

Two Borrowed Sound Changes in Basque

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In Robert King's textbook on historical linguistics and generative grammar we find the following statement concerning one aspect of the borrowing of phonological rules between dialects and between languages (1):

We hypothesize that in borrowing, in general, rules are simplified rather than complicated. That is, a rule is borrowed with the same or greater generality, but not with lessened generality... This assumption runs counter to a widely held view of transmission of rules which holds that rules tend to narrow in generality as they spread farther from the point of origin (pp. 91-92).

There are two cases of presumed borrowing in Basque for which this assumption is not valid. The first such case is the Souletin fronting of /u/ to /ü/ (2), thought to be borrowed from French (Bearnese, technically). To refute King's claim in this instance it is sufficient to point out that, unlike Bearnese, Souletin does not front /u/ in all environments. Furthermore, the spread of the rule conforms to the wave theory, according to Lafon (p. 98), since it appears to become less general the farther away one goes from the area bordering Bearn. This does not necessarily disprove King's hypothesis, which in any event is said to be true only «in general», since it could be claimed that fronting of /u/ in Bearnese and Souletin are

(1) A similar statement can be found in Bach and Harms (p. 2), which is not surprising since King cites the works of each as the basis for his hypothesis. The theory is also commented on in Vennemann (1972, p. 865, fnnt. 3).

(2) I use diagonals rather loosely, not necessarily intending to claim systematic phonemic status for any of the sounds. One could argue, for example, that /ü/ is not an underlying phoneme, or that what is treated as /y/ is actually /i/.

independent developments, or a disclaimer could be added to the effect that the hypothesis need not hold if the borrowing involves a marked sound such as /ü/. The second example of a borrowed rule not conforming to King's theory is the change of /y/ to /x/ in Spanish Basque, to be discussed below.

Aside from their interest as regards theories of borrowing, each of these sound changes touches on other areas of phonological theory. A question that arises twice in dealing with the restrictions on the change of /u/ to /ü/ in Souletin is how to state the rule: how to state the environment in which the rule is operative (or not operative), and how to state the rule formally.

It is known that the fronting of /u/ in Souletin is prevented by a following apical /s/ or a simple (as opposed to multiple or trilled) /r/ (Lafon, pp. 85-87): /selü/ 'sky, heaven' (< Latin CAELU); /gü/ 'we', /gure/ 'our'; /hüt/ 'empty' (/hut/ or /ut/ in other dialects); /hur/ 'water'. Lafon believes that a following /nk/ also prevents the fronting, but since Michelena (p. 53) doubts the generality of the claim and Gavel (pp. 40-41 and ff.) makes no mention of it, I will concentrate on defining in terms of features the supposedly natural class consisting of the two sounds /s/ and /r/.

In the Chomsky-Halle system the only non-redundant feature shared by these two sounds is coronality (3). To exclude other sounds it is necessary to take into account the following features: (a) continuance, to exclude /t, d, n, ts/; (b) distributedness, the feature distinguishing /s/ and /r/; (c) laterality, to exclude /l/; and (d) tenseness, to exclude /R/. As for /R/, Otero (p. 290, agreeing with Chomsky-Halle (p. 326)) states for Spanish that /r/ and /R/ differ only in that the latter has heightened subglottal pressure; Harris (pp. 46-48) says that /R/ is tense and perhaps a noncontinuant and nonvocalic. I will assume that /R/ and /r/ as systematic phonemes agree in all features except tenseness, not solely for the sake of convenience but also because this feature is the one Michelena uses in historical reconstruction to distinguish /R/ and /r/ as well as /ts/ and /s/. (It will be shown that if in the context of this paper /ts/ is considered the tense counterpart of /s/, the absence of the

(3) In not considering /s/ [+ anterior] I am reluctantly following Harris, who states (p. 192) that /s/ is best defined as non-anterior because of its "retracted, quasi-retroflex articulation". It is still alveolar, however, and a case could be made for classifying it as an anterior sound. (As will be seen later, it would be convenient for /s/ and /r/ both to be anterior, since anteriority is descriptive of a region of articulation rather than a manner.)

