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FACING AND HAND(L)ING VARIATION IN AMERICAN SIGN LANGUAGE PHONOLOGY

James Woodward, Carol Erting, & Susanna Oliver

1.0 Introduction. Previous research has demonstrated the existence of a level of structure in American Sign Language (ASL) analogous to but not dependent on the phonological components of oral languages. Battison (1974) has an excellent summary of this research, which is relatively new (since Stokoe 1960). More recent studies have demonstrated that ASL undergoes natural changes as do all oral languages (Frishberg 1975) and that these changes may be described in a dynamic framework (Battison, Markowicz, & Woodward 1975).

This study reports on one kind of formational (phonological) variation in ASL--variation between signs made on the face and on the hands. The data on which this study is based was collected during August of 1974 in New Orleans, Louisiana, and Atlanta, Georgia. Forty-five informants were interviewed, including 28 from New Orleans and 17 from Atlanta. Thirty were under 50 years of age, and 15 were over 50 years of age. Thirteen were Black and 32 White. Table 1 shows the classification of informants by these social variables.

After viewing previous videotapes of Southern signers in the course of other investigations, we felt that these social variables of region, race, and age might correlate well with some of the variations in signing that were ocurring. It should be noted that the disproportionate number of Black informants was due to the difficulty the researchers encountered in making the necessary contacts in the Black deaf communities. Unlike their White counterparts, the Black deaf communities in New Orleans and Atlanta do not have formal clubs and organizations. Although there is evidence of a strong social network in Southern Black deaf communities, it is extremely difficult for outsiders (especially White hearing ones) to perceive and penetrate this network.

Number	Race	Region	Age
04	Black	New Orleans	Under 50
00	Black	New Orleans	Over 50
08	Black	Atlanta	Under 50
01	Black	Atlanta	Over 50
12	White	New Orleans	Under 50
12	White	New Orleans	Over 50
06	White	Atlanta	Under 50
02	White	Atlanta	Over 50

Table 1. New Orleans and Atlanta Informants by Social Variables.

2.0 Description of Linguistic Variation. Seven signs that were noted to undergo face-hand variations were tested in this study: LEMON, RABBIT, PEANUT, MOVIE, COLOR, PEACH, SILLY. Signers in the Washington, D.C., area sign MOVIE on the hands but all the other signs on the face. However, in viewing videotapes of Southern signs, we noticed that some signers made some of these signs on the face, as did D.C. signers, while others made the same signs on the hands. One Louisiana Black signer and two Black Georgia signers performed MOVIE on the face. We decided to see if the variation that we had noted was conditioned by the social variables of place, age, and race. The forty-five informants were presented both variants of these signs and asked to check on a prepared form whether they used the face or hand variant or both.

The results of the responses showed that there was an implicational ordering of these signs. Table 2 shows the ordering and the number of informants who fit into each lectal pattern.

Lect	MOVIE	RABBIT	LEMON	COLOR	SILLY	PEACH	P'NUT	No.
1	Face	Face	Face	Face	Face	Face	Face	0
2	Hand	Face	Face	Face	Face	Face	Face	9
3	Hand	Hand	Face	Face	Face	Face	Face	21
4	Hand	Hand	Hand	Face	Face	Face	Face	5
5	Hand	Hand	Hand	Hand	Face	Face	Face	2
6	Hand	Hand	Hand	Hand	Hand	Face	Face	6
7	Hand	Hand	Hand	Hand	Hand	Hand	Face	1
8	Hand	Hand	Hand	Hand	Hand	Hand	Hand	1

Table 2. Face and Hand Implication (92.7% Traditional Fit[1]).

With 7 signs and 45 informants there was a total of 315 responses. There were 23 exceptions to this implicational scale, yielding a 7.3% rate of exception or a 92.7% rate of fitting the implication. However, one may want to calculate the rate of exception to this implication in a slightly different manner, since there were 33 voids in this implication. A void indicates that the informant had neither of the variants in his productive competence but used a phonologically unrelated sign. Voids in an implicational scale raise some interesting theoretical issues, which will be discussed in section 3.0. Note that voids in this study do not greatly affect the acceptability patterns. If one subtracts voids from the total responses, a figure of 282 responses (315 - 33) is obtained. With 23 exceptions, there is an 8.2% (without voids) rate of exception, or a 91.8% (without voids) rate of following the implication. Thus there is a difference of only 0.9% between regular and de-voided rates of acceptability.

2.2 Features Conditioning Linguistic Variation. At the present time, it appears that the variation described above is not an example of ongoing historical change, but rather is an example of a stagnant rule, a rule that was arrested in a variable stage and that now marks the language users socially but is not significant of language change (Fasold 1972). Only a few of the Black Georgia informants were aware of any historical connection between signs, and this was only in the case of MOVIE on the face as being the older variant. There was also no correlation of age and membership in lects to be found (Table 8). It is still possible, however, to discuss the phonological features conditioning the variation. Table 3 shows certain shared features of these signs, and Table 4 shows a weighting of these features. We have not tried to account for the variation in each sign, but rather we have grouped signs into phonologically related sets.

