a literally minded translator re-translates a non-literal translation back into the original or any other language, he produces a translation that skews and distorts the meaning and spirit of the original text.

Let me summarize on this point. The KJV is quite literal in some areas (Hebraisms, word order, etc.). On the other hand, it is lacking in consistency with respect to spelling, the rendition of proper names (sometimes in Hebrew, sometimes in Greek, sometimes in Latin form) and the doublets listed above. All translators nowadays would agree that major theological terms ("Lamb of God," "savior," "
repentance") should be translated concordantly, that is, with the same word each time. Other words (connectors, prepositions, verb tenses, etc.) do not require the same literal treatment. If, for example, the translator tries to find a separate and distinct word for freely variable conjunctions in King James style, he is forced to use words that do not belong to biblical style at all.

(e) The Book of Mormon falls back naturally into the original language and preserves so accurately the style of each original author that the style variances can be studied and analyzed.

This paragraph in the guidelines talks about the preservation of the "style variances" of each original author, an obvious reference to what has been called "wordprints" (See Alvin C. Rencher, "Who wrote the Book of Mormon? Analysis of Wordprints," pp. 157-188 in Book of Mormon Authorship, Salt Lake City: Bookcraft, 1982, Noel B. Reynolds, ed.). With respect to the Book of Mormon, we know that there was at least one editor (Mormon) and one translator (Joseph Smith). Since we do not have the original documents from which Mormon or Joseph Smith worked, we are not in a position to say whether it was a literal translation or not. The writers of the guidelines appear to me to assume that it was a literal translation. If we take Joseph Smith's comments (D&C 9 and 128) seriously, I believe, we must assume that his translations were not as literal as the guidelines seem to imply. In one study, 12 translations of various authors by a single translator were submitted to wordprint analysis (Unpublished paper, "Wordprints in Translated Literature" by K. Black, A. Rencher, M. Folsom). The data were submitted to a similar analysis by another investigator with the same overall result. The translations were certainly not literal to the degree recommended by the guidelines and yet they still yielded significant stylistic differences. We concluded that wordprint characteristics do survive non-literal translations. Since the type of translation Joseph Smith made is unknown, we should be cautious about drawing conclusions about its literalness. Since we do know that stylistic differences are still detectable in non-literal translations into another language, we do not need to recommend literal translation in order to insure the preservation of stylistic differences in the original authors. If the translation is faithful to the meaning and spirit of the original, it will in my opinion also be faithful to the style of the original author and stylistic differences will be detectable by statistical means at least at some level.

The items typically used in wordprint analysis are function words and other features of relative high frequency which exist below the level of consciousness and which are not readily distinguishable as style without the aid of computers and sophisticated statistical analysis (see J. Hilton, K. Jenkins and L. Carroll, "On Maximizing Author Identification by Measuring 5,000 Word Texts," unpublished manuscript, 1968). Furthermore, it remains to be seen whether both a literal and a non-literal translation of the same author would reveal measurable stylistic characteristics. I would guess that any serious translation of various authors by a single translator, whether
literal or non-literal would still yield significant differences when submitted to careful and sophisticated stylistic analysis.

(f) Whether ordinary writings are translated one way of another may be of no particular moment. But when we deal with the word of the Lord we are on sacred ground. We are duty bound to convey the thoughts from language to language in the most accurate, precise, and literal way possible. The scriptures are the scriptures; they are binding upon us; an we have no authority to water down or take from them any of their original meaning and intent.

The last paragraph in the first section again stresses the sacred duty incumbent upon translators of the scriptures. I would draw your attention to the specific reference to word "thoughts" and the phrase "original meaning and intent." When we examine them closely, we see that the guidelines are based on meaning and not on form as is intimated by much of the wording. I have tried to show that the two are intermingled and that there is no careful distinction between meaning and form. If the meaning of the original is given precedence over form, as I believe the guidelines imply, then distortions, aberrations, and misunderstandings can be kept to a minimum.

The translation of the meaning and intent of the original is clearly the goal of the guidelines, but they foresee only one way of rendering it accurately into another language, and that is literally, word-for-word. They are source language oriented, or to be more precise, English language oriented. They reflect more concern for the source language (English) than for the language of the peoples who will receive the message and more concern for tradition than for communicating a divine message. They do not even include the possibility that meaning can be conveyed sensitively and accurately without being literal, because, as I have tried to show, they tacitly assume that language is letters and words more than it is meaning.

After all is said and done, we are faced with deciding whether to bring the reader to the text (the literalist, concordant point of view) or to bring the text to the reader (the more recent approach). In my opinion the key to the solution of this dilemma lies in the interpretation of a phrase found in the scriptures themselves (Acts 2:6, Ether 2:39, D&C 90:11, Moses 6:46): "in one's own language." What does it mean when it says that every man shall "hear the gospel in his own tongue and in his own language"? In terms of the discussion here today, I don't think it means to increase the burden of the listener (or reader) by trying to bring the reader to the text. I think it means to take the text to the listener or reader, to clothe the sacred message in the language of the those who are to hear it so that they will come to understanding and be saved.
You Had To Be There: Does Residence in a Target Language Environment Influence the Acquisition of Grammatical Structure?

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Brigham Young University

For many students of German, acquisition of the dative case appears to be a difficult proposition. Likewise, many teachers of German are well aware that the language has certain syntactic structures that cause their students problems. Regardless of how thoroughly the rules are covered or how many times they are practiced, the problems persist. Rogers (1984) cites a report that outlines "six main areas of weakness in speakers of English learning German as a second language. The report lists "gender, number, case: of nouns, pronouns, adjectives, articles (or their equivalents)" as the most frequently occurring errors. Rogers' study of errors made by advanced learners of German in untimed essay assignments indicates that gender, number, case, and choice of prepositions were her subjects' areas of poorest performance.

The relationship of one grammatical structure to another is not always clear to the beginning language student. During an interview, one student indicated that he placed little importance on the learning of the definite articles, der, die, and das. However, any study of German dative case acquisition would have to take into account the learner's acquisition of gender, which entails the learning and correct application of the definite article.

The acquisition of gender is also important because gender and number determine the endings that adjectives, articles and nouns will take in the dative case. Correct use of the articles is crucial in marking case distinctions, since the article is the most powerful signal of gender.

The dative case can also signal position within a defined or inferred boundary, position in space (both horizontal and vertical), and static location. In addition, German has some verbs and prepositions that mandate the use of the dative case. Moreover, the syntactic and semantic structures of the dative are interrelated and interdependent. A student who merely learns the rules of grammar will not develop a "feel" for the dative case. This comes only through interaction with common, everyday occurrences that many classrooms do not presently provide.

Dulay and Burt (1973) suggest that in the language learning classroom, the focus should be on the message or content of the verbal exchange, rather than concentrating on the structures being taught. This view is shared by Fillmore (1968), Krashen and Terrel (1983; 1986), Dulay, Burt, and Krashen (1982), Krashen (1981; 1985) and others. They argue that the more language as "form" replaces subject matter as "content", the less conducive language classes are to natural communication situations. The learner should see many visual referents corresponding to the nouns, verbs, and adjectives he hears in the teacher's utterances, so that he can more easily infer the "message" from the "form". Dulay and Burt (1973) summarize:
"...thus, a (learner) who doesn't understand all or much of what the teacher is saying (form) will certainly understand and retain what is going on before his eyes (message) and ...will process and begin to produce the speech he hears."

Krashen (1981) posits the existence of a Fundamental Principle in second language acquisition. Stated simply, it is that people acquire second languages when they obtain comprehensible input. That is, they acquire by understanding messages and not by concentrating on the form of the input. They move from one stage to another by understanding structures at a level a little beyond their current one. He indicates that it is only necessary for the acquirer to understand the essential meaning of the message communicated; the speech the learner is involved in must contain a message and there must be the need to communicate that message. Krashen's Fundamental Principle, when applied to pedagogy, states that if any instructional technique helps second language acquisition, it does so by providing comprehensible input. If these are correct principles, then they can be generalized to include any situation (in a classroom or out) that provides comprehensible input.

In Krashen's view, the goal of the classroom is not to produce native speakers or even second language performance that is error-free; rather, that second language competence in the "intermediate" range should be developed, so that the student "can begin to understand the language he hears and reads outside the class and thus improve on his own."

THE PROJECT AND THE METHOD

With the above in mind, a question to be asked is: If a student is brought to the point at which he can improve on his own, what effect would residence in an environment in which only German is spoken have on acquisition of communicative competence in general, and on acquisition of the dative case in particular? This study will attempt to answer the question in relation to the following three items:

1. After exposure to an all German environment, is the learner better able to make choices involving the semantic/syntactic relationships inherent in the dative/accusative prepositions?

2. Is the learner more accurate in his choice of gender and endings?

3. To what extent is the hindering effect morphological and functional polarity reduced?

According to Byrnes (1986), the oral interview is ideally suited for the observation of language use in three major categories: 1) the communicative tasks being performed (function); 2) the settings which support this communicative exchange (content/context); and 3) the appropriateness of the means being employed (accuracy). The instrument used to collect the data for this study was an ACTFL/ETS-type oral proficiency interview. Through this medium, the use of a variety of
structures, including the dative case was elicited.

The subjects of this study were 17 college students enrolled in a 10-week summer internship program involving an L2 employment setting. The interviews were administered prior to their departure and upon their return, and were recorded so that both could be compared. The participants ranged in proficiency level from novice high to advanced, and had completed from one to four years of instruction in the German language.

Recordings of the interviews were analyzed, with all utterances involving the dative prepositions, the dative/accusative prepositions, verbs requiring the dative, misapplications of case, gender errors, and errors in determiner and modifier endings tabulated and categorized. The utterances were analyzed for morphological and functional polarity to determine what influence these factors might have on the subjects' pre-exposure speech, and the extent to which the hindering effect of these factors was reduced by exposure to the L2 environment.

Functional polarity refers to the tendency of the dative/accusative prepositions to polarize around or function in one particular case. The average frequency of use of these prepositions in the accusative is 25%, while in the dative it is 75%. Über is on the extremely accusative pole, and zwischen is on the extremely dative pole. A preposition such as "in", for example, which Christensen (1980) reports is used in dative contexts approximately 86% of the time, can easily be misapplied by the learner. His choice of the dative with the preposition "in" could well be influenced by its polarity, its affinity, for the dative. (*Wir sind in dem Büro gegangen.) could easily be expressed instead of the correct (Wir sind in das Büro gegangen.)

Morphological polarity involves the polarization of determiners and adjective endings, with the feminine articles and endings at the positive end of the pole, the masculine tending toward the negative end, and the neuter at the extreme negative pole. Dietrich (1983) posited that the pattern of development of the articles in the feminine form first, followed by the masculine and then the neuter. Herbert (1986) indicated that in errors involving the masculine and neuter determiners, the feminine form was used 67% of the time. Doman (1979) records a similar phenomenon in learners of Spanish as L2.

Gender errors were examined and compared to determine what roles these play in the learners' development of the dative, and to what extent errors were reduced in their post-exposure speech. Misapplication of case was studied and charted to determine any improvement in subjects' post-exposure ability to make correct semantic/syntactic choices relative to the dative/accusative prepositions.

In all instances, an arbitrary criterion of 80% correct application in obligatory contexts was established as a measure of acquisition. It should be kept in mind that the data collected stems from a comparatively small base. While the results may reflect what is typical for the group of subjects studied in this paper, they may not accurately predict what occurs with larger numbers of learners. It is assumed that the reader
RESULTS AND DISCUSSION

In comparing the pre- and post-exposure data, it was immediately evident that residence in the L2 environment, if only for 10 weeks, had a great influence on the amount and quality of speech produced by the learners. Those who had been hesitant, or who could barely communicate during the pre-exposure interview spoke with markedly less hesitation, and communicated very well during the post-exposure interview. Table 1 indicates the total occurrences of all structures examined in this study, the total errors made by the group, and the average frequency of occurrence per subject.

<table>
<thead>
<tr>
<th>Item</th>
<th>Total</th>
<th>AVG/SUBJ %</th>
<th>Postexposure</th>
<th>Total</th>
<th>AVG/SUBJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined Occurrences</td>
<td>925</td>
<td>55</td>
<td>---</td>
<td>1364</td>
<td>81</td>
</tr>
<tr>
<td>Errors</td>
<td>299</td>
<td>17 (.32)</td>
<td>.28</td>
<td>380</td>
<td>22</td>
</tr>
</tbody>
</table>

From the above statistics it can be seen that the subjects experienced a 48% increase in production and a 12.5% decrease in errors. Their accuracy increased from 68% to 72%, approaching criterion. In order to refute the null hypothesis as it relates to the data, individual scores (both pre- and post-exposure) for all subjects were calculated, and a Pearson product-moment correlation coefficient was obtained. The correlation between exposure to the L2 environment and the increased accuracy reflected in the scores was .985, which is statistically significant at the .01 level of confidence.

1. Morphological Polarity

Two major factors affecting the acquisition of the dative case are gender and adjective endings. Morphological polarity may influence the choices learners make in arriving at particular utterances. As the dative case develops, they may be unconsciously influenced by factors such as polarity.
Table 2: Morphological Polarity of the Flexional System

<table>
<thead>
<tr>
<th>Art</th>
<th>Adj</th>
<th>Noun</th>
</tr>
</thead>
<tbody>
<tr>
<td>++der -gute +Mann</td>
<td>+++die ++gute +Frau</td>
<td>+das -gute +Haus +die -guten -Häuser</td>
</tr>
<tr>
<td>-den -guten +Mann</td>
<td>+++die ++gute +Frau</td>
<td>+das -gute +Haus +die -guten -Frauen</td>
</tr>
<tr>
<td>--dem -guten +Mann</td>
<td>-der -guten +Frau</td>
<td>--dem -guten +Haus -den -guten --Männern</td>
</tr>
<tr>
<td>---des -guten --Mannes</td>
<td>-der -guten +Frau</td>
<td>---des -guten --Häuser -der -guten --Männer</td>
</tr>
</tbody>
</table>

In Table 2 it is proposed that the feminine singular nominative article and adjective endings possess extremely positive polarity, and as the unmarked terms, they span the entire spectrum from positive to negative (see Clark, 1973; Hawkins, 1981; Byrnes, 1986; Doman, 1979). This could account not only for the earlier acquisition of the feminine articles (Dietrich, 1983; Herbert, 1986), but also for the subjects' tendency to overgeneralize, thereby using the feminine gender in over one half of their utterances.

As can be seen, the masculine definite article possesses the greatest degree of difference in polarity between the nominative and the dative, and the feminine the least. This may be one of the reasons that the feminine dative is acquired first (Dietrich, 1983); it is "less negative" than the masculine or the neuter.

Table 3: Gender Errors

<table>
<thead>
<tr>
<th>Item</th>
<th>Total</th>
<th>AVG/SUBJ</th>
<th>%</th>
<th>Total</th>
<th>AVG/SUBJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Determiners</td>
<td>323</td>
<td>19</td>
<td>.47</td>
<td>467</td>
<td>27</td>
</tr>
<tr>
<td>Errors</td>
<td>153</td>
<td>.41</td>
<td>.41</td>
<td>193</td>
<td>11</td>
</tr>
</tbody>
</table>

Table 3 gives a picture of the subjects' over-all accuracy in use of determiners (which encode gender), and the data in Tables 4a and 4b reflect the influence of morphological polarity on the subjects' choice of determiner.

Table 4a: Morphological Polarity of Gender Errors

<table>
<thead>
<tr>
<th>Total</th>
<th>Pre-exposure Errors</th>
<th>Post-exposure Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N--&gt;F</td>
<td>M--&gt;F</td>
</tr>
<tr>
<td>Pre-exposure</td>
<td>153</td>
<td>58</td>
</tr>
<tr>
<td>%</td>
<td>.58</td>
<td>.37</td>
</tr>
</tbody>
</table>

Table 4b: Comparison of Total Occurrences

<table>
<thead>
<tr>
<th>Item</th>
<th>Total</th>
<th>AVG/SUBJ</th>
<th>%</th>
<th>Total</th>
<th>AVG/SUBJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Determiners</td>
<td>323</td>
<td>19</td>
<td>.47</td>
<td>467</td>
<td>27</td>
</tr>
<tr>
<td>Errors</td>
<td>153</td>
<td>.41</td>
<td>.41</td>
<td>193</td>
<td>11</td>
</tr>
</tbody>
</table>
Table 4b  Morphological Polarity of Gender Errors

<table>
<thead>
<tr>
<th>Total Post-exposure Errors*</th>
<th>N--&gt;F</th>
<th>M--&gt;F</th>
<th>F--&gt;M</th>
<th>F--&gt;N</th>
<th>F--&gt;N</th>
<th>M--&gt;N</th>
</tr>
</thead>
<tbody>
<tr>
<td>193</td>
<td>51</td>
<td>56</td>
<td>20</td>
<td>15</td>
<td>36</td>
<td>15</td>
</tr>
<tr>
<td>%</td>
<td>.55</td>
<td>.18</td>
<td>.27</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Includes errors not associated with the dative case.

N-->F = a neuter noun used with a feminine determiner (die Spiel)
M-->F = a masculine noun used with a feminine determiner (die Grund)
F-->M = a feminine noun used with a masculine determiner (der Sekretarin)
N-->M = a neuter noun used with a masculine determiner (der Becken)
F-->N = a feminine noun used with a neuter determiner (das Liege)
M-->N = a masculine noun used with a neuter determiner (das Boden)

While post-exposure production increased by 45%, accuracy did not increase appreciably. An analysis of the errors (see Tables 4a and 4b above) indicates that in errors involving the masculine and neuter nouns, the feminine gender was used in the pre-exposure speech 62% of the time, with a slight (11%) decrease in its use in post-exposure speech.

Gender and adjective endings are inherently related. In most cases where the incorrect gender was used by a subject, the adjective endings were also incorrect.

<table>
<thead>
<tr>
<th>Item</th>
<th>Pre-exposure Errors</th>
<th>Post-exposure Comparison of Total Occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of Endings</td>
<td>303</td>
<td>18 --</td>
</tr>
<tr>
<td>Errors</td>
<td>91</td>
<td>5 .30</td>
</tr>
</tbody>
</table>

Table 5 depicts the subjects' accuracy in the use of endings on nouns, pronouns, adjectives, and articles in both the accusative and the dative cases. It is interesting to note that the increase in accuracy in the postexposure use of determiners (13%), resulted in a corresponding increase in accuracy of the use of endings (13%).

2. Syntactic/Semantic Choices and Morphological Polarity

In the course of the acquisition of the dative case, the learner develops an internalized system of choosing when a certain preposition in a given context requires the dative, and when it requires the accusative. By continually testing and fine tuning the system, the learner brings himself closer to mastery of a given structure. If
Krashen's Fundamental Principle is correct, the testing and tuning will take place within the context of comprehensible input received by the subjects in the L2 environment. Table 6 summarizes the subjects' semantic/syntactic choices with respect to all occurrences in the corpus of the dative and accusative cases:

<table>
<thead>
<tr>
<th>Table 6 Case Errors</th>
<th>Pre-exposure</th>
<th>Total Occurances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involving Dative</td>
<td>D----&gt;D D----&gt;A</td>
<td>Involving Accusative A----&gt;A A----&gt;D</td>
</tr>
<tr>
<td></td>
<td>238 158 80 65</td>
<td>49 16</td>
</tr>
<tr>
<td>%</td>
<td>.66 .34</td>
<td>.80 .25</td>
</tr>
<tr>
<td>Post-exposure</td>
<td>381 263 118 81</td>
<td>76 5</td>
</tr>
<tr>
<td>%</td>
<td>.69 .31</td>
<td>.94 .06</td>
</tr>
</tbody>
</table>

D---->D = Dative form required, dative form produced  
D---->A = Dative form required, accusative form produced  
A---->A = Accusative form required, accusative form produced  
A---->D = Accusative form required, dative form produced

The above data indicate that in contexts where the dative case was obligatory, the pre-exposure subjects would use the accusative 34% of the time, giving rise to utterances such as:


After ten weeks in the L2 environment, while their production of these structures increased appreciably (by 52%), their accuracy improved only marginally (8%) in occurrences involving the dative. The largest post-exposure improvement was in the over-all accuracy of the use of the accusative case.

3. Syntactic Choice and Morphological Polarity

The subjects' use of the prepositions aus, außer, bei, mit, nach, seit, von, and zu, all of which require the dative case, was analyzed. These should present the learner with fewer difficulties, since he does not have to make a choice as to which case is applicable in a given context. Yet, even the post-exposure interviews were fraught with misapplication errors (the use of the dative preposition coupled with the accusative endings):


...*bei dieses Hotel...

It appears that even students with several semesters of classroom instruction continue to experience real problems with the dative
prepositions, since correct application has not yet been fully acquired. Misapplication could be a function of the fact that English (the subjects' native language) has no case marking, and the lack of an L1 rule, combined with the lack of an acquired L2 rule, resulted in the use of the linguistically less complex accusative case. Gender and endings errors, however, may be the result of the previously discussed morphological polarity of the flexional system.

<table>
<thead>
<tr>
<th>Pre-exposure</th>
<th>Post-exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table 7</strong></td>
<td><strong>Comparison of Total Occurrences</strong></td>
</tr>
<tr>
<td><strong>Item</strong></td>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>Dative Prep.</td>
<td>124</td>
</tr>
<tr>
<td>Errors</td>
<td>50</td>
</tr>
</tbody>
</table>

Table 7 compares the total occurrences of the dative prepositions with the frequency of misapplication, and Table 8 gives an accounting of the subjects' performance for each preposition, indicating the rate of misapplication errors, endings errors, and gender errors.

Table 8 indicates that there was a 34% increase in frequency of use of the dative prepositions in post-exposure production, with a moderate (18%) decrease in the production of errors. Mit, bei, von, and zu were the most frequently prepositions used in both instances.

<table>
<thead>
<tr>
<th>(Pre-exposure)</th>
<th>(Post-exposure)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prep. Freq. Correct</strong></td>
<td><strong>Incorrect</strong></td>
</tr>
<tr>
<td>mit 54 25</td>
<td>29</td>
</tr>
<tr>
<td>bei 18 12</td>
<td>6</td>
</tr>
<tr>
<td>von 16 11</td>
<td>5</td>
</tr>
<tr>
<td>zu 14 12</td>
<td>2</td>
</tr>
<tr>
<td>aus 12 8</td>
<td>4</td>
</tr>
<tr>
<td>nach 6 3</td>
<td>3</td>
</tr>
<tr>
<td>seit 4 3</td>
<td>1</td>
</tr>
<tr>
<td>Totals 124 74</td>
<td>50</td>
</tr>
<tr>
<td>% .60</td>
<td>.40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(Post-exposure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>mit 74 41</td>
</tr>
<tr>
<td>von 33 23</td>
</tr>
<tr>
<td>zu 27 21</td>
</tr>
<tr>
<td>bei 23 19</td>
</tr>
<tr>
<td>nach 19 13</td>
</tr>
<tr>
<td>aus 8 6</td>
</tr>
<tr>
<td>außer 4 3</td>
</tr>
<tr>
<td>Totals 188 126</td>
</tr>
<tr>
<td>% .67</td>
</tr>
</tbody>
</table>
It is apparent that morphological polarity, manifested in the form of gender and endings errors, has a significant effect on the acquisition of the dative case, and in the use of the dative and prepositions. It has been shown that the subjects produced errors in the correct use of determiners in 41% to 47% of their utterances, with a corresponding error rate of 26% to 30% in their choice of endings. Further, the feminine form was involved in 55% to 62% of gender errors involving masculine and neuter nouns.

4. Semantic/Syntactic Choice and Functional Polarity

One of the abilities the learner must develop if he is to master the dative and dative/accusative prepositions is that of a "semantic sense" of when an object is moving through space or across a boundary, and when it is located at a fixed point in space or moving within a boundary, or whether it is in a static condition. He must acquire a "feel" for the agent (actor), the thing acted upon, and where and how it is being acted upon. This presents a challenge for the learner because it is sometimes difficult for him to distinguish, for example, the semantic/syntactic subtleties inherent in the activities of writing something on the blackboard (an die Tafel [accusative]); writing something on a piece of paper (auf ein Stuck Papier [accusative]); reading the words on a blackboard (an der Tafel [dative]); and, reading the words on a piece of paper (auf einem Stuck Papier [dative]).

A further difficulty presented the learner is what I have termed functional polarity. Functional polarity refers to the tendency of the dative/accusative prepositions to polarize around or function in one particular case. In this instance, it is the dative that assumes the positive, or unmarked pole. The data represented in Table 9 is reproduced from work done by Christensen (1980) on the use of the dative/accusative prepositions in current written German. Nisson's (1981) study of the same prepositions in spoken German posited essentially the same order of use and frequency.

<table>
<thead>
<tr>
<th>Table 9</th>
<th>Functional Polarity of the Dative/Accusative Prepositions</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCCURRENCE</td>
<td>OCCURRENCE</td>
</tr>
<tr>
<td>über</td>
<td>91</td>
</tr>
<tr>
<td>auf</td>
<td>64.6</td>
</tr>
<tr>
<td>an</td>
<td>22.1</td>
</tr>
<tr>
<td>in</td>
<td>14.4</td>
</tr>
<tr>
<td>hinter</td>
<td>10.6</td>
</tr>
<tr>
<td>unter</td>
<td>9.5</td>
</tr>
<tr>
<td>vor</td>
<td>7.5</td>
</tr>
<tr>
<td>zwischen</td>
<td>3.2</td>
</tr>
<tr>
<td>neben</td>
<td>2.7</td>
</tr>
</tbody>
</table>
It can be seen that über is on the extremely accusative pole, and zwischen is on the extremely dative pole. A preposition such as "in", for example, which is used in dative contexts approximately 86% of the time, can easily be misapplied by the learner. His choice of the dative case rather than the accusative with the preposition "in", could well be influenced by its polarity, its affinity, for the dative. (*Wir sind im Büro gegangen.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Pre-exposure</th>
<th>Post-exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TOTAL</td>
<td>AVG/SUBJ %</td>
</tr>
<tr>
<td>Combined Occurances</td>
<td>106</td>
<td>6 ---</td>
</tr>
<tr>
<td>Errors</td>
<td>35</td>
<td>2 .33</td>
</tr>
<tr>
<td>Dative use</td>
<td>87</td>
<td>5 .82</td>
</tr>
<tr>
<td>Errors</td>
<td>27</td>
<td>2 .31</td>
</tr>
<tr>
<td>Accuse use</td>
<td>19</td>
<td>1 .18</td>
</tr>
<tr>
<td>Errors</td>
<td>8</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Table 10 indicates the total occurrences of the dative/accusative prepositions as reflected in their speech. By averaging the frequency of use of the prepositions listed in Table 9 for both cases, it can be assumed that they are used in the accusative approximately 25% of the time and in the dative about 75%. This assumption is borne out by the data in Table 10. The subjects in this study used the prepositions in the accusative case 13% to 18% of the time, as compared to 82% to 87% for the dative, indicating a strong tendency for these prepositions to polarize around the dative case. Table 11 outlines the subjects' performance with respect to the dative/accusative prepositions, including misapplications, endings errors, gender errors, and the effect of functional polarity.

<table>
<thead>
<tr>
<th>Prep. Frequency Correct</th>
<th>Incorrect</th>
<th>Misapplied</th>
<th>Endings Errors</th>
<th>Gender Errors</th>
<th>Functional Polarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>in</td>
<td>72</td>
<td>45</td>
<td>27</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>an</td>
<td>11</td>
<td>8</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>auf</td>
<td>9</td>
<td>8</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>unter</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>vor</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>zwischen</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td>106</td>
<td>71</td>
<td>35</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>%</td>
<td>.67</td>
<td>.33</td>
<td>.34</td>
<td>.17</td>
<td>.23</td>
</tr>
</tbody>
</table>
Table 11 (Continued)

(Post-exposure)

<table>
<thead>
<tr>
<th>Prep.</th>
<th>Freq.</th>
<th>Correct</th>
<th>Incorrect</th>
<th>Misapplied</th>
<th>Endings Errors</th>
<th>Gender Errors</th>
<th>Functional Polarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>in</td>
<td>129</td>
<td>81</td>
<td>48</td>
<td>10</td>
<td>9</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>an</td>
<td>24</td>
<td>21</td>
<td>13</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Über</td>
<td>14</td>
<td>13</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>auf</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>vor</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>zwischcn</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>unter</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td>182</td>
<td>126</td>
<td>56</td>
<td>13</td>
<td>9</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>%</td>
<td></td>
<td>.69</td>
<td>.31</td>
<td>.23</td>
<td>.16</td>
<td>.27</td>
<td>.34</td>
</tr>
</tbody>
</table>

It is apparent that the functional polarity of the dative/accusative prepositions influenced correct application of the dative case. When faced with a choice of case, especially when using the prepositions in, an, or auf, the subjects seem to have applied the polar case. This is demonstrated in utterances such as: *Es ist unter dem Waschbecken gefallen.*

*Ich habe es auf dem Becken gelegt.*

*Etwas schmutzig ist an der Jacke gekommen. [sic]*

They also encounter problems in distinguishing between the use of an and auf as they relate to vertical and horizontal points in space, or the "in" of going into versus the "in" of "location within". It can be stated that they do not yet have a firm grasp on the semantic/syntactic relationships inherent in the dative case.

A summary and comparison of the performance of the individual subjects, ranked in order of their post-exposure proficiency, is found in Table 12 below. Their over-all performance after having resided in a German-speaking environment for 10 weeks is significantly better than their pre-exposure production. Their composite results yield a rate of 72% correct utterances as a group, a frequency approaching criterion. This is superior to the performance of the subjects in my earlier study, who were correct in only 57% of their utterances. While the individual subjects varied greatly in their post-exposure speech, from a high of 98% to a low of 38%, the increase in the quality and quantity of their production is, nevertheless, impressive.
## SUMMARY AND COMPARISON OF INDIVIDUAL INTERVIEWEES

**Table 12**

RANKED IN ORDER OF POST-EXPOSURE PROFICIENCY

<table>
<thead>
<tr>
<th>Subject</th>
<th>Total Occurrences</th>
<th>Total Correct</th>
<th>Percent Acquired</th>
<th>Total Occurrences</th>
<th>Total Correct</th>
<th>Percent Acquired</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>112</td>
<td>110</td>
<td>.98*</td>
<td>42</td>
<td>42</td>
<td>1.00*</td>
</tr>
<tr>
<td>2</td>
<td>75</td>
<td>70</td>
<td>.93*</td>
<td>65</td>
<td>54</td>
<td>.83*</td>
</tr>
<tr>
<td>3</td>
<td>78</td>
<td>69</td>
<td>.88*</td>
<td>60</td>
<td>52</td>
<td>.87*</td>
</tr>
<tr>
<td>4</td>
<td>75</td>
<td>63</td>
<td>.84*</td>
<td>26</td>
<td>10</td>
<td>.38</td>
</tr>
<tr>
<td>5</td>
<td>123</td>
<td>100</td>
<td>.81*</td>
<td>102</td>
<td>76</td>
<td>.75</td>
</tr>
<tr>
<td>6</td>
<td>87</td>
<td>70</td>
<td>.80*</td>
<td>58</td>
<td>36</td>
<td>.62</td>
</tr>
<tr>
<td>7</td>
<td>54</td>
<td>42</td>
<td>.78+</td>
<td>36</td>
<td>20</td>
<td>.56</td>
</tr>
<tr>
<td>8</td>
<td>73</td>
<td>57</td>
<td>.78+</td>
<td>47</td>
<td>37</td>
<td>.78+</td>
</tr>
<tr>
<td>9</td>
<td>98</td>
<td>75</td>
<td>.77+</td>
<td>104</td>
<td>88</td>
<td>.85*</td>
</tr>
<tr>
<td>10</td>
<td>21</td>
<td>16</td>
<td>.76</td>
<td>16</td>
<td>10</td>
<td>.63</td>
</tr>
<tr>
<td>11</td>
<td>113</td>
<td>76</td>
<td>.67</td>
<td>77</td>
<td>25</td>
<td>.32</td>
</tr>
<tr>
<td>12</td>
<td>64</td>
<td>41</td>
<td>.64</td>
<td>32</td>
<td>18</td>
<td>.56</td>
</tr>
<tr>
<td>13</td>
<td>48</td>
<td>29</td>
<td>.60</td>
<td>50</td>
<td>32</td>
<td>.64</td>
</tr>
<tr>
<td>14</td>
<td>90</td>
<td>54</td>
<td>.60</td>
<td>67</td>
<td>33</td>
<td>.49</td>
</tr>
<tr>
<td>15</td>
<td>83</td>
<td>46</td>
<td>.55</td>
<td>56</td>
<td>39</td>
<td>.70</td>
</tr>
<tr>
<td>16</td>
<td>118</td>
<td>52</td>
<td>.44</td>
<td>53</td>
<td>36</td>
<td>.68</td>
</tr>
<tr>
<td>17</td>
<td>52</td>
<td>20</td>
<td>.38</td>
<td>34</td>
<td>18</td>
<td>.53</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>1364</strong></td>
<td><strong>984</strong></td>
<td><strong>.72+</strong></td>
<td><strong>925</strong></td>
<td><strong>626</strong></td>
<td><strong>.68</strong></td>
</tr>
</tbody>
</table>

* Indicates subject has reached criterion  
+ Indicates subject is approaching criterion

Of the 17 students involved in this study, 9 of them were correct in 77% or more of obligatory contexts, with six of the nine performing at or above criterion. Ten of the subjects experienced significant improvement in their performance, and four of them appeared to regress. That is, their pre-exposure production was more accurate than their post-exposure production. This reversal is actually an improvement. An analysis of their individual data indicates that their pre-exposure speech did not include many dative or dative/accusative prepositions. Because their post-exposure interviews included a substantial increase in the usage of these prepositions, it can be assumed that the development of the dative case had begun in earnest. Concurrent with this increased usage came an increase in the frequency of the errors they made, and thus, their seemingly "poorer" performance.
SUMMARY

The purpose of this project was to ascertain the following:

1. After exposure to an all German environment, is the learner better able to make choices involving the semantic/syntactic relationships inherent in the dative/accusative prepositions?

2. Is the learner more accurate in his choice of gender and endings?

3. To what extent is the hindering effect morphological and functional polarity reduced?

It is evident that since 11 of the 17 subjects interviewed have not yet reached criterion, they are still experiencing difficulty in the correct application of case. The evidence is conclusive, however, that the subjects did improve their ability to make choices involving the dative/accusative prepositions, albeit only slightly (approximately 6%). Greater gains were made in the application of the dative prepositions, with an 18% increase in accuracy.

Gender and endings are closely related, and have been shown to be major factors in the learner's acquisition of the dative case. More than 50% of the subjects' errors in case were due to problems with gender and endings. It appears that the Feminine article is the least marked of the determiners, and while errors occur in choice of each of the determiners, the feminine is preferred 55% of the time.

Morphological and functional polarity are woven into the fabric of the dative case, and appear to have had some negative influence on the subjects' acquisition process. Gender and endings errors may in some part be due to the various polarities of the determiners. Functional polarity seems to interfere with the subjects' ability to readily acquire the dative/accusative prepositions. While results are not conclusive, there may be a tendency for some prepositions that are "strongly" dative or "extremely" accusative to be used in those forms even when their polar opposite case is required. As the learner is involved in semantically contingent speech activities, the polarity values are gradually internalized, and acquisition proceeds.

CONCLUSION AND RECOMMENDATIONS

Krashen (1985) states that in order to acquire, there must be speech that contains a message, and there must be a need to communicate that message. It cannot be said that after 10 or more weeks of exposure to a German-speaking environment, the subjects of this study were not receiving comprehensible input in a context in which a need to communicate and understand real messages existed. Because of the individual improvement in over-all ability of the subjects to function in the German language, and because of an increase in the accuracy of their choices involving gender, endings, and case, it appears that Krashen's (1981) Fundamental Pedagogical Principle can be generalized to include the statement that any situation which provides comprehensible input aids
acquisition.

If this is the case, then not only can communicative competence be acquired through activities that provide comprehensible input, but also grammar and structure. The Fundamental Principle could be applied to informal teaching of grammar. This could be accomplished by the development of games, pictures, and other activities that promote the ability to store and accurately retrieve linguistic information.

For example, classroom activities should be related to each other, and not just a hodge-podge of fun things to do that accomplish no purpose. Saliency is of the utmost importance. Students should be made aware of the semantics of such contexts as motion within a boundary versus crossing a boundary, and other factors that effect accuracy of application of the dative case. They should be involved in activities that clearly demonstrate, through content, proper grammatical usage. In such activities, the focus should be on the content of the verbal exchange, rather than on the structures being taught. Some structures might best be presented as chunks to be memorized for later analysis and acquisition.

In touching upon the matter of gender assignment in German, I agree with Doman (1979), whose work with structures involving gender agreement in Spanish as L2 led her to suggest that students be encouraged to learn the gender along with each new noun. I suggest that they make it an integral part of the word. Thus, the word Grund is not just "Grund", but "derGrund". As Doman says, this may be an old-fashioned idea, but probably linguistically sound. This will enable the student to "feel" that a gender is correct for a particular noun.

No one individual has all the answers, or all the suggestions for aiding students in their quest for acquisition. Many new and dramatic advances are being made in the linguistic sciences that have direct application to the classroom. It behoves the teacher to stay abreast of them, and to consult with others in the field of foreign language teaching, in order to provide the greatest opportunity for the learner to succeed.
REFERENCES


Rogers, M. 1984. Major types of written error in advanced speakers of German. IRAL, 22, 1, February.
Lexical-Functional Grammar (LFG), a syntactic theory recently developed by Joan Bresnan and Ronald Kaplan, is an attempt to model the syntactic processes at work in the minds of human beings as they code and decode sentences. The theory as described in The Mental Representation of Grammatical Relations (Bresnan 1982), assumes that lexical processes have occurred at the inclusion of each word in the lexicon to enter it in all of its forms with the appropriate functional features.

A lexicon including all word forms is plausible enough for English, since it is morphologically relatively simple. But for a language like Finnish, in which a verb may have tens of thousands of forms, it is hardly conceivable that all forms of every word could be stored separately.

This paper suggests treating morphemes functionally in the same way that words are treated in LFG, but with an additional unificational mechanism at morpheme boundaries to handle strictly local constraints. This simple addition to the theory allows morphological processes from a variety of languages to be described in a general way.

**Word Formation Rules**

Functionally, word formation involves the combination of elements chosen from specific morpheme classes in a definite order. This is similar to phrase formation in syntax, where elements chosen from specific grammatical classes combine in some order. In fact, simplified rules for Japanese verb formation could include

(1) $V \Rightarrow VSTEM\ VAF\ (AUX)\ (AUX)\ \ (\uparrow\ \text{ASPECT})=\text{DESIRE}\ (\uparrow\ \text{NEGATIVE})=\text{PLUS}$

$AUX \Rightarrow VSUFFIX\ VAF$

The '=>' notation, rather than the usual '->', implies that the rule is for word internal syntax. For example, the word 'isogitakunai' means "does not want to hurry":

iso gi ta ku na i
hurry VAF want VAF not VAF
VAF is a class of suffixes whose forms depend both on what immediately precede them and on what immediately follow them. The usual functional features of LFG alone are not enough to constrain the affixes which are allowed to occur. The desirative morpheme requires the preceding VAF to be of the 'renyokei' form. The negative morpheme requires the preceding VAF to be of the 'mizenkei' form. If each morpheme adds a feature to the functional structure to reflect these requirements, (such as BASE-FORM RENYOKEI and BASE-FORM MIZENKEI, respectively), the differing values of the features will prevent unification, causing the rule to fail. In this particular case, these clashing features are not really functional in the usual LFG sense; they really just apply locally at morpheme boundaries. If a certain value of the feature is found in the AUX, and a matching feature is found in the preceding VAF, the sequence is allowed.

