

A NOTE ON 'HOLE IN THE SYSTEM' AND 'PHONOLOGICAL SPACE'

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One of the problems inherent to these concepts resides in the choice of the features used to describe the existing items, and consequently in whether there are any holes at all in the system considered. Since this problem is most often exemplified in descriptions of vocalic systems, it will be examined here in this context.

It is difficult to understand the value of a representation like the following, given by Trubetzkoy for Tonkawa (1969:107):

<i>a</i>	<i>e</i>
<i>o</i>	<i>i</i>

There are two main objections against such representations:

(a) It is true that the phonetic realization of the vowels considered can be given through phonetic redundancy rules (this is in fact what Trubetzkoy does since he adds: "the back class [is] realized more openly than the corresponding front vowels."), but one may then question the usefulness of the phonemic representation as a descriptive tool.¹

(b) If phonetic information can be ignored in the fashion exemplified above, all vocalic systems can be represented as exhibiting no holes; this points out either the vacuousness of the concepts studied here with respect to vocalic systems, or the relevance of phonetic information with respect to these concepts (concerning the Tonkawa system, Trubetzkoy remarks: "Thus, there is no symmetry from a phonetic point of view").

The most controversial vowels in this context are the low vowels, probably because of a tentative linguistic universal according to which triangular vocalic systems are favored among the languages of the world. Thus, in most cases, a vocalic system with only one low vowel is represented with a central low vowel; there is no doubt that this is usually a correct representation, but most linguists would accept it even in the case of a single FRONT (OR BACK) low vowel, on the grounds that for the low order, there is no opposition between FRONT and BACK. Seen from this angle, there

¹ For a similar criticism of such representations, see Sedlak 1969:23.

does not seem to be any motivation for the change [ā] > [a] in seventeenth and eighteenth century French; the change from system (1) to system (2) would be in the direction of increased markedness or from a more natural to a less natural system:²

(1) i ü u e ö o ε oe ɔ a	(2) i ü u e ö o ε oe ɔ a a
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On the other hand, the passage from (3) to (2) would illustrate an evolution in the direction of a more natural system:

(3) i ü u e ö o ε oe ɔ a

Of course, this does not mean that (3) must be postulated — in a circular way — because "there must have been a hole" for [a] to be introduced;³ but in this case, /a/ seems in fact to have been characterized by a front articulation.⁴

If the notion of symmetry plays a role in sound change, as has been abundantly documented, one would expect a system like (3) to be restructured in some way. On the other hand, ignoring the phonetic (or non-distinctive) feature of frontness conceals the likelihood of change for the system considered; if we try to draw a parallel with a consonant system by considering a hypothetical example such as (4),

(4) p t k b d

it seems fair to assume that the most likely description for /k/ is VOICELESS VELAR, not simply VELAR; the latter description would make it difficult to situate /k/ on the one hand, and the "hole" on the other, within system (4). A phonetic feature which is non-distinctive for this item is used to describe it, but not ANY phonetic feature, only one which happens to be distinctive within the system, although not for all its items considered individually (e.g., not for /k/). If the same — so far implicit — convention is applied to the vocalic system mentioned above, /a/ being front must be described as such, since this feature is distinctive at the level of the whole system, i.e., for oppositions involving vowels other than /a/. Such a description points to a lack of symmetry between front and back series, and reveals which feature is not used for maximal articulatory economy. If we use a hierarchical set of natural systems or conditions relevant to this particular change, the most likely solution to this imbalance seems to be for /a/ to become articulated as CENTRAL, other things being

² For this interpretation, see Martinet, 1959:108-109.

³ For a criticism of the circularity of such arguments, see Kiparsky 1900:184-185.

⁴ See for example Brunot, 1922:II:251.

equal; if this is not realized — if things are not equal — symmetry can be restored through the emergence of a correlative partner for /a/, namely /a/, *low* and *back*; another solution, less highly valued in the hierarchical scale, would be the merger of /a/ and /ε/. In fact, these three solutions were illustrated for the change considered at one time or another, in one social class (or dialect) or another, by various tendencies (see Thurot 1966:II:593-595, Rosset 1911:101). The solution adopted leads to a system high on the scale of naturalness, although not the highest; selection of condition (2) instead of (1) seems to have been at least partially brought about by the fact that the evolution of /a/ was conditioned by the formation of a long and back low vowel resulting from the lengthening of [a] when it preceded a disappearing consonant.

In conclusion, it seems that phonetic information of the type described in this paper is necessary if the notions of 'phonological space' and 'hole in the system' are to have any meaning and to help cast some light on the problem of the motivation of sound change, without leading to the dead end of circularity. Recourse to such information, in conjunction with a hierarchical (or implicational) set of natural conditions on systemic sound changes would make these two notions more readily testable and open to refutation.

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DISCUSSION

LEIDNER (Brookline, Mass.)

Your paper was very interesting and made a very incisive theoretical point. I would like to suggest that perhaps there might be cases in which /a/ patterned with /i e ε/ in some phonological rule(s), thus giving EMPIRICAL support to your contention that /a/ was a low front vowel rather than a low mid vowel, as Martinet suggested. If such empirical support DOES exist, then Martinet's analysis is wrong on two counts.

ROCHET

There is empirical support for my interpretation in the descriptions given for that vowel by the grammarians of the sixteenth and seventeenth centuries. If as you suggest, it could be shown that there were cases in which /a/ patterned with /i, e, ε/ in some phonological rules, the case for a description of /a/ as front on empirical grounds, would indeed be even stronger.

RONA (Ottawa)

I think you mistake the concept of 'hole'. In the Prague School tradition a hole would not be the absence of a phoneme, but rather the absence of an opposition in a certain combination of oppositions. So the fact of /a/ not being either front or back is precisely a hole, and it is the best explanation of the shift you have mentioned in French.

ROCHET

My point is precisely that if there is no contrast (or opposition), if /k/ occupies the whole space, there cannot at the same time be any hole (if /k/ occupies the whole space, it necessarily occupies any potential 'hole'). If THERE IS NO 'HOLE', we are not justified in saying that an item *x* filled an 'EXISTING hole'. If on the other hand, a description of /a/ making use of a non-distinctive feature leads to positing a hole, which happens to be filled in the course of the evolution of the language studied, the linguist is only faced with a choice between an adequate and an inadequate description. As for the main point treated here concerning French /a/, I can only say once again that talking about a hole in the back series if /a/ is neither front nor back, is meaningless. The existence of a hole is then only revealed by a subsequent event, the filling of that (non-existent) hole by /a/; it is therefore circular and makes the concept untestable and vacuous.

ANTTILA (Los Angeles)

Your paper is making very sensible use of Sapir's notion that 'all grammars leak'. In your hypothetical system 4, is there any significance in that you leave out *g* rather than *b* (or *d*)?

ROCHET

This is only a hypothetical example and the fact that I chose *g* as the absent phoneme is purely accidental.