change of /au/ to /ai/ before /ś, ts, r, R, l/ (Lafon, p. 93) is easily stated as a simplification of the rule fronting /u/. The natural class formed by /ś/ and /r/ is, then,

[+coronal, +continuant, -tense, -distributed, -lateral]

The feature specification as it stands does not make clear why the two sounds should form a natural class and are not merely an idiosyncratic pairing. One could doubt the naturalness of the proposed class, but there is at least one other situation in which the two sounds appear to pattern together, and that is in the Old Spanish monophthongization of /ye/ to /i/. According to Malkiel (p. 59), this «limited» and irregular change (*aviespa* became *avispa*, e.g., but *siesta* remained unchanged) is caused by «(a) an adjacent or, at least, not too far removed *l* or *r* (better still, *R* and *r*) and (b) the characteristic Castilian apico-alveolar /ś/».

The naturalness of the grouping together of /ś/ and /r/ becomes clearer if the sound change under discussion is looked at in terms of what Vennemann (1972) calls «phonetic detail in assimilation». He formulates two conventions regarding assimilation rules (p. 877):

Convention 1. Assimilatory features in a rule environment must be interpreted as relative to the corresponding features in the assimilable (or assimilatorily affected) segment.

Convention 2. (Consequence:) The natural classes in the environment of an assimilation rule are defined relative to each particular assimilable segment and need not, therefore, be identical.

That is, to use one of his examples: «A [w] is high only in its own area, the *u* area or back area; but it is low in relation to the area where front vowels are produced».

Of what relevance are the above conventions? In a broad sense, the non-fronting of /u/ before /ś/ and /r/ is the result of assimilation. In the anterior region /ś/ and /r/ (as well as /ts/, /l/ and /R/ (4)) are back relative to the dentals, and /u/, a back sound, is not fronted before these relatively back sounds. This is not an actual assimilation process in the usual sense of the term, since there is no

(4) Spanish /R/ and /r/ may also differ with respect to tongue position during articulation. /r/ and /l/ together affect vowels in ways that /R/ does not, and vice versa (cf. Vennemann (1972), pp. 883-884).

process as such; neither is it a dissimilation of /ü/ by /s/ and /r/ for the same reason. To put it impressionistically, the fronting of the back vowel is blocked when the tongue must return immediately to a back position. Since it is always a following segment, not a preceding one (5), that prevents the change, the effect is regressive, as is the case with most assimilations (6).

The natural class that prevents fronting of /u/ in Souletin can now be redefined as

[+coronal, +back, -tense, -lateral] (7)

Using these features, it is clear that the environment preventing /au/ → /ai/ in Souletin and Roncalese is a generalization of the above to [+coronal, +back]. For the fronting of /u/ Mixain has generalized the environment to [+back]: /r, s, ts, g, k/ (and presumably /nk/, with /R/ excepted, however) (Lafon, p. 95).

At first glance it appears that the formal means of stating this rule is to treat it as a general rule having exceptions that form a natural class, as discussed in Chomsky-Halle (pp. 172-176, 374-375) (8). There would exist an unconditioned fronting rule in the phonological rules and a redundancy rule introducing a diacritic feature in words meeting a certain structural description:

A. u → [-fronting rule] / —————

+coronal
+back
-tense
-lateral

(5) With the exception of initial /y/ blocking /au/ → /ai/ (Lafon, p. 93).

(6) Wang (1969), p. 22, fnnt. 22.

(7) To exclude /n/ the feature [-nasal] should also be mentioned, unless, as I suspect but cannot confirm, /n/ loses its coronality after /ü/, given the susceptibility of the nasal to assimilation. (It would probably be too far-fetched to attempt to claim that, as Lafon thought, /nk/ prevents /u/ → /ü/ because the /n/ begins underlyingly as a coronal sound (or becomes such after marking conventions apply) and acquires the feature [+back] by assimilation to the /k/ while still retaining both features when the fronting rule applies, thus joining /s/ and /r/ in being [+coronal, +back]).

Vennemann (1972, p. 886) uses a dyesis as the notational device to represent relative backness, height, etc.