I therefore propose that two new metavariables, ~ and ‹, be added to the usual ↑ and ↓ metavariables of LFG. The ~ metavariable can refer to a set of morphological features which must match those of the preceding morpheme. The ‹ metavariable can refer to a set of morphological features which must match those of the following morpheme. By 'matching', we mean that at any morpheme boundary, the ~ features of the first morpheme must be able to unify with the ‹ features of the second morpheme. For the Japanese example above, we might use a set of morphological features as follows:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEM-TYPE</td>
<td>Values</td>
</tr>
<tr>
<td>GODAN</td>
<td>consonant-stem verbs</td>
</tr>
<tr>
<td>ICHIDAN</td>
<td>vowel-stem verbs</td>
</tr>
<tr>
<td>IRREGULAR</td>
<td>irregular verbs</td>
</tr>
<tr>
<td>TRUE-ADJ</td>
<td></td>
</tr>
<tr>
<td>QUASI-ADJ</td>
<td></td>
</tr>
<tr>
<td>CONSONANT</td>
<td>K,S,T,N,M,R,K,G sub-consonant-types</td>
</tr>
<tr>
<td>BASE-FORM</td>
<td>MIZENKEI a-form</td>
</tr>
<tr>
<td>RENYOKEI</td>
<td>i-form</td>
</tr>
<tr>
<td>SHUSHIKEI</td>
<td>u-form</td>
</tr>
<tr>
<td>KATEIKEI</td>
<td>e-form</td>
</tr>
<tr>
<td>TERENYOKEI</td>
<td>te-form</td>
</tr>
<tr>
<td>KAKO</td>
<td>ta-form</td>
</tr>
</tbody>
</table>

Consider the following lexical entries:

'iso': VSTEM, (↑ PRED) = 'HURRY<(↑ SUBJ)'>
  (↑ STEM-TYPE) = GODAN
  (↑ CONSONANT) = G

'gi': VAF, (↑ STEM-TYPE) = GODAN
  (↑ CONSONANT) = G
  (↑ BASE-FORM) = RENYOKEI
'ga':: VAF, (STEM-TYPE) = GODAN
(CONSONANT) = G
(BASE-FORM) = MIZENKEI

'gu':: VAF, (TENSE) = PRESENT
(STEM-TYPE) = GODAN
(CONSONANT) = G
(BASE-FORM) = SHUSHIKEI

'ta':: VSUFFIX, (ASPECT) = DESIRE
(BASE-FORM) = SHUSHIKEI
(STEM-TYPE) = TRUE-ADJ

'ku':: VAF, (STEM-TYPE) = TRUE-ADJ
(BASE-FORM) = MIZENKEI | RENYOKEI

'na':: VSUFFIX, (NEGATIVE) = PLUS
(BASE-FORM) = MIZENKEI
(STEM-TYPE) = TRUE-ADJ

'i':: VAF, (TENSE) = PRESENT
(BASE-FORM) = RENYOKEI
(STEM-TYPE) = TRUE-ADJ

In 'isogitakunai', the STEM-TYPE of 'iso' is the structure
[ STEM-TYPE GODAN
CONSONANT G ]

and the STEM-TYPE of 'gi' is exactly the same structure, so the two structures can unify. The STEM-TYPE of 'gi' is the structure [ BASE-FORM RENYOKEI ] and the STEM-TYPE of 'ta' is the structure [ BASE-FORM RENYOKEI ] so the two unify. The entry 'ga', however, has the STEM-TYPE structure [ BASE-FORM MIZENKEI ], which would not unify with the STEM-TYPE of 'ta', so it is not allowed between the stem 'iso' and the desirative 'ta'. It is, however, allowed in the word 'isoganai', meaning "does not hurry", because the STEM-TYPE of the negative 'na' requires BASE-FORM MIZENKEI.

The above entries, together with rule (1) above, also predict the forms 'isogu' for "hurries" and 'isogitai' for "wants to hurry" (present tense conclusive forms always end with the BASE-FORM SHUSHIKEI).

In this way, the morphological work is done by markings in the lexicon, just as in the original formulation of LFG. The addition of the and STEM-TYPE metavariables has allowed the morphological features of morphemes to insure the proper combinations of allomorphs, without interfering with the constituent structure given by the rules in (1), or the associated functional structure.
Finnish Morphology

Jäppinen and Ylilammi (1986) describe some of the problems of Finnish morphology. Their system divides the problem into two parts, morphotactics and stem alternation.

Their approach to morphotactics was to define a set of numbered morphological rules. Each rule corresponded to a string of characters, possibly null, and a set of features. There was also a binary relation defined on these rules, such that if a pair \(<MR-n, MR-m>\) was a member of the relation, the rule \(MR-n\) was allowed to immediately precede the rule \(MR-m\). An example they give includes the following:

\[
\begin{align*}
MR-\alpha &= ' ' \\
MR-\beta &= ' ' \\
MR-3 &= ' ' \\
MR-4 &= ' ' \\
MR-10 &= ' ' \\
MR-54 &= 'mme' \\
MR-61 &= ' ' \\
MR-62 &= ' ' \\
MR-63 &= ' ' \\
\end{align*}
\]

\[
\text{-> } [\text{sg,nom}] \\
\text{-> } [lpp] \text{ (poss. 1st-person-plural)} \\
\text{-> } [\text{pl,nom}] \\
\text{-> } [\text{sg,gen}] \\
\text{-> } [\text{act,ind,pres}] \\
\]

These predict that the four possible interpretations of 'kalamme' will be

\[
\begin{align*}
kala+[\text{sg,nom,lpp}] \\
MR-\beta &< MR-10 < MR-54 < MR-4 < MR-3 < MR-\alpha \\
kala+[\text{sg,gen,lpp}] \\
MR-\beta &< MR-62 < MR-54 < MR-4 < MR-3 < MR-\alpha \\
kala+[\text{pl,nom,lpp}] \\
MR-\beta &< MR-61 < MR-54 < MR-4 < MR-3 < MR-\alpha \\
kala+[\text{act,ind,pres,lpp}] \\
MR-\beta &< MR-63 < MR-54 < MR-4 < MR-3 < MR-\alpha \\
\end{align*}
\]

All of these include the 'mme' morpheme, which is a possessive morpheme with value first person plural; it can appear in nouns or nominalized verbs. The first three can attach to the noun stem 'kala' ('fish'), but there is no verb stem 'kala', so the last one fails.

Viewed from the perspective of this paper, each of the \(MR\) rules is one allomorph, and the associated features would be assigned to its functional structure. An equivalent form of the binary relation can be constructed by assigning the morphological rule number as the value of a feature \(MR\) in \(\text{->}\), and listing the rule
numbers of those that may precede it in *, as follows:

**NOUN** → NSTEM STEM-ALTAFFIX* WORD-FINAL
**VERB** → VSTEM STEM-ALT AFFIX* WORD-FINAL

(* is for Kleene-Star, meaning zero or more AFFIXes)

```
'': WORD-FINAL, (↑ MR) = α
     (↓ MR) = 3

'': STEM-ALT, (↑ MR) = β (see below)

'': AFFIX, (↑ MR) = 3
     (↓ MR) = 4

'': AFFIX, (↑ MR) = 4
     (↓ MR) = 54

'': AFFIX, (↑ MR) = 10
     (↑ MR) = β
     (↑ NUMBER) = SINGULAR
     (↑ CASE) = NOMINATIVE

'mme': AFFIX, (↑ MR) = 54
     (↓ MR) = 63 ; 62 ; 61 ; 10
     (↑ POSSESSIVE) = FIRST-PERSON-PLURAL

'': AFFIX, (↑ MR) = 61
     (↓ MR) = β
     (↑ NUMBER) = PLURAL
     (↑ CASE) = NOMINATIVE

'': AFFIX, (↑ MR) = 62
     (↓ MR) = β
     (↑ NUMBER) = SINGULAR
     (↑ CASE) = GENITIVE

'': AFFIX, (↑ MR) = 63
     (↓ MR) = β
     (↑ VOICE) = ACTIVE
     (↑ MOOD) = INDICATIVE
     (↑ TENSE) = PRESENT

'kala': NSTEM, (↑ PRED) = 'FISH' (see below)
```

The MR feature now does the work of the binary relation. The MR feature of * only unifies with the MR feature of * if the disjunctive lists (with |) have a non-empty intersection.

These rules and lexical entries will create three functional structures for 'kalamme' corresponding to the three interpretations found by the Jäppinen and Ylilammi system. It is possible to match their morphotactic rules as given, one by one, and handle all the same data.
The facts of stem alternation in Finnish consist basically of two sets of paradigms, one for noun stems and one for verb stems. A paradigm for 'kala' ('fish') is given below.

<table>
<thead>
<tr>
<th>FEATURES</th>
<th>singular</th>
<th>plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEM-ALTERNATION</td>
<td>a</td>
<td>a</td>
</tr>
<tr>
<td>AFFIX</td>
<td>n</td>
<td>na</td>
</tr>
</tbody>
</table>

The genitive plural can also have STEM-ALTERNATION 'a' and AFFIX 'o'. All other affixes on the noun use the nominative singular stem.

Rather than discussing Järvinen and Ylilammi's solution, I will simply give the solution in the current framework. The words belonging to each paradigm are assigned a unique STEM-TYPE in ~. A sufficient number of entries of the morpheme class STEM-ALT are also added, with a STEM-TYPE feature in ~ and a number of LFG constraint equations. The constraint equations require the functional structure to have certain functional features, which will have had to come from combined AFFIXes following. Sample entries for the above paradigm could be as follows:

'kala':: NSTEM, (↑ PRED) = 'FISH'
(↑ STEM-TYPE) = 10

'a':: STEM-ALT, (↑ MR) = β
(↑ STEM-TYPE) = 10
(↑ NUMBER) == SINGULAR

'o':: STEM-ALT, (↑ MR) = β
(↑ STEM-TYPE) = 10
(↑ NUMBER) == PLURAL
(↑ CASE) == GENITIVE
(↑ SPECIAL-TYPE) = 2

'a':: STEM-ALT, (↑ MR) = β
(↑ STEM-TYPE) = 10
(↑ NUMBER) == PLURAL
(↑ CASE) == GENITIVE
(↑ SPECIAL-TYPE) = 2

'jen':: AFFIX, (↑ MR) = x
(↑ MR) = β
(↑ SPECIAL-TYPE) = 1
(↑ NUMBER) = PLURAL
(↑ CASE) = GENITIVE

'in':: AFFIX, (↑ MR) = y
(↑ MR) = β
(↑ SPECIAL-TYPE) = 2
(↑ NUMBER) = PLURAL
(↑ CASE) = GENITIVE
'ja': AFFIX, (MR) = z
(↑ MR) = β
(↑ NUMBER) = PLURAL
(↑ CASE) = PARTITIVE

Similar entries could be created for all of the paradigms.

Finnish has two other problems for morphology. The first is that each stem potentially has two grades, a weak and a strong. In the framework proposed here, both forms of the stem should be entered in the lexicon, with values WEAK or STRONG for the feature GRADE. Similar features on STEM-ALTs ensure the proper constraints.

The second problem is vowel harmony. Finnish has three groups of vowels, (a,o,u), (ä,ö,y), and (i,e). Those of group1 never occur with those of group2, except in compounds. Those of group3 occur with either; stems of group3 take group2 affixes (Lehtinen 1963, pp.102-103). In our system, stems, STEM-ALTs, and AFFIXes of group1 would be marked (∗ HARMONY) = GROUP1. Stems, STEM-ALTs, and AFFIXes of group2, and stems of group3 would be marked (∗ HARMONY) = GROUP2. All AFFIXes and STEM-ALTs will have an equation enforcing harmony, namely (∗ HARMONY) = (∗ HARMONY). In this way, morphemes with a definite vowel harmony value introduce it, and every morpheme is required to have the same harmony as the morpheme before it, so the harmony applies to the whole word. Since all stems introduce a definite harmony value, and stems are not required to have the same harmony as anything before them, compounds (which have two stems) can have different harmony values in each part.

English

English basically has only one layer of affixes, so each stem can be marked with a STEM-TYPE feature in ⊢, and each affix with a STEM-TYPE feature in ⊣. There will be separate STEM-TYPE features for each possible plural ending, such as 's', 'es', 'im', 'a', etc. Stems can be entered in the lexicon in usual form, but with a dot between the stem and dictionary form ending, if any, so that only the invariant part is necessary to find it in the lexicon. So 'bite' would be 'bit·e', with affixes 'e', 'es', ' ', ' ', and 'ing'.

Some of the STEM-TYPEs are phonologically predictable. For example, if nouns have no irregular STEM-TYPE marking, words ending in sibilants will have the STEM-TYPE for 'es', and others will have the STEM-TYPE for 's'. In Japanese, the CONSONANT feature of godan verbs is phonologically predictable. All of the
STEM-TYPEs of Finnish are phonologically predictable, except two noun paradigms (Jäppinen and Ylilammi 1986, p.265). Our system assumes that phonologically predictable features are added by lexical rules, and all idiosyncratic features are also specified, before stems and allomorphs are entered into the lexicon.

**Conclusion**

This paper has suggested the addition of two metavariables, ~ and ~, to an LFG system to handle morphology. The unification the ~ morphological features of allomorphs on the left of morpheme boundaries with the ~ morphological features of allomorphs on the right of the boundaries, appears to be a sufficient mechanism to handle many of the morphological phenomena in such divergent languages as English, Finnish, and Japanese.

**REFERENCES**


Giambattista Vico was a Neapolitan philosopher who lived from 1668 to 1744. Today he is chiefly remembered as the author of *The New Science*. The third centennial of his birth in 1968 occasioned an International Symposium with the participation of important scholars from different countries and different academic disciplines. The proceedings were edited by Giorgio Tagliacozzo and Hayden White and published in a large volume by Johns Hopkins University Press. Tagliacozzo also founded the Institute for Vico Studies and has promoted many other symposia and published several other volumes of articles devoted to Vico over the past two decades. Vico scholarship has proliferated in many academic quarters on both sides of the Atlantic. The Italian thinker is being hailed as a seminal figure in many disciplines: philosophy, political science, history, economics, linguistics, anthropology, and, of course, literature and literary theory.

This renewed interest in Vico and the current enthusiasm for his ideas seem to derive mostly from his notions of the nature of language and poetry, and how these shape human history and culture. And the reason that his thought has spawned, and continues to spawn, so much study and so many interpretations is that it is extremely rich and complex.

Vico wrote three versions of *The New Science*. The third, and definitive edition, was published after his death in 1744. He revised his ideas considerably in the two decades between the first edition of 1725 and the last one. The 1744 edition is divided into five books, plus an Introduction called "Idea of the Work," and a "Conclusion of the Work." The books are entitled: 1) "Establishment of Principles," 2) "Poetic Wisdom," 3) "Discovery of the True Homer," 4) "The Course the Nations Run," and 5) "The Recourse of Human Institutions which the Nations Take when They Rise Again." Two of the books, the second and third, which together comprise about two thirds of the work, are devoted to poetry and language. And that's where the beast and the hieroglyph come into the picture.

Perhaps the best known and the most striking feature of *The New Science* is Vico's account of the rebirth of human history after the great flood. As the Earth dried, Noah's progeny wandered through the mountains and forests as wild beasts. Vico refers to them as "bestioni" or "giganti," large beasts or giants. They had no language, no laws, no community, no
intelligence whatsoever. Then, two-hundred years after the flood, atmospheric conditions produced the first thunderclap, which caused these human beasts to look up at the sky and be aware of it for the first time. This was the moment when language and consciousness were born (173, 211-212).

In places Vico presents this birth as a natural or onomatopoeic progression. The first utterances were monosyllabic imitations of natural sounds (141, 147): pa for the thunderclap, which became pape, which in turn became the name of Jove, the god or being who must have shouted the thunder; and eventually it also became the word for "father" (246). This scenario has much in common with subsequent speculation on the problem of how language originated, and may be categorized as typical of the Romantic notion of language as a natural and referential extension of the world, as representation.

However, when Vico looks more closely at this moment of the birth of language an entirely different picture emerges of how it came about. It turns out that when the beast said pa he was not imitating so much as projecting. In order to understand the thunder and the world of which he now became aware the beast could only impose his own feelings and perceptions on it. Since he, himself, yelled when he was angry, this must also be a yell, and there had to be an angry entity who was yelling in anger: Jove.

This is an important difference. It means that language and consciousness are not defined and shaped by nature or reality, but that, on the contrary, reality is a projection of language and consciousness (135, 222-224). In these passages, therefore, Vico does not say that the first language consisted of onomatopoeic, monosyllabic utterances, but of hieroglyphs, that is, of abstract symbols. There may have been grunts and shouts, but they weren't yet language. The first language, he says, was poetic and metaphorical, not referential or mimetic. Men first had to create signs, and these signs subsequently allowed them to understand the world and define themselves (130, 233, 238, 253-354).

Now, to say that language began with hieroglyphs is to say that it began as writing, not as utterance, or natural speech. And this, of course, is at the core of the thought of the contemporary French philosopher Jacques Derrida and of what has come to be known as deconstruction. In what is perhaps Derrida's most influential book, Of Grammatology, he attacks thinkers like Plato, Rousseau, and De Saussure for presenting speech as primary and writing as secondary; speech as somehow more natural representation of reality and writing as a more artificial representation of speech. Derrida insists instead that language, whether spoken or written, is always "writing," a symbolic system which has no "natural" link to anything outside itself.
Thus Vico is right at the center of current debates and controversies about the nature of language and literature. And this explains the extraordinary amount of attention he is receiving, at least in the Anglo-American academic world. In Italy, it's another matter. Though the Centro di studi vichiani (Center for Vico Studies) in Naples publishes a yearly Bollettino and a series of monographs on Vico's though, if one were to consult Italian bibliographies over the same twenty-year period one would not find the number or the variety of studies that we've had in this country; which makes Vico much like pizza—and not just because of a shared Neapolitan origin. But, to explain that simile I'll have to put it in proper context, that is: McDonald's hamburgers, Bruce Springsteen, and caves.

Last semester a couple of young women from Sicily visited my second year Italian class. I decided to use them for conversational and cultural practice. I had the students ask them questions and then asked them some questions myself. Since that week we had been talking about the "Americanization" of many aspects of Italian culture—from language to fashion to entertainment and the arts—my questions probed the extent of this American influence. The two young women confirmed that Italians wore "blue jeans," and drank Coca Cola and 7-up (which some older Italians call "Zup," confusing the 7 followed by a hyphen with a Z), and brushed their teeth with "ultra bright" and "close-up," and watched American movies and American TV programs.

But I could tell that one of the young women was getting a little irritated by my questions. When I asked whether they had McDonald's or other hamburger chains in Sicily, she exclaimed, somewhat exasperated, "Ma certo!" (But of course!), "Scusi ma lei da quanto tempo manca dall'Italia?" (Excuse me, but just how long have you been away from Italy, anyway?). When I told her I had been there the year before she seemed a little skeptical. I realized that she probably perceived me as an immigrant who had left Italy in the Dark Ages, i.e. the pre-McDonald Era, and was now conveying who-knows-what distorted and antiquated notions of Italian life to his students. However, I kept asking questions: about computers and computer language, "shopping centers," "rock and roll." Since that was the week that Bruce Springsteen's multi-record anthology, "Live 1975-85," came out, I asked if they and their friends knew Bruce Springsteen's music. Well, that was the last straw, the ultimate insult. "Nooo!" she exclaimed sarcastically, "Stiamo ancora nelle caverne!" (We're still living in caves!). She could no longer contain her surprise and disgust at my ignorance of just how "with it" Italy is these days.

Now, if I interpret her sarcasm correctly, the gist of it was this: a knowledge and appreciation of anything American stands as proof of modernity and vitality; whereas the lack of such knowledge and appreciation is proof that the person, or the society, must still be living in the days of the cavemen.
Everything that's American is "OK;" that which is strictly Italian is by definition old-fashioned, awkward, a little embarrassing.

This attitude seems to spill over into the field of Italian literary criticism and theory as well; at least the negative facet of the attitude, the reluctance to dwell on native figures and movements. To really be "with it," it seems, the critic must quote and analyze a foreign thinker or school. French thinkers are popular—as they are in this country—, those whom Hayden White has dubbed the "Holy Family" of post-structuralism: Lévi-Strauss, Barthes, Lacan, Foucault, and Derrida. Soviet scholars, such as Lotman, Uspensky and the Tartu semiotic school have received considerable attention, as has the German Frakfort school (Gadamer, Jauss, Iser, etc.). For a Marxist view the Hungarian Gyorgy Lukács is often preferred over the homegrown Antonio Gramsci. And the Russian Mikhail Bakhtin is surely more important these days than Benedetto Croce—poor cave dweller that he was!

Such xenophilia is not limited to twentieth-century figures: Nietzsche, Marx, Hegel; and, a little closer to our concerns, Kant, Rousseau and even Renato Delle Carte himself, that is Vico's arch-nemesis, René Descartes: all of them seem to receive more press than the Neapolitan philosopher.

But those of you acquainted with Italian literary studies are probably shaking your heads: "Not true! Vico is mentioned a lot!" Of course he is: in all the literary histories, the anthologies, the literary encyclopedias and dictionaries—all of which abound in Italy. But, as Maria Goretti points out:

The modernity of an author isn't measured only by the number of studies dedicated to his or her thought . . . but mostly by what motivates scholars to trace the paths of that thought in order to discover its foundations and decipher its meanings. . . . An author may be considered truly modern and present when his or her thought is probed in order to find in it a voice that can shed light on the problems of our own day. (252) (My translation)

And it seems to me that, in Italy, Vico for the most part is not yet being studied in the original, creative, and fruitful way stipulated by Goretti. He gets his due attention in all the scholastic manuals, but in a perfunctory, conventionalized manner. His thought is dutifully presented in a schematic fashion, encrusted, as Goretti says, "by crocean interpretations which have been mummified through the ritual reiteration found in school textbooks" (253, my translation). There is, to be sure, no explicit and comprehensive refusal of Vico and other Italian thinkers, in favor of foreign ones; only a reluctance to see them as truly pertinent to today's problems and tomorrow's solutions.
Alberto Asor Rosa, for example, in his introduction to the fourth volume of the new Einaudi Letteratura Italiana, a volume devoted to "Interpretation," starts out by talking about the methods proposed by Descartes and Jean Mabillon and ends up discussing Foucault, Derrida, Todorov, and Heidegger. No mention of Vico!

Similarly, Omar Calabrese and Egidio Mucci end their Guida a la semiotica (Guide to Semiotics) of 1975 with an appendix, an outline of a possible history of semiotic ideas. The historical sketch goes from Plato and Aristotle to Kant and Hegel, with headings devoted to Descartes, Bacon, Hobbes, Port-Royale, Locke, Leibniz, Berkeley, Hume, and Condillac. Vico is nowhere to be found!

Well, you say, perhaps Vico's thought had nothing to do with such things as semiotics and literary critical method. Why then would Terrence Hawkes in his book, Structuralism and Semiotics, published at about the same time as the Calabrese/Mucci book, begin his discussion, not with Plato or Aristotle, or Peirce or De Saussure, but with Vico, presenting him almost as the founder of structuralist and semiotic thought?

The one genuinely distinctive and permanent human characteristic is discernible in the faculty of "poetic wisdom," which manifests itself as the capacity and the necessity to generate myths, and to use language metaphorically: to deal with the world, that is, not directly but at one remove by means of other agencies; not literally, but poetically. "There must," Vico insists, "in the nature of human institutions be a mental language common to all nations which uniformly grasps the substance of things feasible in human social life and expresses it with as many diverse modifications as these same things may have diverse aspects" (161). This "mental language" manifests itself as man's universal capacity not only to formulate structures, but also to submit his own nature to the demands of their structuring. The gift of sapienza poetica [poetic wisdom] could thus be said to be the gift of structuralism. It is a principle which informs the way all human beings always live. To be human, it claims, is to be a structuralist. (15)

And why does Edward Said end his influential book, Beginnings, with a lengthy chapter entitled: "Conclusion: Vico in His Work and in This"? Said's book was also first published in 1975, the same year as the Calabrese/Mucci book. "Vico's place at the conclusion of a book on beginnings," Said says, is due to the fact that "Vico is the prototypical modern thinker who perceives beginning as an activity requiring the writer to maintain an unstraying obligation to practical reality and sympathetic imagination in equally strong parts" (349). Vico, he claims:
discovered the basically utilitarian inner function of language, which is to make man's impressions of the world intelligible to him. Understanding means defining and restricting, it means isolating the essential from among a welter of tumbling impressions. In the very act of understanding the world, man is in reality understanding himself. The language that a man speaks, then, makes the man, and not man the language. (364)

With such an awareness, Said writes, Vico clearly anticipated the thought of the French New Criticism: that of Barthes, Derrida, Iacan and Foucault.

In a 1983 article on "Vico and the Radical Wing of Structuralist/Post-structuralist Thought Today," Hayden White asked: "Is there any possible relationship—whether of influence, similarity, affinity or opposition—between Vico's thought and that of the current avant garde in the human sciences: the structuralist/post-structuralist current?” (63). He suggests, albeit with some reservation, that there is:

the singular position which the avant garde accords to language in the determination of the forms and process of human culture might provide a ground for sympathetic reception of Vico's New Science. The Structuralist/post-structuralist insistence on the figurative nature of all language and a fortiori all systems of thought might accord nicely with Vico's notions of the "poetic" origins of human formations. (64)

Why is it, then, that Anglo-American scholars have recently been able to see Vico's work in such a radically new light? (Interestingly enough, the French thinkers to whom Vico is often linked haven't shown much interest in, or even knowledge of, the Italian philosopher; perhaps because of what Hayden White refers to as "that notorious cultural ethnocentrism that marks so much of modern French thought in this century" [64].)

Perhaps what is at work is a kind of ostranenie, the Russian formalist notion of defamiliarization, the same process that makes Italian scholars find inspiration in foreign thinkers. We all tend merely to recognize and accept the artefacts in our own cultural museums. We are so familiar with them, or assume that we know them so well, that they can no longer generate new impressions or new ideas. It's only by visiting other cultural museums that we are forced to shake up our systems of knowledge, to make new comparisons and juxtapositions which force us to reevaluate the content of our own museums. Or, something similar can happen if a foreign visitor comes to our museum, and, instead of accepting our platitudes about its artefacts, forces us to see an aspect of the artefact we had never noticed before (if the Japanese, say, come and remove centuries of soot from the Sistine Chapel to reveal a Michelangelo we hadn't even suspect of being hidden there).
All of which, fortunately, takes us back to our pizza, before it gets too cold. Pizza, a very humble artifact in the museum of Italian culture, has undergone precisely such a process of ostranenie. When I returned to Italy about a dozen years ago after a long absence, I was struck not by the number of hamburger restaurants, which were still extremely rare then, but by the number of pizzerie which I had never recalled seeing before. They were obviously catering to American tourists, rather than satisfying the demands of Italian consumers. In fact, I suspect that in many parts of Central and Northern Italy native Italians probably hadn't even known what pizza was until a few years ago.

Imported into the United States by poor families from Southern Italy, pizza eventually became a rage in this country, becoming a a fast-food staple along with hamburgers—indeed pushing aside the all-American hot dog as a favorite in recent years. It was thus reimported into Italy more as an American phenomenon than an Italian one. Many Italians seemed to have ambivalent attitudes toward pizza: pride that this food, which was after all Italian, had taken America by storm; puzzlement that it had, when Italian cuisine boasted of so many apparently worthier dishes; a kind of superior condescension toward these Americans, for liking this stuff so much in the first place, and secondly for liking it indiscriminately, a suspicion that Americans really couldn't appreciate good pizza; and finally a scandalized bewilderment at what Americans did to a pizza, at the toppings inflicted on it—the quantity as well as the choice of toppings ("Do Americans really eat pizza with all that sweet tomato sauce, all that gooey cheese? . . . and pineapples?").

Something similar has happened to Vico. Exported and promoted abroad by expatriates like Giorgio Tagliacozzo, Vico has become a current academic rage. Books and articles on his ideas have proliferated over the last two decades much like pizza parlors around a college campus. And the sauces and toppings with which he has been embellished have been as varied as what college students put on a pizza: Vico with Structuralism and Post-structuralism, with Marxism, with Freudian psychoanalysis; even Vico with James Joyce, to which a week-long international symposium was devoted two years ago in Venice.

It's precisely this luxuriant proliferation of interest in Vico among Anglo-American academics which makes Vico a potential fecundating agent in an Italian critical context. But it's the very fertile and varied nature of this foreign use of Vico which makes it suspect to Vico scholars in Italy. As Battistini claims, in Italy Vico studies remain anchored within a more erudite scholarship which relies on careful historical and philological research aimed at determining the author's place in his own time and culture. Anglo-American scholars, on the other hand, are less concerned with such historico-philological details. They are much bolder in making connections and juxtapositions with trends and figures in our own day (9-20).
Vico himself insisted, however, that intellectual inquiry had to take as its object both the *vero* (the true) and the *certo* (the certain) (127, 196-197). The "certain" must be attained by meticulous philological research, with attention to facts and detail. The "true," however, can also be reached by other paths: intuition, faith, and imagination—especially imagination. The two approaches, according to Vico, must support rather than oppose each other.

As Battistini points out, these two currents in Vico studies, the Anglo-American and the Italian, are not mutually exclusive at all. In fact, they are both necessary; not as independent schools, but as mutually supportive facets of the same inquiry. And they are so in a very Vichian way: philosophy coupled with philology working together to establish the *vero* and the *certo* respectively. An infusion of such imaginative Anglo-American thought into the erudite Italian context is already revitalizing Vico studies in Italy; and a revitalized Vico in an Italian critical context will surely constitute "a voice that can shed light on the problems of our own day" (Goretti 252).

**Works Cited**


DISCOURSE CONSTRAINTS ON THE SYNTAX OF TEMPORALLY ORDERED EVENTS

Marianne McCormick
Gary D. Prideaux

1. INTRODUCTION. Languages often provide a variety of structures for representing the same proposition or propositions. When examined in isolation, all such "paraphrases" generally appear to convey the same basic information, but within a context one specific structure is usually preferred. This paper examines one such set of alternatives: those English structures used to represent two temporally ordered events. We first examine a class of these structures and the explanations proposed for their use. These proposals are then assessed against data taken from an extensive set of written texts. It is argued that both syntactic and discourse factors are involved in the distribution of the forms.

2. ORDER OF EVENTS. If we have two temporally ordered events E1 and E2 represented by the two clauses S1 and S2 respectively, English allows various ways of representing this information. Let us first consider the example of the two temporally ordered events in (1):

1  a. E1: Fred opened the door.
   b. E2: Fred turned on the light.

These two events can be expressed by conjoined clauses linked by such conjunctions as and, and then, then, or but. Here, the order of the clauses reflects the order of events. Examples are found in (2):

2  a. Type 1: S1 and S2
   Fred opened the door and he turned on the light.
   b. Type 2: S1 and then S2
   Fred opened the door and then he turned on the light.
   c. Type 3: S1 then S2
   Fred opened the door, then he turned on the light.
   d. Type 4: S1 but S2
   Fred opened the door, but he turned on the light.

The two events can also be represented in terms of complex structures involving the subordinate conjunctions before and after. Here, the order of the clauses does not always mirror the order of events and moreover the main clause may either precede or follow the subordinate clause. Examples are found in (3):

3  a. Type 5: S1 before S2
   Fred opened the door before he turned on the light.
   b. Type 6: after S1, S2
   After Fred opened the door, he turned on the light.
   c. Type 7: S2 after S1
   Fred turned on the light after he opened the door.
   d. Type 8: before S2, S1
   Before Fred turned on the light, he opened the door.
Since all eight sentences in (2) and (3) represent the same two ordered events, the question arises as to what factors govern the selection of a particular form. Clearly, an understanding of the speaker's (or hearer's) activities involves more than just the structures themselves. In particular, it involves the various cognitively based constraints and strategies which the speaker or hearer actually uses (see Prideaux & Baker, 1986 for a discussion of such strategies). An examination of the structures in (2) and (3) suggests that two distinct types of constraints might be relevant to the processing of such sentences: those based on purely syntactic properties and those deriving from discourse or contextual factors.

3. SYNTACTIC FACTORS. Among the possible syntactic factors governing the selection of a particular structure, two are immediately obvious. First, we might expect some measure of syntactic complexity to be operative, such that a relatively more complex structure would be harder to process than a less complex one. Let us call this the SYNTACTIC COMPLEXITY constraint. On the plausible assumption that conjoined structures are syntactically less complex than those involving embeddings, the SYNTACTIC COMPLEXITY constraint predicts that the compound structures of (2) should be easier to process than those in (3). This constraint is both intuitively plausible and supported by considerable independent empirical evidence from language processing studies (see, for example, Bever, 1970, and the results reported in Prideaux & Baker, 1986).

A second syntactic factor, discussed by Clark and Clark (1977), is that in English the unmarked case for a complex sentence has the main clause first. This MAIN-SUBORDINATE constraint predicts that sentence Types 5 and 7 would be easier to process than Types 6 and 8. These two syntactic factors are organized in a hierarchical relation since the MAIN-SUBORDINATE constraint is relevant only if the sentence is complex. Furthermore, both constraints appear to relate solely to the forms of sentences, isolated from context. It will later be suggested that contextual factors also play an important role here.

4. DISCOURSE FACTORS. Among those proposals found in the literature relating to the effect of context on sentence form, the two most relevant for the present study are the ORDER OF MENTION and the GIVEN-NEW constraints. The ORDER OF MENTION constraint states that a sentence whose clauses are in the same order as the events they represent is easier to process than one in which the order of clauses differs from the order of events. All the sentences in (2) mirror the order of events, but of those in (3), only (3a) and (3b) do. Thus, the ORDER OF MENTION constraint predicts that (3a) and (3b) should be easier to process than (3c) or (3d).

The second relevant discourse factor, and one relating to numerous other structures as well, is the GIVEN-NEW constraint. This constraint states that the speaker (or writer) partitions his message into two general types of information, that which is known to both the speaker and hearer ("Given" information), and that
which is known to the speaker but not to the hearer, ("New" information). Given and New information are typically separated and represented by distinctive syntactic means. There is considerable empirical support for this constraint from a variety of sources (see, for example, Clark & Haviland, 1974; Clark & Clark, 1977; Smyth, Prideaux, & Hogan, 1979).

Bever (1969) has suggested that in complex sentences, Given information is typically found in the subordinate clause, while the main clause carries the New information. This suggestion follows from the observation that the assertion in a (declarative) sentence is basic and represented by the main clause, while any presuppositions are found in subordinate clauses. Independent empirical support for this proposal is found in Silva (1981), who notes that old information is typically found in after clauses. Of course, it is not necessary that a subordinate clause contain any Given information, since all the content may be New.

When we try to apply the GIVEN-NEW constraint to sentences such as those in (2) and (3), however, it is clear that we must have access to the preceding context since syntactic factors alone cannot tell us if one or another event is Given or New. In the absence of a knowledge of the relevant discourse information, the GIVEN-NEW constraint can make no predictions, although once the information is available, the predictions follow immediately. Nevertheless, if Bever (1969) is right, both clauses in compound sentences should be New, while in complex sentences with a Given-New distinction, the subordinate clause should be Given and the main clause New. The GIVEN-NEW constraint can only be tested by establishing whether each clause in a complex sentence is Given or New, as assessed in terms of the preceding context.

It is apparent from these observations that the constraints can either buttress or work against one another, depending on the relevant contextual facts. Moreover, discourse factors are also expected to interact with syntactic ones. It is therefore plausible to expect that the convergence of syntactic and discourse factors will determine the relative processing ease of a set of particular sentences.

How, then, is each of these factors to be evaluated? To approach this problem we turn to text counts to assess the viability of the various constraints. We operationally define the relative frequency of structures as a measure of their relative complexity. Accordingly, we assume that, everything else being equal, if one structure is more frequent than another, it is easier to process than the other. Such an assumption provides the necessary link between our text data and the relevant psychological processes involved in their production and comprehension.

5. TEXT COUNTS. In order to determine whether the constraints discussed above are operative, several text counts were carried out, using two fiction and two non-fiction sources. The fiction texts examined were Murphy's (1979) The Vicar of Christ and Salinger's (1951) The Catcher in the Rye. These sources were selected since both are attempts to represent the spoken language.
Two selections were taken from Murphy (1979). The first, labelled VC(a), encompasses pages 5-55 and represents the speech of a retired U.S. Marine sergeant, while the second, VC(b) (pages 98-170), is supposed to represent the speech of a retired U.S. supreme court justice. The selection from Salingar (1951), labelled CR, was taken from pages 5-104. The two non-fiction sources were Newman's (1979) The Canadian Establishment (CE, pages 3-75) and Evans' (1979) The Micro Millenium (MM, pages 3-100). In total, some 390 pages of text were sampled. The text counts involved tabulating each instance of the eight structures mentioned above in (1) and (2). The raw data from the text counts are found in Table 1. Some 350 instances were found of compound structures representing two temporal events and some 66 instances of complex (before and after) structures.

In order to determine which predictions are borne out in the text counts, a series of $X^2$-tests was carried out, the results of which are found in Table 2. Since the GIVEN-NEW constraint cannot be tested directly until the Given or New status of each clause is known, we postpone discussion of this constraint for the moment. From Table 2, it can be seen that there is a strong tendency in all the texts for compound sentences to be preferred over complex ones. Such evidence provides considerable support for the SYNTACTIC COMPLEXITY constraint.

The MAIN-SUBORDINATE constraint, however, does not appear to be supported by these data, at least to the extent that there is no general preference for one order of clauses over the other. It might appear that VC(a) constitutes an exception to this general result, since the Marine sergeant appears to prefer the main clause first. However, even when the complex clause data from VC(a) are excluded from the analysis, there is still no significant difference between the two clause orders ($X^2 = 2.2$, $p > 0.1$). It is possible, of course that the roughly equal frequencies of the two distinct word orders reflects a discourse distinction, especially if each part of the distinction occurs at roughly the same frequency. This possibility is discussed below.

From Table 2 it is obvious that the ORDER OF MENTION constraint is very important. For compound sentences, this result is of course trivial, since in such structures the clauses necessarily reflect the order of events they represent. Thus, when all eight of the structures are evaluated, the importance of the order of events is to some extent "swamped" by the compound structures. It is therefore more useful to examine the complex structures. Here too, the ORDER OF MENTION constraint is found to be highly significant, with those sentences mirroring the order of events preferred over those which do not. Again, given the possibility that VC(a) is introducing a frequency bias, a $X^2$-test was carried out in which the data from VC(a) were excluded, and again the ORDER OF MENTION constraint was still found to be statistically significant ($X^2 = 5.6$, $p < 0.025$).

