A perceptual study on glide insertion

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A cross-linguistic phonological survey of phonological processes based on ca. 400 languages has revealed that glide insertions (and gliding) are the most frequent phonological processes. The context of the insertion is well-defined:

1) [j] is inserted in the context of the preceding or following high vowel:

si[j]awase	'happiness'	Japanese
ku[j]imba	'to sing'	Chichewa
tri[j]o	'trio'	Polish

2) [w] is found in the context of the preceding and/or following nonhigh vowel:

gu[w]ai	'condition'	Japanese
ku[w]umba	'to mould'	Chichewa
sytu[w]acja	'situation'	Polish

Phonologically, such processes have been interpreted as insertions of segments which incur features via spreading from the neighbouring vowels. The insertions have a function of avoiding hiatus and militating against onsetless syllables.

Phonetically, however, no segment is inserted in fact. It is rather a percept of formant transition of neighbouring sounds which makes the perceptual impression of a new emerging sound (in line with Ohala's (1991) interpretations of sound change). Although such observations have been made (Blevins 2007), the processes have not been investigated in detail. It is not clear what requirements should be met for a formant transition to be perceived as a glide.

In order to gain more insight into the topic, a perceptual study on the manipulated acoustic file [ia] was conducted. The files used in the experiment were manipulated in the following way:

i) transition length (50,80,110,140,170,200,230 ms)

ii) length of the first vowel (0, 30,60,90,120,150,180 ms)

The files were prepared in Klatt&Klatt (1990) Synthetiser in PRAAT. The un- and manipulated material was played to Polish and German listeners whose task was to write down what they hear. Preliminary results imply that there is no categorical boundary common for all listeners since different results were obtained for the same stimulus depending on the language and (partly) on the informant. Possible explanations of the results will be discussed by taking into consideration not only phonotactic background of the listeners but also their own production (acoustic) data (see Lehiste&Peterson 1961, Maddieson&Emmorey 1985 on the acoustic analysis of glides).

In summary, the study investigates the most common phonological processes from the perceptual point of view. The experimental results strongly suggest that the formant transitions are differently interpreted by listeners which might be explicable in terms of their language specific phonological background on the one hand and their individual production on the other hand.

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