(8) Exceptions of this type are also explained in Lakoff, where it is mistakenly stated (p. 17) that Chomsky and Halle accept the convention, "Rule *k*: [] → [-Rule *k*+1] in some environment". A recent article dealing with exceptions (Brasington) was of little relevance to this paper.

If this method of stating the rule is used, it cannot be claimed that Roncalese and Mixain have simplified the Souletin rule. The opposite has occurred: the number of exceptions to a rule has increased through the generalization of a marked redundancy rule, adding to the complexity of the grammar. But if the blocking of the change of /u/ to /ü/ is an assimilation or is just short of being an assimilation, it should not be considered an unnatural or exceptional rule, and the formal statement of the rule should reflect its assimilatory nature. The rule could be stated in the following unorthodox manner for Mixain, for example:

B. $u \rightarrow \ddot{u} / \text{---} \sim [+back]$ (read as /u/ is fronted in all environments other than before back segments)

An «acceptable» means of stating this rule is in a form that appears to be logically equivalent,

C. $u \rightarrow \ddot{u} / \text{---} [-back]$

This shows the rule to be assimilatory in nature, but in the wrong sense. The fronting of /u/ appears to be «caused» by the following segment. Almost preferable to (C) would be a schema that is an incorrect but more accurate description,

D) 1. $u \rightarrow \ddot{u}$
 2. $\ddot{u} \rightarrow u / \text{---} [+back]$

(C) is further inadequate in that a statement of (B) analogous to (C) cannot be made for the Souletin version of the rule since it would not do to simply switch the signs of each of the features (to $[-coronal, -back, +tense, +lateral] = / \lambda /$, if the palatal lateral is tense).

It should be noted that the formalism of (B) (specifically, the negative operator) is acceptable (9) in conventions for stating

(9) Acceptable according to Stanley (pp. 432-433). Chomsky and Halle discuss the example used by Stanley to show the need for negative sequence structure rules, but they restate the rule positively, commenting (p. 387), "We have no notion of 'simplicity' available that has any bearing on the choice between the alternative and equivalent [negative and positive] formulations. We therefore adopt the positively stated condition... in conformity with our general practice".

morpheme structure conditions. For example, one sequence structure rule for Mixain could be

$$\sim \left[\begin{array}{l} -\text{back} \\ +\text{round} \end{array} \right] [+back]$$

Since the segment /ü/ occurs only where it is introduced by the new and perhaps borrowed fronting rule, the fronting rule itself defines all possible situations in which /ü/ can occur and is thus equivalent to its morpheme structure conditions. A rule such as (B) is, therefore, the most accurate statement of the fronting rule for each of the Basque dialects (10).

Turning now to the velarization of /y/ (presumably pronounced [ž] or [j]) to /x/ in certain parts of the Spanish Basque zone, what is unusual about this sound change is that in at least some areas it has not affected /š/ (Michelena, p. 170). But if the rule was borrowed from Spanish, as seems likely, it must have lost generality in transmission since it is believed (Alarcos Llorach, p. 272; Harris, p. 196; Otero, p. 310) that at the time of its effect in Spanish there existed no /ž/ (word-initial variant, /j/), the previous /ž/ having merged with /š/ by a devoicing of fricatives and affricates. Even if one considers /j/ an underlying phoneme of Modern Spanish, as does Harris (p. 166), there would exist no rule /j/ → /x/ but rather (after /j/ → /ž/, or assuming it is underlyingly /ž/ to begin with) /ž, š/ → /x/; or, as Harris has it, /j/ → /ž/ (laxing rule), /ž/ → /š/ (fricative devoicing), /š/ → /x/. Neither is it possible to use the explanation that what Basque has borrowed is not the rule /š/ → /x/ with lessened generality, but instead the minor rule posited by Harris (p. 165, ftnt. 3), which the Basque rule more closely resembles, changing /i/ to /j/ initially and after a formative boundary (11), since this /j/ would still have to become /x/ by

(10) Admittedly, the statement of (B) is very close to the Chomsky-Halle method of treating exceptions. But, to summarize the argument presented, (B) wins out for three reasons: the sound change can be (and should be) stated as one rule; its generality in Mixain is easily seen, and predicted if King's hypothesis is accepted; it does not seem plausible for a language to have redundancy rules affecting phonological rules that introduce a previously non-existent sound.