At this point, two important questions arise. First, if ORDER OF MENTION is so important, why are there any exceptions to it? Is it possible that there is another discourse factor at work
TABLE 1. TEXT FREQUENCY DATA

<table>
<thead>
<tr>
<th>Text</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
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</thead>
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<tr>
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<td>32</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>16</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>VC(b)</td>
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<td>1</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CR</td>
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<td>5</td>
<td>1</td>
<td>6</td>
<td>5</td>
<td>9</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>CE</td>
<td>62</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>MM</td>
<td>77</td>
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<td>0</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>TOTALS</td>
<td>321</td>
<td>14</td>
<td>6</td>
<td>9</td>
<td>27</td>
<td>21</td>
<td>7</td>
<td>11</td>
</tr>
</tbody>
</table>

T1: S1 and S2  
T2: S1 and then S2  
T3: S1 then S2  
T4: S1 but S2  
T5: S1 before S2  
T6: after S1, S2  
T7: S2 after S1  
T8: before S2, S1

TABLE 2. X²-TESTS FOR CONSTRAINTS

<table>
<thead>
<tr>
<th>CONSTRAINT</th>
<th>STRUCTURES COMPARED</th>
<th>X²</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYNTACTIC COMPLEXITY</td>
<td>Compound vs. Complex</td>
<td>193.9***</td>
</tr>
<tr>
<td>MAIN-SUBORDINATE</td>
<td>T5, T7 vs. T6, T8</td>
<td>.02</td>
</tr>
<tr>
<td>ORDER OF MENTION (for all types)</td>
<td>T1-T6 vs. T7, T8</td>
<td>173.6***</td>
</tr>
<tr>
<td>ORDER OF MENTION (complex only)</td>
<td>T5, T6 vs. T7, T8</td>
<td>13.6***</td>
</tr>
</tbody>
</table>

*** p < .001

which can explain the exceptions? Second, if the order of main clause first is in fact the unmarked case, why do we find so many instances of the other order? Can there possibly be discourse factors which account for the "violation" of this constraint, or do we in fact have a real instance of syntactic "free variation"? It is to the first of these problems which we now turn.

In attempting to account for the few "violations" of the ORDER OF MENTION constraint, we will appeal to the GIVEN-NEW constraint, analyzing instances of ORDER OF MENTION violations by examining data taken from The Catcher in the Rye. It is instructive first to examine some examples of the suspected violations. Thus, in (4) we find an example of Type 7 (S2 after S1) and in (5) an example of Type 8 (before S2, S1).

4. "It was pretty nice to get back to my room, after I had left old Spencer..." (p. 21).
5. "Anyway, before I got back to the hotel, I started to go in this dumpy looking bar, but two guys came out, drunk as hell, and wanted to know where the subway was" (p. 95).
An examination of the context for (4) reveals that the visit to Spencer had been discussed in the an earlier paragraph, while no discussion had taken place about Holden Caulfield's return to his room. That is, the subordinate clause in (4) represents Given information, while the main clause is New. Similarly, in the paragraph preceding (5), Caulfield had been discussing his return trip to the hotel, although at that point no mention had been made of the bar or the drunks. Again, the subordinate clause is Given information and the main clause is New.

The GIVEN-NEW constraint, which predicts the association of the subordinate clause with Given information and the main clause with New, appears to be operative here even when the ORDER OF MENTION constraint is not. Support for the independence of the two factors can be found in cases in which the ORDER OF MENTION is also preserved, as in (6), an example of Type 6 (after S1, S2):


In this case, the preceding context contains a discussion of the packing, making the subordinate clause Given, while the main clause is again New. Here, however, the clauses reflect the order in which the events take place. Thus, the ORDER OF MENTION and GIVEN-NEW constraints can function independently.

Even when the ORDER OF EVENTS constraint is violated, the GIVEN-NEW constraint can be maintained, suggesting that the GIVEN-NEW constraint is important for sustaining discourse coherence. At this point, however, a further problem arises: why is it possible to adhere to the GIVEN-NEW constraint while at the same time violating ORDER OF MENTION, especially since an alternative structure to Type 7, exists, namely Type 6, in which both constraints are maintained. Similarly, an alternative to Type 8 also exists which maintains both constraints, namely Type 5. What governs the choices here?

Once again, the particular contexts for each of these sentences were examined, and all ten of the complex sentences were analyzed in which the subordinate clause preceded the main clause. We now approach the second puzzle: is there some additional factor determining the order of the two clauses? The relevant structures here are Types 6 and 8, since it is these which represent the putative marked cases of subordinate clause first. It so happens that five of the nine Type 6 structures in The Catcher in the Rye and the single instance of Type 8 all serve to initiate paragraphs. Moreover, the remaining four instances of Type 6 also signal a change in topic. That is, the word order of subordinate clause before main clause appears to be used when a change of topic is announced. Accordingly, if the writer wishes to signal a topic change with a complex sentence, he places the subordinate clause first. If there is a Given-New distinction in the two clauses, the subordinate clause should be Given and the main clause New, thereby extending the tendency found within clauses for Given information to precede New.

The need to satisfy these two contraints may lead the speaker (or writer) to violate the ORDER OF MENTION constraint,
however. It appears that the discourse device relating to topic change is rather global, marking major breaks in the flow of the narrative, while the ORDER OF MENTION and GIVEN-NEW constraints tend to be somewhat more local, even though the latter can readily bridge a change in topic. Moreover, it seems reasonable to associate a marked structure with the topic change function since the presence of a marked structure would be unexpected, indicating a disruption of the discourse. And, at least to a certain extent, a topic change constitutes a disruption in a narrative or discourse. It appears that the ORDER OF MENTION constraint is satisfied at a relatively more local level than is the GIVEN-NEW constraint, since the former is relevant within a particular sentence, while the latter takes as its domain more than one sentence. Similarly, the topic change is even more global, serving to package the narrative into relatively large units. Even though the MAIN-SUBORDINATE constraint did not yield a statistically significant difference in the data when examined in isolation and independent of context, it nevertheless serves the important function of signalling a topic change. A cautionary note is in order, however, since these conclusions are based on a very small sample, namely some 20 complex sentences from _The Catcher in the Rye_. Accordingly, a larger sample is called for before firmer conclusions can be established.

6. CONCLUSIONS. Each of the proposed constraints appears to play an important role in the organization of discourse. Syntactic complexity is obviously important since compound sentences are less difficult to process and are therefore more frequent than complex ones. However, compound sentences have associated problems of their own: they typically represent only New information, and they always reflect the order of events.

One way around these "shortcomings" is by the use of complex structures, including those which may reflect a Given-New distinction in terms of information content and which may also be varied to permit the clauses to mirror the order of events or not. The ORDER OF MENTION constraint is of importance since it permits the hearer (or reader) to follow the general maxim of "first things first," in which events are assumed to transpire in the order in which they are expressed. Also important is the GIVEN-NEW constraint, serving as it does a bridging function. Once information is separated into two classes, the repetition of Given information serves as a kind of linkage from that which has gone before to that which is New. Finally, the MAIN-SUBORDINATE constraint, which we initially treated as a purely syntactic phenomenon, appears to be grounded in an important discourse property, the requirement that a change of topic be highly marked syntactically. The most highly marked structure in complex sentences is one in which the subordinate clause (or phrase) comes first and in which the ORDER OF MENTION constraint is violated. These structures are frequently found to initiate major topic changes, often at the beginning of paragraphs.

We conclude that the structures used to represent temporally ordered events are not randomly chosen, but rather are governed by distinct and often quite subtle factors. We have identified some
local syntactic and some broader discourse factors which bear on the distribution of the various structures. SYNTACTIC COMPLEXITY is quite a local constraint, and ORDER OF MENTION is also limited to a particular sentence. The GIVEN-NEW constraint is broader, operating across sentences. Finally, the topic changing function serves to bracket large chunks of information into thematic packages.

REFERENCES


SIMILARITIES AND DIFFERENCES BETWEEN KOREAN AND AMERICAN DISCOURSE PATTERNS

by Robert F. Norton
American University of Beirut (formerly)

There is an ever increasing need today for people the world over to learn how to communicate with each other effectively. Never before have we found ourselves in greater need to discover ways to communicate messages of utmost importance to people who may have an entirely different way of perceiving and reacting to the world than we.

Many times people are faced with the situation of confronting a person from a different culture and come away terribly discouraged because they are unable to communicate the urgency of their message to the other person. When the backgrounds of the two individuals are very different, or sometimes even when they appear to be the same, a fundamental difference in thinking style might be central to the problem. However, people rarely if ever consider this to be a potential problem. Many are prone to think that everyone else thinks in exactly the same way that he does.

Anyone who has taught and lived in the Orient for any length of time is acutely aware of the great difficulty that Oriental students have in communicating their ideas in English especially in written form. The difficulty of communicating does not seem to be as acute when speaking face to face perhaps because of nonverbal cues that help to convey meaning or perhaps because face to face interaction allows both participants to ask questions when they don't quite understand a particular point that the other is trying to make.

Teachers of English as a second language have often been puzzled by the fact that students from the Orient (China, Korea and Japan) can often master the grammatical structures of English quite rapidly, but seem to have more difficulty learning to write essays in English than do natives of most Western European countries. This seems to indicate that something isn't being communicated in the classroom that is essential for native Orientals to master English writing techniques. What is this something? How can it be characterized?

Translators, too, when attempting to translate from Eastern Asian languages into English have similar problems in trying to produce an English counterpart that is as intelligible to native Americans as the original is to native Orientals. It is especially problematical if the translation is very literal. This seems to indicate that there is a difference between the languages
of the two cultures that is broader than the syntactical issues that are usually treated in language classes and classes for translators. This difference seems to be related to the way in which the ideas are joined together to produce written discourse. By discovering the exact nature of these differences, translators might be enabled to produce more intelligible translations and language teachers might be enabled to teach English essay writing more effectively.

After living and teaching English for three years in Korea as a Peace Corps Volunteer, I was even more perplexed by this inability of my students to communicate their thoughts to me in written English when we seemed to do so well communicating with each other face to face. It is true that I knew Korean to some extent. I lived with Korean families or roommates during most of my stay in Korea and could communicate in Korean well enough to shop for food, greet friends and neighbors when we met on the street and engage in simple conversation. However, whenever we had something deeper to talk about we generally found that their English was better than my Korean.

When I returned to the United States in December of 1973, I couldn’t stop thinking about how brilliant and insightful my Korean friends were when we were living together, yet how incomprehensible I had found the written compositions which they turned in to me as assignments. The letters they sent to me as a friend after I was back in the States were much more understandable than the compositions they had submitted to me when I was their teacher. Yet I knew that many more hours of careful thought had gone into their incomprehensible compositions, than had gone into their hastily scribbled letters which were much easier to comprehend. When the time came to select a topic for my doctoral dissertation in Instructional Psychology this apparent difference in thinking style seemed like a very good subject to try to understand. But how could it be done?

I had already begun to look for anything I could find comparing the thinking styles of different cultures and there was relatively very little to find. I also began to examine various techniques of discourse analysis. There were many more comparisons of syntax or grammar differences between languages, but these differences didn’t seem to be particularly relevant to the questions that I wanted to ask. Some of my students in Korea could compose flawless English sentences, but their compositions were still incoherent and unorganized. The sentence is too small a unit to study to gain an understanding of what was wrong with their compositions as a whole.

Other language scholars who had recognized the problem many years before I first encountered it, had already begun to see the need for contrastive studies based on units of discourse longer than just the sentence. This great need was stated in 1966 by Robert Kaplan in the following plea:
In the teaching of paragraph structure to foreign students, whether in terms of reading or in terms of composition, the teacher must be himself aware of these [structural] differences, and he must make the differences overtly apparent to his students. In short, contrastive grammar is presently taught. Now not much has been done in the area of contrastive rhetoric. It is first necessary to arrive at accurate descriptions of existing paragraph orders other than those common to English (Kaplan, 1966b, p. 14).

This same need for contrastive analysis studies to be undertaken beyond mere grammatical considerations within sentences into considerations of the relationships between sentences and paragraphs was echoed in recommendations made by the *Fédération internationale de professeurs de langues vivantes* at a meeting in Yugoslavia in 1968 (Di Pietro, 1971, p. 12). By 1971, contrastive analysis studies which considered aspects of discourse had been done between English and the following languages: French, German, Italian, Russian, Spanish, Choctaw, Navajo, Papago, certain Eastern European languages (Di Pietro, 1971, p. xiv) and Hopi (Whorf, 1956). By 1978, I was able to find no comparable studies that had been done between English and any of the Oriental languages. Furthermore, although the above studies did mention some aspects of discourse differences, they were primarily concerned with analyzing differences at the lexical and syntactic levels, which involve respectively an analysis of phonetic and word-meaning differences in the former and differences in grammatical relationships in the latter.

There was a contrastive analysis done in 1969 between English and Korean (Whang, Kim, Cho & Lee, 1969), but this was concerned only with grammatical structures and did not involve structural differences at the discourse level. It is only comparisons at the discourse level, that are likely to make possible a characterization of thinking style differences. Many linguists maintain that discourse (which involves the inter-relationships of sentences and paragraphs) is concerned basically with what goes on in the mind (thinking) more than what comes out of the mouth (speaking) or hand (penmanship) (Dufrenne, 1963, pp. 35-40; Kaplan, 1966b, p. 1; Oliver, 1962, pp x-xi). By studying writing style differences, then, especially at the discourse level, we may also be able to infer differences in thinking style.

The present study was designed to characterize the major writing- or thinking-style differences at a discourse level between Korean and English. There are at least six major types of written discourse commonly recognized in the literature, namely: narrative, procedural, expository, hortatory, argumentative and conversational (Callow, 1974; Hinds, 1975). However, I chose to simplify the scope of the present study by looking only at expository essays. Expository essays are those essays designed primarily to explain or describe a particular subject matter, which serves as the main focus of the essay. This type of
discourse was chosen because there are ample examples of this type in both languages and because expository essays are usually shorter and more compact than other types of discourse. I also chose not to look at the writing of students, who often only approximate what is recognized as good writing in both cultures, but chose to examine essays by famous authors who were recognized by scholars in each culture as being outstanding writers. I chose also to examine each author in the original language rather than resorting to mere translations of the Korean essays or writings of Koreans in English.

There are several different techniques for discourse analysis in the literature. They have been developed primarily for looking at English discourse and have not been applied extensively to other languages. The techniques developed by the following linguists and scholars represented fairly completely the major techniques that had been developed by the time the study was conducted in 1978: (1) Francis Christensen (1965), (2) A.L. Becker (1965), (3) Willis L. Pitkin (1975, 1976, 1977), (4) Dennis J. Packard (1976), and (5) M.A.K. Halliday (1976).

All of these theoreticians indicate that Western writing is based almost entirely on a deductive pattern or style characteristic of Aristotelian logic: starting with a general topic sentence and then systematically restricting the meaning by presenting more specific details about the general topic at several different levels of generality—proceeding from the most general to the least general. The following diagram of part of the last paragraph by Mark Twain from his essay entitled "The Bee" illustrates this deductive pattern and illustrates what is meant by different levels of generality according to the discourse analysis technique used in this study:

1 After the queen, the personage next in importance in the hive is the virgin.

2 The virgins are fifty thousand or one hundred thousand in number,

2 and they are the workers, the laborers.

3 No work is done, in the hive or out of it, save by them.

4 The males do not work,

4 the queen does no work,

5 unless laying is work,

5 but it does not seem so to me

6 There are only two million of them [eggs to be laid], anyway,
6 and all of five months
7 to finish the contract in.

(The Bee, Mark Twain)

The numbers as they increase from 1 to 7 denote a corresponding decrease in level of generality and a corresponding increase in specificity. Therefore, it probably would be better to call them levels of specificity rather than levels of generality. However, I chose to conform with the convention in linguistics. This consistent progression from the most general to the least general in more or less a straight line is what has by convention been called **linearity**.

The relationship between two ideas at different levels of generality is usually referred to as a *restrictive relationship* and means that the idea with the larger number is more specific in a broad sense than the idea with the smaller number, or that the idea with the smaller number is more general than the idea with the larger number. For example, from the preceding diagram, the two level 2 generalities *(the virgins are fifty thousand or one hundred thousand in number and they are the workers, the laborers)* each elaborate a detail about virgin bees which makes them next in importance to the queen bee. These two ideas are therefore restrictively related to (more specific than) the level 1 generality, or topic sentence *(after the queen, the personage next in importance in the hive is the virgin)*. Likewise, the level 3 generality in a similar manner restricts the meaning of the level 2 generality under which it falls, the two level 4 generalities restrict the meaning of the level 3 generality, and so forth. Please refer to the diagram.

The relationship between two ideas at the same level of generality is usually referred to as a *coordinate relationship* and means that the two ideas are equally specific and can be subsumed under the same more general statement to which they are both restrictively related. For example, the two level 2 generalities mentioned above are coordinately related to each other. *(The virgins are fifty thousand or one hundred thousand in number and they are the workers, the laborers)* do not elaborate or restrict the meaning of each other, but they both do elaborate or give more detail about the level 1 generality that precedes them. See the diagram. Likewise, all ideas preceded by the same level-of-generality number in the Mark Twain paragraph are considered to be coordinately related to each other for similar reasons.

Although some rhetoricians speak of an inductive format (moving from specific details to generalities) in Western writing as well as the deductive pattern, such paragraphs are very difficult to find in English as is indicated by the following quote, again from Christensen:
The contrast between deductive and inductive, or between analytic and synthetic as it is sometimes put, seems to have led us to assume that the one kind of movement is as common as the other and that the topic sentence therefore is as likely to appear at the end as at the beginning. The many scores of paragraphs I have analyzed for this study do not bear out this assumption. The topic sentence occurs almost invariably at the beginning. In fact, I do not have clear-cut examples of topic sentences in the other theoretically possible positions. (Christensen, 1965, p. 22)

Even the relatively few paragraphs which seem to have an inductive format (specific to general) on the surface seem to revert back to the deductive format (general to specific) to provide details about the major elements of the paragraphs.

In contrast, from my relatively limited exposure to Korean writing before beginning this study (mostly translations into English and English compositions written by native Korean students), I noticed that the deductive pattern does not seem to be as prevalent there as it is in American writing. There are often no topic sentences at all in Korean writing and the text seems to ramble quite freely from one idea to the next. I did not bring any of the compositions written by my own students back with me to the United States—not knowing then that I would later be writing my dissertation on such a topic. However, this free rambling style is well illustrated by the following paragraph written as a class exercise by a Korean student cited by Robert Kaplan:

Definition of college education

College is an institution of an higher learning that gives degrees. All of us needed culture and education in life, if no education to us, we should to go living hell.

One of the greatest causes that while other animals have remained as they first man alone has made such rapid progress is has learned about civilization.

The improvement of the highest civilization is in order to education up-to-date.

So college education is very important thing which we don't need mention about it.

(Kaplan, 1966b, p. 10)

This free rambling from one idea to the next may be a signal that Oriental writing is the product of a system of logic that is not deductive.

I have not been able to find a single characterization of Oriental discourse that is anywhere near as thorough as those which have been done with Western discourse. Most are very subjective and are scarcely more than passing comments made in the
course of addressing primarily some other issue. The most thorough source that claims to be analyzing discourse is Robert T. Oliver (1955, 1962, 1966, 1971). He has written many books on Oriental thinking and writing, but his works, though extensive, are also very subjective.

The most empirical work in the contrastive rhetorics of Western and Oriental writing has been done by Robert B. Kaplan (1966a, 1966b, 1967, 1968, 1971, 1972, 1974). He has worked entirely with compositions written in English by foreign students or with English translations of the eight-legged Chinese essays. None of his work has dealt with discourse of Asian languages in the original language. Much of his analysis, also, has been very subjective with no rigidly systematic approach that could easily be replicated. Furthermore, his characterizations of Oriental writing as being indirect and circular, are in no way detailed enough to detect a definite pattern as pervasive as the deductive pattern is in Western writing. Although the eight-legged essay conforms to a rigid structure, the structure seems to be external to the logic, as are the sonnet forms of Western poetry, not something that reflects the logic.

Likewise, since my dissertation, there have not been as many contrastive studies on non-Western languages at the level of discourse or rhetoric as I would have hoped. Furthermore, most of these have again been rather subjective or have not at least specified a system of analysis as rigorous as those already mentioned which have been applied mostly to Western discourse. The studies by Richard M. Coe (1983), Joan Gregg (1983), and Carolyn Matalene (1985) are among the most thorough and these have examined Chinese. Clearly there had been no attempt to analyze the rhetorical pattern of Korean with any degree of objectivity comparable to the analyses that had been done on Western languages by the time I began my study in 1978—and likely there has been none since.

My problem was to find a technique for analyzing Korean discourse that was not so closely linked to the deductive pattern of English writing—so that it could be useful in trying to characterize a pattern that may not be deductive. The techniques of discourse analysis developed by Christensen and Becker are so closely tied to the deductive pattern of Western writing that they were of limited usefulness for analyzing Korean writing. Pitkin's technique, as well as Packard’s, which is a simplified version of Pitkin, was the only major technique I was able to find that is far enough removed from the deductive pattern to be useful in characterizing the Oriental pattern.

Although Pitkin's technique sprang from Christensen's and seems very deductive when it is applied to English, it breaks all of the ideas in a paragraph into binary relationships: each idea with its adjacent ideas rather than into levels of generality. When it is applied to English discourse, the binary relationships fall into levels of generality because they are in turn related to
each other deductively due to the deductive pattern of English discourse.

However, if Pitkin's technique is applied to discourse that is not deductive, the binary relationships would not necessarily fall into levels of generality. Pitkin's analysis examines primarily whether the second idea of each binary set is more specific than the first, more general, or of equal specificity. The deductive pattern would be expected in the analysis of Korean discourse whenever there is a sequence of ideas that goes from general to specific, to more specific and so forth. Then, levels of generality would appear in a linear fashion just as in the example of Mark Twain's paragraph already considered. However, if successive ideas were not related to each other by being repeatedly more specific or more restricted than the ones before, the linear, deductive pattern would not emerge and there would be no clear cut levels of generality.

Pitkin also listed a number of relationships possible between ideas in paragraphs other than those linked to degree of specificity. These will be mentioned later when I talk about the technique of discourse analysis that was actually used for the study.

Halliday's technique is somewhat different from the other discourse analysis techniques already considered in that it is designed to measure the cohesiveness of the discourse rather than the logical relationships of the ideas expressed. Halliday has classified five major cohesive devices: reference, substitution, ellipsis, conjunction, and lexical cohesion. These are explained in detail in a book written by Halliday and Hasan (1976) and will not be elaborated here. Most of these devices are concerned primarily with how relationships between ideas are indicated and not so much with what the actual relationships are. For the present study, I was primarily concerned with the types of relationships expressed, their relative frequencies and their sequences. Therefore, I did not make counts of how often each of the relationship-identifying devices were used as is typical in a Halliday analysis.

However, in his description of conjunctive devices, Halliday gives a rather complete listing of the types of relationships that are found in written discourse which is similar to the listing of relationships compiled by Pitkin. The technique for discourse analysis that I eventually used was initially derived from a combination of these two listings and was modified, extended, and refined as the study progressed. A detailed description of the technique actually used is presented in my dissertation (Norton, 1978) and will be summarized in the method section of this paper.

In characterizing the major writing-style differences between Korean and American essayists, I decided to restrict my study to the analysis of the following three aspects of discourse: (1) the types of relationships expressed in the essay, (2) the sequence in
which these relationships are expressed, and (3) the distance between the two ideas that make up each relationship (how much intervening material occurs between them).

Although Kaplan (1966b) does not describe the discourse analysis techniques that he used in his study of what he termed cultural thought patterns, his subjective descriptions of the differences he noted in American and Oriental patterns are adequate to make at least the broad general predictions that American essayists will be characterized by a more linear, deductive pattern, while Korean essayists will be characterized by a more non-linear pattern. A linear sequence is one that presents a general topic, makes one or more specific statements about it restricting its meaning, and then elaborates details about each particular restriction immediately after the restriction—as exemplified in the paragraph by Mark Twain quoted earlier.

Eighteen basic relationships between ideas were analyzed in the present study. These will be described briefly in the method section. Based on the Kaplan characterizations, I was able to make direct predictions about only the restrictive relationships (general to specific or specific to general) and the coordinate relationships (ideas equal in generality to each other) that are characteristic of linear, deductive writing. With regard to types of relationships, I predicted that there would be a predominance of restrictive and coordinate relationships in the American essays and that the proportion of these relationships would not be as high in the Korean essays.

With regard to sequences, I predicted that in the American essays there would be a preponderance of either one of the two possible linear, restrictive sequences: general to specific (G-->S) or specific to general (S-->G). On the basis of Kaplan, Christensen, Becker, Pitkin, and Packard’s characterization of American writing as being primarily deductive and on the basis of Christensen’s claim that there are almost no instances of inductive paragraphs in American English, I also predicted that the American essays would have a greater number of G-->S relationships than S-->G relationships. On the other hand, I predicted that if Korean writing is non-linear, Korean essayists (when they did use restrictive relationships) would have no particular tendency to consistently use one sequence over the other and that the Korean essays would then contain approximately equal distributions of both restrictive relationship sequences.

With regard to distance between related ideas, I predicted that the distance between ideas related restrictively or coordinately would be relatively short in the American essays with practically no instances of extraneous material introduced between relationships. On the other hand, I predicted that Korean essays would likely have longer distances between restrictively and coordinately related ideas, that there would be more extraneous material between them, and that there would be a greater number of ambiguities (cases when no relationship between the ideas could be
found)—all of these factors contributing to the disconnected, rambling style that has been observed in Korean writing.

With regard to the other 16 types of relationships between ideas in essays examined in this study (in addition to restrictive and coordinate relationships already mentioned), we might expect that American essayists—if writing linearly—would exhibit a tendency to use consistently one sequence at a time for a given section of writing. Korean essays on the other hand might be expected to exhibit no such consistencies.

Before moving on to the method section, we should consider other variables that could conceivably affect writing style both within the same culture and across cultures. Steps should be taken to control these variables to get as pure a measure of cultural differences as possible. I was able to identify at least 14 such variables. These fourteen include the social determinants of speech or writing identified by Goffman (Newmark, 1974a & b, p. 38) as well as other variables suggested by my own study of intercultural communication (Norton, Tyler and Palmer, 1978). The first 12 variables are personal attributes of the essayist or are related to his background, while the last two are characteristics more related to the essay. The 14 variables are listed below:

(1) maturity  
(2) sex  
(3) social class  
(4) economic status  
(5) climate  
(6) occupation  
(7) level of education  
(8) political ideology  
(9) historical time period  
(10) personality  
(11) bilingualism (the essayist's familiarity with other languages)  
(12) region within the country  
(13) context in which the essay was written  
(14) topic of essay

Although it was expected that most of these variables would have no major effects on the results of this study, they were nonetheless considered as potentially confounding variables and provisions were made in the study whenever possible to eliminate, control, or measure their effects.

Method

Selection of subjects

The essayists and the essays analyzed were selected in a manner that enabled some control over the 14 potentially
confounding variables listed in the introduction. A pool of Korean essays were selected by native Koreans as being well written and typical of Korean expository essays. Then a search was made among the writings of noted American essayists for essays dealing with the same or similar topics so that subject matter content could be minimized as a potentially confounding variable. The potential confounding effects of the first nine variables listed in the introduction were eliminated or at least minimized by matching the essayists from each culture according to these variables. The exact procedures for matching on each variable are elaborated in my dissertation (Norton, 1978, pp. 16-19).

Three of the remaining five variables were controlled by virtue of the experimental design employed and the planned comparisons that were made: the topic of the essay, the personality of the essayist, and his bilingualism. It would have been simpler to use only Korean essayists who had no knowledge of English, but this was impossible due to other constraints of the study which are elaborated in my dissertation (Norton, 1978, p. 18). The topic of the essay was treated as an independent variable along with the culture of the essayist which was the main variable of interest. Any effect due to the personality of the essayist and his bilingualism could be inferred by comparing the patterns of the essayists within each culture with each other and by comparing the patterns of the bilingual Korean essayists with that of the nonbilingual Korean essayists.

The other two potentially confounding variables (the context in which each essay was written and the region within each country from which each essayist came) would tend to influence the personality of the essayist and could be explored further if the essayist's personality proved to be an important confounding factor.

The essays selected for the analysis are listed by topic, culture, title and essayist in Table 1. The Korean essayists marked by an asterisk (*) are those essayists who have had considerable training in English and may be considered to be bilingual.

Design

A 2 x 5 (2 cultures x 5 topics) factorial design was used to analyze the first two aspects of discourse mentioned in the introduction: (1) the types of relationships expressed in the essay and (2) the sequence in which these relationships are expressed. The first three topics are subtopics of the more general topic nature. The remaining two topics are the general topics philosophy and customs. A range in the similarity of topics was used to provide an indication of the relationship of divergence of subject-matter content to differences in writing styles.
Table 1
Essay Listing by Topic, Culture, Title and Essayist
with Bilingual Essayists Marked with an Asterisk

<table>
<thead>
<tr>
<th>Topic</th>
<th>Korean Essays</th>
<th>American Essays</th>
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<tbody>
<tr>
<td></td>
<td>Title</td>
<td>Essayist</td>
</tr>
<tr>
<td>NATURE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring</td>
<td>Spring</td>
<td>* Pi, Chun Deuk</td>
</tr>
<tr>
<td>Trees</td>
<td>Tree</td>
<td>* Lee, Yang Ha</td>
</tr>
<tr>
<td>Bees, Flowers</td>
<td>Rose of Sharon</td>
<td>* Lee, Yang Ha</td>
</tr>
<tr>
<td>PHILOSOPHY</td>
<td>The Philosophy</td>
<td>Kim, Jin Sup</td>
</tr>
<tr>
<td>of Living Man</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUSTOMS</td>
<td>On Top Knot</td>
<td>Yang, Joo Dong</td>
</tr>
</tbody>
</table>

Dependent Variables

The dependent variables consisted of the various measures for each of the three aspects of discourse analysis (relationship type, relationship sequence, and distance between the elements of the relationship). Each of the dependent variables for the first two aspects were analyzed according to the same basic design (mentioned in the preceding paragraph) which compares the relationship content and sequence of the essays in terms of the culture of the essayist and the topic of the essay.

The relationship-type aspect was broken down into the following 18 basic types of relationships which were found to exist between the various ideas expressed in the essays:

1. coordinate
2. restrictive (restrictive and elaborative)
3. contrastive
4. causal (conditional, purposive, reason stating)
5. temporal (chronological, simultaneous, reverse order)
6. locational (same and different)
7. manner
8. affective
9. solutional
10. intensificational
Examples of the first two types of relationships, which are the most important because they proved to be by far the most numerous, have already been provided in the paragraph by Mark Twain diagramed earlier. Examples of each of the other types of relationships are provided in my dissertation (Norton, 1978). The number of times each particular type of relationship and sequence occurred was tabulated for each essay, and the percentages of each per essay were calculated and served as the measure for each dependent variable. Percentages were used to facilitate comparisons among essays of unequal length.

From the above listing it is obvious that the relationships among the ideas in a paragraph or essay can be quite complex. In fact, the very same ideas may be related to each other in more than one way. Whenever such multiple relationships were detected, both were counted. These 18 basic relationships were arrived at by beginning a crude analysis of both American and Korean essays using the relationships suggested by both Pitkin and Halliday. Whenever a relationship was not classifiable it was compared with other unclassifiable relationships and a new category was created whenever possible. I found that virtually every idea in all of the essays analyzed was related to at least one other idea in the essay by at least one of the 18 relationship types. Occasionally, two or more different readings of the same section were possible. Whenever this occurred, only what appeared to be the most obvious interpretation was counted. However, such occurrences were considered to be ambiguities and a record of them was also kept and analyzed.

The relationship-sequence aspect consisted of the following eleven sequences, which were derived respectively from relationship types 2, 4, 5, 9, and 13 listed above:

1. general --> specific (G-->S)
2. specific --> general (S-->G)
3. cause --> effect (G-->E)
4. effect --> cause (E-->C)
5. chronological relationships
6. simultaneous relationships
7. reverse time order relationships
8. problem --> solution (P-->S)
9. solution --> problem (S-->P)
10. high ranked --> low ranked (H-->L)
11. low ranked --> high ranked (L-->H)
An example of the first sequence, which turned out to be the most prevalent in English, is provided by the Mark Twain paragraph mentioned earlier. An example of the second, which turned out to be the most prevalent in Korean, is provided in the passage by Lee Yang Ha in the discussion section of the present paper. Examples of the other sequences can be found in my dissertation (Norton, 1978). The percentage of usage for each sequence also served as the measure for the eleven dependent variables from this aspect.

For the third aspect of discourse, the distance between related ideas, no objective measuring technique was discovered. The distance between ideas related by the various relationship types, was analyzed rather subjectively on the basis of anecdotal insights that were observed when analyzing each of the essays. I tried to develop an objective technique, similar to the one developed by Halliday for measuring distance of cohesion, but was unable to come up with a consistently objective technique.

Procedure

Each of the essays was analyzed by me in the original language. Because of my inadequacies with respect to written Korean, I used at least two and usually three translations of each essay made by native Koreans to assist me in deciding on the best interpretation of each passage. Each translation consisted of two parts: (1) a word by word translation with the English written directly under each word of the original and (2) a free translation to capture in grammatical English the same meaning as the original. Whenever a disagreement could not be resolved by my own knowledge of Korean or by a dictionary, the Korean instructor at Brigham Young University was consulted for his interpretation.

Because of the length of time and technical skill required to analyze a single essay, it was not feasible to have two independent analyzers examine each essay. However, to get a measure of the reliability of the technique, one essay from each culture was independently analyzed by a native, upper-level graduate student at Brigham Young University trained in linguistics. Each of their analyses was compared with my analysis of the same essay to get a measure of interrater reliability. For the 312 relationships identified from The Bee by Mark Twain, there was an agreement of better than 90%, and for the 268 relationships identified from Tree by Lee, Yang Ha, there was an agreement of better than 80%.

Each of the essays was divided roughly into four equal sections (about 125 to 200 words in length) to provide at least four measures of each author so that an indication of his consistency could also be obtained.

For the purpose of this study an idea was defined as any predication that included an object or other modification of the verbal element, had an identifiable subject, and could thus stand alone. This means that any complete sentence, clause, and many
verbal phrases were counted, but simple adjectives, adverbs and prepositional phrases and their respective Korean equivalents were not. Thus in the sentence: The boy, tired of doing his homework, went to bed. The verbal phrase tired of doing his homework would have been counted twice, once for the entire phrase and once for the phrase doing his homework. Naturally, the core sentence (The boy went to bed.) would also have been counted.

Although the other discourse analysis techniques have considered only complete sentences as discourse units, I feel that the units must be smaller because some writers use long, strung-together sentences while others use short, choppy sentences to convey the same message. It was not uncommon to find 14 or 15 such predications in a single sentence in several of the essays studied. Compound subjects, objects and main verbs were also counted separately in the present analysis for the same reason. However, because of the preponderance of restrictive and coordinate relationships in essays from both cultures and because of the systematic interrelatedness of these two types of relationships, the restrictive relationship was counted only once for the coordinate sequence as a whole and not counted as a separate restrictive relationship for each coordinate idea that restricted the more general idea. In turn only coordinate ideas adjacent to each other were counted as coordinate.

Looking at the following diagram of the first sentence of Mark Twain's seventh paragraph from "The Bee" will clarify what this means:

1. During substantially the whole of her short life of five or six years, the queen lives in the Egyptian darkness and stately seclusion of the royal apartments, with none about her but plebian servants,

2. who give her empty lip-affection in place of the love which her heart hungers for;

2. who spy upon her in the interest of her waiting heirs
2. and report
2. and exaggerate her defects and deficiencies to them;
2. who fawn upon her
2. and flatter her to her face
2. and slander her behind her back;
2. who grovel before her in the day of her power
2. and forsake her in her age and weakness.

(The Bee, Mark Twain)
Notice the level 1 generality and the nine level 2 generalities under it. Each of the level 2 generalities restricts the meaning of the level 1 generality by providing a specific example of how even though the queen bee is surrounded by thousands of servants, she is always in seclusion because none of the plebian servants provide the companionship for which she hungers. Each of the nine level 2 generalities restricts the meaning of the level 1 generality, but rather than counting all nine, I only counted this as one restrictive relationship. Likewise, each level 2 generality is coordinately related to the other eight, but rather than counting 36 such relationships (the 1st to the 2nd, the 1st to the 3rd, the 1st to the 4th, etc.), I counted only the 8 adjacent relationships as coordinate (the 1st to the 2nd, the 2nd to the 3rd, the 3rd to the 4th, etc.). This simplified the analysis to some extent, but also minimized the number of restrictive and coordinate relationships found.

Results

The data from both the relationship-type analysis and from the relationship-sequence analysis were analyzed using a two-way univariate analysis of variance according to the balanced 2 x 5 factorial design described in the design section, using the model

\[ Y = A(I) + B(J) + AB(IJ) + E. \]

The following four planned orthogonal comparisons were also made on the topic main effect and on the interactions to shed some light on the effects of any of the potentially confounding variables controlled by the design: (1) the two essays on spring were compared with the two on trees, (2) the four essays above were compared with the two on bees/flowers, (3) these six essays on nature were in turn compared with the two on philosophy, and (4) the eight essays on philosophy and nature were in turn compared with the two on customs.

Relationship-type analysis

We are mostly interested in the main effect for culture (Korean versus American) because this will tell us if there are any particular types of relationships which one culture consistently uses more than the other. Table 2 displays the mean percentages of the various relationship types used by each culture. Only the F-ratios and probabilities of the statistically significant differences are included.

By far the most striking result of the relationship-type analysis is the overwhelming percentage of the total observed relationships that is accounted for by just two relationship types. Over 50% of the relationships identified for both cultures are either restrictive or coordinate relationships: 27.1% restrictive and 24.5% coordinate for the Korean essayists and 22.7% restrictive and 28.1% coordinate for the American essayists. This is especially significant when we take into consideration the fact that our conservative analysis technique tended to minimize the number of such relationships counted. None of the other 16
Table 2

Percentages of the Various Relationship Types as Used by Each Culture

<table>
<thead>
<tr>
<th>RELATIONSHIP</th>
<th>CULTURE</th>
<th></th>
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<th>F-Ratio</th>
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<td></td>
<td>American</td>
<td>Korean</td>
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<td></td>
</tr>
<tr>
<td>1. Coordinate</td>
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<td>27.1</td>
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<tr>
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<td>16.6</td>
<td>21.8</td>
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<tr>
<td>Elaborative</td>
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<td>5.4</td>
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<td>3. Contrastive</td>
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<td>7.4</td>
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<td></td>
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</tr>
<tr>
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<td>9.3</td>
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<td>0</td>
<td>9.17</td>
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<tr>
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<td>6.6</td>
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<tr>
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<td>.0053</td>
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</tr>
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<td>Same Loc.</td>
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<td>6.11</td>
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<tr>
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<td>.44</td>
<td>5.50</td>
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<td>2.4</td>
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<tr>
<td>9. Solutional</td>
<td>.32</td>
<td>1.7</td>
<td></td>
<td></td>
<td></td>
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<td>10. Intensificational</td>
<td>5.9</td>
<td>3.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Concessional</td>
<td>1.2</td>
<td>.17</td>
<td>6.54</td>
<td>.0158</td>
<td></td>
</tr>
<tr>
<td>12. Objectival</td>
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<td>1.1</td>
<td>24.62</td>
<td>&lt;.0001</td>
<td></td>
</tr>
<tr>
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<td>1.0</td>
<td>4.41</td>
<td>.0443</td>
<td></td>
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<td>14. Complemental subjectifying</td>
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<td>.77</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Simile</td>
<td>1.3</td>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Causal Denial</td>
<td>0</td>
<td>.14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Contradiction</td>
<td>.04</td>
<td>.21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Negational</td>
<td>6.6</td>
<td>8.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Ambiguous</td>
<td>8.6</td>
<td>7.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Indented relationships are subdivisions of the relationships they follow and their percentages sum to equal the category percentage above.
relationship types even come close to either of these two types. Furthermore, the percentage of both the restrictive and coordinate relationship types among both cultures is surprisingly similar. Notice also that the essayists from both cultures seem to use essentially the same percentages of most of the other types of relationships as well.