MOVIE	RABBIT	LEMON	COLOR	SILLY	PEACH	PEANUT
+block	-block	-block	-block	-block	-block	-block
-high	+high	-high	-high	-high	-high	-high
+facial	-facial	-facial	-facial	+facial	+facial	+facial

Table 3. Features of Signs.

MOVIE	RABBIT	LEMON	COLOR	SILLY	PEACH	PEANUT	Wtg.
	-block	-block	-block	-block	-block	-block	α
-high		-high	-high	-high	-high	-high	β
+facial				+facial	+facial	+facial	γ

Table 4. Weighted features of signs.

We are only now beginning to approach a natural phonology of ASL based on physiological (Battison 1974; Siple 1973), developmental (Boyes 1973; McIntire 1974), and historical principles (Battison, Markowicz, & Woodward 1975; Frishberg 1975; and Woodward & Erting 1975).

Rationale for the features shown in Tables 3 & 4 is tentative but in line with research in naturalness in ASL phonology. Blockage of the face (+block) is extremely rare in ASL (Battison 1974); thus we might expect this would be compensated for by some variation in position. Signs made high on the face appear to be somewhat marked and they have been shown to centralize, by moving down the face (Frishberg 1975). Since RABBIT is somewhat marked because of its height on the face, it might well be subject more to variation in place than are signs in a more central position. The feature facial (Woodward 1973) describes a highly visually salient area (Siple 1973) from just above the eyebrows to the lips. Signs in this area probably would not allow as much variation of place as signs outside this area.

2.3 Correlation of Linguistic and Social Variation. It is also possible to view this linguistic variation in its relation to sociological variables. In this study we chose to look at informants on the basis of race, geographical region, and age. Table 5 shows membership in lects 1-8 in relation to these three social variables. Because of the small number of informants in some individual lectal patterns we have divided the lectal patterns into 2-by-2 charts for each variable for the purposes of statistical calculation. Table 6 shows membership in lects by race. Table 7 shows membership in lects by region. Table 8 shows membership in lects by age.

Lect	B N −	B N +	B A −	B A +	W N −	W N +	W A −	W A +	No. Inf
1	0	0	0	0	0	0	0	0	0
2	3	0	0	0	3	2	1	0	9
3	1	0	2	1	9	8	0	0	21
4	0	0	0	0	0	1	3	1	5
5	0	0	1	0	0	0	1	0	2
6	0	0	5	0	0	1	0	0	6
7	0	0	0	0	0	0	1	0	1
8	0	0	0	0	0	0	0	1	1
Total	4	0	8	1	12	12	6	2	45

Table 5. Membership in lects by social variables.
(B, Black; W, White; N, New Orleans; A, Atlanta; - Under 50; + Over 50)

Lects	Black	White
1-4	7 (53.8%)	28 (87.5%)
5-6	6 (46.2%)	4 (12.5%)

Table 6. Membership in lects by race.

(A chi-square test of this data showed a dependency relation for membership in lects by race: $p < .05$, $X^2 = 4.27$. One is more likely to find White signers using more face variants--lects 1-4. Black signers are about equally split between face and hand variants.)

Lects	New Orleans	Atlanta
1-3	26 (92.9%)	4 (23.5%)
4-8	2 (7.1%)	13 (76.5%)

Table 7. Membership in lects by region.

(A chi-square test of this data showed a dependency relation of membership in lects by region: $p < .005$, $X^2 = 19.86$. One is more likely to find New Orleans signers using more face variants--lects 1-3. Atlanta signers use more hand variants--lects 4-8.)

Lects	Under 50	Over 50
1-3	19 (63.3%)	11 (73.3%)
4-6	11 (36.7%)	4 (26.7%)

Table 8. Membership in lects by age.

(A chi-square test showed no dependency of membership in lect on age.)

Because of the relatively small number of informants in this study, it is difficult to generalize from these findings on the relationship of social and linguistic variation. However, these findings show important trends that should be tested further. For example, although it has been claimed (Stokoe 1965) and reiterated (Meadow 1972) that Southern Black signers sign differently from White signers, this is the first time that systematic phonological variation has been demonstrated between Black and White signers. One other interesting finding is the lack of any correlation between age and linguistic variation in this study. The lack of correlation suggests that the variation is not an example of ongoing change in ASL but is an example of the operation of a stagnant rule (Fasold 1972) which has been arrested in its historical development and now only serves to mark social boundaries such as race and region.

3.0 Conclusion. This paper has shown that alternation between signs made on the face and on the hands is ordered implicationally. The variation is conditioned by phonological features which appear to have some naturalness in the explanation of the operation of the rule. Membership in lectal patterns is related to the social variables of region and race. New Orleans signers used more face variants than Atlanta signers, who used more hand variants. White signers used more face variants than Black signers did. Black signers were almost evenly distributed between face and hand variants.

