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On the sound change *ld > nd in Tibetic

A reply to Xun Gong

Dmitry NIKOLAEV

Stockholm University, Stockholm, Sweden

dnikolaev@fastmail.com

Abstract

This short note provides phonetic and phonological arguments in favour of the explanation of the sound change *ld > nd in Tibetic proposed by Sprigg (1972). It is argued that an alternative explanation by Gong (2016), resting on a novel interpretation of the consonant system of Common Central Tibetan, is not supported by the data and has no conceptual advantages.

Keywords

Tibetic languages – sound change – consonant clusters – prenasalisation – Kenhat

Résumé

Cette note fournit des arguments phonétiques et phonologiques en faveur de l'explication du changement phonétique *ld>nd en tibétique qui a été proposé par Sprigg (1972). Elle propose que l'explication alternative de Gong (2016), basée sur une interprétation originale du système consonantique du tibétain central commun, n'est pas soutenue par les données et n'a pas d'avantage du point de vue conceptuel.

Mots-clés

langues tibétiques – changements phonétiques – groupes de consonnes – prénasalisation – Kenhat

In his 2016 paper, Xun Gong proposed an interpretation of the development of the Old Tibetan consonant cluster ⟨ld-⟩, which in several contemporary Tibetic languages is reflected as /ⁿd/. Xun Gong states that Sprigg's (1972: 566) assumption that this sound change was brought about under the influence of the already existing segment /ⁿd/ is unsatisfying since 'it is difficult to understand how ⟨ⁿd-⟩ could "influence" the cluster ⟨ld-⟩ into /ⁿd-/, but not similar clusters such as ⟨rd-⟩ or ⟨gd-⟩' (2016: 129).

In order to account for this change, the following scenario is proposed:

1. In the process of attrition of Old Tibetan initial clusters, /l+coronal/ clusters survived longer than clusters of other types due to their articulatory simplicity.
2. At some point they were reanalysed as prelateralised stops and affricates (this thesis is supported by a new analysis of the phonological system of the Western Tibetan language Kenhat described by Hoshi & Tsering [1978] and Zeisler [2011]) and merged with other stops; /ld/ merged with /ⁿd/.

This scenario is assumed to resolve the issue at hand because 'it is implausible for [ld-] to change into [ⁿd-] in the phonology of Old Tibetan, where [ld-] is a cluster that contrasts with [rd-], [zd-] (⟨sd-⟩), and so on. In the reconstructed phonological system of Pre-Central Tibetan, where [ld-] is a unitary phoneme which contrasts only with [ḍ-], [d-], and [ⁿd-], the merger of [ld-] and [ⁿd-] becomes natural. Unlike most explanations of unnatural sound changes by postulating a series of intermediate stages connected by natural sound changes, this essay attempts to explain an unusual sound change by identifying a phonological system that renders it natural' (2016: 145).

There are several issues with this hypothesis.

Firstly, Xun Gong questions the plausibility of the influence of /ⁿd/ on /ld/ in the context of the system which also has /rd/ and /zd/. However, he himself removes this obstacle by positing a stage in the development of Central Tibetan when all /Cd/ clusters except /ld/ were lost. Then he hypothesises that the merger of /ld/ and /ⁿd/ 'probably worked by matching VOT, ensuring a maximal perceptual similarity' (2016: 141). However, as will be shown below, the argument of perceptual similarity can be efficiently used in favour of Sprigg's initial hypothesis as it shows how /ⁿd/ might have directly influenced /ld/ regardless of the presence of other /Cd/ clusters.

Secondly, the phonological-system argument advanced by Xun Gong is unsatisfactory. He proposes a 'scheme' under which the sound change *ld > ⁿd was a change from one unitary phoneme to another, which makes it explicable. However, this scheme is predicated solely on the fact that /ld/, /lt/, /ltɕ/, and /ldz/ are the only types of initial cluster permissible in a dialect of Kenhat Tibetan. This is a rather weak case for phonematicity, given a wide range

of cluster types that can function as the only licit initial complex onset in the world's languages.¹ It is not impossible that /ld/ indeed became a pre-lateralised stop /^ld/ or a post-stopped liquid /l^d/ before or after other Old Tibetan clusters were simplified, but given the typological rarity of such segments, some internal evidence from Old Tibetan (or at least Kenhat Tibetan) as to the duration of these segments and their status in syllabification and phonological processes, such as reduplication,² is needed to support this claim. The evidence was not provided, and one may assume that this revision of the phonological history of Tibetic languages was only necessary to 'identify a phonological system that renders [the change /ld/ > /ⁿd/] natural'.