Although there are four relationships and three relationship subdivisions which do show statistically significant differences between Korean and American essayists, these differences don’t seem to be meaningfully significant because they account for such a small percentage of the total number of relationships. Furthermore, four of these (the locational relationship type, the same location subdivision, and the ranked and objectival types) also showed significant or nearly significant topic main effects as well. These results indicate that American essayists tend to use these relationship types more, but also that there is considerable variability in using them among the American essayists and even variability within the same essayist when he is writing about different topics.

Relationship-sequence analysis

The relationship sequence analysis provides the information most relevant to our major concern: the organizational pattern of written American thought versus that of written Korean. The mean percentages of the various relationship sequences used by each culture are recorded in Table 3, along with the F-ratios and probabilities of the statistically significant and nearly significant relationship-sequence differences.

Note especially that for the restrictive relationship type and subtype there is a highly significant interaction (p<.0001) between sequence and culture, with American essayists consistently using more G-->S sequences and Korean essayists consistently using more S-->G sequences. However, both the Korean and American essayists tended to use more of the G-->S sequence when using the elaborative subtype of the restrictive type of relationship—though the elaborative type of restriction was used relatively infrequently in both cultures. There was also a significant interaction among the various types of causal sequences, with Korean essayists consistently using more C-->E sequences than Americans and American essayists tending to use more E-->C sequences than Koreans—especially among the causal relationships expressing reason. However, American essayists seem to be equally comfortable using both causal sequences (C-->E and E-->C).

Only one of the sequences that was significant across the two cultures was also used in significantly different amounts for different topics. This was the ranked sequence L-->H (F = 3.29, p = .024) which has only marginal significance discriminating between cultures. This indicates that the sequences in which the various relationships are expressed are much more stable indicators of cultural differences in writing style than are the
Table 3

Percentages of the Various Relationship Sequences Used by Each Culture

<table>
<thead>
<tr>
<th>RELATIONSHIP</th>
<th>Sequence</th>
<th>CULTURE</th>
<th>American</th>
<th>Korean</th>
<th>F-Ratio</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Restrictive</td>
<td>G → S</td>
<td>18.7</td>
<td>5.1</td>
<td>103.84</td>
<td>&lt;.0001</td>
<td></td>
</tr>
<tr>
<td>*Restrictive</td>
<td>G → S</td>
<td>12.8</td>
<td>.45</td>
<td>171.27</td>
<td>&lt;.0001</td>
<td></td>
</tr>
<tr>
<td>Elaborative</td>
<td>G → S</td>
<td>5.9</td>
<td>4.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Restrictive</td>
<td>S → G</td>
<td>4.0</td>
<td>22.0</td>
<td>27.96</td>
<td>&lt;.0001</td>
<td></td>
</tr>
<tr>
<td>*Restrictive</td>
<td>S → G</td>
<td>3.8</td>
<td>21.3</td>
<td>&lt;.0001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elaborative</td>
<td>S → G</td>
<td>.22</td>
<td>.78</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Causal</td>
<td>C → E</td>
<td>4.0</td>
<td>7.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conditional</td>
<td>C → E</td>
<td>2.0</td>
<td>2.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reason</td>
<td>C → E</td>
<td>1.9</td>
<td>5.0</td>
<td>11.54</td>
<td>.0019</td>
<td></td>
</tr>
<tr>
<td>Purposive</td>
<td>C → E</td>
<td>.17</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Causal</td>
<td>E → C</td>
<td>5.0</td>
<td>1.4</td>
<td>(3.65) (.0658)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conditional</td>
<td>E → C</td>
<td>.70</td>
<td>0</td>
<td>6.47</td>
<td>.0163</td>
<td></td>
</tr>
<tr>
<td>Reason</td>
<td>E → C</td>
<td>3.4</td>
<td>1.4</td>
<td>7.03</td>
<td>.0127</td>
<td></td>
</tr>
<tr>
<td>Purposive</td>
<td>E → C</td>
<td>.87</td>
<td>0</td>
<td>12.46</td>
<td>.0014</td>
<td></td>
</tr>
<tr>
<td>5. Chronological</td>
<td></td>
<td>3.5</td>
<td>4.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Simultaneous</td>
<td></td>
<td>4.6</td>
<td>2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Reverse</td>
<td></td>
<td>1.1</td>
<td>.46</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Solutional</td>
<td>P → S</td>
<td>.32</td>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Solutional</td>
<td>S → P</td>
<td>0</td>
<td>.36</td>
<td>(3.72) (.0632)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Ranked</td>
<td>H → L</td>
<td>1.6</td>
<td>1.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Ranked</td>
<td>L → H</td>
<td>2.4</td>
<td>.94</td>
<td>(3.49) (.0714)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Indented relationships are subdivisions of the relationships they follow and their percentages sum to equal the category percentage above.
various types of relationships.

**Relationship-distance analysis**

When analyzing the Korean essays, I had the feeling that there was a greater amount of extraneous material between related ideas in the Korean essays than in the American ones. However, I now feel that this apparent difference can be explained more parsimoniously in terms of the results of the relationship sequence analysis. The reason for this will be elaborated in the discussion section.

It is true that there are several instances of gigantic leaps in train of thought in the Korean essays. However, there are such leaps in the American essays as well. For example, in Mark Twain’s *The Bee*, he begins the essay by relating that Maeterlinck introduced him to the bee, then in paragraph two he introduces the term bee scientist. He proceeds thereafter describing the bee for six paragraphs before jumping back to Maeterlinck, who we find out from the next paragraph is probably a bee scientist. He continues to talk about bee scientists for three more paragraphs and then jumps back to his train of thought on bees for a long concluding paragraph.

**Discussion**

We are now ready to look at what all this means regarding our original predictions that American essayists are linear, deductive writers, using mostly restrictive and coordinate relationships in a general to specific sequence, whereas Korean essayists are more likely to use a non-linear, non-deductive approach to writing, which involves primarily other types of relationships and different sequences. The results clearly give support to the prediction and the widely held notion that English is basically a deductively organized language, for in the American essays the proportion of restrictive and coordinate relationships predominated and the percentage of G-->S sequences (characteristic of deductive organization) was much higher than the corresponding percentage of S-->G sequences. Furthermore, the prediction that the Koreans are not deductive writers is equally well substantiated by the higher percentages of S-->G sequences found for them among the restrictive relationships.

However, what was not expected is the finding that the proportions of restrictive and coordinate relationships among both the Korean and American essayists were nearly equal—51.6% for the Korean essayists and 50.8% for the American essayists. The Koreans appeared to have a slight edge in the restrictive domain, while the Americans led in the domain of coordination—though the difference was not statistically significant. What was even more surprising is the fact that the proportions of most of the other relationships for the two cultures were also nearly equal. We had predicted that Koreans might use fundamentally different types of
relationships, but this finding suggests that the same fundamental relationships may be basic to communication in all cultures.

It is fairly obvious from the predominance of the $S \rightarrow G$ in the Korean essays analyzed that they must be basically inductively organized. Each of the Korean essays analyzed is most strongly characterized by the inductive ($S \rightarrow G$) sequence, while its counterpart among the American essays is contrastingly characterized by the $G \rightarrow S$ sequence—that is in every essay except *The Wild Apple* by Thoreau. The individual essayist percentages for the two restrictive sequences are presented in Table 4.

<table>
<thead>
<tr>
<th>Restrictive G--&gt;$S$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>American</td>
</tr>
<tr>
<td>Korean</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Restrictive S--&gt;$G$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>American</td>
</tr>
<tr>
<td>Korean</td>
</tr>
</tbody>
</table>

This means then, that the hypothesis about Korean being non-linear must also be incorrect, for an inductive sequence is every bit as linear as a deductive one, it merely moves in the opposite direction. Because these essays are allegedly typical of most other Korean essays, this inductive organizational pattern is likely to be characteristic of most Korean writing.

It seems unusual that such a dominant feature of the Korean organizational pattern has not been characterized earlier. However, when we consider the mind set that is established by the strong deductive pattern of English, it is easy to see how an
inductive pattern may be difficult to notice. When one has become accustomed to having virtually all coordinate and more specific ideas presented following a general topic sentence which prepares the mind to relate the ideas in a certain way, it is little wonder that such ideas, when presented without the topic sentence (relationship indicator), seem to be unrelated and disconnected. When we are used to finding the relationship indicator before the ideas which it relates, our minds are hopelessly lost when the relationship indicator doesn’t come until the end. Furthermore, by the time we finally get to the relationship indicator in an inductive pattern, we have already forgotten the ideas which it is supposed to relate.

It is probable that some of the other relationship differences uncovered by this study are likely to contribute to miscommunication problems between the two cultures as well. However, since the restrictive and coordinate relationships already discussed seem to make up such a large percentage of the total organization structure, it seems feasible that by altering only these relationship sequences, one can make considerable headway toward producing a legible translation of many Korean literary works. Pointing out these differences in organizational patterns could also be very helpful in teaching newly arriving foreign students how to express themselves more understandably in writing to native Americans. Such awareness should also help Americans trying to communicate with Koreans.

How useful such an approach could be, might best be illustrated by introducing a portion of one of the Korean essays analyzed in the study and systematically rearranging it from its inductive pattern to a more deductive one, compatible with American expectations. The following paragraph is quoted verbatim from one of the translations that I used to assist me in the analysis of the essay, *Rose of Sharon*, by Lee Yang Ha. Although most of the internal sentence structure has already been rearranged by the translator to be fairly understandable in English, the overriding inductive structure remains and makes it difficult for a native American to follow with a single reading.

The flowers are shy, indirect and modest. But they have not less self-confidence. The reason is that every blossom, one by one, is wilted and withered during the night after it has begun to blossom, but the routine to open new flowers still keeps on until August, September, and October. It blossoms continuously up to the time we feel white-cotton-trouser-and-jacket chilly in the morning and in the evening. If we count the blossoms to open and be withered during the period, how many thousands or how many ten thousands of blossoms there will be, I wonder? The period in which the flowers blossom most flourishingly is in the middle of August. At this time there are several hundreds of blossoms on the tree that is as high as I am. Our fathers, who had thought it the greatest happiness on
the earth to thrive brothers and sisters, the posterity to succeed sons and grandsons from a hundred generations to a thousand generations, might have loved the rose of Sharon for the first reason as above. On the other hand, as for the flowers, it would be evaluated as a virtue as much as they are prosperous like this, as long as they last like this. For this reason, our fathers also might have loved the rose of Sharon and loved its being modest and accessible.

(Rose of Sharon, Lee Yang Ha)

The main intent of the author in this section of the essay is to explain the two main reasons why the founding fathers of Korea loved the rose of Sharon enough to select it as the Korean national flower. Notice that the less important reason of the two main reasons—**that it blooms for such a long season**—is presented first. We are not told, however, until the last sentence that this is one reason why the founding fathers selected it as the national flower. The main reason—**because the rose of Sharon produces so many blossoms**—follows the lesser reason, and the statement that this is indeed the main reason, follows even later.

Notice how much easier the passage is to understand if the order is rearranged and other minor changes (involving mostly transitional devices) are introduced in order to render the train of thought in a more deductive pattern:

Our fathers, who had thought it the greatest happiness on earth to thrive brothers and sisters and have much posterity to succeed them as sons and grandsons from a hundred generations to a thousand generations, loved the rose of Sharon [enough to designate it as the Korean national flower] mainly because they are prosperous and they last a long time. If we count the blossoms to open and be withered during the period; how many thousands or how many tens of thousands of blossoms one tree will bear, I wonder. The period in which the flowers blossom most flourishingly is in the middle of August. At this time there are several hundreds of blossoms on a tree that is as tall as I am. Another reason why our fathers might have loved the rose of Sharon is because of its accessibility and its modesty in lasting as long as it does. It blossoms continuously up to the time we feel white-cotton-trouser-and-jacket chilly in the morning and in the evening. The flowers are shy, indirect and modest. But they have not less self-confidence. The reason is that [although] every blossom, one by one, is wilted and withered up during the night after it has begun to blossom, the routine to open new flowers still keeps on until August, September and October.

The same technique that I used to transform the original, seemingly rambling structure into the much more legible deductive
American pattern, could easily be used by translators of Korean writing to make their translations more understandable to an American audience—whenever understanding the content is considered to be of major importance. Likewise, Korean students coming to study in the United States could be directed by their English teachers to try first writing their compositions in Korean just as they have always done. Then, when translating them into English before turning them in, they should move from the end of their essay to the beginning. This should greatly help them to approximate more closely the pattern that has become accepted in the United States. Eventually, as the American pattern becomes more habitual, students can try to write their assignments directly in English.

In a similar manner, translators going from American or English writing into Korean could proceed in an analogous fashion from the end of the English version to the beginning to produce the inductive pattern more acceptable in Korea. The important thing to remember is to put the important ideas at the beginning for Americans and at the end for Koreans.

This is an oversimplification, since there are other types of relationships that are expressed in essays besides the restrictive and coordinate ones, and these other relationships also have their preferred sequences in the two different cultures. However, since the restrictive and coordinate relationships seem to be so pervasive in both cultures, much of the difficulty in communicating might be overcome by such a relatively simple strategy. Similar strategies could be developed for the other types of relationships as their directional sequences become identified more completely.

One of the most interesting insights gained from the study is that although the essayists came from two very different cultures, they still tended to use the same kinds of relationships to express their thoughts and amazingly they even used the same proportions of most of the different relationship types. It seems quite likely that the same fundamental relationships may be basic to communication in all cultures, with the restrictive and coordinate relationships being the most abundant. As in the Korean and English analysis, sequence—not type—of relationship may account for the major differences in modes of expression in different cultures.

Korean has many similarities with Chinese and Japanese—especially in the early written form of the language. All three languages originally used the same ideographic characters. This fact has undoubtedly had an important influence on the modes of expression of the people from these three broad cultures. All Korean scholarly works were written in Chinese characters until the overthrow of the monarchy by the Japanese around the turn of the century and today Chinese characters are still used extensively even in newspapers. I would, therefore, expect to
find many similarities in Korean, Chinese, and Japanese discourse patterns.

The following observation by Carolyn Matalene (1985) about the importance of memorization and attention to form in China applies equally well to Korea and is consistent with the inductive pattern which seems to be so pervasive in Korean expository essays:

To be indirect in both spoken and written discourse, to expect the audience to infer meanings rather than to have them spelled out is a defining characteristic of Chinese rhetoric and one that like the emphasis on memorization is consistent with the nature of the language. The Chinese written language is ideographic, pictorial, concrete; from the characters on the page the reader must synthesize, infer, and "create the text." (p. 801)

The nature of the written language clearly requires extraordinary feats of memorization as well as extraordinary attention to form—the expert calligrapher follows rules for making each stroke within each character. . . . Certainly the prescriptions of the written language ultimately affected social practices, and there emerged a cultural phenomenon which made memorization and formalism the defining attributes of intelligence: The Chinese examination system. (pp. 796-797)

Matalene goes on to elaborate how the Chinese Examination System has been used for thirteen centuries in China to select members for civil service, the most honorable and influential career that a scholar can pursue. Memorizing the classics and composing poems and essays according to the traditional forms became prerequisites for membership in the governing elite. Boys between the ages of eight and fifteen were required to learn by heart The Four Books and The Five Classics of the Confucian canon, which contain over four hundred thousand characters. Such a task at a rate of two hundred characters of text a day requires about six years of memorizing.

Memorization and attention to form are also very important in Korea. Certainly the inductive form of communicating requires a much greater capacity for remembering than does the deductive form, for one must remember all of the seemingly unconnected details until the generality that subsumes them is finally presented at the end of the paragraph or the end of the discourse. Koreans, Japanese and Chinese are experts in the art of memory and this likely explains the special joy they find in writing the way they do.

I feel it would be very productive to conduct similar studies
on other types of Korean writing to see if the inductive, linear pattern is as pervasive as the present study suggests. It would also be useful to carry out such studies on a number of diverse languages to see if further evidence is forthcoming for the psychic unity of mankind in terms of the types of relationships used to connect ideas. It would also be useful to see how many different sequences people in various parts of the world have found for systematically linking ideas so that they can communicate effectively with each other. I would be happy to collaborate with anyone working in other cultures who is interested in using this discourse analysis approach to try to identify the thinking or organizational patterns of other language systems.

References


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FOREIGN LANGUAGE TECHNOLOGY
IN THE 21ST CENTURY

Frank Otto, Brigham Young University

Introduction

You have probably already witnessed considerable interest expressed recently in designing and implementing a variety of exemplary programs to teach first, second, and foreign languages with the assistance of computers.

There is no doubt that CAI/IL can make significant contribution to teaching and learning more effectively by providing teachers, administrators, and students options that would not otherwise be available in their teaching/learning environment; indeed, the primary purpose of CAI/IL is to enrich and enhance that environment.

I shall focus my comments in an attempt to offer an up-to-date information source vis a vis the status of technology in language teaching, to provide direction to the practitioner and teacher trainer who are faced with the application of software and hardware in their daily instruction, and to suggest direction for further research and implementation to the profession at large.

Making the Best Use of CAI/IL

We must pay special attention to integrating CAI/IL programs in such a way that they are fully incorporation as integral features of the instruction program to be tailored to needs, interests, and learning styles of individual students. While the application of IL is certainly not a new goal among educators, interactive learning (IL) incorporates instructional specifications that are pedagogically sound while requiring active student participation at every level of language acquisition. Branching and learner options are increased by the use of new technologies.

Language Achievement Applying the Notional Functional Approach Exemplary in CAI/IL Programs is Characterized by:

- Students making more use of language provided them by expanding their learning options.

- Teachers going beyond the textbook to lead students to proficiency by offering a variety of learning options.

- Students being engaged in meaningful learning based on realistic topics, events and situations.

- Students being given opportunities to use language for real-world purposes, including language for special purposes and on-the-job training (OJT).

- Students being guided towards proficiency from the first day of the course in order to increase their proficiency as significantly as possible.

Much has been said and written about IL and the notional-functional approach. The following guidelines are useful when measuring the extent to which a CAI/IL program is pedagogically sound:
**Priming.** The purpose of priming is to give the student a chance to become comfortable and familiar with the sight, sound, and sense of new language before being required to produce it. Priming lays the affective and cognitive foundation upon which to build productive skills later.

**Prompting.** The purpose of prompting is to develop the student's ability to produce appropriate language when prompted.

**Performing.** The purpose of the performing stage is to provide sample opportunities for students to use language creatively to accomplish their own purposes in a way acceptable within the new target culture.

Students are expected to progress from priming to prompting to performing in order for a program to be truly interactive. The most important feature of model CAI/IL programs is the control that teachers and students have in the form of options provided by the special courseware.

**Guidelines of Effective CAI/IL Programs**

While there are many guidelines that may be listed for effective CAI/IL programs, the following are the most important:

**Perceived Purpose.** Learners learn best if they can see or develop for themselves a reason for learning the material being presented.

**Appropriate Practice.** "Appropriate Practice" means doing what the objective calls for. If our objective is that the learner will be able to obtain services in a restaurant (order food and pay for it), then the best possible way to achieve that objective is for the learner to practice in a role-playing situation through simulation.

**Graduated Sequence.** "Graduated Sequence" involves progressing from the easy to the difficult, from the familiar to the unfamiliar, from the simple to the complex, from the clearly stated to the implied. It is based on the assumption that success and increased confidence are very important factors in the learning process.

**Knowledge of Results.** While we learn by doing, we can learn to do things incorrectly by practicing them incorrectly. "Knowledge of Results" involves telling learners whether they are doing something correctly or incorrectly; and if they are doing it incorrectly, telling them as precisely and as timely as possible what they are doing wrong and how to correct it. This process allows students to avoid habituated errors.

**Individual Differentiation.** This principle is based on the assumption that not all learners are created equal. They have different entry skills, aptitudes and attitudes. Every effort should be made to permit each learner to proceed at a pace that challenges yet permits success. There need be no correlation attempted between the number of attempts made and the evaluation of student success. This approach allows the correlation between aptitude and achievement to be reduced to zero.

**Fail-safe Protected Learning Environment.** Students are not permitted to fail. The record-keeping function allows them to proceed as long as an acceptable level of mastery is maintained. (We use 80 percent in BYU CALI Research projects.) Remediation, review, and additional examples/explanations are provided when students fall below the agreed upon level of mastery in order to bring them back on track so that their learning experience will be successful.
General Rationale for the use of Exemplary CAI/IL Programs
In Teaching and Learning Languages

1. CAI programs should be used to individualize and personalize student interaction in a manner not possible in normal classroom settings:
   - Through student control of rate of presentation.
   - Through availability of help features.
   - Through individualized branching for remedial instruction.
   - Through program ability to adjust the level of difficulty according to the student's needs.
   - Through student ability to continue receiving instruction and practice until a level of mastery is attained.
   - Through immediate correction of errors so that mistakes will not become habituated.

2. CAI programs can provide for language-learning experiences not otherwise available by utilizing simulations involving role play.

3. CAI programs with a record-keeping function provide both the student and teacher with on-going evaluation that would be difficult in most conventional classroom settings.

Specific Examples of Applications of CAI to Various Skill Areas

Authentic: material should be used to promote communicative competence through teaching techniques and learning activities that enhance:

1. Vocabulary Learning
   - Games or word puzzles in which the teacher inputs the vocabulary and the program converts it into a game (i.e., Crossword Magic by Mindscape).

2. Grammar
   - Exercises in word order where the meaning of the resulting sentence is demonstrated by animated graphics (i.e., Make a Sentence - PLATO).

   - Programs that build the display interactively as certain grammatical concepts are explained, thus drawing the student's attention to the pertinent part of the display.

   - Exploratory CAI in which the student is free to ask questions of the computer and explore the target language and its structure (i.e., Grammarland by John Higgins).

3. Reading Comprehension
   - Programs which incorporate repetition or highlighting of relevant parts of a passage in response to missed comprehension questions.

   - Cloze exercises in which the teacher or student can control the number and placement of blanks.

   - Programs to increase reading speed by the use of various scrolling techniques.

4. Writing
   - Programs that take advantage of the computer's word processing capabilities, making it very easy for the student to edit.
- Programs with on-demand, built-in bilingual dictionaries.

- Programs with the ability to highlight a certain word or phrase and have a translation provided.

5. **Translation**
   - Programs with on-demand, built-in bilingual dictionaries.
   - Ability to highlight a certain word or phrase and have a translation provided.

6. **Auditory Discrimination** (Audio peripheral required such as Kay Elemetric’s *Visi-Pitch*)
   - Programs which display phonemes on the screen along with aural presentation of minimal pairs and include more practice in the student's problem areas.

7. **Listening Comprehension** (Audio peripheral required such as a non-computer or computer-controlled audio cassette player [Tandberg], videotape, videodisc, or interactive television [ITV])
   - Programs in which the student hears a passage in the foreign language, is asked comprehension questions, and is given immediate feedback and remediation.
   - Simulations of real-life situations in which the student is required to respond to directions, a request, etc., and is branched to a simulated result of that response (i.e., *Montevidisco* by Brigham Young University).
   - Listening comprehension activities coupled with video making it possible to practice understanding non-verbal communication.
   - Dictation activities where the feedback is detailed and immediate and the student can ask for clues to make corrections.

8. **Culture**
   - Culture capsules such as a program in which the student makes a choice of what to do in a certain situation and then receives an explanation of the probable consequences of that choice (i.e., *Correct Behavior the Mexican Way* by Langenscheidt).
   - Audio/Video simulations which take the student through real-life situations (i.e., *Klavier Im Haus* and *Montevidisco*).

9. **Additional Technologies**
   - Satellite Telecasts via PEACESAT (i.e., *TELEclass* by John Wellstein and John Southworth).
These levels of computer literacy and the extent to which teachers/administrators are involved indicate that workshops must be tailored to the needs of individuals grouped as illustrated above.
Ideally, our professional language organizations should cooperate with teacher education institutions and with hardware/software/courseware vendors to offer pre-service and in-service workshops involving the most feasible applications of CAI/IL programs to the teaching and learning of languages.

Figure 2
Comments to Accompany Figure 2

While most of the associations illustrated in Figure 2 are self-explanatory, there are some special observations and supporting comments that would be helpful.

1. Professional language organizations must interrelate with educational institutions and both should maintain an on-going dialogue with hardware/software/courseware vendors and publishers so that all three can communicate as meaningfully as possible with teachers and administrators involved with CAI/IL programs.

   CALICO (Computer Assisted Language Learning and Instruction COnsortium) with its Journal, Database, annual Summer Institute, CAB (CALICO Audio Bookshelf) tape and study series, Monograph Series, and other special programs and activities, is the only professional organization that exists with the sole purpose of assisting its members in applying technology specifically to the teaching, learning, and processing of first, second, and foreign languages. For those who want to become involved with CAI/IL by sharing information with others in this field, there is no better plan than to join CALICO and to encourage your institution to join as well.

2. Because the challenge to educational institutions is so immense in terms of becoming familiar with CAI/IL programs and CALI/CALL applications plus the need to become familiar with a rapidly expanding array of hardware/software/courseware possibilities, many educational institutions are forming consortia in order to meet their needs. It is hoped that these educational institutions--whether operating as members of consortia or individually--will fully utilize the programs available through CALICO and other professional language organizations who seek to assist those wishing to develop understanding and expertise with new technologies and their applications to the teaching and learning of languages.

3. It now becomes the responsibility of each educational institution to scrutinize applications of technology to the teaching and learning of languages, prioritize needs in relation to the capability of the educational institution to staff and conduct research in these area, and to offer top-quality teacher education courses that will enable graduates to meet with confidence the newly emerging needs of teachers and administrators.

4. Teachers/administrators must become involved as soon as possible and to a degree in keeping with the needs of their programs and students. It no longer makes sense for members of our profession to wait for any reason until new products are developed, new educational programs are in place, leadership is provided directly by their institutions or school districts, etc. The immediate need is for all of us to become involved in a way that is most meaningful to us personally. We must all find our place on the learning curve in order for this most important new form of instruction to grow and be successful in our educational program.
Stages of Progress in Instructional Programs Utilizing Computers and Interactivity

**CONVENTIONAL** | **TRANSITIONAL** | **HIGH-TECH**
---|---|---
past | present | future

Figure 3

Most of us understand what is meant by conventional teacher/text instructional programs since we have been working with pencil-paper approaches to the teaching and learning of foreign languages for some time. While we have added media in the form of opaque and overhead projections and supplementary taped materials, most of us consider these approaches to be conventional.

We are now firmly entrenched in what I choose to call the transitional phase; that is, we have sought to supplement the conventional teacher/text approach with applications of computers at a very limited level of interactivity. Unfortunately, most of our efforts in this phase have resulted in the use of CAI/IL to supplement existing text materials that we refer to as "basic instructional materials." While some programs are highly innovative and have succeeded in motivating both teachers and learners, the tendency is for us to consider CAI/IL approaches as peripheral to the central task at hand of dealing with "text" materials.

The high-tech phase opens new dimensions to us and promises to have an immense impact on the teaching and learning of foreign languages. Since the computer is rapidly establishing itself as a valid instructional medium, teachers and materials developers are faced with the question of how to integrate the computer into the traditional teacher/textbook classroom so that it enriches and enhances that environment by fully utilizing all capabilities of hardware/software/courseware. The following section discusses how we may go about achieving full integration and application of the high-tech phase.
Considerations in Implementing CAI/IL Programs

1 Teacher Education
   Materials and
   Workshops

2 Core
   Lesson
   Materials

3 Equipment
   Specifications

4 Plan
   of
   Operations

5 Space
   Utilization
   Patterns

6 Library/Learning
   Center Procedures

7 Program
   Evaluation

Figure 4
Comments to Accompany Figure 4

Considerations in implementing CAI/IL programs indicate that:

1. We must design teacher educational materials and workshops that will bring instructors up to speed so that a smooth transition is made between present courseware/procedures and those to be developed during the high-tech phase.

2. Transitional core lesson materials must be selected/developed in such a way that they may be repackaged in keeping with simulation formats to be made interactive for use during the high-tech phase.

3. Equipment specifications must be developed according to needs required to deliver instructional programs selected during the transition phase.

4. A plan of operations must be developed in order to provide a full Gestalt so that personnel can develop a part-whole relationship and smooth continuity from the transition phase to the high-tech phase.

5. A thorough study should be made of space utilization patterns so that equipment, courseware, and procedures are fully operational within the constraints of available space and facilities.

6. Library and learning centers must be developed so that proctors and monitors serve as effectively as possible in their roles as supervisors and facilitators.

7. Current programs must be evaluated in order to determine the extent to which they may be feasibly included as part of the high-tech phase, or adapted successfully to fit with modifications that will enhance the entire instructional program.

Important Questions to be Addressed by Professional Language Organizations/Educational Institutions Seeking to Provide Guidance to Members/Students Involved with CAI/IL

Our professional language organizations and educational institutions must take the leadership role in providing guidelines for both in-service and pre-service teacher education programs that will lead to acceptable answers for the following questions:

1. What roles should teachers and administrators play in the selection of CAI/IL courseware? In order for an exemplary CAI/IL curricula to be established, enabling and terminal teaching and learning objectives must be defined. Only teachers, administrators and instructional designers are in a position to state educational objectives in such a way that hardware and software specialists can design systems that are in keeping with the states goals of the program.

2. What roles should teachers and administrators play in the design, development, programming and evaluation of CAI/IL materials developed "in house"? Most observers who have had opportunities to work in the area of courseware development would agree that teachers and administrators are best involved as designers and developers of lesson materials. Very few teachers have had opportunities to become involved enough with programming to fully understand systems capabilities and options for innovative and sophisticated applications in the area of programming. While workshops/seminars are available for teachers who want to learn more about computers, these sessions seldom are designed to meet the specific needs of language teachers. Moreover, those who have participated as members of courseware development teams have observed that teachers must not be overtaxed by being expected to provide exemplary lesson design and lesson
development strategies in addition to having the responsibility for programming and evaluating courseware developed in house.

3. **Realistically, what should we expect CAI/IL courseware to enable us to do that we cannot do easily or would like help in accomplishing?** The needs in this area are most critical since they serve as the basis for determining exactly what tasks and assignments should be addressed in both pre-service and in-service teacher education programs. These needs will vary depending upon the level of proficiency and the extent to which CAI/IL is an integral component of the instructional program.

4. **What expectations should we assign to CAI/IL as the results of needs assessments and task analyses?** Without teacher and administrator input in completing needs assessment and task analyses, the CAI/IL program is doomed to failure through misuse or disuse. Of course, in addition to input mentioned in these areas, there must be complete support expressed for the new program by all teachers and administrators.

5. **How may we most effectively obtain the involvement of students in the revision and improvement of our CAI/IL programs?** Students are anxious to be of assistance as we go about revising and improving CAI/IL programs in which they are involved. Our experience has been that student involvement in the revision and improvement of courseware correlates most positively with increased student motivation regarding CAI/IL programs. We have also experienced an increase in student/teacher/administrator satisfaction when all participants are involved in suggesting revisions and improvements to their courseware.

**Challenge**

Whatever our future may be in CAI/IL, the extent to which we will be successful depends more on teacher and administrator participation than upon any other single variable. We hope that you will accept the challenge to become involved in a way that is meaningful to you.
Hebrew Influence on the Book of Mormon:  
Metaphoric Heart Expressions

M. Deloy Pack, Brigham Young University

Some time ago, when looking for Hebraisms in the Book of Mormon, I was impressed with the high frequency of metaphoric expressions using the word heart. After eliminating Old Testament quotations and intentional paraphrases or allusions, one finds that heart occurs in a metaphoric sense 424 times in 255,541 words or once every 603 words. Although heart metaphors do occur in English, this appears to be an unusually high frequency for normal English usage either in speech or in writing.

In the Old Testament, however, heart occurs in metaphoric usage also at a high frequency: 774 times in 565,595 words or 1 per 731 words. These occurrences in the Old Testament result from literal translations of Hebrew expressions using lev, levav, and libbah (all denoting "heart" in Hebrew). The high frequency of heart metaphors in the Old Testament can be explained on the basis of a literal translation into English of the Hebrew text, which frequently employs a metaphoric style.

Since the Book of Mormon is supposed to be a translation of a record written by a Hebrew-speaking people, one might also conclude that the high frequency of metaphoric heart expressions in it may be explained as the result of the influence of this Hebrew speech pattern on its translation. There are, however, other possible explanations for the high frequency of metaphoric heart expressions in the Book of Mormon, but when they are checked against controls, they seem inadequate. These explanations include:

1) Such expressions could have been common in the speech of Joseph Smith's environment, 19th century New England and vicinity.
2) Even though it may not have been common in daily speech, this mode of expression may have been common in religious sermons, discussions or writings in Joseph Smith's time.
3) It may have been a peculiarity of Joseph Smith's speech to use metaphoric heart expressions frequently.
4) Joseph Smith may have picked up this style from the sources he is said to have used in producing the Book of Mormon, such as Solomon Spaulding's Manuscript Found or Ethan Smith's View of the Hebrews.
5) Joseph Smith tried to use an elevated literary style in the Book of Mormon; and since literary styles tend to be more metaphoric, such heart expressions would be more common than in common speech.
6) Joseph Smith was trying to imitate Biblical style and consequently picked up this metaphoric usage, including the element of frequency.

Let us consider each of these possibilities.

Were metaphoric heart expressions used with such a high frequency in common speech by Joseph's contemporaries? Although we can not examine colloquial conversational speech patterns, we can check on the common writing styles of Joseph's contemporaries. Ethan Smith's View of the Hebrews was published in 1825. It deals with several of the same topics as the Book of Mormon. In fact, some have claimed that it served as the source of Joseph Smith's ideas on those topics. Be that as it may, with respect to heart metaphors, it has 18 occurrences in 90,720 words or 1 per 5,040, a rate 1/8 that of the Book of Mormon.

The nature of a work, as well as the content or subject matter under discussion will surely have an influence on the frequency of metaphors such as heart expressions. Ethan Smith's work, although it deals with several of the same topics as the Book of Mormon, is written as a scholarly treatment, which may explain the very low frequency of heart metaphors. One would expect religious sermons or writings, on the other hand, to contain a relatively larger number of metaphors.

As an example of sermons or lectures I have used the addresses by Alexander Campbell, a Christian minister who was a contemporary of Joseph Smith. The addresses selected were those which dealt with religious topics. The results are 33 occurrences in 68,640 words or 1 per 2,080, less than 1/3 as frequent as in the Book of Mormon, and even this figure is somewhat magnified since nearly 2/3 of the occurrences appeared in two appeals for contributions to the missionary fund (10 occurrences in only 4 pages). Apparently the high frequency of heart metaphors exhibited in the Book of Mormon is not typical of the speech pattern of religious discussions or sermons in Joseph Smith's day.
Was it, perhaps, simply a peculiarity of Joseph Smith's religious vocabulary to use heart expressions so frequently? An examination of the compilation of Joseph Smith's writings titled *Teachings of the Prophet Joseph Smith* gives a count of 109 instances in 136,500 words or 1 per 1,252 words. Even though these writings, which are generally religious, were produced after the writing of the Book of Mormon which could have had an influence on Joseph Smith's style, the frequency of heart expressions in them is less than half that in the Book of Mormon.

One's style of writing when trying to create a literary work will differ from that of conversations, sermons and lectures. Although one would not classify the Book of Mormon as a piece of literary writing, other than in a rather broad sense of the term, it is obvious that Joseph Smith attempted to use a more literary or elevated style in the Book of Mormon than in his discourses. The use of metaphors is a common device in elegant literary style. Nevertheless, heart metaphors do not occur in other literary works with such frequency as in the Old Testament and the Book of Mormon. For example, John Milton's *Paradise Lost*, shows a frequency of 26 heart metaphors in 80,774 words or 1 per 3,107.

We see from this author, who wrote shortly after the publication of the King James Version, that the frequency of heart metaphors in the King James Version is not representative of the language in England about 1611, but rather results from the underlying Hebrew text. (One may also note in this respect that the King James Version of the New Testament exhibits a frequency of only 1 per 1,102, about half that of the Old Testament).

Just as the frequency of heart metaphors in the King James Old Testament is not typical for English in 1611, when it was written, the frequent occurrence of heart metaphors in the Book of Mormon is not typical of the writing style in New England in the early 1800s. For example, Solomon Spaulding's *Manuscript Found*, which has been named as a forerunner to the Book of Mormon, yields a count of 25 occurrences in 39,240 words or 1 per 1,570, and this frequency would be even lower if it weren't for a Romeo-and-Juliet-type episode contained therein.

Finally, since it is obvious from the "thee's" "thou's" and other archaic expressions in the Book of Mormon that Joseph Smith was trying to imitate Biblical style in the Book of Mormon, could it be that he picked up this metaphoric pattern from the King James Version and applied it successfully, even with respect to frequency, in the Book of Mormon?

This would seem rather unlikely. In the first place, according to his mother, Joseph Smith, as a youth (i.e. before publication of the Book of Mormon), was not an avid reader of the Bible. Furthermore, what reading he may have done would have been mostly in the New Testament: the religious emphasis of his day was on the New Testament, not the Old. Similarly, the Biblical language he would have heard at local religious meetings would have been New Testament-type language. Consequently, it is not surprising that, when one detects Bible influence on the wording of passages in the Book of Mormon, it is generally from the New Testament that that influence comes, and, as noted above, heart metaphors are not unusually frequent in the New Testament.

There would seem, however, to be a precedent for someone's using a high frequency of heart metaphors in his writing due to the influence of the King James Bible. John Bunyan (1628-88) was an English preacher who wrote *The Pilgrim's Progress*, an allegorical treatise on the challenges which face a Christian who tries to live a Christian life. A count of heart metaphors in *The Pilgrim's Progress* gives 142 occurrences in 110,260 words or 1 per 776, not far from the Old Testament's 1 per 731.

How did he do it? First, he was an avid reader of the scriptures (in The King James Version) and consequently, he "was permeated with the English of the Bible." Second, he wrote on a religious theme. The entire treatise is about the conflicts a Christian meets in life. Third, he chose to make the entire story an allegory, intentionally using metaphoric language throughout. Note his comments in his apology for the allegoric nature of his book:

[some complain that metaphors] 'want solidness' . . .
'They drown the weak; metaphors make us blind'
Solidity, indeed, becomes the pen
Of him that writeth things divine to men;
But must I needs want solidness, because
By metaphors I speak? Were not God's laws,
His gospel laws, in olden times held forth
By types, shadows, and metaphors? . . .
The prophets used much by metaphors
To set forth truth; yea, who so considers
Christ, His apostles too, shall plainly see,
That truths to this day in such mantles be.

Am I afraid to say, that holy writ
Which for its style and phrase puts down all wit,
Is everywhere so full of all these things—

Dark figures, allegories? Yet there springs
From that same book that lustre, and those rays
Of light, that turn our darkest nights to days

And so all his characters are given metaphoric names, among whom are Mr. Faint-heart, Mr. Great-heart, Mr. No-heart and Mr. True-heart. One is not surprised to find that metaphoric heart expressions occur in this work far above the average for writers of the time.