One interesting theoretical problem developed in the course of this investigation is the ocurrence of voids in an implicational scale. Some informants in the study had neither the face nor the hand variant of the signs presented but had rather a phonologically unrelated lexical unit. Theoretically, a person who has a void does not violate the implicational pattern; in fact, a void may be more socially significant than the appearance of one or the other variant.

Even though a void does not violate a pattern, the question arises: In calculating the percentage of exceptions, should voids be excluded from or included in the total number of responses? In this study, there was only a small difference in traditional and de-voided rates of acceptability (0.9%). In other studies, however, there could be considerable difference.

Another problem with voids occurs when the void comes at a crucial place in the implicational scale; e.g. in the following pattern: Hand, Hand, Void, Face, Face, Face, Face. Should this informant be classified in lect 3 or in lect 4? Arbitrarily we put the person in lect 3 for purposes of correlating linguistic variation with social variables. Similarly for other informants, we decided that if the void occurred between the last Hand and the first Face variant, the last Hand would serve as the determining point for classification into a lect.

In short summary, face-hand variation in American Sign Language has given us two important insights into the nature of language: (1) there is some systematic phonological variation in American Sign Language between ethnic groups; and (2) voids do occur in implicational scales. While the problem of how to handle voids has not been determined, voids are real language phenomena that have to be dealt with in grammatical description.

NOTES

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1. For purposes of later statistical correlation with social variables, informants with exceptions were placed in the lect with the closest fit after the exceptions were regularized.

2. If Black informants are eliminated from this data, there is still a significant difference between New Orleans and Atlanta signers ($X^2=14.89$, $p<.005$).

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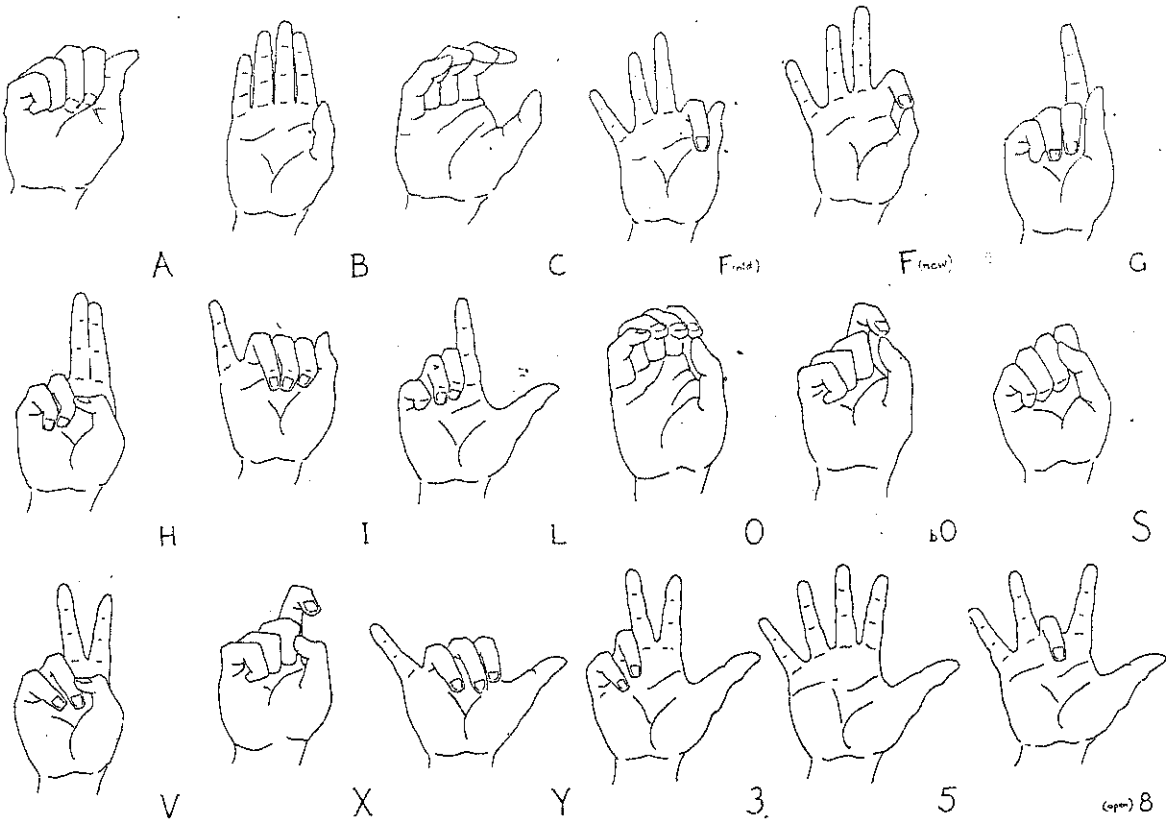

Figure 1. Handshapes (dez) of ASL and FSL signs. To Woodward, Signs of Change, pp 81-94