(11) The environment of the rule is not specified by Harris. I have generalized the environment from the examples he gave (bringing out the similarity between this and the Basque rule).

some rule. A more likely possibility is that the bilinguals through whose agency the rule was borrowed (assuming borrowing is accomplished via bilinguals), being aware of both the underlying phoneme and its eventual surface result, «telescoped» the Spanish rules to one rule, /ž/ → /x/ (12).

I think the most reasonable way of looking at this problem is to consider it an instance of the diffusion of a particular sound from one language to another (13) rather than the borrowing of a phonological rule. In Basque the rule /y/ → /x/ would then be what Vennemann (1969, p. 240) calls a «typological adjustment rule... motivated by a momentary imbalance in the segmental system» (14). That is, to use an argument frequently found in the writings of the structural historians of the fifties (Martinet et al.), [j] or [ž] was an anomaly (marked, relative to other sounds in the language) in a consonantal system in which all fricatives and affricates were voiceless, and some Spanish Basque dialects borrowed the voiceless /x/ to replace the voiced segment, reestablishing without merger a completely voiceless fricative/affricate series (15).

What is the final verdict on King's hypothesis in relation to the

(12) The term and the idea are Wang's (1968, p. 708).

(13) The concept of sound diffusion is perhaps most frequently encountered in works on American Indian languages (cf. Haas, pp. 82-92). One specific example I know of is the high central barred-*i* of Chumash (Central California Indian languages), which, according to Applegate (p. 6) "is poorly integrated into the Chumash vowel system" (being characterized by idiosyncratic behavior in vowel harmony, e.g.) and may have diffused into Chumash from Uto-Aztecan.

(14) Vennemann is of course not the originator of this concept. It is at least implied in Jakobson (pp. 218-219) and can be thought of as a basic tenet of historical structuralism.

As an aside, if the systematic phoneme underlying [x] in Basque is /y/ or /i/, then the change is one occurring completely at surface level: a [ž] from /i/ became [x], with the underlying phoneme unchanged.

(15) A more convincing case for diffusion could be made if, for instance, the source of Basque /x/ had been a hypothetical /z/ existing as the language's only voiced consonant. For /y/ → /x/ it is difficult to claim that the rule has nothing to do with Spanish /ž/ or /i/ → ... → /x/, its only relation to Spanish being that the sound /x/ was diffused from the neighboring language. Basque may have borrowed a telescoped version of the rule, or, to introduce another possibility, it could be that in borrowing, a (foreign) language modifies rules to suit its own needs, using various means, including lessened generality. Even for cases that are clearly attributable to diffusion, it is probably true that when a sound is replaced by a diffused sound, the new sound is in some way related to the replaced segment. In the Chumash example above, Applegate mentions (p. 6) that barred-*i* is "likely to be a secondary development of /i/" (not completely replacing it but causing a phonemic split).

two sound changes discussed here? (16) It has been shown that in spreading to at least one dialect (Mixain) the fronting rule of Souletin became more general —evidence of the validity of the hypothesis for interdialectal borrowing. Assuming that Souletin borrowed the rule from Bearnese, and if [ʒ] → [x] is a borrowed less general form of the Spanish /š/ → /x/, what can be concluded is that King's hypothesis may not be valid in instances of inter-language rule borrowing, if indeed there does exist such borrowing, and what appears to be rule borrowing between languages is not more accurately thought of as sound diffusion.

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(16) It could be claimed that Souletin /u/ → /ü/ is due to diffusion, but the argument is weaker here because there is no structural motivation for the rule.

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A D D E N D U M

Geoffrey Sampson suggests the use of a negative environment similar to (B) above, but abandons the idea after proposing an alternative analysis for a problem he discusses in «Duration in Hebrew Consonants», *Linguistic Inquiry*, IV (1973), no. 1, pp. 101-104.