Joseph Smith is a different case, however. Although he demonstrated in later years his knowledge of the Bible, and one can see the influence of its language on his writings, since, as a youth, he was not an avid reader of the Bible, one would not expect to see a lot of its influence on his language early in his career.

Furthermore, The Book of Mormon, although it has a religious tone throughout, is not presented as a religious allegory, but contains, in addition to sermons, a great deal of purported secular history of wars and politics which do not tend to call forth metaphoric expressions. It does not have overall an allegorical flavor; consequently, the high frequency of heart metaphors comes as a surprise. There can be no comparison, here, between The Book of Mormon and The Pilgrim's Progress.

Since the usage of heart metaphors is strongly dependent on context or the subject matter dealt with, it alone is not sufficient for drawing any conclusions. After all, the Book of Mormon is in essence a religiously oriented document, and one should expect it to have more metaphoric religious language than normal secular writing. The fact that it has a frequency above the norm even for religious treatments, however, is an indication that it would be worthwhile to pursue the subject further.

In addition to frequency one should consider the nature or types of heart metaphors employed, that is, what sort of activities or qualities are attributed to the heart. The English language is quite amenable to a wide variety of heart expressions, many of which would overlap with heart expressions in other languages of the world including Hebrew or other Semitic languages. Others, however, are more peculiarly English. The frequency of heart metaphors in John Bunyan's The Pilgrim's Progress would decrease somewhat if we were to eliminate such expressions are "dear heart," "poor heart" and "sweatheart" which are used when addressing someone. These are clearly English expressions not related to Hebrew or the Bible. Such blatantly English metaphors do not occur in the Book of Mormon. Its usage appears to be reasonably Semitic throughout.

We shall now turn to the usage of heart expressions in Hebrew. As can be noted in the Old Testament, the Hebrews attributed a wide variety of activities and qualities to the heart. Some of the connotations listed by Koehler and Gesenius include:

1) the middle or midst, 2) the inner man or soul, 3) mind, knowledge or understanding, 4) will, inclination, disposition, mood, 5) moral character, 6) the seat of emotions, courage and 7) the man himself (used figuratively in a reflexive sense). Some of these overlap with English usage, but some are more peculiarly Near Eastern. For example, whereas we consider the brain to be the center of thinking, in the Ancient Near East this function was attributed to the heart.

Let us look at some of those connotations applied to the heart which are unusual in English. With reference to heart meaning inner man or soul, one finds in the Old Testament expressions such as "grieved at his heart" (Gen 6:6) or "my heart and my flesh cried out" (Ps. 84:2). Corresponding expressions in the Book of Mormon include "his heart again began to sicken" (Alma 31:1), "many whose hearts had swollen in them" (Alma 24:24) and "my heart cries wo unto this people" (Moroni 9:15).

In Hebrew the functions of the mind such as thinking, having knowledge and understanding are referred to the heart. Some examples from the Old Testament are "I also have a heart" (Job 12:3) (translated, "I also have understanding" in the King James Version), "the imaginations of their heart" (Ps 73:7) "his heart thinks so" (Isaiah 10:7). Also included under this heading might be "to steal the heart" which in addition to meaning "to estrange the affections" may have the meaning "to outwit or deceive." Compare the Book of Mormon example in Alma 31:22, "their hearts were not stolen away to believe in things to come."

Further Book of Mormon expressions where heart replaces mind include: "imagine up in their hearts" (Hel. 16:22), "neither can the hearts of man conceive (3 Nephi 17:17), "the name be not blotted out of
your hearts" (Mosiah 5:12), "ye have not applied your hearts to understanding" (Mosiah 13:11), "thou had it in thy heart" (Alma 11:25), etc.

As in the case of the Old testament, The Book of Mormon applies to the heart many attributes and qualities in addition to those dealt with above. (Time limitations preclude my giving further examples along these lines). But is this usage of heart metaphors necessarily due to the influence of Hebrew? English, too, has its share of metaphoric heart expressions such as "heartless," "hard hearted," "big hearted," "have a heart," etc. Nevertheless, there is not a universal overlapping of expressions—some are characteristic for one language, some for the other. In the Book of Mormon the heart expressions are compatible with Semitic thought patterns throughout.

In summary then, the King James Version of the Old Testament contains a high frequency of heart metaphors, 1 per 731 words. This is due to the literal nature of the translation of the King James Version which reproduces the metaphoric speech patterns of the underlying Hebrew. The Book of Mormon also contains an unusually high frequency of heart metaphors, 1 per 603 words. This cannot be accounted for on the basis of common, religious, or literary speech patterns in Joseph Smith's environment. Furthermore, those heart metaphors employed, rather than being specifically English in nature, display a manner of expression which would be natural for one living in the Ancient Near East. Although one cannot refer back to the original language to look for the Hebrew source of these expressions as one can in the case of the Old Testament, the usage of heart expressions in the Book of Mormon, both with respect to their frequency and nature, could, in a similar way, be a reflection of a somewhat literal translation of an original document influenced by Hebrew terminology.

1 Joseph Smith Jr., The Book of Mormon (Palmyra: E. B. Grandin, 1830) published by Wilford C. Wood as Joseph Smith Begins His Work, vol. I (Deseret News Press, 1958 [1963]). See also George Reynolds, A Complete Concordance of the Book of Mormon (Salt Lake City: Deseret News Press, 1930 [1968]) sub voce "heart(s)". Counts of the occurrence of heart metaphors in this paper have been determined through the use of concordances and/or personally counting the entries on every page. Total word counts, however, are approximations based on counting the words on several pages and taking an average. The resulting figures should be accurate to within 10% which is sufficiently precise for the purposes of this paper.


3 Ethan Smith, View of the Hebrews (Poultney: Vt, 1825) photomechanical reprint; Solomon Spaulding, The "Manuscript Found." Manuscript Story (Salt Lake city: Deseret News Press, 1886, [verbatim copy of the unpublished manuscript]).

4 Alexander Campbell, Popular Lectures and Discourses (John Burns: St. Louis, 1861), pp. 142-162, 186-212, 403-452, 516-530, 531-550.


7 Young, Analytical Concordance, pp. 468-69.


9 See, for example, the list of Book of Mormon and Bible parallels in the authors M. A. Thesis, "Possible Lexical Hebraisms in the Book of Mormon (Words of Mormon - Moroni)" BYU, 1973, pp. 189-194.

11 from dust jacket of above cited edition.

12 Bunyan, p. 21-22.


14 Gesenius, pp. 170, 523 (3.a.), Koehler, p. 270 (7).

15 For further examples see Pack, "Hebraisms," pp. 65-74.
Professional Translators--
Vital to Success in International Business

Patricia L. Reed, Brigham Young University

INTRODUCTION

A Spanish business letter was translated into English as follows:

Madrid, 10 de Junio de 1985

The company of "Free Theatre of Madrid" (Compania de -Teatro Libre de Madrid), founded in 1970 an whose way has always benn centered on a task os spread of the spanish theatre with particular attention towards our contemporary authors, joins, on this occasion, the Workshop of Theatre of the Ministry of Education and Science (M.E.C.) in order to perform a tour thorough several cultural Institutions of the United States in which we hope you are interested.

For this occasion we have considered of interest the possibiliyu of present to you two stages: "YERMA" and "DEL LABERINTO AL TREINTA"....

...We just need from you a rapide answer, according the number of requests to which we shall be able to attend, is, logically, restricted.

Yours sincerely,

(Example of poor translation. Prof. McMaster, in-class lecture)

This letter was sent in an attempt to advertise a road tour a Spanish stage company was planning. However, the translation was done so poorly as to be completely unintellible. Luckily, the company sent a copy of the original along with the translation; otherwise, the company's purpose or message would have failed. One shudders to think of the damage a company's image suffers with this type of translation, obviously done by a non-professional.

Malcolm Forbes, quoting from the book, Commercial Translations: A Business-Like Approach to Obtaining Accurate Translations, writes that "'internationally traded goods represent 18% of the U.S. gross national product', but American (and foreign) businessmen are inexcusably negligent in handling their communications. When a misinterpreted word or phrase can mean millions of dollars, translations are often handled by secretaries with dictionaries or supply clerks who may remember how people talked in the old country but probably have no idea of law, finance, or global politics" (Forbes p.18). Despite the many misconceptions that exist concerning translation in international business, professional translators are needed as a vital link between the corporate message and its acceptance by the foreign audience.
DEFINITION

Peter Newmark defines translation as "a craft consisting in the attempt to replace a written message and/or statement in one language by the same message and/or statement in another language." (1982 p.7) Many people think that if you know a foreign language and you know English then it is a simple thing to sit down and translate. But translation does not consist of substituting one word in English for that same word in another language. Many times the two words do not carry the same connotation (mental image). Different languages have different ways of expressing the same idea. For example, in English we say, "He's running around like a chicken with its head cut off." However, in Spanish they say, "He's walking with [his] feet in the air." To English speakers this creates an absurd mental picture and yet this type of confusion is what occurs when you translate words instead of meaning.

REQUIREMENTS FOR GOOD TRANSLATION

According to Claudia Hardy, Head of the Department of Translation and Literature for Amway Corp., two essential requirements for quality translation are good writing skills and a sound understanding of the foreign culture.

A professional translator can aid tremendously in a company's foreign business dealings because he's been trained for that specific task. The trained translator has extended knowledge of the linguistics, culture, and grammar of both the source language and the target language. He also possesses good writing skills in the two languages. These skills enable him to transfer messages more easily from one language to another without the barrier of language structure.

Like any professional, becoming a translator takes time and effort in a planned program. At Brigham Young University the Spanish Translation program requires the following courses: Spanish grammar and advanced writing skills, Spanish linguistics, Hispanic American culture and literature, Iberian culture and literature, as well as two years of translation courses. These translation courses combine translation theory with practical training.

Another requirement for translation is a specific field of concentration, such as International Law or Travel and Tourism. Just as one person cannot be expected to know all things about all fields, neither can a translator know all subjects in two languages (the terminology used, etc.). A translator, then, is a specialist within his field of translation.

Ironically, these two requirements- good writing skills and a sound knowledge of the foreign culture - are probably least understood by American businessmen.

REASONS UNDERLYING POOR TRANSLATION

WORD-FOR-WORD TRANSLATION

The biggest and most common mistake made by businessmen is the assumption that translation is word-by-word conveyance (Michele Coilet, personal interview, 1986) instead of a transfer of message. The following excerpt from a travel brochure on Arequipa, Peru illustrates this idea:
"Coming from Puno by way which edge the Misty slops you can see Arequipa.

The emeralds of his large fields makes more result his white constructions. Arequipa was founded by Spain ers on August 15, 1540, by his beautiful Colonial monuments, the Saint Cataline convent which is a true town nailed on other and relic that arequipa people shows proud...

This 'translation' was done by substituting each word in Spanish for its corresponding word in English in the same order as it appeared in Spanish. Although it appears that the 'translator' might have been acquainted with the English language, it is obvious that he lacked considerable knowledge of English structure and grammar. The above example seems as if it could have been done by one of Forbe's "secretaries with dictionaries".

**INADEQUATE KNOWLEDGE OF THE TARGET LANGUAGE**

Arequipa shows that some vocabulary knowledge does not constitute fluency in a foreign language. Marian McMaster, Head of the Spanish Translation Program at Brigham Young University, asserts that Americans are very ignorant about foreign language acquisition. (personal interview, 1986) Part of this ignorance stems from the fact that Americans have had no real motivation to learn another language. Until recent years, learning a foreign language was not thought to be important since English dominated the business and political world. In Europe, however, just the opposite was true.

For Europeans, foreign language acquisition and use are a necessary part of daily life. Translation has been recognized as an important profession for many years and translation schools have existed since the 10th century A.D. With the dominance of the English language then, it was very advantageous for Europeans to learn English, but not vice versa.

Contrary to the European view of translation, Americans do not recognize the "knowledge, training, and talent for getting material correctly and effectively from one language to another". They often consider these skills as "accidental gifts", like beauty. (Rose 1981 p.160) Consequently, translation is not thought of as a profession. Many Americans believe that anyone with a little background in another language is qualified to work in that language.

**BILINGUALISM**

It is interesting to note that businesses are very meticulous in preparing their marketing campaigns, especially when the right slogan can mean a multi-million dollar profit. But when it comes to translating their campaign into a foreign language, many times they allow anyone who speaks the target language to translate. As McMaster points out (1986), one would never think of going to a doctor who had "read a couple of books" and had "sat in on a couple of classes" for medical advice. Yet, we do the same thing in translation by relying on someone with a little background in a language but no formal training to translate.
CHANGING ATTITUDES IN BUSINESS

In recent years, there has been a changing trend in American corporations in their attitudes toward translation. Foreign countries are now requiring that negotiations be done in their own language instead of in English. All negotiations and contracts currently underway for Euro Disneyland (Disneyland's newest park opening in 1991-92 in France) are done in French. Any letters or press releases received by Disneyland in California must be translated into English. (Nadine Felite 1986, personal interview)

Translation's value is increasing as awareness of the need for good translation grows. American businessmen have thought that they could use just anyone to translate. Now, they are beginning to realize that there is competition in the international marketplace. Other countries won't accept poor translations. Consequently, in order for them to attract business in another country, they need good translators who have a sound knowledge and understanding of the culture of the foreign country and who can translate the corporate message acceptably into the foreign language.

IN BUSINESS--COMMUNICATION IS THE KEY

For most companies engaged in foreign trade, translation is used on a daily basis and affects almost every division of the company at one time or another. Translation's role is most important in the marketing department. Here, the company wants to communicate a message in such a way that it will be received favorably by its audience. Their product will then sell. In order to do this on the foreign market, the corporation's message must be communicated to the mind set of its audience. In other words, they have to get their message into the foreign audience's culture. Therefore, in foreign business relations, an understanding of the culture involved is imperative for success in negotiations and thus, essential to translation.

THOUGHT PATTERNS

According to Lynn Tyler, culture reflects people. He writes: "Before you can truly understand other people, you must know how they think and feel and WHY!" (1979 p.7, adapted from David O. McKay) Each country has its own set of beliefs and social characteristics which make up its culture; these are the kinds of things that make them who they are and what they represent and are often reflected in their thought patterns.

Americans are straightforward in their thinking. They want to get straight to the point. Their lives are busy and they don't have time to waste.
The Chinese, on the other hand, never get to the point. Why get to the point? To them, it is offensive.

Spanish speakers don't get to the point right away. They like to 'shoot the breeze' before getting down to business. Then, when the point's been made, they like to 'shoot a little more breeze'.

COMMUNICATING IN THE CULTURE

When businesses translate their message into a foreign culture, they need to create these same patterns if they want their message to be received favorably and without offense. Halvor Clegg, Associate Professor of Spanish and Linguistics for Brigham Young University, accompanied a friend to Mexico on a business trip. The purpose of the trip was to get post-production contracts, as well as television commercial contracts, for Osmond Studios in Orem, Utah.

When they arrived in Mexico, Professor Clegg, who spoke fluent Spanish and was well-acquainted with their culture, told his friend to 'do things his way'. They made appointments with major advertising agencies in Mexico City who normally do their post-productions in Los Angeles. During the course of the meetings, they socialized for an hour or so. Then, in the last five minutes, they got down to business. They had dinner at other times and again, in the last five minutes, they suddenly got down to business.

The results? One company came to Utah and filmed an entire commercial at Osmond Studios. Two or three others did post-production work at the studio in Orem instead of in L.A. Why? Because they did it the Mexican way. (personal interview, 1986)

The more culturally focused a translation becomes, the better the communication. If we try to translate our thought patterns into another culture we run the risk of offending our foreign clients. For example, Americans like to repeat themselves to make sure their point is getting through. However, in Europe, to repeat yourself implies that your audience is stupid and would thus offend them.

REPERCUSSIONS

If American companies do not take translation seriously, they "may see their positions in the international marketplace erode and their overall financial status threatened". (Harris and Sonabend 1985, p.39) A poor translation can result in an unsophisticated image for the company as well as
a loss of sales. Pepsi Cola's slogan, "Come alive with the Pepsi generation" translated onto Taiwanese billboards as "Pepsi will bring your ancestors back from the dead". (Harris and Sonabend 1985, p.27) Not only did Pepsi's credibility suffer, their sales suffered as well. Rolls Royce failed in a campaign to promote their Silver Mist in Germany because the word mist looks like the word for 'manure' in German. (Ray Clifford 1986, lecture at Brigham Young University) The Wall Street Journal (May 10, 1979) ran an article which read: "The Malboro man. Jut-jawed and grizzled, he tirelessly rides the plain, or pauses contemplatively atop his steed to survey the terrain. It sells a lot of cigarettes. In the U.S., that is. In Hong Kong it bombed. It turned out that the Hong Kong Chinese, an increasingly affluent and a totally urban people, didn't see the charm of riding around in the hot sun all day." (Rose 1981, p.164)

Javier Escobar, owner of Escobar Translation Service, says that "the quality of communication can have many repercussions in business: the effectiveness of promotional copy prepared for foreign markets, the accuracy of contracts signed with foreign associates, the promptness and outcome of correspondence with foreign clients." (1984 p.134) These repercussions can even involve legal problems.

In contracts, one mis-translated word can mean a great deal. In one such case, a negative in French was translated by mistake into a positive, changing the whole meaning of the sentence. The lawyers for the corporation were hard-pressed to resolve the problem.

If the promotional copy for Rolls Royce's Silver Mist had been shown first to a German translator, they might have been forewarned of the problem with the word 'mist' in German. An expensive promotional campaign could have been saved and embarrassment to the company image avoided.

DAILY USES

Today, in an increasingly technically advanced society, business dealings may involve several different countries at once. For instance, a French electronics firm may assemble Japanese and Taiwanese components into finished products in Mexico. These products are then sold on the American market. The contracts made between these several countries will have to be translated. Also, the instructions for assembly will need to be translated from the Asian languages into Spanish for the workers in Mexico. (Harris and Sonabend 1985, p.36) The need for translation is growing as such multi-national business activities become more and more common.

Many American businesses such as the Amway Corporation and Disneyland use translation on a daily basis. Amway is involved in business in ten countries, translating into ten languages. Translation into the various languages is used for catalogs, promotional brochures, training material, weekly and monthly publication of magazines, cassettes, slides, videos, and more. Disneyland uses translators for their brochures, videoscripts and press releases.
SOLUTIONS FOR BETTER TRANSLATION

It can take years to repair the damage done to a company's credibility abroad after one poor translation. When money lost through these translations can reach millions of dollars, one can only ask why many American corporations continue to produce poor translations. Although the trend has begun to change, American businessmen are still ignorant to the valuable tasks a professional translator can perform for them, as well as the skill and knowledge required to do the job well. Like any professional, translators have studied and trained for this task and businesses should seek them out for help in foreign correspondence as they would seek out a professional for advice in any of their departments.

The optimum solution for any company engaged in international business would be to have their own team of translators, as does the Amway Corporation. Amway has 12 in-house translators and is a member of the American Translators Association (ATA). When the company wishes to introduce a product they first hold a platform campaign committee meeting. Here, they meet with the translators and talk about the names of the product and its effect in the foreign culture, etc. If in-house translators are not feasible at this time, there are many translation agencies across the nation. Euramerica is one such agency.

Euramerica is a subsidiary of Ogylvy, a world-wide advertising agency. They are the language translators for Ogylvy and use a combination of in-house and steady, free-lance translators. If the subject of a translation is, say, medicine, then it is done by someone with a background in the biological sciences. The translation is then corrected by a physician before a final check at Euramerica. This process ensures a most accurate translation.

CONCLUSION

The professional translator plays a significant role in international business by facilitating the communication process. He bridges the gaps between the two cultures to insure a proper transfer of message. With his knowledge and training in the structure of the foreign language, he is more able to avoid the pitfalls of improper vocabulary, thus preserving the image of the corporation abroad.

The effects of translation are felt in almost every division of a company, especially in marketing and public relations because here, you're dealing in communication. However, "Translation is a two-edged sword--it can do as much harm as good." (Escobar 1984, p.134) If done word-for-word out of the dictionary, by someone with no formal training in translation, or worse, by someone with a 'little' experience in a foreign language, then the translation can have the opposite effect than was first intended. Since the goal of any international business is to market their product successfully, and therefore increase their sales, professional translators are needed, for they represent the key to that success.
REFERENCES

Before he dictated the 1838 version contained in the *Pearl of Great Price*, Joseph Smith had already dictated or written two formal accounts of the first vision, and had recited the story informally many times. A careful rhetorical analysis shows that, while reflecting many of the same sentiments as earlier versions, the style of this account supports Joseph's claim to truth and shows, in its style, the effects of maturity, rationality, and balance.

*Joseph Smith-History* 1:1-20 can be divided structurally according to a conventional introduction setting out motivation, purpose, and genealogy of the author (1-4), an account of the religious turmoil among the various churches (5-6), Joseph's personal turmoil (7-10), Joseph's personal answer (11-13), a reply to Joseph, as a prophet, addressing the more universal issue of "which church was right" (14-20 beginning), and finally, returning full circle, the "epilogue" (-20 to end of verse) set once again in the context of his family and their religious tradition.

Such a structure, roughly chiastic, sets out in very clear terms the central unity of Joseph's search for knowledge and the search of all men for the true church. The 1832 account, on the other hand, mainly emphasizes Joseph's personal search for redemption—an aspect minimized to the extent of non-existence in the canonized version. He writes:

"At about the age of twelve years my mind became seriously imprest with regard to the all important concerns for the wellfare of my immortal Soul which led me to Searching the Scriptures believing as I was taught, that they contained the word of God ... I felt to mourn for my own Sins and for the Sins of the world ... ."

Later, when he is actually visited by the Lord, the important message recorded in both the 1835 and as I shall quote, in the 1832 version is as follows:

"I Saw the Lord and he Spake unto me Saying Joseph my Son thy Sins are forgiven thee. go thy way walk in my Statutes and keep my commandments behold I am the Lord of glory I was crucifyed for the world that all those who believe on my name may have Eternal life ..."). (Backman pp.156-7).

Why the difference? Simply because in 1838, he wrote a *history*, a history of the Church motivated by a desire to answer aspersions against the Church. In the repetition of the first two verses this is rhetorically clear. The word "Church" is emphasized through epanalepsis five times while, joined with the phrase "as they have transpired," the second and third repetitions form the center of antimetabole: "... and put all inquirers after truth in possession of the facts *as they have transpired*, in relation both to myself and the Church ... in relation to this Church, in truth and righteousness, *as they have transpired* (JSH 1:1-2). If the structure of language reflects, or indeed shapes the meaning of discourse, then stylistically these verses add evidence to the claim that Joseph is concerned with himself only to the extent that his history relates to that of the Church. He is not putting himself forward in any way. But methodical, and curiously matter-of-fact, he describes the events, "so far as <he has> such facts in <his> possession" (vs.1).

Because he is addressing an attack made by enemies of the church the tone of the first verse differs somewhat from the rest of the introduction. This is reflected particularly in the CONDEMning repetition of plosives and dentals in the phrase "evil-disposed and designing persons". This combines with the militant repetition of "t", "ch" and hard velars heard in "progress of the Church of Jesus
Christ of Latter-day Saints" and reports designed to "militate against its 
character as a church and its progress in the world."

The first verse is also characterized by a clausal hyperbaton which Joseph
Smith often employs. Numerous dependent clauses precede the main clause of the 
sentence. In addition, these dependent clauses are interspersed with 
parenthetical comments and prepositional phrases. Pleonastic pairs such as "evil-
disposed and designing", "rise and progress", "truth and righteousness", and 
parison as in "its character as a Church and its progress in the world," "to 
disabuse the public mind and put all inquirers after truth in possession of the 
facts", "both to myself and the Church", and finally, " various events ... as 
they have transpired, or as they at present exist" These devices would, on a 
superficial level, seem to presage vain and empty "rhetoric" in its worst sense.
Concerning the hyperbaton it is useful to note at once that though the clauses are 
consistently "out of order" grammatically, they often follow the same kind of 
semantic or chronological order as is found in direct speech. Verses one and two 
illustrate semantic ordering, carefully laying out of a motivation for writing 
this history.

Owing to the many reports which have been put in circulation by evil-
disposed and designing persons in relation to the rise and progress of the Church 
of Jesus Christ of Latter-day Saints, All of which have been designed by the 
authors thereof to militate against its character as a Church and its progress in 
the world--I have been induced to write this history, to disabuse the public mind 
and put all inquirers after truth in possession of the facts . . ." (vs.1)

This style of course, has the merit of being able to capture and maintain 
interest, as the reader is held in suspension until he hears the main clause. 
Chronological order is illustrated in the next two verses, which begin with the 
main clause, appending the rest of the descriptions to that:

I was born
in the year of our Lord one thousand eight hundred and five, 
on the twenty-third day of December 
in the town of Sharon, Windsor county, State of Vermont . . . (vs.3)

The painstakingly factual tone underlies the methodical honesty of the 
narrative. This extensive use of subordination, the pleonastic pairs, and the 
parison have the effect not of periphrasis but of balance and reason. The style 
allows us, indeed compels us, to believe that Joseph Smith is indeed setting forth 
the facts "in truth and righteousness."

Further unity is added to these verses by the use of several passage binding 
repetitions such as "relation", "progress", "history", "truth", "facts" "eighth", 
and a particularly interesting example of antimetabole between verses three and 
four in the repetition of "father"/ "family"/ "family"/ "father" which binds the 
two verses and at the same time shows the father encompassing the family and 
emphasizes his patriarchal nature, repeating his title and putting him at the head 
of the list of family members.

As we move from the introduction to the main body of the passage the tone 
changes, and with it the length of sentences. Now the sentences are short, 
episodic, with independent clauses following one another in more rapid succession. 
The phrases are still straightforward syntactically, the unoffensive pleonasm in 
"stir and division" still seeks for a better term, balance, or loose parison such 
as "some crying, "Lo, here!" and others, "Lo, there!"" and anaphora in the 
repetition of "Some were contending for the Methodist faith, some for the 
Presbyterian, and some for the Baptist" still gives the impression of precision. 
However the rhythm is faster and the emotional involvement has increased. The 
quickened pace is also reflected in the movement from predominantly perfect tense 
verbs to imperfect (as far as that can be determined in English from the sense of
continuous or habitual action implied by the rest of the sentences.)

We can see the beginnings of a curbed irony in this verse as the repetition of "s" and "c" (i.e. " unusual, excitement, subject, commenced, sects, country, district, seemed...") culminates in the litotic "created no small stir and division ...." (vs.5).

The next verse continues the immediacy of verse five in its verb tense but it reverts to the previous hyperbaton which is the most important factor here in producing a circumlocution that increases irony and suspension. Suspension heightens the sense of ironical ambiguity in what is being said. What is meant? When the answer comes however, it comes clearly—with slight humor perhaps but not satire:

For, notwithstanding the great love which the converts to these different faiths expressed at the time of their conversion, and the great zeal manifested by the respective clergy who were active in getting up and promoting this extraordinary scene of religious feeling, in order to have everybody converted, as they were pleased to call it, let them join what sect they pleased; yet when the converts began to file off, some to one party and some to another

it was seen that the seemingly good feelings of both the priests and the converts were more pretended than real ...(vs.6).

Other factors which increase the irony are the mocking and almost immediate repetition of "great" comparing the "great love" of the converts and the "great zeal" of the priests. This is further modified by the careful choice of ambiguous words such as "expressed", "manifested", "pleased (to call it)", and "seemingly".

The repetition of "feeling" in this verse modulates from "a scene of religious feeling" to "seemingly good feelings" to "bad feelings" and finally to a very apparently bad "good feelings" when he writes, "so that all their good feelings, if indeed they ever had any, were entirely lost in a strife of words and a contest about opinions." What is stated ironically is thus repeated in straightforward terms.

The third important repetition is the epanadiplosis of "priest contending against priest, and convert against convert". The contention is made more clear by the harsh repetition of velar, "p" and "t" sounds (confusion ... priest contending against priest, and convert against convert).

This last example also emphasizes the careful nature of balance and antithesis already noted in Joseph Smith's writing. Priests and converts have parallel actions expressed in loose parison, their feelings, antithetically expressed, "were more pretended than real".

In addition, the irony in this verse is heightened by the only move in the passage from a normal and straightforward lexical register. For example, the word "extraordinary" is, in 1838, a neologism. It modifies "scene" which is still very closely tied to its theatrical connotations. The least histrionic definition given in the 1855 Webster is "the whole series of actions and events connected and exhibited ... any remarkable exhibition." The self-consciousness of the sects and the priests' awareness of acting for an audience is thus still very evident in this definition.

Another word which should give us pause is "party". Webster, with careful didacticism defines this as (quote) "a number of persons united in opinion or design, in opposition to others in the community. It differs from faction, in
design, in opposition to others in the community. It differs from faction, in implying a less dishonorable association or more justifiable designs." (unquote)
The didactic nature of this definition might imply that the usage is confused, and that we would not be wrong in interpreting Joseph's use of the word "party" here as a euphemism for "faction". This interpretation is strengthened by the presence of other aggressive words such as "strife", "contention", and "contest."

In the earlier Wentworth letter of ----, Joseph, speaking of the same contradictions between the churches also uses a change from normal lexical register as a factor of irony. Inserting the slightly pretentious Latin phrase he says, "if I went to one society they referred me to one plan, and another to another; each one pointing to his own particular creed as the sumnum bonum of perfection ... ."(Backman p.168 emphasis mine).

The tone, however, of our 1838 version is carefully checked and the irony, although sharp, does not become satire with good reason--satire is exclusive and the gospel is not. The points made in irony, are always, as shown above, repeated in an unmistakable and direct way. The Lord's answer to the problem of which church to join is finally made especially clear in (vs.19) in a manner that is not at all ironic, but that makes his answer accessible to all. Even the devices used are moderate and the previously ironic repetition of such words as "great" becomes neutralized to the point that Joseph can use it in verse 16 saying, "at this moment of great alarm" without evoking any particular connotations, and indeed, as we shall discuss later, in a surprisingly bland manner.

Verse seven marks an immediate change in tone as Joseph Smith describes his own situation in a very straightforward manner. We move from the indirect irony of v.6 to the detached recounting of facts. In contrast to the one long sentence and the feeling of suspension in verse six, verses seven through ten consist almost entirely of short alternations between dependent and independent clauses continuing the rhythm of Joseph's style on a smaller scale as the general turmoil becomes more specific--centering on the prophet himself.

The antimetabole of great excitement/my mind/ my mind/ great excitement binds the first half of this section (vs.8). While the adjective "great", repeated on the next line makes clear the distinction between Joseph and the converts and priests of the various sects ironically depicted above, and at the same time modifies the connotations of what is a very common descriptive word.

The distinction is made more clear by the moderation in Joseph's actions. Rather than "great zeal" and an "extraordinary scene of religious feeling" Joseph describes his experience rationally. He "attended their several meetings as often as occasion would permit." This reserve is reiterated in such phrases as "In process of time," "somewhat partial," and "some desire."

Perhaps the most interesting and interlocking repetition begins with "strife of words and a contest about opinions" (vs.6) continues in "confusion and strife among the different denominations" (vs.8) and is 'summed up' by "war of words and tumult of opinions" in verse 10 which then refers back to verse nine "cry and tumult were so great and incessant." This repetition not only emphasizes an important theme, binding the turmoil of the churches to Joseph's personal dilemma, but the convoluted repetition and word reference also graphically illustrates the very turbulence of the situation.

Balance and pleonastic pairs continue to typify Joseph's writing as we see in the phrases "my mind was called up to serious reflection/ and great uneasiness", and "it was impossible for a person young as I was/ and so unacquainted with men and things", and also the pairs "deep and often poignant", and "confusion and strife". The anaphora of the antithetical and indirect questions "who was right and who was wrong" presages the direct interrogation of verse ten.
Antithesis is especially well used in verse nine where the description of Presbyterians, on the one hand and Baptists and Methodists, on the other elaborates a smaller antithesis found between these two of reason versus sophistry and their corollaries proof versus persuasion. "The Presbyterians were most decided against the Baptists and Methodists, and used all the powers of both reason and sophistry to prove their errors or, at least, to make the people think they were in error. On the other hand, the Baptists and Methodists in their turn were equally zealous in endeavoring to establish their own tenets and disprove all others."

The tight construction underlines the forcible and binding nature of the existing confusion. Rhetorically, this is effectively broken by the series of questions in verse ten. These questions begin contrasting the particular with the universal, the correct with the incorrect in antithetical form: "Who of all these parties are right; or, are they all wrong together?" But then the structure breaks into slightly emotionally heightened epistrophe "If any one of them be right, which is it, and how shall I know it?" as the questions continue a logical and thorough progression of thought.

The repetition of the "w" and "wh" in "war of words", "What", "Who", "wrong", "which", "know it" adds to the compelling nature of this series, while the use of a present tense verb in the direct questions heightens again the emotional accessibility of the verse.

The opening lines of verse ten recall briefly the tone of verses five and six, with the exaggerated irony of "extreme difficulties", and as the word "parties" is repeated--this time with the clearly derogatory term "religionists" meaning a bigot of any religious persuasion. (read v.10) In this use Joseph entirely casts off the religionists, and "clears the stage" for a new rhetorical focus.

The tone changes again and Joseph quotes James 1:5 drawing us into the context of his immediate situation as he recounts his experience. Amazingly, there is no attempt to overdramatize the situation or to influence the emotional response of the reader. The previous use of vivid imperfect and present tense verbs is now replaced by a more cool perfect tense. This is almost a dispassionate account of his experience, but paradoxically, a calm and sure emotion in the reader is heightened. This intensification is achieved largely through sentence structure. While the poetic alternation of short and long clauses of thought, and repetition of "again", "wisdom", "did", and "know" moves the reader, suspension through alternation of dependent and independent clauses is used here on a small scale to give the effect of distancing the reader from a powerful emotion:

"I reflected on it again and again,
knowing that if any person needed wisdom from God, I did.
for how to act
and unless I could get more I did not know.
widom than I then had,

The modulation of "o" throughout this passage and the condensed repetition of similar sounds in the previous passage "Never did any passage of scripture come with more power to the heart of man than this did at this time to mine. It seemed to enter with great force into every feeling of my heart" produces a poetic intensification of sound.

Heightened language is also evident in the moving subjunctive of "could get" and "would know" which, while escaping from the coolness of the perfect tense, also illustrate Joseph's deep humility. The verse is framed by the repetition of the phrase "passage of scripture," on the one hand the passage which entered every feeling of his heart, and on the other the scripture incomprehensible to
religionists engaged in a war of words and tumult of opinion.

The hesitation of this boy is emphasized again in verses thirteen and fourteen. The moderation is also still evident in opening phrase "at length". The 1832 account makes this duration of time more clear. Joseph had been wondering and studying the scriptures for at least three years before he decided to "ask God". The parallel phrase repetition illustrates how unassuming Joseph was. He says "At length I came to the conclusion that I must either remain in darkness and confusion, or else I must do as James directs, that is, ask of God. I at length came to the determination to "ask of God," concluding ..." This would imply that after coming to his initial decision, Joseph hesitated again--he seriously considered the alternative of remaining in darkness and confusion.

Then he continues: concluding that if he gave wisdom to them that lacked wisdom, and would give liberally, and not upbraid, I might venture" (vs.13). The careful antithetical argument he works out in the remainder of the verse, the feeling of suspension, and the final subjunctive of "might venture" testify eloquently to his modesty and humility.

How different this is from Orson Pratt's brash and assuming account of the same experience:

From this promise he learned, that it was the privilege of all men to ask God for wisdom, with the sure and certain expectation of receiving liberally; without being upbraided for so doing. This was cheering information to him; tidings that gave him great joy. It was like a light shining forth in a dark place, to guide him to the path in which he should walk. He now saw that if he inquired of God, there was not only a possibility, but a probability; yea, more, a certainty, that he should obtain a knowledge, which of all the doctrines, was the doctrine of Christ (Backman p.171).

"Not only a possibility, but a probability, yea, more, a certainty!" Yet Joseph Smith was still uncertain for he repeats his "determination" again in verse fourteen and fifteen, while he repeats his effort to "make the attempt" three times in verse fourteen alone, ending the verse in an admission that he "had never as yet made the attempt to pray vocally."--no meaningless pleonasm.

Verses fifteen and sixteen fall into a three part repetition of key words and ideas. Joseph calls upon God, he is seized by some power, he seems doomed to destruction. Verse sixteen shows him again calling upon God, still under the power of "this enemy which had seized upon me", and finally again "ready to sink into despair and abandon myself to destruction." The parallels in verse sixteen expand the outline of the previous verse. and again are combined with the use of dependent clauses in a periodic sentence to increase tension. The alternation in verse fifteen, of dependent and independent clauses, is frequent but in the next verse we are almost completely suspended grammatically in this way, and also by the semantic break where the author writes, "at this very moment" and then digresses until we are again called back by the repetition "just at this moment" and the summation "I saw a pillar of light exactly over my head...

That this suspense isn't designed to be some kind of frantic appeal is again evident in the use of perfect verbs and moderate phrases like "it seemed to me","for a time" "as if I were doomed". Even in the mention of "great alarm", the adjective is so commonly used the intensity is watered down. If suspense is employed, and it is, we are meant to hang on to the description of the incident Joseph has written, not to participate in it.

The repetition in verse sixteen of "d" in "destruction" "deliver", "despair", "abandon", and "destruction" is recalled in verse seventeen, "I found myself delivered from the enemy which held me bound." This ties the appearance of God and his Son to the prayer phonetically, and lexically their appearance answers
the young boy’s questions. The word chain of "light", "brightness", "sun", "light", "brightness", "glory", and "light" again unifies the three verses (16-18) and overwhelmingly dispels the "thick darkness". In much the same way, the polyptoton of "spake", "said", and "speak" loosens Joseph's tongue.

In verse eighteen, Joseph twice asks, in parallel structure, a) which of all the sects was right? b) which to join a) which of all the sects was right? b) "which I should join". At the center of this parallel, as it reads in the text, the question is addressed to the Personages standing in the light. Their answer picks up the "all" used three times by Joseph in a modified way (which of all?) and makes it a harsh absolute--"none... for they were all wrong.) The all is again repeated three times.

As Joseph quotes the Personage here he does so almost completely in independent, short clauses. This brevity, combined with the absolute nature of his answer, is an essential part of the forcefulness of this verse. Asyndeton accentuates the power and the repetition of "that", "that", and the personal pronoun "they", "their", "they", "they" preceding rational judgments laid out in antithesis, culminates the final scorn and condemnation of these religionists:

... all their creeds were an abomination in his sight; that those professors were all corrupt; that "they draw near to me with their lips, but their hearts are far from me, they teach for doctrines the commandments of men, having a form of godliness, but they deny the power thereof"(vs.19)

In verse 20 this warning is repeated for emphasis. After the vision ends, the style reflects an incredible movement from intense to more common prose. The alternation of dependent/independent clauses returns to normal and the repetition of words ceases almost entirely. Joseph goes home and in answer to his mother's query he replies "Never mind, all is well-I am well enough off." You can imagine the humorous grin as he continues in an incredible understatement--momentarily reducing the entire immensity of his vision to a family joke, he replies "I have learned for myself that Presbyterianism is not true."

