Table 10
Rank order correlations (Kendell τ) between rank order of intrusions for each type of sound sequence.

	/I/	/ɛ/	/æ/	/ɔ/	/o/	/U/
Place vs manner	.80*	1.00*	.00	.80*	.60	.00
Place vs control	1.00*	.20	.80*	.60	.60	.20
Manner vs control	.80*	.20	−.20	.80*	−.20	.00

* $p < .05$

manner-of-articulation sequences the vocal apparatus starts at one of three distinctly different places (bilabial, alveolar, velar) and then proceeds to one of the vocal configurations needed to articulate the vowel. For any control sequence, the vocal apparatus starts production of the consonant at one of these different places and then moves to that configuration necessary to articulate the vowel. Since control sequences further possess the property that adjacent consonants do not share the same manner of articulation, and since *manner and control sequences yield exactly the same distinctive feature predictions,* this strongly implicates the place of articulation of the consonant as affecting the distinctive feature processing of vowels.

Thus, although *manner* of articulation has been shown in several studies to be a more potent feature for the processing of consonants (Cole, Haber, & Sales, 1968; Cole, Sales, & Haber, 1969), *place* of articulation of the consonant is more important in determining the subsequent encoding of the vowel sound. This finding stands in contrast to House and Fairbanks, who find that manner of articulation of the consonant has a greater effect on the vowel in a production task.

If the invariance that occurs as a consonant is paired with different vowels is examined, it can be seen that perception of the consonant always follows its articulation even though the acoustic output may be drastically changed. Thus, while the acoustic specification of the consonant sound may change, based on its paired vowel, the articulation of the consonant remains essentially the same, as does the perception of sound. In the present study, the acoustic invariance, as measured by changes in transition loci (Liberman, 1957), is equal for place, manner, and control sequences, since all consonants are paired with the same vowels in each type of sequence. However, articulation of the sounds would be more constant for place sequences, since the vocal apparatus starts in the same place for each of the place-of-articulation consonants. Thus, the constancy afforded by starting each sound in the same place must be mirrored in the information processing system as a more efficient encoding process.

In Table 9 different dimensions of Halle's system were combined and those dimensional combinations are presented that best predicted the intrusion errors for each sound in each condition. Using this method, 100% of the rank order intrusions were predicted for each condition. Tables 7 and 8 showed that predictions generated by individual dimensions or all dimensions combined would not predict the errors perfectly. These analyses support House and Fairbanks's (1953) conclusion that the influence of the consonant environment alters but does not obliterate the vocalic specification.

As a final point of consideration, it appears that the consonant features differentially affect the different vowels. For example, in Table 10 we note that there were no significant differences in the rank order of intrusions between conditions for /U/; yet, there were significant differences for all three conditions with /I/. Thus, certain vowels are equally affected whatever the critical dimension is in the preceding consonant. One important avenue of research would be to analyze and compare what are the critical dimensions for each consonant and vowel sound and thus ascertain the interaction between features. This type of microanalysis might show that equality in rank orderings between conditions were due to summing of very different effects between the consonant and the vowel for each condition.

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NOTES

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