Returning to the question of the connection between /ⁿd/ and /ld/, it may be noted that changes from laterals to nasals in different contexts (including before coronal stops) were also attested in the history of several Indo-European (Kümmel 2007), Micronesian (Bender et al. 2003; Grant 2014), and Tai-Kadai (Edmondson 2004) languages, as well as in Kawapanan (Rojas-Berscia & Nikulin Submitted). Cf. *rotulare* > *rondar* (late Latin to dialectal Aragon Old Spanish; vs. *roldar* in Asturias [Holt 2004: 2]).³

The change /ld/ > /ⁿd/ is clearly 'natural' in the technical sense of having an understandable motivation. Although different in their airstream mechanism, laterals and nasals are acoustically similar: both classes of sounds display dampened formant peaks (Johnson 2003: 155–163). The exact resultant formant structure is different (formants in nasals are more broadly spaced), but it has been shown that both nasals (Repp 1986) and approximants (Wright 2004) are highly dependent on the presence of vowels to carry transitional information. In the case of the opposition of the sequences /ld/ and /ⁿd/, two factors conspire to make the distinction between them especially difficult:

1. /l/ and /n/ are both coronal sounds and moreover share much of the shape of the oral cavity (cf. the X-ray based tongue tracings in [Tabain & Beare 2016]), which makes them even more acoustically similar. (Some data on the alternation between nasals and laterals is presented in [Greenlee & Ohala 1980: 290–291].)
2. In word-initial pre-consonantal contexts, formant transitions are largely absent, which further weakens the distinguishability between /lC/ and /nC/.

1 Cf. a large group of languages that only allow for sibilant + obstruent clusters in this position (Baroni 2014: 6–7).

2 Cf. the discussion of pre-nasalised stops in Bantu by Morrison (2009) and of post-stopped nasals in Austronesian by Cohn & Riehl (2016).

3 Also possibly *faldilla* > *fandilla*; *multipliar* > *muntipliar* (Catalan [Lloret 1997: 146]).

Distinctiveness of word-initial /ld/ and /ⁿd/ is therefore expected to be low, and this sets /ld/ apart as a special case, which is in no way bound to follow the same historical trajectory as /rd/ and /zd/. It may be also noted that numerous examples of phonemic mergers and splits documented in the literature (Hock 1991) show that processes of sound change are largely oblivious to the phonological structures of the languages they happen to occur in. This has caused much of the recent discussion of the theory of sound change to shift in the direction of finding concrete articulatory, auditory, and neuromotor mechanisms underlying the processes of speech production and perception (Garrett & Johnson 2013). The change from /ld/ to /ⁿd/ can be easily accounted for in this framework and does not call for structural explanations.

Returning to Sprigg's original hypothesis, I would like to underline that, unlike the one proposed by Xun Gong, it is not structural. When postulating that the development of a particular consonant was influenced by its auditory or acoustic similarity to some other consonant, as is the case with /ld/ and /ⁿd/, we do not assume that the whole structure of the original inventory had a role to play in this process. Therefore, phonetical and phonological evidence pointing to the inherent plausibility of the /ld/ > /ⁿd/ sound change presented above in no way disqualifies Sprigg's educated guess as to why this change took place (cf. the discussion of the notion of the *actuation* of sound change in [Garrett 2015: 241–242]), and this hypothesis can be interpreted in the context of the listener-centred theory of sound-change proposed by John Ohala (1981, 1989).⁴ The particular direction of change (/ld/ > /ⁿd/ and not vice versa) can be explained by the general dispreference for sharp sonority falls in onset clusters (Gordon 2016: 97–104); however, it may also have been due to token and type frequencies of different initial clusters, which need to be computed to make the study of Old Tibetan sound changes more data driven.

Another way to approach this problem from a corpus-linguistics angle is to estimate the relative functional load of the opposition /ld/ vs. /ⁿd/ in the Old Tibetan lexicon following a procedure similar to the one proposed by Babinski & Bower (2018). A study of this kind will not provide information about the importance of perceptual factors, but if the functional load of this opposition turns out to be low, it will be a strong argument in favour of the distributional–perceptual, as opposed to structural, origin of the /ld/ > /ⁿd/ merger.

4 From the point of view of articulation, /l/ and /n/ sounds are also much closer to each other than either of them to /r/ or /z/ (cf. the palatograms in [Jesus & Reis 2012: 257–258]).

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