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The Logic of Meaning

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Logic has two major applications to language. One is the relating of truth-value, taking units of language as wholes and relating them to each other in the manner of the propositional calculus. This we shall call macro-logic. The second application is the study of the logic of meaning relationships in language, which we denominate as the micro-logic of language. The concern of this paper will be with the micro-logic of meaning. But first we must lay some groundwork.

A. Background Considerations

Certain premises govern all that is said in this paper. The first is that language is a system of actions whereby a person affects the universe about him. It is an intentionally devised and intentionally used human tool. The principal use of this tool is one person affecting or controlling others. We note the following categories of this social affect and control by distinguishing three kinds of language usage:

1) Phatic usage: Language used to fill up time.
2) Esthetic usage: Language used to stimulate imagery and/or feelings.
3) Informative usage: Language used to formulate testable hypotheses about the universe.

It is noteworthy that in usage, these categories are not usually found in the pure state. Language usage may be phatic, esthetic and informative all at the same time. But usually one of these functions will be dominant in a given usage.

The informative use of language itself has three subdivisions:

1) Disclosure: The speaker reveals his inner states.
   Example: I have a headache.
   Example: What time is it?
3) Description: The speaker reveals his ideas about something outside himself.
   Example: This dog is old.

Every informative use of language is disclosure, because the speaker is revealing himself, but some disclosures are also commands (directives). Some disclosure commands are also descriptions. In all three the speaker reveals himself, but in some he purports to reveal the nature of the universe as well.

Revelations about the universe may take one of two forms, or be couched in two different types of language. The difference comes in the mode and precision of definition being used. One type of language is "ordinary," the common vernacular languages of mankind which everyone learns as a child. The basic form of definition used in this language is ostensive. By induction a person learns to see pattern in objects which are given names by his mentors. Dogs have aspects in common, and as one
observes enough dogs a pattern forms in his mind which he then uses both to understand and to indicate that pattern when conversing with others. This kind of pattern or meaning is not exact, is not usually specifiable in terms of a specific number of elements all of which are common to the pattern dog. This is "family resemblance" meaning, as celebrated by Wittgenstein.

The second type of informative language is technical usage. Technical terms are those which have a precise meaning, a meaning based on essence rather than family resemblance. To have an essence means that there is a finite set of qualifications which necessarily apply to an object being referred to. This does not mean that the object may have no other characteristics: it need not be pure. It means that speaker and hearer both intend that the object referred to has at least the characteristics, the "essence," agreed upon by prior stipulation. For instance, to be a legal contract in the technical sense, certain factors are stipulated in advance, such as: 1) both parties must be competent to contract; 2) there must be a meeting of the minds; 3) there must be an anticipated benefit to both parties; and 4) there must be an exchange of consideration. If those stipulations were the agreed essence of a contract in a society, any agreement lacking one of those components would not be considered a legal contract and could not be enforced.

It is noteworthy that many of the terms used in a technical listing of essential characteristics themselves need further technical definition, such as "meeting of the minds" and "consideration" in the example of the preceding paragraph. But eventually all technical definitions must rest on terms which are not technically defined. Formally speaking, this is to say that defined terms must be defined in terms of undefined primitives. In the real world, our primitive definitions are non-technical, family resemblance definitions which we invent by induction through ostensive definition. This is to say that all technical use of language is embedded in a larger context of ordinary language. Technicality is a matter of degree. Only one term of a conversation might be used technically. Or a majority may be used technically. When the number of technical terms becomes so great that the non-initiated hearer cannot grasp the gist of the conversation, the language has become technically oriented jargon.

Meaning is a matter of pattern. The meaning of any word or sentence is the pattern of ideas which the speaker intends or the hearer infers. The atomic elements of these patterns are either irreducible sensory items (a shade of blue, the fragrance of lilac) or constructed elements (line, wishing, angry). Constructed elements usually may be further subdivided at the constructor's desire; thus to be elemental is to be considered elemental by the constructor. The meaning of tulip is, for ordinary language, the indication of a spring blooming bulb which produces a flower of greatly varied shapes and colors, the pattern being a vague one which enables its constructor to identify tulips with a high (say 90%) rate of success. The technical meaning of tulip specifies exactly the parameters necessary for a plant to be tulip, enabling the user to identify correctly with something like a 99% rate of success.
B. Parameters Necessary for Truth

We are now in a position to ask, what are the parameters of information necessary to make an informative statement about the universe? We find that there are four basic kinds of information necessary to form a minimum complete statement. These are: a) A target pattern, b) An overlay pattern, c) Affirmation or denial of the overlay, d) Specification of relevance factors. We will explain each of these factors.

The target pattern is something like the subject of a sentence, but it is the meaning subject, not the grammatical subject. In the sentence "It is raining," the target pattern is "current weather." Be it a simple or a complex pattern, the target pattern is simply the subject being operated upon in a given situation of linguistic usage.

The overlay pattern is the pattern being brought to bear upon or to modify the target pattern. A sentence functions to overlay or to add the overlay pattern upon the target pattern. In the example of the preceding paragraph, "raining" is the overlay pattern.

The third element of an informative sentence is the affirmation or denial of the overlay. Affirmation is to assert the overlay, as in "It is raining." This sentence would be used principally in case the pattern of current weather in unknown to the hearer or to emphasize the fact of the overlay. Or we might deny the overlay by saying, "It is not raining." This sentence would ordinarily be used when the hearer is uncertain whether or not it is raining, or has been afraid it might be raining, or believes that it is raining because someone has said so. Affirmation or denial is strictly an on/off matter. It admits of no degrees or variations. Should degrees or variations be necessary, those factors would be put into the pattern of the target or overlay class, as in "It probably is raining." In this example we have an affirmation of overlay of "probably is raining" on target pattern "My idea of current weather." This shifts the focus of the sentence from description of the weather to epistemological considerations about whether one knows what the weather is or not.

The fourth consideration, relevance factors, give the information necessary to test the pattern established by overlay or subtraction of overlay against the "real world." Four relevance factors are necessary: 1) Spatial location, 2) Temporal location, 3) Mode of reference, and 4) Specification of ordinary or technical usage.

Spatial location is the designation of the boundaries within which the overlay pattern is asserted to hold. Just where is it raining? Difficulty of description limits most usages of the example sentence to specification of the fact that it is raining or not raining at a particular spot. Weather persons on television have the ability to show satellite photos with areas of rain indicated.

Temporal location is again best done by specifying time when it was raining at a particular place, or saying that rain began at a certain time and continued to a certain time. To speak of future time is to forecast, which is the relevant issue since the past is already gone and that past rain rains
no more. But future rain has very practical consequences. Needless to say, forecasting future time rain is a guess, but sometimes a very sophisticated guess which turns out to be vindicated.

Mode of reference designates whether one is speaking in the disclosure, directive, or descriptive mode. The same sentence could be used in any of the three modes, hence the need to specify. In real life this factor is seldom overly specified because the context makes evident what is going on. But sometimes the context is insufficient. "It is raining" could be a description if the person has been asked what the weather is. That sentence could be a directive if the speaker previously had told the hearer to move indoors as soon as it started raining. And that sentence could be a disclosure if it is a response to the question "What is your guess as to what the weather is right now?"

The specification of ordinary or technical usage is of great practical importance. Weather reports almost always are given in ordinary language. This means that though rain is reported over a certain area at a certain time, that does not mean that every open square foot of the area is being rained upon. The meaning is approximate, family resemblance type, and is thus usually given in percentages. "There is a 70% chance of rain falling in this area." Such a statement seems silly when one looks out the window and sees pouring rain. But the statement is intended to give a percentage over an area, not at a specific location. Technical usage would have to assure rain or not rain at a specific number of specified areas.

Thus we see that two kinds of information are needed in the relevance factors of language usage: Where and when to look to see if something is true, and what kind of language usage the speaker is using to assert what he does. Only as these relevance factors are explicitly specified can the exact nature of the utterance be described. This is to say that we are attempting to give a technical definition of the relevance factors necessary to linguistic usage.

It is interesting to note what is necessary when verbal communication is reduced to the absolute minimum, when context provides everything but the minimum. The minimum is the specification of the overlay pattern. Thus when someone cries out "Fire," this word is a specification of the overlay. The target pattern (conditions), the affirmation, the present time and place, the mode of reference, and the ordinary use of language are all assumed.

C. The work of Jean-Marie Zemb

In an unpublished paper entitled "The Trios, the Duos and the Solo in the Structure of Propositions" (Translated by Alan K. Melby of Brigham Young University), Jean-Marie Zemb of the College of France has approached the problem of the relationship of the grammar of linguistic usage as related to the structure of meaning. He concludes that the structure of meaning is not tied to grammatical form as is inferred by the hearer as the hearer infers the meaning of the sentential formulation.

Zemb analyzes the structure of meaning in a manner similar to that which has been done in this paper. He concludes that the structure of the
proposition is that of *thema-phema-rhema*. *Thema* is analogous to what we have designated as the target class. *Rhema* is like that which we have called the overlay class. *Phema* is a pattern like that of the affirmation or denial of the overlay.

If one uses Zemb's terminology we see that a fourth element is necessary. That fourth element has been called above the relevance factors. To match Zemb's terminology one might designate these relevance factors as *schema*, the pattern or ordering of the assertion relative to the universe of human experience.

Zemb has made a contribution by showing clearly that grammar and meaning are not correlated uniquely. His suggestion of the *thema-phema-rhema* is seen to be consonant with the pattern employed in this paper. Zemb's focus is on the proposition, whereas this paper focuses on the assertion as the basic unit of human language. But it is possible that a fruitful accommodation of terminology may consolidate Zemb's work and the present paper into a viable approach in the philosophy of language.

D. Conclusion

The conclusion of the matter is that the micro-logic of meaning is very simple compared with the macro-logic of truth. The logic of meaning is simple addition or subtraction of overlay pattern to or from a target pattern. Using this device of overlay recursively, any meaning can be reduced down to its simplest elements or built up into a most complex idea, such as the idea of the universe.
The Generals of Convention and the Particulars of Nature: Meaning from a Peircian View

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Introduction

Plato's View of Language

In the Cratylus Plato has Socrates discuss the nature of names. In the course of the Socratic discussion, some significant issues are raised, but the essential point seems to revolve around two questions which may well be even more important today than they were those thousands of years ago.

Questions of Convention-Particular vs. Natural-General

On the one hand, there were two opposing views regarding the nature of names. One view holds that 'there is no name given to anything by nature; all is convention and habit of the users,' while the other view has it that 'things have names by nature, and that not every man is an artificer of names, but he only who looks to the name which each thing by nature has and is able to express the true forms of things in letters and syllables.' So the question is raised: do names exist by convention (habit) or by nature? A second theme which bears on the essential nature of names can be found in these two opposing points of view:

[Do] the things differ as the names differ? you give one name and I another; and are they relative to individuals, as Protagoras tells us? For he says that man is the measure of all things, and that things are to me as they appear to me, and that are to you as they appear to you.'

The other view is that

things are not relative to individuals, and all things do not equally belong to all at the same moment and always, they must be supposed to have their own proper and permanent essence.

These two questions, 1) do names exist by convention or by nature, and 2) are words particular to what individual men think or are they generals with 'their own proper and permanent essence,' will be this paper's subject of discussion, for these questions bear directly on the nature of language and therefore not only on how language is used synchronically and how it changes diachronically, but also on how certain universally observed facts, such as ambiguity (homonymy) and equivalence (synonymy), anomaly and puns, irony and lying, might be explained.

The Platonic View of Language:

Convention-Particular vs. Natural-General

A careful examination the Cratylus reveals that Plato was proposing an either-or question with respect to language: Either language is conventional and particular, or it is natural and general. Today almost all linguists hold that the meanings of words (to the degree that meaning is discussed at all) are strictly conventional (arbitrary), and that meaning is to a large degree particular to individuals, since each individual has had an essentially different world of experience from his neighbor. The other possibility suggested by Plato—that the meaning of names is natural and general—is not today widely held, although onomatopoeia is acknowledged as a characteristic of minor importance to language.

Another View of Language:
Convention-General vs. Natural-Particular

What both Plato and modern linguists have failed to recognize, however, is the fact that logically, four possibilities exist, two more than what Plato originally discussed. Schematically we may represent those possibilities as follows:

<table>
<thead>
<tr>
<th>Conventional</th>
<th>Conventional</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>General</td>
</tr>
<tr>
<td>Plato</td>
<td>Plato</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Natural</th>
<th>Natural</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Particular</td>
</tr>
</tbody>
</table>

Figure 1

The upper right and lower left categories represent the two alternatives suggested by Plato, but the remaining two categories deserve scrupulous consideration, because these give us deep insight as to the nature of language.

Two Kinds of Meaning

I would like to suggest that the two categories that have traditionally been ignored recommend themselves to further investigation, since the very meaning in language can be identified with the help of these categories. In a word, what we have found is that meaning is not a simple, single idea, but is basically divisible, based on the two non-Platonic categories of Figure 1: One kind of meaning I have called instructional meaning, and it is CONVENTION and GENERAL, while the other I have named interpreted meaning, and it is NATURAL and PARTICULAR.1

The Habitual (Conventional) Nature of Words

The conventional/general nature of instructional meaning of a word is essentially what Peirce (Ms. 693b, 1904:99-100)2 calls the logical interpretant, the essence of which is habit:3

Now a thought such as the meaning of a word is obviously of the nature of a habit. We may define a meaning as a possible habit how a general conventional sign shall be applied.

Peirce (5:400)4 makes it perfectly clear that this kind of meaning, instructional meaning, is based on his notion of habit:

What a thing means is simply what habit it involves. Now, the identity of a habit depends on how it might lead us to act, not merely under such circumstances as are likely to arise, but under such as might possibly occur, no matter if contrary to all previous experience.

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1There is another kind of meaning, termed paradigmatic meaning which has to do with the structure and organization of the elements of the code. For further discussion see Robertson (to appear).
2Because I do not have the manuscripts, I have taken the Ms. quotes from Johansen (1985).
3This is Jakobson's notion of general meaning, Gesamtbetuation or invariant. See Jakobson 1936.
4This is taken to mean volume five, paragraph 400 of Peirce's Collected Papers.
Habit (convention) is also by nature general, in this sense: the more efficient the habit the fewer the contexts that will impede its successful operation. Thus, when a child acquires the habit of writing, it makes no difference whether the medium is pencil or chalk, or whether the place of writing be paper, blackboard or sand, or whether he is using the fine-tuned muscles of his hand or the major muscles of his arm; the generalized set of instructions (i.e. the habit) is there to be followed and thus embodied in any appropriate setting, regardless of the specific qualities of the materials of writing. It is the act of generalization, or habit formation which is so important for our understanding of meaning, since ‘the most important operation of the mind is that of generalization’ [Peirce 1.82]. This would be the category of general convention, the upper left-hand corner referred to earlier in Figure 1.

In contrast to instructional meaning discussed earlier, there is another kind of meaning which is natural and particular, or the category of the lower right corner in Figure 1. Just as following the habitual set of instructions of writing can produce, given the appropriate circumstances, an actual result whose instance occurs at a specific point in time and space, so the instructional meaning of a word, then, as a habit, a general, can also produce a specific result particular to a given point in time and space.

The relationship between instructional meaning and interpreted meaning might be brought into relief with the following brief non-linguistic example:

I am walking down the street and I see a red and white symbol painted on a window of a business, so:

Figure 2.

From the information, I infer a set of instructions: "Look inside for a barber shop." This would be the instructional meaning for the sign. I then follow the instructions by looking inside the real-world window to see if I can locate all the expected accoutrements of a barber shop: the barber, the chair, the mirrors, combs, scissors etc. On looking for such elements of the real world I would have arrived at an interpretation of the instructions and thus would have achieved the interpreted meaning. It is important to recognize that each time I view that sign, or another sign like it, I might wind up with a different interpreted meaning, because the time, circumstances, and in short, the referential world is always in a state of flux. Thus the resulting interpretation has all the characteristics of the lower right category of Figure 1: It is natural—found in the naturally occurring elements of the world; and particular—located at a specific point in time at a specific place in the world.

The difference between the two types of meanings is easily demonstrated. On the one hand the habit that is constituted of a set of instructions is a general. It is neither temporal nor locational, nor is it specifically a part of the existential world. On the other hand, the results of following the instructional meaning are the opposite of general and conventional, in the sense that the particulars may or may not be known in detail before hand, and also in the sense that such particulars are existential, temporal and locational.
Finally, one important difference between instructional and interpretational meaning remains to be discussed. Instructional meaning is essentially below consciousness and therefore not immediately available for conscious inspection, whereas interpreted meaning is oppositely conscious and consequently available for our investigation. This distinction between the conscious and the unconscious in habitual behavior becomes obvious as one thinks of behaviors typical to habits. If I am riding a slightly out-of-control bicycle, I have the sudden urge to right the bike by turning the handlebars to the right or left, whichever is gravitationally appropriate. In such a circumstance I might well be consciously aware of making such a turn, especially if I am paying close attention to the process of riding, but I am certainly not aware of that general, habitual set of instructions which is responsible for the urge to make such gravitational adjustments in the first place. Note that such interpretational turns on a bicycle are specific and naturally defined tokens of that general type—the set of instructions which the constitutes the skill of bicycle-riding.

Now, in language we similarly have an urge to respond, say, to an interlocutor's conversational remark, and do so as smoothly as we turn the wheel of a bicycle to keep it from falling over, but we are not consciously aware of the general set of instructions (i.e. the habits) associated with each of the words (much less the skill/habit of putting words together) that goes into making up our conversational response. We have no idea what the the precise conversational words will be before they emerge, (in fact we are sometimes surprised by them, positively or negatively) nor can the interlocutor think of their instructional meaning in the process of interpretation. Rather, his interpretation, which is available for conscious reflection and consideration, results from a highly general set of instructions which are otherwise below consciousness.

The challenge for the linguist who is interested in meaning is, of course, to come to a conscious understanding of habitual, instructional meaning, since it is hidden from conscious evaluation, just as the biologist is interested in finding the hidden, but general sets of instruction that constitute the genetic code. This problem, however, has its solution if we take our cue from Peirce's suggestion that meaning is habit, and that 'the identity of a habit depends on how it might lead us to act.' Thus, by observing carefully how a particular word causes us to act—that is, if we carefully observe what kind of interpreted meanings result from the several interpretations based on different contexts in which such a word can appear, we can come to a conscious understanding of what the instructional meaning of the investigated word is.

A Discussion of the Lexical Meaning of Go

To show how this view of meaning can apply to an analysis of language, the next portion of this paper will treat the instructional and interpretational meanings of the word go. As a mere first approximation, we might deductively suggest that go has the following instructional meaning (to be amended later): Look for a change in state of the subject of the predication. When we say 'change in state' it is important to specify that such change can be locational, temporal, psychological, physical or mental.

Thus in the following sentences, one sees a change in state:

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1We might note, incidentally, that the quest for the instructional meaning of the genes, whose interpretational result is the morphology of the body is significantly like the instructional meaning and the resulting interpreted meaning proposed here. Furthermore, just as geneticists do not begin regularly to understand the exact process by which the instructional genes produce the observed bodily morphology, so it is not entirely clear exactly how the instructional meaning gets realized as interpreted meaning. We just know that if a set of instructions are scrupulously and intelligently followed we arrive at particular results. The important point here is to recognize that we, like the geneticists, must understand the structural content of the paradigm of the instructions before we can understand how those instructions are realized. The upshot of all this is, quite simply, unless and until linguists take up the study of meaning, linguistics will remain at a level of understanding equivalent to pre-Mendelian genetics.

2I would like to thank the students in my Linguistics 533 Semantics class who came up with some of the sentences that will be used in this paper.
1. John went over the top.
2. John went over the rough draft.

In the first example it is probable that one would interpret John's going over as physical, where he with his body actually moved from point A to point B, and this because the top instructs us to see something large and physical, as e.g. a hill or wall. A normal interpretation of the second sentence, however, would probably result in a mental interpretation where he with his body did not physically crawl over every line and period of the rough draft. Rather, we see an interpretation where the change of state was a mental change, and this because rough draft instructs us to see the written page. Nonetheless, in both instances, one sees a change in state in John, one physical and one mental.

In sentences like the following the change is once again external and internal, but in this case the subject is inanimate, thus resulting in a different kind of physical and mental contextual interpretation for go:

3. The fruit is going cheap.
4. The fruit is going bad.

In 3 above, one sees a change in state with respect to the fruit, but it is given in terms of moving from seller to buyer (as inferred from the adjective cheap). In 4, the internal state of the fruit is changing, in this case it is changing from useable to unusable fruit. But in both cases, the external and the internal, one sees a change in state.

In the following two sentences, we again see a more physical interpretation of the word go as against a more abstract interpretation.

5. As cars go, they generally heat up.
6. As cars go, this one is cheap.

In number 5. above, owing to the description of cars heating up, we are instructed to infer a physical going of the car, since such existential movement would result in mechanical heat. In 6., however, the change of state is anything but physical, though it is still a change in state, since one is instructed to contrast mentally the price of this car in particular with the prices of the general, run-of-the mill car. Note that the sentence 'His house went cheap' is similarly a change in state.

It should be clear by now that the interpretation of the habitual instructions of a particular word is accomplished by bringing to bear all the information, linguistic, experiential, inferential—in a word, all the information at the interpreter's command. The meaning (i.e. the instructions) of go does not change, but the type of interpretation that is accomplished does change, depending on the context. Consider for example the two sentences

7. It just went to pieces.
8. He just went to pieces.

It is clear that the more literal interpretation as given to sentence 7., where it was transformed from a whole to a series of parts (something like Oliver Wendell Holmes' one-hoss-shay), results from the instructional meaning of it, whereas the more metaphorical interpretation (again a transformation, but in this case, from a whole person to less-than-functional person) is the result of the instructional meaning of he, where we are less likely to interpret an auto-self-dismemberment, than a mental falling apart. But, the point is that the seeming homonymous go's are as illusory as the Piagetian child's imagined change in volume of water when it is poured into a different shaped container.

There is another instance of the use of go which requires a slight amendment to the originally given instructional meaning, which we will formulate as follows: View the subject of the predication in two different states. Thus, in the previous examples, one is instructed to see John in two different states,
physically by going over the top, or mentally, by going over the rough draft, and so on. The reason for this slight amendment comes from a consideration of a slightly different kind of interpretation found in the following sentences:

9. The new song goes something like this: .......
10. "...then he says 'ō' dano', and I goes 'wāča tāken ałbawił'?
11. Spanish poems go differently than ours.
12. A circle goes like this.
13. My new design goes like this.

With these particular sentences, what we have is a repetition of an instance. With each of the examples, one sees an original (the song, the previously said wāča tāken ałbawił, the genre of Spanish poems, the new designs, and the book/movie/painting) and one sees a repetition of that original. Thus, as per the redefinition of the set of instructions, we see the subject of the predication in two different states, one in its original state and one in its repetitious state, just as we see John in two different states in the plain, vanilla use of go: John went over the top.

The definition is need of further even revision, however, as we consider sentences such as the following:

15. The wolf-dog went wild.
16. The wolf-dog went tame.
17. The geranium went brown.
18. The geranium went green.
19. The milk went bad.
20. The milk went good.
22. John went good.
23. John went insane.
25. Mary went grey.
26. Mary went brunette.

The odd numbered sentences above are easier to get a interpretation for than the even numbers. To understand why we must explore in more detail the instructional value habitually associated with the word go, since there remains a part of that meaning to be defined.¹ In addition to 'viewing the subject of the predication in two different states,' it is necessary to view those two states as belonging to a closed system. That is, a wolf-dog normally might be thought of as having the internal capacity to revert to his wild state, whereas the taming of such an animal requires some intelligence beyond the dog's; such taming would seem unlikely to happen to such an animal on its own. Similarly, plants going brown or people going insane or grey or bad do so independently of any outside intervention, whereas plants turning green might require extra fertilization or light or warmth or some other outside influence, just as people becoming sane or changing hair colors to brunette also are thought of as having to have something outside themselves to make the change. Of course, it would be possible to change the setting and therefore the system so the a plant could go green, as e.g.

27. Keep fertilizing that plant, and it'll go green,

¹Of course it is possible take a more literal view, and see a locative go, as e.g. Mary went (to the party as a) blonde.
just as people could go same in the mythical Land of Ozlandia. And of course, a baby born with dark hair might well go brunette on losing its baby hair. Thus, if people do not normally see an item as having the internal capacity for change, or if the reason for change is not immediately obvious as part of the systematic view, it is difficult to get an interpretive meaning if go is used as its predication, whereas if the situation is such that change or at least the reason for change is seen as an inherent part of the system, then go is entirely appropriate.

The following sentences further illustrate the above point:

28. Betty went pregnant.
29. Betty got pregnant.
30. Betty went mad.
31. Betty got mad.

In the above sentences, it is clear that Betty’s pregnancy is not entirely of her own making, thus subjecting sentence 28 to contradictory instructions. Mad, on the other hand, is interesting because the instructions associated with go call up the variant crazy, since in our culture such behavior is viewed as happening without necessarily having to have an outside influence, whereas the variant angry is naturally elicited by get which apparently has as part of its habitual instructions something like ‘effort beyond the norm,’ as e.g. John went out the door, vs. John got out the door.

We therefore expand the instructional meaning of go as follows: View the subject of the predication in two different states. The difference between those states must be due to a cause which is internal to the subject or the subject’s immediate environment.

It is important to recognize the the set of instructions for go are constant, regardless of the environment, but the interpretation of those instructions is subject to tremendous variation, which variation is contextually driven. Consider, for example, the following sentences:

32. Will John go?
33. Will this car go?
34. Will this player-piano go?
35. Will this piano go?
36. Will green go?
37. Will this pile of trash go?

Thus, for example, the normal reading for sentence 32 might be in a more expanded version will John go (e.g. to the party)? The instructional value of go is present, since a) John’s physical existence in two locational states is in question, and b) the reason for those two potential locational states is clearly internal to John: his ability to move from point A to point B. On the other hand, if this car is substituted for John the reading changes, since cars’ abilities are substantially different from people’s. Nonetheless, the instructional value of go is again obvious, since a) two states are in question (can the stopped state be transformed to a started state), and b) the car’s ability to start (without outside support, e.g. changing the battery, adding gas etc.) is also in question.

Sentence 34 (will this player-piano go) is similarly interpreted, but sentence 35 (will this piano go) again has a highly divergent interpretation, because of the different ways of viewing a mechanical piano as against a simple piano that is played. Again, however, the instructional meaning of go is accurate, since a) one sees the potential for two locative states: one where the piano currently is and a second where it might be if it will fit, and b) whether or not such a locational transformation is possible, given the piano’s size and shape, and the delimiting size and shape of the projected destination.

If green is substituted for piano the interpretational reading changes again, but the instructional value of go does not. Thus, the two states in question are a) green outside the context in question and b) green in that context; the second half of the instruction is bound up in the question of whether the intrinsic qualities of green are such that they will not clash with the other colors of the potential setting.
Finally, if this pile of trash is substituted for green, the context again gives a completely new interpretation based on the same, habitual set of instructions. Here again we see two locational points (where the trash is and its potential future location), and it is certainly internally capable of being subject to such a move.

In all these instances, however, it should be emphasized that more than one interpretation is possible. Interpretations of a given set of instructions are infinite. Thus, given the right mind-set with respect, say, to sentence 32 (will the car go), any of the above interpretations are possible. If the car were animate (like Walt Disney's Herbie) we could say 'Will the car (Herbie) go?; if we're having a hard time deciding whether it will fit into a parking space, we might say 'Will the car go?; if we are not sure whether our car is fancy enough to warrant driving the queen in the annual Fourth of July parade, we might say 'Will the car go?'; and if it is in very bad shape, the auctioneer might ask on the foreclosure of our property, 'Will the car go?' The point is that in this view of meaning—the view that a sign's meaning is the habitual set of instructions—the potential for interpretation is infinite. Thus, when I as a speaker encode linguistic information to be interpreted, the interpretation on the part of the hearer is itself probabilistic, since he can only guess at what my projected interpreted object might be. Despite such probability, language turns out to be a remarkably sure-footed medium of communication.

This view of the meaning of go is further underscored when we look at the sentence:

38. The cow went to town.
39. The cow went "moo".
40. The cow went all over the floor.
41. The toy car went all over the floor.

Sentences 38 and 39 have already been discussed, but sentence 40 deserves some comment. This euphemistic view of go is reasonable, given the instructional meaning, since the two states are imaginable, as is the internal capability. Note that, in the particular case of 40, the words all over the floor certainly increase the probability of such an interpretation. On the other hand, when cow is replaced by toy car, the interpretation is likely to change again, since the instructional value of toy car is substantially different from that of cow.

One of the most significant uses of the lexeme go is in certain so-called periphrastic future constructions like

42. I'm going to [aʊm gæna] eat about six this afternoon,
as opposed to the less analytic future

43. I will [aʊl] eat about six this afternoon.

The two constructions with going to and will are not strictly synonymous, as is evident from the following two sentences:

44. This species of honey bee will gather most of its food supply in the early spring or late fall.
45. This species of honey bee is going to gather most of its food supply in the early spring or late fall.
46. John will almost always buy a sandwich at this vending machine around noon.
47. John is almost always going to buy a sandwich at this vending machine around noon.

The difference between 44 and 45 is striking. Whereas 44 seems to have for its interpretational object the speaker's opinion regarding a general truth about this species of honey bee, 45 seems oppositely to have reference to the particular acts of this species which, starting now, are going to take place this particular spring and this particular fall. Sentence 46 also instructs the interpreter to see John's
behavior as general, as does sentence 47. The difference, however, lies in the fact that in 47 one sees a beginning and an end point, which one does not necessarily see in 46.

Thus, the instructional meaning of will + VERB differs from that of be going to + VERB, even though they both signal a temporality of the irrealis. The logical reason that be going to should so signal time to come has obviously to do with the instructional meaning of be going and to in conjunction with the following verb. The meaning of go, suggests that the subject be considered in two different states, which is seen in the present vs. time to come. The reason that the temporality should be in the irrealis of time (not the present or past) has to do with the instructional meaning of to, which signals a kind of imperfective. To demonstrate this, I sometimes ask my students which person they would prefer to be in the following sentences:

48. John started to drink the poison.
49. John started drinking the poison.

Of course, starting to drink the poison is less dangerous than starting drinking the poison, since to puts an imperfective distance between the subject and the action described by the verb. Similarly, walking to the door is somehow leaves more distance between the walker and door than does walking on the door.

The imperfective/irrealis of the combination be going to VERB is particularly clear in sentences like

50. John is going to die.
51. John was going to die, ...

where in both sentences it is obvious that the verbal action is neither present nor past reality. Even though it is not future in sentence 51 because of the past tense was, it is nonetheless irrealis, because the combination of go + to results in an incompletive object, as explained above.

Discussion

The ramifications of this semiotic view of meaning are indeed far-reaching since such a theory makes it possible to define more accurately some of the traditional terms characteristically associated with the discussion of meaning. Let us consider briefly ambiguity (homonymy) and equivalence (synonymy), anomaly and puns, irony and lying.

So-called ambiguity is a necessary part of the semiotic theory of language presented in this paper, given the interpretational nature of symbols, whose essence is habit. 'A symbol is a sign which refers to the Object it denotes [i.e. interpreted meaning] by virtue of law, usually an association of general ideas, which operates to cause the Symbol to be interpreted as referring to that Object [Peirce 2.249, emphasis mine]. In effect, symbols are 'directions how to proceed to gain acquaintance with what is referred to' (5.542). Thus it is that when we hear a word, or sentence or discourse, for they are all symbol-habits or combinations thereof, we perform an act of interpretation that makes sense in terms of the specifics of the particular time and circumstances of the utterances. But what is important here is the recognition of that fact that any such interpretational act can result in more than a single interpretation, and it is exactly these different acts of interpretation which are the ambiguities referred to in the linguistic literature. That is, every set of linguistic (habitual) instructions must by definitional necessity have the potential for more than one interpretation, depending on the time, place, circumstance—in general the world of contiguity associated with the particular speech utterance—and it is the potential for these several interpretations which constitute the ambiguity referred to in the literature.

A nonlinguistic example of such interpretational ambiguity might be taken from simple mathematics. The instructions 5 + 2 = ? would normally result in an interpretational 7, but it is also possible arrive at a more complex answer, 6 + 1, or 4 + 3 or 1 + 1 + 1 + 1 + 3, and so on to interpretational infinity, if fractions or decimals are allowed to be used. And indeed, there are circumstances where the statement 5 + 2 is equivalent to 4 + 3 would be not only be right, but necessary to understanding, if e.g. reference were being made to the week days + the week end vs. the odd + the even days of the week. Similarly, with language, if I say John went with Mary, an infinity of interpretations based on the
instructional meaning of the sentence could be given, depending on the circumstances of the interpretation.

In this regard, we must point out that indeed, such potential for ambiguity is a chief strength of language, and *not* a weakness as some may suppose, for such interpretational richness is as necessary and as natural to language as the appropriate turning of the handle bars in response to the richness of diverse road conditions is to the skill-habit of bicycle riding. It makes no more sense for a linguistic form to be restricted to a unique interpretation than it does for handle bars on a bike to have a unique way of turning, regardless of the circumstance.

We define ambiguity therefore in these terms: Two or more differing interpretations that result from a single set of instructions are ambiguities.

*Homonymy* is related to the notion ambiguity. The question that homonymy raises, in the context of the theory set forth in this paper, is whether it is theoretically possible for given form to have more than one set of instructions (i.e. more than one habit) associated with it. In general, we might surmise from other aspects of human behavior, that it is not common for a form to have more than one associated habit. If we take, for example, the meaning of a tool to be the habit associated with that tool, we typically do not find a spoon with lead to double as a pencil, or bed with wheels to function as a cart. It is true, however, that such items as hide-a-beds and motor homes, and maybe even Maxwell-Smart telephone-shoes might exist, but it is also true that such double-duty forms are not the rule, but the exception, and in any case seem to presuppose the existence of sets of simpler formal/functional entities that can be combined to produce the more complicated tools in question. As we look at language, asking the question of whether or not a particular form two or more distinct habits, or whether it has a single, general habit, we find that, in the main, there is a tendency to generalize such that a single, unitary habit is commonly found to be its meaning. It is important to recognize that, particularly with substantives, it is possible for a form to have more than one instructionally associated object habitually associated with it, as for example, bachelor (unmarried, or degree) or bank (river, or money), but this multiplicity of referred objects must not mask the fact that they are apparently and usually codified reflections of a more general, unifying set of instructions, as e.g. bachelor = 'less than fully initiated', e.g. unmarried or not master's or Ph.D. or bank 'means of holding in what would otherwise be readily lost', e.g. bank which contains the water of a river, or bank which contains money. In any case, Jakobson and Waugh's observation (1980:5) that 'it is *a priori* clear ... that a language devoid of homonyms is conceivable, whereas a purely homonymic language is a *reductio ad absurdum*.'

Tied to the notion of interpretational ambiguity is the notion of equivalence, paraphrase or synonymy. Again, we appeal to simple addition to bring the relationship between ambiguity and paraphrase into appropriate relief. We can say that $5 + 2$ and $4 + 3$ are equivalent, but they are not identical; $5$ and $5$ are identical. From the point of view of instructional meaning, $5 + 2$ simply does not *mean* the same thing as $4 + 3$, since the $5$ and $2$ have a different constituency from the $4$ and three, but from the point of view of interpreted meaning they both result in the same object of interpretation: $7$. Thus, in the interpretational world of particulars they are synonymous, whereas in the instructional world of generals they are only equivalent. Similarly, in language, we can say that *John is going to eat* and *John will eat* are synonymous, but this is true only in the world of interpretational meaning; they are equivalent in meaning in the world of instructional meaning, but they are certainly not identical, any more than riding a bicycle and riding a unicycle consist in identical habits.

We can define synonymy (or on the syntactic level, paraphrase), therefore, as follows: If two different sets of instructions produce the same interpretational result, such linguistic expressions are paraphrases (or synonyms) of each other.

It is now possible to understand the relationship between ambiguity and paraphrase. On the one hand, ambiguity starts with a single set of instructions but comes to two different interpretations, whereas paraphrase starts with two sets of instructions and comes up with but a single interpretation. Both of these phenomena, recognized from time immemorial, and universally present in all languages, are given fresh understanding by the Peircian notion of semiotics.
Anomaly also finds a ready explanation this paradigm of linguistic analysis as well. Quite simply, we can say that when the set of instructions is internally contradictory, anomaly results. By internal contradiction, we mean that if in following the set of instructions the interpreter can find no interpretational meaning—if there is no object in the referential world (or world of human experience) that can be found in the process of following the instructional meaning—then we have to do with an anomalous expression. Sentences such as *John went tall or Go down up*, would be examples of such sentences.

If in anomaly we find instructions that are contradictory such that no referential object can be found, in punning we find the opposite: more than one referential object is interpretationally required. When my nascent humorist of a child tells me that the chicken went to the other side of the road to watch the man lay bricks, the pun, *lay bricks*, has two compulsory interpretations, one based on the kind of laying chickens do and the other on the kind brick masons do. Thus, anomalies, e.g. square circles, (which usually are not particularly funny), are exceptions to normal linguistic behavior in having no ready objective interpretation, whereas the exceptional linguistic behavior of puns reside in the fact that more than one interpretation is required.

It should be kept in mind that up to this point we have referred only to the functional aspect of language, thus ignoring the other highly important level of semiosis: form, or in the case of language, the phonemic system. It is often true of punning that it relies on minimal phonemic differences to call to mind the compulsory plurality of interpretations that are involved in punning, as outlined above. Thus, my seven year old’s joke, “what kind of carnival rides does a cemetery have? a rollerghoster,” included a switch from a voiceless to voiced velar stop, thus forcing the compulsory dual interpretation which characterize puns. The point is, simply, that instructional and interpretational meaning are absolutely necessary to an appropriate understanding of the nature of punning.

Finally, irony and lying also find ready explanation in terms of this semiotic view of meaning. Both lies and ironic statements are constituted of sets of instructions, which when followed, result in an interpretation which does not square with ontological fact. The difference between the two, however, is that with irony, the interpreter of the information has at his disposition immediate access to the ontological world so he can infer that the encoder, who assumedly knows the decoder knows of the discrepancy, can not be serious. A lie, on the other hand, leaves the interpreter only the instructions and his ability to interpret, without immediate access to the objective reality referred to. Thus, if both I and my interlocutor are observing a furious rain storm raging outside the bay window, and if I am standing in my golf clothes and holding my golf clubs, and if I say ‘what a beautiful day it is outside!’ my interlocutor takes my statement to be ironic, because I have given a set of instructions that are verifiable, but at variance with the objective world to which they refer. But if I say ‘what a beautiful day it is outside!’ over the phone in similar meteorological circumstances, where the interpreter has no means of comparing his interpretation with the objective reality of my surroundings, then I have lied.\(^\text{1}\)

To summarize, we can say, simply, that questions of ambiguity, synonymy, anomaly, punning, irony and lying—all of which are apparently universally present in all languages of the world—find clarification and explanation when considered from an instructional/interpretational point of view.

**Conclusion**

In the traditional view of language it has generally been thought that names are conventional and specific or in rare cases, as e.g. onomatopoeia, they are natural and general. Such a traditional view of names is contradicted by the Peircean view of naming in this: that names are conventional and general in their habitual nature, but that such general types are subject to interpretation which results in natural, specific, interpretive objects. In other words, a general set of instructions is subject to a specific

\(^{1}\)It is tempting to say that with lying and with irony, it is the speaker’s intention that counts, and that that is the essential difference. Such a view is insufficiently explanatory, however, since intention is always present in the communicative act. When I set forth a set of instructions to be interpreted by my hearer, it is almost always true that I intend a particular interpretive result; therefore, intention is not unique to lying or irony and cannot be taken as a significant explanation.
This positive view of meaning is much more hopeful than the traditional, pessimistic American linguistic view. Contrast the approach taken in this paper to Bloomfield's view (1933[1960]:140), for example, that 'the statement of meanings is therefore the weak point in language-study, and will remain so until human knowledge advances very far beyond its present state;' that all statements of meaning must 'elude the linguist's power of definition, and in general do not coincide with the meanings of strictly-defined technical terms;' or that 'to accept definitions of meaning, which at best are makeshifts, in place of an identification in formal terms, is to abandon scientific discourse,' [Bloomfield (1933[1960]:266)]. Or consider Chomsky's long career of statements which mirror the Bloomfieldian-based, anti-semantic American structuralist tradition:

The implication that one can construct a grammar with appeal to meaning is totally unsupported. One might with equal justification ask: "How can you construct a grammar with no knowledge of the hair color of speakers?" (1957:93)

There is, at present, no way to show that semantic considerations play a role in the choice of the syntactic or phonological component of grammar or that semantic features (in any significant sense of this term) play a role in the function of syntactic or phonological rules.' (1965:226)

There is a widespread feeling that semantics is the part of language that is really deep and important, and that the study of language is interesting primarily insofar as it contributes to some understanding of these questions of real profundity. There is some merit in this view. Thus, the questions having to do with what people say and why, questions that relate to the 'creative aspect of language use,' are surely of great intrinsic interest, and are also invested with some mystery, in a sense in which the principles of rule ordering in phonology are not. ...If it were to turn out that the principles of phonology are considerably more sophisticated and intricate than those of semantics, that they enter into nontrivial arguments to explain surprising facts, that they give us much more insight into the nature of the organism, then phonology will be a far deeper theory than semantics, despite the more limited intrinsic interest of the phenomena with which it deals (1975:77).

The scope of the shift to a mentalist or conceptualist interpretation ... included the study of syntax, phonology, and morphology. I think it also includes much of what is misleadingly called 'the semantics of natural language'—I say 'misleadingly' because I think that much of this work is not semantics at all, if by 'semantics' we mean the study of the relation between language and the world—in particular, the study of truth and reference. ... The study of the relation of syntactic structures to models, 'pictures,' and the like, should be regarded as pure syntax, the study of various mental representations, to be supplemented by a theory of the relation these mental objects bear to the world or to the world as it is conceived or believed to be (1986:44,45).

This shockingly negative attitude toward the study of meaning is almost universally present in the history of American linguistics, and hundreds more examples of such ambivalence and negativism could be cited. We suggest that such pessimism is not only unfounded, but in fact detrimental to our basic understanding of language. The traditionally mechanistic, asemantic view of language propounded by American structuralists from Bloomfield to Chomsky, departs from premises that can only result in explanations which can rise no higher than efficient causes, whereas the semiotic, Peircian view of meaning as outlined in this paper necessarily takes into account final causes, for a true understanding of language is in effect an understanding of the end of language, which is to elicit an interpreted meaning via the habits of instructional meaning. An understanding of language is about as likely if meaning is

1 I have compiled a list of such statements, and was myself quite surprised at the universality and and consistency of this Bloomfieldian view.
likely if meaning is ignored as an appreciation of chess if the checking of the king is arbitrarily eliminated from consideration.

References


The Influence of Social Status on the Choice of should, Ought to, Be to and Be supposed to

Rushen Shi, Brigham Young University

Introduction

Modal auxiliaries are one of the most problematic issues in ESL/EFL teaching and learning not only because of their forms, but also because of their semantic complexity. Should, ought to, be to and be supposed to are included in the modal auxiliaries and paraphrastic modals described in the Grammar Book by Celce-Murcia and Larsen-Freeman. These four expressions are considered by most grammar books to be semantically identical in expressing obligation and expectation, but non-interchangeable in actual use. Ought to and be to are said to be stronger expressions than should and be supposed to. It appears that certain social constituents such as the social relationship between the speaker and the listener, i.e., the social status which determines whether the speaker is in an authoritative position over the listener, might be a factor affecting the choice of these expressions. However this idea had not been examined carefully through empirical research. Therefore my question for this paper is: Is there a difference in how should, ought to, be to and be supposed to are used, and is that difference because of social status?

Review of Literature

During the last two decades or so linguists have taken a lot of interests in English modals. The majority of these linguists have emphasized the semantic rather than the syntactic aspect of the modals. With regard to should, ought to, be to, be supposed to several writers focus on the common semantic features they share.

Frank described (1972) in Modern English that should and ought to both express obligation, e.g.,

You should (ought to) do your homework everyday (p.98).

be to and be supposed to have the same meaning of "be
required to" as in:

You are supposed to (ought to) do your homework ink (p.107).

It appears that they share the same meaning with should and ought to. Hornby expressed (1974) the same point of view that should and ought to indicate duty or obligation. Be to shows the same meaning of duty in:

I am to inform you that... (p.68)

Hornby gave the following example to show that be supposed to can be considered to indicate duty or obligation:

Is the housekeeper supposed to clean the outside of the window or only inside (p.885)?

Similarly, Evans and Evans stated (1957) that should carries the meaning of ought to expressing "what is morally binding, what is expedient (p.448)," (p.448) e.g.,

He should return the money.= He ought to return the money (p.448).

In A Grammar of Contemporary English (1980) Quirk et al. simply regards ought to and should exactly the same in expressing obligation, and so does Crowell in Index to Modern English (1964). Crowell gave two examples to demonstrate their similarity:

He ought to help his mother with her chores.
He should help his mother with her chores (p.243)

Palmer in his Modality and English Modals (1979) also described should and ought to as largely interchangeable. This view was also shared by Leech in his A Communicative Grammar of English (1975).

House and Harman, however, suggested (1936) that ought to is a stronger expression of obligation than should. "Should is similar to must and ought, but does not express the compulsion which must denotes, nor the moral obligation or duty of ought." "Should is frequently used to express obligation modestly or politely." Perrin indicated (1968) in An Index to English that should as an auxiliary expresses a mild sense of obligation, weaker than ought to. In A Guide to Patterns and Usage in English by Hornby (1961) should was described as not so strong as ought. Thus it can be seen there is some disagreement among different grammarians.

Roberts said (1954) that, in most constructions, ought to is nearly the equivalent of should, but ought to is used as must except that it shows weaker force. In A Practical English Grammar (1968) by English Language Services, Inc. the same idea was expressed.
We can assume, therefore, that *ought to* as a stronger expression than *should* is expressed by both books.

*Be to* is considered as an equivalent of *should* by some linguists such as some of those mentioned above, but a stronger and more formal expression than *should* and *ought to* by other linguists. It is so strong and formal that it actually expresses an implication of a command or order rather than simply an obligation. Hornby gave the following examples to illustrate the meaning of command:

- You *are* always *to* knock before you enter my room.
- You *are* to write your name at the top of each sheet of paper.
- Entries *are* to be sent in so that they reach the Registration before May the third. (p. 37)

In *A Communicative Grammar of English* (1975) by Leech examples are given to show that *be to* can refer to a command given by the speaker, or by some official authority:

- You *are* to return to Germany.
- You *are* to stay until I return. (p. 145)

Palmer also noted (1979) that *be to* is used to report a command, e.g.,

- You *are* to come tomorrow (p. 147).

Perkins pointed out in *Modal Expressions in English* (1983) that *be to* denotes ordering or commanding as in: "You *are* to marry him within the next six months (p. 69)," which is possibly said by a father.

The above study indicates that some linguists agree on the interchangeability of these four expressions, whereas others do not. *Ought to* and *be to* are considered to be stronger, and *be to* is considered to be more formal by these linguists. It is hypothesized, therefore, that the choice of *ought to* and *be to* is affected by the authoritative social status of the speaker over the listener's, and that *should* and *be supposed to* are not influenced by the social status. The research is conducted to test this hypothesis.

It should be mentioned here that *should*, *ought to*, *be to* and *be supposed to* do carry other distinctions semantically which will not be covered in the survey.

**Research Design and Method**

In order to examine the hypothesis a survey of native speakers was conducted. Different situations were designed on the basis of social relationship
between the speaker and listener. Before the design of the situations a pilot study was done to obtain preliminary information for the final survey. Therefore there were two steps for the research:

1) a pilot study
2) a survey (questionnaire)

A survey was chosen rather than just having the native speakers try to explain the differences because native speakers seldom think of grammar as they speak. They produce the language naturally and in a socially acceptable manner even though for the most part they are unable to discuss the grammar.

For the pilot study ten native English speakers were asked respectively and randomly on campus to give four sentences using should, ought to, be to and be supposed to expressing obligation together with the situations for the sentences they gave. Then the four expressions were ordered by counting up the number of authoritative cases that appears in the sentences. This made it possible, firstly, to see whether there is an initial reason to believe the hypothesis about authority and, secondly, to get some actual situations which native speakers think would occur with these sentences. Here I will list as an example what one of the subjects produced:

You should do your homework before class.
(teacher to student)
You ought to do the dishes.
(wife to husband after dinner)
You are supposed to wash your hands before eating.
(mother to child)
You are to prepare the salad, set the table and serve the customers.
(boss to waitress)

After the survey the situations were examined to see how many of them had somebody with authority speaking the sentence. This produced the following data:

Table 1. Percent of Situations with the Speakers in Authority

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<table>
<thead>
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<tbody>
<tr>
<td>be to</td>
<td>10</td>
<td>100%</td>
</tr>
<tr>
<td>should</td>
<td>8</td>
<td>80%</td>
</tr>
<tr>
<td>be supposed to</td>
<td>5</td>
<td>50%</td>
</tr>
<tr>
<td>ought to</td>
<td>3</td>
<td>30%</td>
</tr>
</tbody>
</table>


The data indicate that 10 sentences for be to given by the 10 people are all based on situations in which the speakers are in an authoritative position, which means that this expression is used most authoritatively. Should displayed 80% authoritative cases. Be supposed to can be used either authoritatively or non-authoritatively. For ought to only 3 people gave their sentences in authoritative cases.

The result of the pilot study supports my previous hypothesis partly that be to is affected by the speaker's authoritative social status over the listener's, but it claims that should is used more authoritatively than ought to.

Then a survey questionnaire on the basis of the pilot study was designed for further examination. Twenty people were chosen as subjects to give their answers. They were chosen randomly in church, in a ward for young adults in Provo, Utah. There are four items in the questionnaire, the first two of which were based on situations where the speakers are in authority over the listeners and the other two are based on situations where the speakers are not in authority over the listeners. Subjects were able to say whether they would fill in the blank with be to (letter a), should (letter b), ought to (letter c), or be supposed to (letter d) in different situations.

The Questionnaire

Check one answer (or answers) for each item. If you think there is more than one answer suitable, check more than one answer.

1. Suppose you are an army officer. One day you are speaking to your soldiers, "You _____ wait for my command and then start firing."
   a) are to      b) should
   c) ought to    d) are supposed to

2. Suppose you are the chairman of a department in a university. There are some foreign students in your department. They are all required to take at least 9 credit hours each semester according to the U.S. immigration law. One day you are telling this to them, "You _____ take at least 9 credit hours
Results and Discussion

The result of this questionnaire is quite interesting. The data of the survey in large measure agree with the result of the pilot study. In Items 1 and 2 be to was chosen by 16 and 11 people (80% and 55%) while in Items 3 and 4 be to was not chosen by anyone (0%) which means that be to is only spoken by persons in an authoritative position. The data for should and be supposed to indicate the acceptability in both authoritative and non-authoritative situations. Ought to demonstrates a much higher percentage in Items 3 and 4 (70% and 40%) than in Items 1 and 2 (5% and 5%), which further explains the result of the pilot study that ought to is generally not used authoritatively.

Table 2. Percent of People Selecting Each Answer on Each Item

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<tr>
<th></th>
<th>be to</th>
<th>should</th>
<th>ought to</th>
<th>be supposed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1</td>
<td>16 (80%)</td>
<td>9 (45%)</td>
<td>1 (5%)</td>
<td>9 (45%)</td>
</tr>
<tr>
<td>Item 2</td>
<td>11 (55%)</td>
<td>13 (65%)</td>
<td>1 (5%)</td>
<td>15 (75%)</td>
</tr>
<tr>
<td>Item 3</td>
<td>0 (0%)</td>
<td>10 (50%)</td>
<td>14 (70%)</td>
<td>8 (40%)</td>
</tr>
<tr>
<td>Item 4</td>
<td>0 (0%)</td>
<td>11 (55%)</td>
<td>8 (40%)</td>
<td>15 (75%)</td>
</tr>
</tbody>
</table>

At this point I would say that part of my hypothesis is proven in that the use of be to is affected by the speaker's authoritative social status over the listener's, but the data suggest that the
choice of should and be supposed to is not affected by the social status of either the speaker or the listener. The data also disagree with what was previously hypothesized: that the choice of ought to is affected by the authoritative social status of the speaker. On the contrary, the survey has just proved that the choice of ought to is not affected by the social status.

The findings of this study can be applied in ESL/EFL teaching. The teacher can introduce to the students the influence of social status on the choice of these expressions which will help the students gain a better understanding of English modals as well as get their meanings across in a more socially acceptable manner. I suggest that the better way to teach the use of these modal expressions is to present them in contextualized situations. Hopefully this method should work well to improve the communicative competence of the students.

However I have realized that this study is far from complete for the reason that social constituents are much more complicated than what I have assumed. There are other factors that need to be taken into account with respect to the use of the four modal auxiliaries discussed such as age, sex, occupation, atmosphere, etc. Further study should focus on these constituents and the relationship among them and how they affect the choice of the four modal auxiliaries.

References


Spelling and Morpheme Recognition: An Experimental Study

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Introduction

This study was motivated by an interest in how educationally derived knowledge (such as knowledge gained with exposure to the written form of the language) may contribute to the development of normal adult linguistic competence. Since most psycholinguistic research utilizes subjects who are either literate or in the process of becoming literate, it would seem to be important to address this issue experimentally.

Since there is (at present) a growing body of experimental evidence that knowledge of English orthography does, in fact, have some effect on the way speakers conceptualize the sound structure of words, it is possible that this knowledge may affect other linguistic judgements as well. In particular, since the English orthographic system is not simply an irregular code of phoneme-grapheme correspondences but also codes some morphological information, as illustrated by such word pairs as right-righteous, grade-gradual, major-majority sign-signal etc., it is possible that there may be some relationship between a knowledge of particular spellings and a recognition of certain morphological relationships between words. (Conversely, a perception of derivational relations may play a role in improving spelling performance - or lead to misspellings [as in the notorious case of pronunciation]).

To date, this topic has been the object of very little empirical research. One of the reasons for this is the current state of psycholinguistic knowledge in the area of derivational morphology.

In terms of linguistic discussions of word formation (derivational morphology), there are some basic problems which have hindered the formalization of a theory. One of these is that of lexical identity, which includes the definition of the "morpheme" and the difficulty of determining morpheme relatedness between words. In psycholinguistic terms, these problems translate into at least two questions which need to be addressed:

1) To what extent does the average speaker engage in morphological analysis?
2) What are the sources of speakers' morphological knowledge? Can the various sources of morphological knowledge be sorted out?

While linguists can appeal to historical considerations in their discussions of word formation, there are, of course, some rather obvious problems with invoking diachronic knowledge in a synchronic analysis. For example, if words are analyzed etymologically, the word disease has two components. However, the contemporary meaning of disease bears little relationship to the historical combination of dis- and -ease (example from Bolinger, 1948). Etymology, in and of itself, is not a very reliable guide to word relatedness, since historically related word pairs can be located anywhere on a gradient from transparent (love-lover) to completely opaque (doff-hacienda, which are both ultimately derived from a common source, namely, Latin facere 'to do'.) (examples from Bauer, 1983).

Since it cannot be assumed that the average language learner has an awareness of historical morphological relationships, empirical investigation is required in order to assess the ability of typical subjects to recognize morphemes or to make judgements about morphological relationships.

This study had a dual objective. The primary interest of the study was to investigate the role of spelling knowledge in morpheme recognition, or, more specifically, to examine the extent to which the ability to recognize morphemes in "derived" words is correlated with the ability to spell these words. The general hypothesis is as follows:

Knowledge of spellings may play a role in the awareness of morphological relationships, particularly for items where there is a clear orthographic connection...
but some discrepancy on either or both of the dimensions of semantic or phonetic similarity.

To study "awareness of morphological relationships," it was clear that some new methodological tools were required first of all, that is, an experimental procedure was needed to establish some empirical measure of morpheme recognition (MR). Such a procedure could then be used to probe the differences in perception of derivational relationships between spellers and non-spellers (of particular stimulus items), while controlling for factors such as age and educational background. Since both spelling and MR were being investigated, the experiment consisted of a spelling production task and a morpheme recognition task.

The Experiments

TASK 1: SPELLING PRODUCTION

The spelling task was administered to 207 subjects in grades 4 through 7. Data from students who were identified as having obvious language deficits, ESL backgrounds, etc., were eliminated from the study.

The stimulus items were 60 pairs of English words, where one member of the pair was the putative "root" of the second "derived" word. All word pairs involved spelling similarities that could potentially make the morphological relationship clearer than what it would be solely on the basis of phonological/semantic similarity. As well, all were commonly used words whose spelling difficulty ranged from grades 3 to 8.

The final list represented varying degrees of orthographic, phonological and semantic similarity, but was limited to a small number of common affixes. The list also contained a number of etymological compounds (e.g., breakfast, cupboard, handkerchief) and a few word pairs having a dubious or patently false morphological connection (e.g., draw-drawer, price-precious, ear-eerie, fry-Friday, sting-stingy, table-vegetable).

PROCEDURE

The "derived" members of the word pairs were randomized and dictated to each class. Subjects were asked to attempt the spellings of all words and to indicate (by means of a check) whether they knew the meanings of the words. The spellings of the "roots" were elicited as the last step in the MR task.

TASK 2: MORPHEME RECOGNITION

Subjects and stimulus items selected for the MR task were subsets of the subject groups (n=207) and stimulus sets (n=60) described above. Because the MR task was rather elaborate and time consuming, the number of subjects and stimuli had to be kept to a practical minimum. In the final analysis, 12 pairs of subjects were chosen at each grade level. At 24 subjects per grade, there were therefore a total of 96 subjects selected for Task II.

The final selection of the stimulus items for Task II involved 2 sets of words: one for the subjects in grades 4-5 (Set I) and one for the subjects in grades 6-7 (Set 2), as follows:

### SET I: (Grades 4-5)

- awful
- cavity
- creature
- criminal
- cupboard*
- drawer*
- electricity
- messenger*
- necklace
- president
- signal
PROCEDURE

In order to assess MR, a new "enhanced" technique was developed, incorporating elements from two prior experimental investigations of morpheme recognition (Berko 1958 and Derwing 1976). Each subject was individually interviewed by the examiner in a quiet room at school. All subject responses were recorded, and the directions to the subjects included the following two training examples:

EXAMPLE 1: (This example was the word pair TEACH-TEACHER which was taken as a clear, uncontroversial case of morphological relatedness.)

Q1. (Definition question) What does the word TEACHER mean to you?
Q2. (Berko-type question) Why is a TEACHER called a TEACHER?
Q3. (CF1) Does the word TEACHER "come from" any other word that you know of?

A. If answer to Q3 is YES:
   Q4. Which word?
   Q5. Why do you think so?
   (If subjects seemed uncertain or were unable to give a reason here, they were asked to confirm/disconfirm with CF2: Do you think that TEACHER "comes from" the word TEACH?)
   Q6. Did you ever think of this before or did you just think of it now that I asked you about these words?
   Spell TEACH--------
   Spell TEACHER-------

B. If answer to Q3 is NO or NOT SURE:
   Q4. Do you know the word TEACH?
      YES   NO
      What does it mean?
      Spell TEACH--------
      Spell TEACHER-------
   Q5. Do you think that TEACHER "comes from" the word TEACH?
      YES   NO
      Why do you think so?
      Questioning terminated.
      Spell TEACH--------
      Spell TEACHER-------
   Q6. (Recall question) Did you ever think of this before or did you just think so now that I asked you about these words?
      Spell TEACH--------
      Spell TEACHER-------

EXAMPLE 2: (This example was the word pair HAM-HAMMER, which was taken as a clear case of non-relatedness: though the two words are similar phonologically and orthographically, they are not related, either historically or synchronically.) The questioning followed the same procedure as
the previous example. Subjects who responded positively to the MR questions were asked the following questions.

1. What does the word HAM mean?
2. Why do you think the word HAMMER comes from the word HAM?
   (None were able to think of a plausible reason.)
3. Do you think HAM is related to HAMMER like TEACH is related to TEACHER?
4. Do you think that the word HAMMER "comes from" the word HAM or do you think that HAM is a different word that sounds the same?
5. Did you ever think before that HAMMER came from the word HAM - or are you just trying to think of a word now?

At the end of this questioning, all subjects had concluded that HAM was not related to HAMMER but was rather a different word that merely sounded the same. This was the only "coaching" or other guidance which subjects received. It was considered essential in the training examples, however, in order to ensure that the subjects were aware of the nature of the task and did not simply think that they were always expected to find a new word within each stimulus word.

After the examiner was satisfied that each subject understood the task, the testing proceeded with the 11 items in the appropriate stimulus set. Each individual testing session lasted approximately 20 minutes.

SCORING SYSTEM

Although three alternative systems were devised to score the MR data, a "profile" system was used for most of the analyses. In this system, a subject's responses to each item were coded in terms of a six-point "profile," with a 0 or 1 supplied for each of the six questions outlined previously and summarized for convenience below, with the criterion for a positive response to each shown in parentheses.

Q1. Definition of derived word. (Does the subject use the "root"?)
Q2. Berko-type question. (Is the "root" used?)
Q3. (CF-1) Does the derived word "come from" any other word?
   (Is the "root" indicated?)
Q4. Does the subject know the "root" word?
   (Confirmed by having the subject define the word.)
Q5. Subjects were given at least one of the following questions:
   (CF-2) Do you think that the derived word comes from the suggested word?
   (asked if the root was identified in Q3)
   Why do you think the derived word comes from the word you suggested?
   (asked if root was identified in Q3)
Q6. Did the subject ever think of this relationship before?

A subject was assigned a score of 1 for every answer indicative of a "positive" linkage of the derived word with its putative root and a score of 0 for each "negative" response. In all, the following 25 different response profiles were produced from a data base containing 1056 MR responses, and these are arranged here as to high (4-6 correct) and low (0-3) scores (*denotes isolated cases):
ANALYSES AND RESULTS

Data gained from the 96 subjects' responses to the two tasks were analyzed with respect to the two objectives of the study. That is, some analyses were concerned with evaluating aspects of the methodology and studying the inter-correlations among the various parts of the MR test. Other analyses focused on exploring the relationship between spelling knowledge and morpheme recognition. This paper will focus only on these latter analyses.

DEFINITION OF SPELLING GROUPS

Groups of spellers and misspellers for each stimulus item were defined in terms of a notion of "critical" spelling error. This grouping distinction considered both the spelling of the "root" and the (pre-MR) spelling of the "derived" words. If the spelling of the root and the derived word corresponded, the subject was given a score of "S," indicating that the critical spellings were the same, while a score of "D" was assigned to represent cases where the critical spellings differed. Misspellings beyond the root were considered irrelevant to the MR issue.

There were two categories of spellings that were coded "S." In the first case, the subject spelled the root CORRECTLY, and the initial spelling of the derived word contained all the letters that the derived word and its root have in common. For words like SIGNAL and CUPBOARD the "critical" spelling is the entire root. (Only one root was focused on for compounds, in this case CUP.) For words like CRIMINAL and DECISION, the "critical" spelling is the first four letters which are shared. Thus CUP/CUPBERD, KNOWLGE/KNOW and CRIMNEL/CRIME were all included in the "S" category.

A second spelling pattern which was coded "S" was consistently incorrect spellings. That is, the subject misspelled the root and the derived word in the same way, as in SIGHN/SIGNNAL, NO/NOLIDGE, POLUT/POLUTION and CREAT/CREATURE. All other misspellings were coded "D." A few spellings raised some interesting questions. For example, the spelling KNOW/KNOLEGE was coded "D" according to the strict standard, due to the absence of the W in the second word, yet the presence of the silent K in both words suggests that an "S" coding might well have been more appropriate in this case.

In addition to a few such problematic scoring cases, a few items (CRIME/CRIMINAL and CAVE/CAVITY at the grade 4-5 level and TABLE/VEGETABLE and FABLE/FABULOUS at the grade 6-7 level) were eliminated from useful grouping analyses, as the spelling errors involved in these words were mostly of the non-critical variety.
ITEM ANALYSES

The analyses addressed the question of whether there were any significant differences between the S and D groups, taking a variety of different profiles as definitions of morpheme recognition. For example, a Chi-square test was performed on the groups S and D for the responses YES (a morphological relationship was perceived) and NO (no perception of a morphological relationship was indicated). By the least stringent definition, YES was defined in terms of positive responses to Q4 (knowledge of the root) and Q5 (second CF question), while NO was defined as a positive response to Q4 and a negative response to Q5 (the second "comes from" question). In other words, only subjects who indicated that they knew the potential root were included in the analysis. (Note that one advantage of this particular definition is that the sub-profile in question is characteristic of all but one of the full profiles that correspond to a HIGH (4-6) score on the complete MR test, as can be seen from the complete list of response profiles provided above.) This and the other two profiles used are summarized below in general form, where "1" and "0" have the same meaning as before and "x" indicates that the responses are irrelevant (i.e., free to vary):

<table>
<thead>
<tr>
<th>CRITERION 1</th>
<th>CRITERION 2</th>
<th>CRITERION 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES = xxx1lx</td>
<td>xx11lx</td>
<td>xx111x</td>
</tr>
<tr>
<td>NO = xxx10x</td>
<td>xx011x</td>
<td>all other profiles</td>
</tr>
<tr>
<td>or xx110x</td>
<td>or xx010x</td>
<td></td>
</tr>
</tbody>
</table>

The following items, then, are those for which a significant difference was found between the S and D groups by at least one of the three definitions of MR given above. Some items showed up repeatedly at various levels of significance (especially CUPBOARD, which always showed high levels of significance), while other items showed up in only one or two analyses (particularly the least stringent definition of MR). Note that, for all but one of the items indicated, the spelling of the "root" is completely within the spelling of the "derived" word (the exception is CREATE).

There were a number of stimulus items for which there were no significant differences in MR between the two spelling groups, who responded to these items in similar ways. Basically, two types of responses were identified for these items.

(a) For one group of items, the subjects saw no relationship between the "derived" word and its putative "root." The item VEGETABLE, for example, was a control item whose treatment indicates that spelling alone (in the absence of a semantic connection) was not sufficient for establishing a morphological relationship with the word TABLE. Even a relatively obscure semantic connection can be made more accessible, however, if the orthographic evidence is clear, as indicated by the fact that the spellers were more successful than the non-spellers in recognizing the LACE in NECKLACE, the DRAW in DRAWER, and to some degree, even the CREATE in CREATURE. In the items CAVE/CAVITY, FABLE/FABULOUS and PRICE/PRECIOUS, however, the orthographic evidence is tenuous and the semantic connection appears to be obscure to both spelling groups, leaving little doubt that these words represent distinct lexical items for these subjects (contrary to the assumptions of some linguists).

(b) For a second group of items, subjects (regardless of spelling group) were inclined to agree that the derived word "came from" the putative root, although they may not have considered such a possibility prior to the experiment. This result cannot be taken to indicate that the knowledge of these morphological relationships was gained solely by exposure to the spoken forms and that educationally derived knowledge (such as knowledge of the spelling) played no role, as there are several reasons for suspecting that these factors were of some importance with some of these items.

All of the items that were treated in this manner have a relatively strong (synchronic) semantic connection with their putative roots, although the degrees of phonological and orthographic similarity vary somewhat. It is interesting to note that for the two of the three words in this set for which the orthographic evidence is the most clear (DISCUSSION and SIGNAL), but not ELECTRICITY,
several of the statistical analyses performed yielded differences which reached or closely approached significance, as noted above. For the most part, however, the strong semantic connections seem to be the most important factor, though it is not always sufficient to establish a morphological connection. The profiles for the item CRIMINAL, for example, show that most of the subjects responded positively to both of the “comes from” questions, yet few claimed to have considered any relationship with the word CRIME prior to the experiment. This may be due to the phonological discrepancy (vowel change) between the root and the derived word, combined with the fact that the suffix -al may be relatively unproductive for these subjects. (Note the many English words ending in -al which have no obvious synchronic root, such as royal, loyal, oral, capital, etc.)

The word MESSENGER was the only item in this group to be presented at all grade levels and, although no differences were found between the spelling groups at any level, the degree of root morpheme recognition for this item increased markedly from grades 4-5 to grades 6-7. This may be indicative of educational experience as a significant factor in the ability to recognize morphological relationships between words.

The words containing the -(t)ion suffix were used at the grade 6-7 level only. There were no significant differences between the spelling groups (except for the item DISCUSSION) and, in all cases, two-thirds or more of the subjects claimed to have been aware of the relationship between the derived word and its root prior to the experiment. An examination of the misspellings of these words shows that, whatever the cause of the error, all attempts to spell these words end in either -tion or -ion, rather than the phonetically plausible -shen or -shun. This suggests that subjects have some awareness of -(t)ion as an affix and the potential for words containing this suffix is increased. This seems to be another case where educationally derived knowledge, particularly knowledge of the orthographic structure of words, can contribute to awareness of derivational relationships.

Conclusion

This study complements prior research which showed that ordinary language learners do learn some morphological generalizations. This can be most clearly demonstrated in cases where both the phonetic and the semantic similarities between words are obvious and the affixes are regular and highly productive (cf. Derwing 1976). Beyond such “obvious” cases, however, there is little empirical evidence that the morphological awareness of the typical speaker anywhere approximates the linguist’s penchant for detailed morphemic analysis. We found evidence that many words thought to be related by linguists are unrelated for ordinary speakers.

It is clear that the semantic factor is the most important variable in morpheme recognition. Subjects do not find any relationship between pairs like HAM-HAMMER or TABLE-VEGETABLE, for example. However, this study has provided evidence that the semantic connection can be critically tied to orthographic similarity. If a phonological discrepancy disguises a semantic connection, or if the synchronic meaning of a word bears only a slight relationship to its historical root, literate speakers may still accept the possibility of a morphological relationship when it is suggested to them on the basis of spelling support. This was clearly the case with the historically related pairs DRAW-DRAWER and LACE-NECKLACE in this study, for not only were statistically significant differences in MR found between the spelling groups for these words, but it was almost always the case that those subjects who scored YES on the MR task came from the S group. These same tendencies can also be found in the crosstabulations for a number of other items, such as CREATURE, KNOWLEDGE, SIGNAL, and especially CUPBOARD.

A final observation which points to differences in MR between the two groups is that, for a number of items, the S group accounted for many more types of profiles than did the D group. While these profiles did not necessarily correspond to clear cases of morpheme recognition, they did suggest that the spellers at least had different cognitive associations for these items. Consider the following conversation between the experimenter and a seventh-grade speller of the stimulus item:

CUPBOARD (110100).
E: What does the word CUPBOARD mean to you?
S: It’s a little room that contains cups and dishes.
E: Why do you think a CUPBOARD is called a CUPBOARD?
S: (smile) 'cause it's a place where cups board.
E: Does the word CUPBOARD "come from" any word that you know?
S: No
E: Do you know the word CUP?
S: Well...yeah (as if to say "of course").
E: Do you think that the word CUPBOARD "comes from" the word CUP?
S: Uh...Nah.

This subject has clearly capitalized on the potential morphemic information provided by the spelling of the word CUPBOARD, but is still not convinced that this provides a sufficient basis for establishing a morphological relationship between the two words, evidently because the semantic connection is simply too obscure to be taken seriously.

In summary, this study has provided evidence that subjects do make use of orthographic information in analyzing words morphologically, although knowledge of the spelling will not necessarily lead to the perception of a relationship if there is not a reasonably accessible (synchronic) semantic connection to go along with it. We have found evidence that other sources of educationally-derived knowledge can also lead to an increased capacity for morphological awareness. Further empirical investigation and more refined methodological tools will be required in order to gain more insight into the sources of speakers' morphological knowledge and to determine the extent to which speakers actually engage in morphological analysis.

Note
1The first author, M.L. Smith, gratefully acknowledges travel assistance provided by the Faculty of Graduate Studies and Research and by the Alma Mater Fund of the University of Alberta.

References
Modeling complex interactive speech events
Matthew R. Sorenson
Automated Language Processing Systems

In looking at language as it is used by patients and staff in an institutional context, we encounter complex, interactive speech events. That is, there are conventionalized sequences of speech events, some embedded within others, and constructed by different speakers taking turns. We would like to find a useful way to model these sequences. After examining a range of analytical tools available to linguists, it appears that Augmented Transition Networks are useful for representing the facts, as well as in accounting for accommodation, and co-occurrence restrictions.

the setting and methods

Hundreds of instances of address forms, greetings, requests, and interventions were gathered in a locked ward of a state mental hospital. The requests were uttered by professional staff, direct care staff, and patients during the normal routine of the day on all shifts. They were recorded on paper by me as they occurred, as I was working at different points in time as a therapist-technician, recreational therapist, direct care worker, or volunteer, over a period of two years. This was part of a research project aimed at describing the major linguistic resources and ways of speaking of the hospital speech community. Methods were ethnographic, including participant observation and interviews.

data

The most common form of address is first name only. The notable exception is when the psychiatrist is addressed, and then title plus last name is normal. In addressing patients, staff members may emphasize their institutional authority by using first plus last name. Nicknames are used by staff in a few cases of established intimacy with particular patients. If staff is addressing an institutionally defined group of patients, then the group name may be used in place of personal names.

Patients do not use last names in addressing other patients or staff, except in the case of the psychiatrist.

If the name of the addressee is unknown, staff members will tend to ask for the name, but patients will likely not use any form of address. In many cases some impersonal address form can be used when a name is not known (sir, ma'am, etc).

Greetings include the use of an address form as a component. However the range of choices for address form within a personal greeting is constrained by the familiarity that is assumed by the event itself. That is, you don't greet someone you don't know, and you don't greet groups. So the address form in this context is likely to be first name only.

Preceding the address form is some sort of exclamation, ranging in formality from a staff-like "hello" to a patient-like "hey". Following the exclamation and the address form is an optional elaboration, which may be an inquiry, or a word of praise if the speaker is staff,
or may be an expression of self-praise if the speaker is a patient. Either staff or patient can elaborate on the greeting with a request.

The greeting may be capped off with an expression of status or group membership. Patients may offer a hug, or put a hand on the shoulder of the addressee. Staff members may shake hands, or issue a prompt that refers to either an understood or an already issued request.

requests

Requests have been considered in terms of politeness. Craig, Tracy, and Spisak (1986) recently reviewed accounts of requests based on the ideas of Brown and Levinson (1978) about the centrality of politeness. They concluded that although a variety of politeness strategies can be observed, there are too many other significant aspects of requests that cannot be explained in terms of politeness alone.

Ervin-Tripp (1976) described five types of requests that differed in their degree of indirectness. Her discussion of these requests focussed on three functions of sociolinguistic alternations:

1) they assert features of social relationships,
2) they carry connotative meaning through association with other 'metaphorical equivalence systems', and
3) they can interact with boundary-markers and situation-identifiers.

Labov and Fanshel (1977) discussed the relation between direct vs. indirect requests, and mitigated vs. aggravated requests in a therapeutic setting. A set of interpretive rules were proposed, including a rule of requests, a rule of indirect requests, a rule of embedded requests, and a rule of repeated requests. They suggested that linguists should be looking at the connections between utterances in discourse, and that these connections are not simply linguistic but should be seen in terms of a sequence of actions.

So, an account of requests should include directness, politeness, and mitigation as a minimum, but these are mechanisms for bigger interactional purposes, including statements of social identity, and the marking of situations or boundaries. Variation in requests can assume meaning by co-varying in form with the identity alignments of interactants.

Requests in the institution have four basic components. The first is the core request, which is followed by an address form, followed by an optional expression of politeness. Finally there is an expression of power optionally given by staff, which may consist of either some kind of evaluation of the situation or addressee, or else a warning about the possible consequences of not cooperating with the request.

Two institutional kinds of requests are roundup and redirection.

Roundup occurs when a staff member makes a request for a group of patients to start some routine activity. The activity is announced and the patients are addressed either as an impersonal group, or by a sequence of individual address forms. Typically the core request is very abbreviated or just implied.
If a patient's behavior conflicts with institutional standards staff members may remind them to do what they are supposed to do. This mild verbal intervention to correct patient behavior is called "redirection".

Requests are responded to, sometimes verbally, and in the institution, very often with refusals. When a redirection doesn't work the staff may decide to initiate an intervention.

Interventions are the most complex and most distinctively institutional speech events at the hospital. They include long sequences of address forms, requests, refusals, warnings, negotiations, instructions, and documentation. An intervention is a clearly coherant, structured, and repeatable speech event in the hospital. It is constructed by the cooperation of multiple speakers, who take on multiple roles, taking turns in adding parts to the whole event.

The whole process, including both verbal and non-verbal structures, is conventionally structured and must be learned over a period of months by new members in the community, both staff members and patients. Inept newcomers will be coached in the proper sequence, and in their proper role, by peers and authorities.

Interventions are very difficult to handle. A lot of things can go wrong, and the experience is very stressful. Among the staff there is a huge range of skills, and only the most experienced employees have a consistent and confident grasp on the whole process. Among the patients also, there are those who have been in the hospital long enough that they understand how to manipulate the structure of the event to their own ends, gaining face among peers for resistance to authority without getting seriously 'busted'.

We have spoken here of ways in which patients talk in opposition to ways in which staff members talk. It must be noted that this is an ideal opposition and the quality of an utterance can range between the extremes. There are occasions when patients see a need to talk like staff, and they can perform that way. Staff talk can likewise approach the patient style if there is a need to establish informality or solidarity with a patient.

These differences in style also will be found between individuals. Two people with the same social role, or same job, can make consistently distinctive choices that result in personal style.

representation

In order to represent these complex, interactive speech events we need a formalism that:

1) shows the variables and options that are choosable by speakers,
2) shows the whole structure of the speech event (not just features),
3) makes reference to meaningful categories of social identity,
4) relates linguistic choices to these meaningful social categories,
5) handles recursive generation of embeddings and repetitions,
6) allows for turns between multiple speakers,
7) is useful for modelling both speaker and hearer, and
8) allows for dynamic adjustments in strategy and style.

That is a tall order. Where are we to find such a beast?

It is not uncommon for sociolinguistics to be equated with the use of the variable rule. The variable rule has some obvious applications, but also has some clear drawbacks as a model of sociolinguistic processes.

First of all, the connections between variables is not made clear. Rules can be written for each socially significant phonological marker, but to make sense out of sets or systems of variables is impossible without going beyond the rule formalism.

Discourse phenomena are not amenable to variable rule analysis. In particular, the cooperative interaction of multiple speakers in building of complex speech events is beyond the realm of the variable rule.

Speech act theory was supposed to allow linguists to examine the non-propositional meaning (illocutionary force) of utterances that are not well understood from a truth-conditional viewpoint. The prospect of describing utterances in terms of their use, and in terms of the intentions of speakers had to be appealing to sociolinguists. But the major proponents of speech act theory never looked at real language in context. The data was limited to single sentences, by single speakers. How speech acts are combined, sequenced, or embedded by speakers was not examined. Reference was never made to how the social categories or the social processes in a speech community molded their use.

What a speech act was and what speech act theory claimed was never satisfactorily formalized. The whole program was left sputtering in the early, taxonomic, stages of formalization.

Theorists could never eliminate the persistent ambiguity in the assignment of illocutionary force to an utterance. It is difficult to tell how a sentence is being used, even in cases where there is an overt performative verb (Gazdar 1981). The lack of a predictable function between form and force was frustrating to those who were reluctant to look at the social-interactive context of the utterance.

Here we have spoken of speech events, not speech acts, avoiding the suggestion of a one to one correspondence between sentences and intended illocutionary actions. In our data, the illocutionary force of one particular utterance is determined by its participation in the conventional sequence of which it is a contributing part.

Script theory posits a cluster of expectations organized into an abstract type of experienced event. These expectations include what is likely to happen, in what sequence, who the typical actors are, as well as (perhaps defaulted) values, or slots, for time, location, purpose, etc.

The notion of scripts, especially if applied to speech events, begins to approach the kind of model we need. We can see a whole complex event, made up of a sequence of choices,
with multiple speakers, and a way to access information about the context. Script theory could be elaborated to describe the embedding of events. That is, one slot in a script can be a script itself.

However, we also want to model the way speakers make linguistic choices in relation to their ongoing evaluation of the context of interaction, including reference to social categories, and allowing for adjustments in style.

In syntax, a transition network model (Woods 1970) has been argued for over a system of rules because of its perspectivity, generative power, efficiency of implementation, efficiency of representation, its ability to express regularities, its suitability for prediction and experimentation, and the fact that it may function as both parser and generator (as model for both speaker and hearer).

This formalism is general and powerful and can serve to represent much of what we have already talked about, including the sequenced, defaulted, contextualized sets of expectations offered by scripts.

A transition network is a sequence of states connected by directed arcs. The system progresses from a start state, which may be associated with a string to be parsed, and moves over a network of arcs to a final state. If the string is completely parsed (or a valid string is completely generated) at the final state, then the output of the network is acceptable.

A minimally complex type of transition network that might account for the facts observed in requests is a Recursive Transition Network (RTN). This formalism allows for a node in a network to refer to an embedded network.

The Augmented Transition Network (ATN) has the following augmentations over the RTN:

1) registers (for accumulated information),
2) tests (on an arc as part of the decision to take it),
3) actions (to be implemented on the registers after taking an arc).

ATN description of speech events

In the diagram below the decisions and alternatives that must be considered by speakers in making requests at TTC are modelled. The four possible components of a request are: the core request itself, the name of the person receiving the request, some expressions of politeness, and an expression of power. The generation of a complete request requires the combination of several networks, in the indicated order.

Each node represents a choice. A positive choice to implement the alternative indicated at any node must be followed by the decision associated with the node immediately below it. A negative choice NOT to implement a node must result in moving to the node immediately to the right. Options linked by arrows horizontally within a box are exclusively ordered in that at most one of them may be selected. The options listed vertically may co-occur.
The start node is always in the upper left corner of the box marking the boundary of the transition network that generates one component of the request. End nodes have no exiting arcs. Nodes marked with a doubled rectangle represent push points at which embedded networks are initiated.

The four components of the request are ATNs in themselves, and the model of the whole is a network of networks.
The strongest form of the core request is the imperative. If the context is clear, the imperative may be deleted. If deleted, it may be replaced by the placeholder phrase "come on". If not deleted the imperative may be emphasized by preposing "come" to it. Alternatively, the imperative may be reduplicated.

If the imperative is not chosen the next alternative is the direct request. If the direct request is not chosen, an indirect request may be used. Indirect requests make reference to preconditions for, or parts of, a request (Labov and Fanshel 1977, Searle 1975).

The most patient-like alternative is the incomplete request, which is syntactically deficient, but still interpretable. A simple grunt may serve as an incomplete request for a totally non-verbal patient.

This core component is obligatory for all requests. The other following components are common but optional. That is, the transition networks may be satisfied at the end node, without having generated an output string. However, the choices made are recorded in the registers of the ATN and that information may be available subsequently. In other words, not using someone's name, or not using politeness expressions may be meaningful.

An address form may be added to the core request. The unmarked form of address is the first name only and is the most commonly used in constructing requests. The address form may be preposed or postposed to the core request.

Then some expression of politeness may be added. "Thank you", "let's go", "all right", and "please" are placed at the end of the request. "Sir" or "ma'am" tend to be ordered at the end, but may also be ordered directly after the address form. "Ok", "hey", and "hi" occur at the beginning of the utterance, which is typical of these discourse boundary markers.

The final component of requests is an overt expression of power. Normally this is an indication that the speaker is staff. This expression may either be a statement of evaluation, or a warning. An evaluation may consist of either a positive or negative statement about the individual being addressed, or about the context out of which the request was generated. More extremely, a warning may be given about what is likely to happen if the request is not satisfied.

These networks are structured such that moving through the network to the right (with negative decisions), results in the generation of a request that is more informal, indirect, and abbreviated, characterizing patient talk. On the other hand, a path though the network dominated by positive decisions (moving vertically downward, staying to the left) will generate requests that are formal, direct, and elaborated, and will be recognized as typical of staff talk.

What is significant is not that patients are always on one end and staff on the other, but that the social and institutional meaning of a request is consistent depending on how it is put together. People do fall (or strategically place themselves) in the middle, but the way they think about each other's behavior shows that the opposition between the extremes is meaningful.
When staff or patients make requests, they may range anywhere in between the two extreme poles of staff and patient talk. Sometimes patients use more elaborated and formal requests so that they sound like staff. And sometimes the staff will make their requests incomplete, informal, and short so as to sound like a patient. When these things happen, it is noticed by everyone, it may be challenged, and it may be considered funny.

The social categories in this case are on bipolar continuum, inherent in almost every speech act. Social role is defined externally, but relative positions are negotiated within and between individuals in both groups by variation in the structuration of many different speech events.

A node in a network may consist of another network. This embedded structure may have its own set of tests, registers, and actions. It may even be produced by another speaker and that fact may be part of the test associated with the calling, or embedding, node.

co-occurrence and accommodatio

Other observations could be explained as well using this representation. Co-occurrence patterns could be created by allowing an arc to act on the probabilities of transition. That is, if a speaker begins by aligning him/herself with the patient role, then that information can be registered, and similar alignment choices will be made at subsequent test points in the network.

Similarly, the alignments of social identity taken by others can be noted in the registers of the generating ATN. As choices are made in the network the transition probabilities are changed, resulting in either accommodation or differentiation between speakers.

examples

Undoubtedly the most common speech act on the ward is the request. Patients ask for favors and information from the staff and vice versa. It is to a limited extent that we find patients and staff making requests of their peers (patients of patients, staff of staff). Following are descriptions and examples of various types of requests as they were observed in the institution. Names have been changed for confidentiality.

patient-to-patient requests

Example. 9/26/83 5:15 pm. Ward A dayroom. Gina H. (pt) was being bothered by Clark C. (pt), who was well into the amorous stage of his 52-day mood cycle.

GH "Go away!" [yelling at Clark]
GH "Go away!" [louder]
GH "He's bothering me! [looking at me (volunteer). I did nothing.]
GH "Go away!"
GH "He's botherin' me and botherin' me and they don't do nothin' about it!"
[She stomped away, angry at me for not intervening, in spite of the fact that she could have handled it herself. She considered me to be staff.]
Here is a series of requests, or perhaps a series constituting a request. Gina begins by issuing a bare imperative, with no name, no elaboration, and no comment. This first request is directed at the male patient who was bothering her. Then as she turns to one she considers staff, the request is indirect, referring to conditions that would indicate the need for intervention. She repeats the bare imperative towards the other patient, and then getting no satisfaction, she leaves with an angry evaluation of the situation, which in itself may be considered another indirect request.

Gina indicates she has no lack of status vis-à-vis her peer by the use of a very strong imperative. But the request is typically patient-like because of the lack of elaboration. There is no name, no politeness, and no evaluation or warning. She indicates her status relative to staff by the indirectness of the next request, although it too is still unelaborated. Her parting evaluation, however, would be seen in the hospital as very assertive and not very patient-like.

So we see that who the speaker is and who the hearer is can mold the decisions that go into the construction of a request. There is a consistently interpretable semantic association between speech event alternatives and social roles. The range of choices opens up a sociolinguistic space within which speakers navigate a course.

**patient-to-staff requests**

Patient to staff requests tend to be abbreviated, informal and indirect. Without satisfaction, the request is repeatable (usually in unaltered form).

Example. no date. During lunch in the dining room Louis B. (pt) called out to Doris A. (rec tech).

LB “Hey girl, gimme points f puttin' my napkin in my lap?”
[ No response. ]

LB “Hey girl, gimme points f puttin' my napkin in my lap?”
[ No response, except that she looked at him. ]
[ She ignored him for about one minute, while he was quiet. Then she went over and punched his card. ]

These patient initiated requests are abbreviated and tend to lack address forms, politeness forms, explanations, or emphatic phrases. For example, the name of the staff member that is being addressed may be deleted and the last name would rarely be included.

**staff-to-patient requests**

In the case of the staff-to-patient request the pattern is complementary to what was just described. Whereas patients are more abbreviated, informal and indirect, the requests of staff are more elaborated, formal and direct.

These requests tend to have fuller address forms, more politeness expressions, more explanations and more emphatic phrases. The utterance will also tend to be imperative or in overt second person.
Example. 11/9/83 5:30 pm. Ward A main hall. James A. (MHW) after dinner was over was rounding up patients to go take showers. He yelled down the hall from the dining room door to the nurse's station.

JA  "John Hanson, brush your teeth. Let's get ready to take a shower."
[ No verbal response from John. He got his toothbrush. ]

This very routine request consisted of 1) a core imperative, 2) a full name, 3) an indication of politeness in the use of "let's", and 4) an evaluative prompt indicating what the situational context was for the request. All of these features, and the stringing of them all together, indicate that the request was coming from staff in a very institutional setting.

conclusion

We have described requests in the mental hospital. We have presented the request as a coherant sequence of choices between sociolinguistically significant variables. We have seen how social interaction is connected to the two major categories of social structure. Politeness, mitigation, and indirectness in requests can be embedded in the ATN representation. The networks can be seen in either qualitative or quantitative terms, and can be used to account for observed dynamics between speakers, like accommodation and co-occurrence.

Using an ATN for modelling the structure of a speech event is explicit and general. The facts are represented economically. It is not incompatible with quantitative measurements, since a probability could be assigned as a test to each arc in the network. This representation allows us to treat speech events as complex, interactive, and socially meaningful.

references


The Phonemic Nature of Sign Language

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Man's existence historically has been a search for the "ultimate" in whatever pursuit he may fancy. The natural goal for the linguist has been the discovery of the definitive units of language, much like the quest of science for the fundamental particle of matter embodied until recently in the atom. Traditionally, the search began with the study of writing systems and continued with the gradual disassociation of the speech sequence into its smallest possible segment. Eventually, however, the Prague Linguistics Circle proposed a "phonological unit" as a binary representation of the ultimate constituent of language and the goal became the definition of the relationships between discrete units (Jakobson 1979:18).

It has been said that human beings are acoustically sensitive to these units, which have been called "distinctive features," because they instruct us as to which phoneme to use to distinguish words of unlike meaning. What of those who, because of nature or mishap, find acoustic or articulatory oppositions meaningless? Two options are left to those who for some reason are left with hearing at less than a functional level: first is speechreading, or lipreading, and the second, some form of manual representation of language, upon which type this discussion is based. However, I will confine my review not to those abundant codes which are based on English, but to American Sign Language.

Worth mentioning at this point is the relative immaturity of the linguistic analysis of ASL. It was not considered anything more than "bad English" (based on observations of the illiteracy of the Deaf Community when writing) until the 1960's with the publication of Sign Language Structure: An Outline of the Visual Communication Systems of the American Deaf by William Stokoe, a hearing linguist who noted that sign language was a language just like any other and as such could be considered an abstract symbol that could be
Therefore, it has been proposed that American Sign Language (ASL) consists of four elements: signs, classifiers, facial expression, and body language or mime (Cokely and Baker 1980:33). The motions included in ASL are fundamentally different from those hand-wavings and unconscious gestures that often accompany even verbal communication. I would like to propose that ASL has a set of "ultimate constituents" much like the phonemic distinctive features of spoken language. Instead of maximal contrast in audibility, of course, the objective of this language is visibility.

The idea of finding a set of distinctive features in Sign Language is not new, in fact Stokoe broke ASL down into three independent parts: location, or where on the body or in space is the sign being made, handshape, and movement. Then he suggested that each could be further detailed into finer and finer parts (Battison 1980:48).

His ideas have since been expanded by such researchers as Peng (1976:188-9) who set forth the signed universal syllable type, which is represented in spoken languages as the opposition between consonant and vowel, as signs involving body contact (consonants) and all others (vowels). Kegl and Wilbur (1976:376) made the proposal that C-V relationships actually were indicated manually by hands (consonants) and facial expression (vowels). Even more interesting was Chinchor's (1978, quoted by Liddell) attempt to differentiate between static and motion. Finally, Liddell (1984:396) makes a reasonable case in Chinsor's support by introducing the notion of three manners of motion (much like the three manners of the articulation of consonants: stop, fricative, and affricate) which he defines as hold, continuous, and restrained.

Cokely and Baker (1980:79) discuss Stokoe's units of ASL with one additional parameter: palm orientation:

"By combining a specific handshape, palm orientation, and movement in a particular location, one makes a sign. These four parts of a sign are called its parameters. Each parameter has a set of members that [Stokoe] called primes. For example, the handshapes 'A', '5' and '0' (as
in GIRL, FATHER and NONE) are three primes within the handshape parameter. 'Palm up' and 'Palm down' (as in MAYBE and BALANCE) are two primes within the palm orientation parameter. 'Circular' and 'back and forth' (as in PLEASE and TRAIN) are primes within the movement parameter. 'Head' and 'waist' (as in RABBIT and RUSSIA) are primes within the location parameter. The Dictionary of American Sign Language by Stokoe, Casterline, and Croneburg lists 18-19 handshape primes, 24 movement primes and 12 location primes (the dictionary did not mention palm orientation primes, although some linguists have said there are about six such primes, and some linguists disagree that palm orientation should be analyzed as a separate parameter.) Other linguists have used different ways of counting, and the question about exactly how many primes are within each parameter is still being studied."

I would suggest that trying to count each differentiation as a separate prime is counterproductive. It could be likened to the beginnings of phonology, if linguists had said "Now, which consonants are made on the upper lip and which on the lower; which with the incisors together and which with the molars" and even "which with the tongue up, down, sideways (and which side), bent in the middle, straight . . ." rather than grouping like characteristics into sets.

"Indisputably, the grammatical pattern of the sentence, the context of the words as issue, and the situation which surrounds the given utterance prompt the hearer's apprehension of the actual sense of the words so that he doesn't need to pick up [every] constituent of the [sequence]" (Jacobson 1979:4). But there exists a wide range of choices open to the receiver and it is only through such minute distinctions as "pill" and "bill" that sense can be made from what we hear in ordinary speech.

The idea that in an analysis of structure "it is not things that matter but the relations between them" (Jacobson 1979:18) has led to the expression of the distinctions mentioned previously in terms of a binary opposition, a compound in one, most often known as "distinctive features." Roman Jakobson stated that:

"For the sake of efficiency the perception of the sense- discriminative cues naturally has recourse to the polar differentiators facing the native decoder with
a set of bare yes-or-no decisions between any two members of binary oppositions. In this way, the need for maximal simplicity, not only in the scientist's approach to the [pattern] of language, but first and foremost in the daily strategy of the language user, is fulfilled, especially since the number of oppositions in any given language is prefabricated and strictly limited for the apprehension of its speakers and perceivers (1979:25).

Therefore, if it is the goal of the linguist to find the ultimate units, the distinctive features, it would be well to remember Ockham's principle about simplification. The question here, however, is whether or not signed languages, in particular ASL, are valuable testers of the principles discussed. Jakobson did not feel that the study of sign language was worthwhile since "the label of sign language is deceptive since it obscures the fact that 'natural language' likewise consists of signs (in this case verbal signs) and that in general, language is a topic of the science of signs, alias semiotics. . . . as William C. Stokoe noted, 'the proportion of native signers to native speakers is about one to ten thousand' and thus in the study of universal human speech this marginal system may be left aside (1979:70). Upon further consideration, how much more value could be placed on a universal if it was shown to have real universal applicability. In fact, in a seeming contradiction of his previous statement, Jakobson himself stated, "If in linguistics the properties assumed to be universal proved to be near-universal, and if among the over one thousand languages more or less familiar to the scholarly world a minute number of languages with a handful of speakers offered single deviations from the patterns used by the preponderance of languages and speakers, these rarissime exceptions would require a special investigation of the intrinsic and extrinsic conditions which engender such an 'anomaly' and, in addition, they would ask us to seek the reasons for the near-universality of the property in question (1979:58)."

Does ASL provide any exceptions to current universal theories or does the analysis of American Sign Language provide yet another example verifying their truth? A careful examination of the language will demonstrate that actually, there are what could be termed distinctive features in ASL, and in no way should it be necessary to proliferate them merely to
accommodate variations in the data.

Beginning again with Stokoe's list of "primes", I would like to propose that they be viewed this time with an eye toward the inherent opposition displayed in the function of the parameter. Stokoe began with location, by which he meant the sign in relation to the body. This parameter could be assigned a dual designation either in reference to the high-low distinction or the features of "nearness and farness." Two minimal pairs shown below will illustrate these features.

First, handshape remains constant as does movement and palm orientation. The distinction is made between "FATHER" and "MOTHER" only in the height of the sign in relation to the body.

A quick explanation would be in order of the normal limitations of a signer's "space." Generally, a person's sign space will start at the middle of the forehead (high) and drop to the naval area (low). Signs at either extreme are more marked, while the closer to center one gets, the less marked the signs are. The same would hold true for the near/far distinction. Normally, one would sign in an area approximately six inches from the chest area and any signs made where a person had to reach forward or stretch back over the shoulder are going to carry more information.

A minimal pair illustrating the feature or nearness and farness is "FUTURE" and "WAY-IN-THE-FUTURE." Notice how the 'size' and speed of the sign also change (as an additional element [body language] of the language along with facial expression.)

Second, Stokoe discussed handshape. One would think that there would be a wide range of available handshapes, like one would correctly assume a variety of possible speech sounds, but like the baby who babbles using any combination of sounds and eventually eliminates those sounds that
are not useful in its language, so also there are lingual and cultural limitations to the handshapes that can legally be used in ASL. While certain handshapes are highly marked in some languages (the extended middle finger, for example, does not appear in any standard ASL vocabulary although to the best of my knowledge, socio-cultural applications were not a factor when this sign was developed), these handshapes do appear in other signed languages. The extended middle finger in the signs used in Taiwan means man, since it is the tallest of the five fingers. On the other hand, handshapes that are common in ASL are considered vulgar in some countries. One example is the "t" handshape, illustrated in the diagram below:

As many as 19 handshape primes were proposed by Stokoe and his associates, but it is my submission that actually there is only one opposition—to borrow Jakobson's term—that of tense/lax. In the diagrams below demonstrating the unmarked and marked handshapes most common to ASL users, you will notice that the unmarked hands are assuming fairly natural hand positions while the more marked ones require quite a bit more effort to form and maintain them. Battison (1974) based their unmarked/marked data on first, distribution and frequency of occurrence and second, the fact that native Deaf children learn them first, but I would like to propose that it is because the necessary tenseness of the hand makes the marked handshapes distinctly more uncomfortable, while the unmarked handshapes tend to come very naturally.

Some sign pairs illustrating the principle of the tense / lax opposition are given in these illustrations. "CANDY" is a generic term for anything candied, whether it is hard or not, while "APPLE" is quite specifically that fruit.
Another pair, that of "WAVE" (hello, goodbye, attention-getter, or conversation opener) and "EMERGENCY" shows the same type of example. I don't feel that it is necessary to classify every single different handshape as a distinct entity, since this aspect of either being tight or relaxed is a characteristic held in common by all of them.

Much the same as location could be likened to 'tonality' because of the high/low feature, movement definitely has to do with energy. While frequency of voice is not at issue here, there is a frequency of motion involved. I tend to agree with the hypothesis of Liddell when he mentions that movement features correlate with the consonant/vowel distinction. Three minimal-pair sets illustrate the differences in motion. The first sign in the series could be considered a hold, the second a continuent, and the final illustration demonstrates a restrained sign. Since all of sign language consists of either motion or lack of motion, it would be appropriate to liken the + or -motion of signed languages to the + or -consonential of spoken language.

Cokely and Baker's addition of the palm orientation provided a great insight as to the reason why some signs can be done using only one hand (although technically they require two) and others cannot be distinguished without the addition of the second hand. The palm orientation can be a factor in the features of the sign in one of two ways: either as the distinguishing feature on the dominant hand (i.e. "THUMBS-UP" and "THUMBS-DOWN"), which would then include the signs that can be distinguished without the second hand, or as the distinguisher on the base hand:
The best name I can think of to call this opposition is exactly what is has been called in the past, for lack of a more fitting description: palm-up and palm-down.

In summary, the conclusions that I have reached contradict the findings that linguists have thus far proposed for the description of distinctive features in ASL. Rather than lists of different primes, each describing a minute variation, it is much more beneficial to examine the parameters of signs for commonality. Therefore, I suggest that the distinctive features of location are high/low and near/far. The features of handshape include only the tense/lax distinction. Movement, as compared with consonant/vowel relationships in verbal exchange, can be distinguished by either motion or non-motion. The final parameter of palm orientation, whether base hand or dominant hand, can be only distinguished as up or down.

What have we accomplished by our analysis of ASL? First, we have narrowed the range of possible distinctive features to a manageable level, one that could be agreed upon by linguists of any persuasion, rather than the proliferation of primes. Second, we have established the fact that the universals mentioned previously, specifically the existence of distinctive features and their phonemic reality, are a factor in the contrast and therefore the understanding of sign languages, and finally we have added a new dimension to the flourishing study of this language that illustrates, by linguistic means, that ASL can take its place with the spoken languages of the world as a legitimate field of endeavor.

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Determining Vocabulary to Include in Language Materials:
An Example with Marketing Terms

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Second language learning can become quite complex when considering the grammatical, syntactical, morphological, phonological and lexical aspects of a new language. Out of all these areas of language study, it seems that the lexicon is the least understood. Greenbaum (1974:79) observed that most American linguists have adopted models that "allow little space for the treatment of vocabulary: the relationship between words... is allocated to the two major components, syntax and semantics, and the lexicon is seen as a ragbag of the irregularities and idiosyncracies in language."

Some linguists such as Bolinger (1970:79) are making the lexicon central to their studies of language, changing the role of grammar to a subservient position as "the mechanism by which words are served." Bolinger (1970:81) cites the title of an article written by Bernard Tervoort to demonstrate the subordinate role of grammar: You Me Downtown Movie Fun? "Given just the collocation of me and you on the one hand and downtown, movie and fun on the other, the elements can be combined in any order and the message comes through... The most important thing is to get the words in" (Bolinger 1970:81).

As Bolinger (1970:81) has observed, words should be central to our study of language because of the great quantity of information contained in the lexicon. This view does not minimize the importance of syntax or other aspects of language; rather, it is an attempt to understand the lexicon, itself, as a significant entity.

Foreign students study English for diverse reasons. Students seeking expertise in a particular field, such as in medicine or business, study for special purposes. These ESL students are expected to understand and synthesize materials on an advanced level. The goal of advanced language study, as discussed by Marton (1978:14), is for foreign students to acquire "near-native or native-live language competence and performance, within a prescribed dialect, register, and style." However, a lack of understanding for the lexicon and for the possible collocates of a word can be two of the more serious obstacles foreign students face in becoming native-like in their language abilities.

Vocabulary is often presented to ESL students void of contextualization and environment. Presenting vocabulary in isolation will not expose ESL students to innumerable lexical relationships made possible through various lexical combinations. Elkhatib (1984: 30) observed that typical ESL training fails to expose students to a word’s basic "collocative patterns, i.e., which words it can occur with."
One of the more difficult aspects of language learning for ESL students is coming to understand what words collocate or are collocable. Lacking such knowledge, ESL students struggle to attain native-like proficiency in their professional and academic work. There is a definite need for ESL material developers to prepare materials that expose students to a word's collocates; thus, helping ESL students become more native-like in their communication.

In an effort to better understand the lexicon of our language and to aid the second language learner of English, this paper will focus on collocations peculiar to the field of marketing. This paper attempts to answer this question: What collocations in marketing would be useful for an ESL student in marketing to know?

Smith (1985:110), in his theory of reading, states that reading is a process of identifying chunks -- meaningful units -- of language: "We can read for meaning without the prior identification of individual words, just as we can identify words without the prior identification of the individual letters." Levine and Mehl (1981:71) suggest that words must be examined as semantic correlates of each other. Hausmann (1979:195) also believes that originality can only be achieved in a second language through a good grasp of that language's collocations. In other words, students must develop an understanding of and ability to identify meaningful semantic relationships between words.

Greenbaum (1974:82) notes that, "A collocation in the language is said to be a frequent co-occurrence of two lexical items in the language." Greenbaum (1974:80) used the terms collocability and collocable to mean potential co-occurrence; collocation and collocate are used to mean frequent co-occurrence in the language generally or in a particular field of language, such as marketing.

Knowing the collocates of a language increases one's ability to understand and synthesize meaning; and, more importantly, to know what combination of words are acceptable or unacceptable. Fillmore (1968:379) presented the following sentence as an example of unacceptable collocability because the intent expressed does not fit into the normal dimensions of mosquito ability: "The mosquito swallowed the vice president."

Collocations of words are not restricted by word order, word class, distance or collocation span. Expectancy seems to be the most important factor to consider. For example, Greenbaum (1974:80) notes that sequence is unimportant with the collocates of turn on. "Turn on the light/radio/TV/gas" is just as acceptable as "Turn the light/radio/TV/gas on" and "The light/radio/TV/gas can now be turned on." With these words it is the mutual expectancy that creates collocates. Mutual expectancy can also be directional: rancid predicts butter, stale predicts bread, but bread does not predict stale strongly. Some collocations are 100% predictable: to and fro, and spick and span (Greenbaum 1974:80).

There is no empirically satisfying solution to what collocational span, the distance between collocates, is acceptable. Greenbaum
(1974:80) suggests that "items are collocates of each other if they belong to a single remembered set no matter how far apart they may be in a stretch of language."

Native speakers of English intuitively know what combinations of words would be acceptable or unacceptable. Native speakers are able to predict word combinations based on their experience with the language. Goodman (1970:498) considers reading a psychological guessing game based on just this principle of reader expectation or prediction. Brown (1974:1) exemplifies this guessing process with the following example: ". . . if the word intense is used 'he knows', though he may not 'know that he knows', that a word connected with either pressure, heat, light, energy or feeling will follow."

Smith (1982:62) also addresses this concept of prediction or expectancy in his writings on the reading process. He affirms that "We do not look at a page of print with no expectation about what we shall read next, instead we ask 'What is the hero going to do?' 'Where is the villain going to hide?'" Smith (1982: 62) defines a prediction as the "prior elimination of unlikely alternatives."

Many teachers of English as a second language feel that this prediction process has been largely ignored in the ESL classroom (Brown 1974:1; Smith 1983:5; Roos 1976:66; Murphy 1983:1). Student errors in second language performance are often lexical in nature. ESL educators see including collocational instruction in vocabulary teaching as part of the solution to lexical errors:

According to Brown, vocabulary is not only a tool to understand what is read or heard, but also a tool of anticipation. To develop this skill of expectancy, the student should have a firm knowledge of collocations. . . . (Smith 1983: 5)

. . . students often fail to realize the potential even of words they know very well, because they use them only in a limited number of collocations of which they are sure. It is therefore essential to present a good number of typical collocations when a word is first presented to the students (Elkhatib 1984: 49).

The one notion that I would stress for us as language-teaching practitioners is the point that some words -- whether you call them word associations or collocations-- ought to be taught together (Murphy 1983:2)

A study by Elkhatib (1984) examined the writing samples of four Arab college freshmen studying English. In categorizing their lexical errors, Elkhatib (1984: 30) found that some errors were problems associated with lack of knowledge concerning collocative patterns.

Another study by Westheide looked at oral and written samples of
Dutch speakers learning German. Westheide (1983:163) noted that out of 1,928 errors found, the largest number of errors were attributed to unacceptable collocations: 289 collocational errors (15%). Out of the 295 errors, 203 (69%) of the errors were related to verbs and their possible collocates.

Goodman (1970:504) observed that readers must gain more skill in making "more accurate first guesses based on better sampling techniques, greater control over language structure, broadened experiences and increased conceptual development." Material developers can be instrumental in improving ESL students' abilities to make successful first guesses and predictions 1) by identifying collocations specific to particular fields, and 2) by creating materials that produce more native-like collocational expectancy for foreign students learning English for special purposes.

Collocations in the language have been studied in two ways. First, given a sample of language, co-occurrences can be counted. Second, completion tests have been employed as an instrument of measure for collocability. Greenbaum (1974) used this second method in comparing verb-intensifier collocations in American and British English.

Research Design

Data were collected from three journals in marketing. Journals were chosen according to the reading needs of undergraduate students in marketing. A professor in marketing suggested American Demographics, Sales and Marketing Management and the Journal of Marketing as the reading material most frequently used by undergraduates. Because of availability, the 1985 issues of American Demographics and Sales and Marketing Management, and the 1986 issues of Journal of Marketing were used in this study.

After selecting the journals and the year to be examined from each publication, specific issues were randomly selected. American Demographics is published monthly; Sales and Marketing Management is published sixteen times a year; the Journal of Marketing is published quarterly. Each issue was assigned a number. Slips of paper were prepared and numbered consecutively from one to sixteen. Two numbers were randomly chosen to represent two issues from American Demographics and Sales and Marketing Management; one issue was chosen from the Journal of Marketing. The pages in these journals were then renumbered consecutively, and a table of random numbers was employed to get a 10% sample of material.

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
</tr>
<tr>
<td>Areas</td>
</tr>
<tr>
<td>Consumer</td>
</tr>
<tr>
<td>Consumers</td>
</tr>
</tbody>
</table>
Twenty marketing terms were arbitrarily selected (See TABLE 1 above), and then underlined throughout the 10% sample (55 pages) from the journals. The sentence or phrase in which each term occurred was entered into individual computer files. Each of the terms (key words) initially had a separate file. However, because of insufficient data to make the distinction between singular and plural significant in the search for collocates, some files were collapsed into a single file. For example, the key words cost and costs became one file cost/s. TABLE 2 shows the 13 files used and the frequency of occurrence of each key word in the corpus.

### TABLE 2

<table>
<thead>
<tr>
<th>KEY WORD</th>
<th># OF OCCURRENCES</th>
<th>SINGULAR</th>
<th>PLURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>AREA/S</td>
<td>16</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>CONSUMER/S</td>
<td>26</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>COST/S</td>
<td>23</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>ECONOMIC</td>
<td>7</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>MANAGEMENT</td>
<td>29</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>MARKET</td>
<td>65</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>MARKETS</td>
<td>32</td>
<td></td>
<td>32</td>
</tr>
<tr>
<td>MARKETING</td>
<td>90</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>MONEY</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>PRODUCT/S</td>
<td>74</td>
<td>52</td>
<td>22</td>
</tr>
<tr>
<td>SALE/S</td>
<td>153</td>
<td>4</td>
<td>149</td>
</tr>
<tr>
<td>SALESMAN/MEN</td>
<td>9</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>STORE/S</td>
<td>22</td>
<td>7</td>
<td>15</td>
</tr>
</tbody>
</table>

Using a Wordperfect program, the data in each individual file were alphabetized. In this way, collocability was revealed in the frequency of co-occurrences. Words which co-occurred with the key word were considered strong collocates if they occurred four or more times in the corpus. Co-occurrences were considered collocates, however weak, if they occurred a minimum of three times. Only content words — nouns, verbs, adjectives and adverbs — were considered in the search for collocates. The copula, prepositions, articles, demonstratives and sentence connectors were not considered.

**Results & Discussion**

This study proves that collocations do exist specific to marketing; it provides concrete evidence about what those collocates are; it exposes unanticipated relationships to the key words which could be studied in greater depth; furthermore, it indicates which collocates are significant and strong in the language of marketing.

TABLE 3 lists each key word's strongest collocates in root form. In some cases many collocates were identified, but only the five collocates of greatest frequency are listed in the table.
The data support the hypothesis that significant collocations exist specific to marketing. For example, there is overwhelming evidence that sales and marketing collocate in close proximity, usually as "sales and marketing." The word test, in its many forms, only co-occurred with market/s. Perhaps the strongest example of collocates lies in the fact that force only collocated in this study with the word sales, as in "sales force." On the other hand, some high frequency collocates co-occurred with several key words in the study. For example, strategy, in all its forms, collocated with management, market, and marketing. Strategy, however, did not collocate with markets, sales, or product/s. The fact that some words did and did not co-occur is also proof of the hypothesis that collocative patterns exist specific to the language of marketing.

TABLE 4 summarizes the information on this study's high frequency collocates; the table lists the key words with which these high frequency collocates co-occurred. TABLE 4 also illustrates that in some instances a collocate is restricted to one environment, such as when force only collocates with sale/s.

APPENDIX 1 presents a detailed listing of all significant collocates identified for each key word. The APPENDIX lists the root of each collocates, and then the variations of form to account for plurals, verbs, and other word forms. It also provides a numerical breakdown for each form's occurrence. For example, the root test was identified as a collocate for markets. Test occurred in variation as test, tests, and testing.

Some key words were in low frequency in the corpus: area/s, economic, salesman/men, and money. Insufficient data on these key words resulted in few or no significant collocations being identified.
<table>
<thead>
<tr>
<th>HIGH FREQUENCY COLLOCATES</th>
<th># OF OCCURRENCES</th>
<th>KEY WORDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARKET</td>
<td>34</td>
<td>MANAGEMENT, PRODUCT/S, SALE/S</td>
</tr>
<tr>
<td>SALE/S</td>
<td>32</td>
<td>MANAGEMENT, MARKETING, PRODUCT/S</td>
</tr>
<tr>
<td>STRATEGY</td>
<td>20</td>
<td>MANAGEMENT, MARKET, MARKETS, MARKETING</td>
</tr>
<tr>
<td>ADVERTISE</td>
<td>19</td>
<td>PRODUCT/S, SALE/S</td>
</tr>
<tr>
<td>PLAN</td>
<td>17</td>
<td>MARKET, MARKETING, SALE/S</td>
</tr>
<tr>
<td>NEW</td>
<td>15</td>
<td>MARKETS, PRODUCT/S, SALE/S</td>
</tr>
<tr>
<td>PRODUCT</td>
<td>14</td>
<td>MARKET, SALE/S</td>
</tr>
<tr>
<td>LEAD</td>
<td>13</td>
<td>PRODUCT/S, SALE/S, MARKETING</td>
</tr>
<tr>
<td>FORCE</td>
<td>13</td>
<td>SALE/S</td>
</tr>
<tr>
<td>VICE PRESIDENT</td>
<td>11</td>
<td>MARKETING, SALE/S</td>
</tr>
<tr>
<td>TEST</td>
<td>11</td>
<td>MARKET, MARKETS</td>
</tr>
<tr>
<td>EXECUTIVE</td>
<td>10</td>
<td>MARKETING, SALE/S</td>
</tr>
<tr>
<td>SERVICE</td>
<td>10</td>
<td>CONSUMER/S, MARKETS, SALE/S</td>
</tr>
<tr>
<td>MEETING</td>
<td>10</td>
<td>COST/S, SALE/S</td>
</tr>
<tr>
<td>POLITICAL</td>
<td>10</td>
<td>ECONOMIC, MARKET</td>
</tr>
<tr>
<td>BUSINESS</td>
<td>9</td>
<td>MARKET, PRODUCT/S</td>
</tr>
<tr>
<td>MANAGEMENT</td>
<td>9</td>
<td>MARKETING, SALE/S</td>
</tr>
<tr>
<td>INCENTIVE</td>
<td>9</td>
<td>SALE/S</td>
</tr>
<tr>
<td>COMPANY</td>
<td>9</td>
<td>PRODUCT/S, SALE/S</td>
</tr>
</tbody>
</table>
For example, collected data on money and salesman/men revealed no significant co-occurrences; data on area/s, cost/s, and economic exposed only one collocate per key word. The limited number or lack of collocates for these words can be explained in two ways: 1) the corpus was too small to reveal collocability; 2) the key words chosen were not actually significant in the language of marketing. In future studies this problem could be avoided by selecting key words based on what this study's data revealed as significant.

It is also important to note that some collocates of key words are questionable, even though they qualify as a collocate in terms of frequency of co-occurrence. For example, golf (in data as golf and golfer) appears as a collocate of the word sale/s. The co-occurrence of golf with sale/s is rooted in the nature and topic of the page selected for examination, more than any actual collocability between the terms. The same issue of true collocability is in question when international was listed as a collocate of management. Each of the three co-occurrences came from a bibliography which cited a journal by the name of International Management. A larger corpus would counter such biasing elements; thus, creating more delineating standards as to what does and does not qualify a word as a collocate.

While the small corpus, biasing elements which create false collocability or limit true collocability, and the possibility that certain words were not actually significant in the language of marketing can be seen as the main weaknesses of this study, the results of this initial study provide sufficient reason to continue in this line of research.

While some second language learners study for a general desire to speak English, others are more specifically motivated by education and employment opportunities. As material developers try to meet the needs of students who study English for special purposes, the lexicon cannot be ignored. The goal should be to develop more effective ways of presenting vocabulary peculiar to specific areas, be it the lexicon of marketing or peculiar to some other field.

This study proves that collocations do exist specific to marketing; it provides concrete evidence about what those collocates are. An increased knowledge about the lexicon of marketing will allow material developers to create materials that produce more native-like collocational expectancy for foreign students studying English. A good grasp of what words are acceptable and unacceptable collocates in marketing would improve the ESL student's ability to predict meaning, as well as give them insight into the idiosyncrasies of the marketing lexicon.

It would be useful in future studies to examine the exact function of each word (key and collocate) in its clause or sentence. While the appendix reveals the forms of collocates, each words function remains ambiguous because of the way the data was analyzed. More research is needed to further substantiate the results of this initial study of the collocations in marketing. Other studies could focus on form, function, frequency, and reader's expectations in relation to collocability. A larger corpus could be achieved by
employing a second instrument of measure: sentence completion surveys. Employing both methods would increase the reliability of the results and provide important data for comparison.

Conclusion

If the goal of second language instruction, as Marton (1978) observed, is to aid students in developing more native-like proficiency in understanding and synthesizing meaning, then second language instructors and material developers must begin teaching vocabulary in more native-like ways. There is a need to develop materials that expose ESL students to information about the "company words keep".

More research is needed to understand the lexicon and the collocative patterns that exist within our language. Until such research and information is available, educators can, at least, benefit from an increased awareness of the importance of contextualization in vocabulary presentation based on the findings presented herein. A relatively new area of inquiry, the study of collocates in English remains open with ample avenues for exploration.

References


