The sonority scale: categorical or gradient

Clàudia Pons-Moll
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1. State of the affairs

The sonority scale has proven to be a decisive parameter to account for syntagmatic relations between segments, such as their organization within the syllable and across syllables. But, whereas there is tacit agreement about the relative sonority of some classes of segments (cf. vowels > glides > liquids > nasals > obstruents (Clements 1990)), there is a pervasive controversy about the relative sonority of the specific sounds which belong to these classes.

2. The controversy

2.1 This controversy mainly concerns the pairs laterals vs. fricatives or stops, voiceless obstruents vs. voiceless obstruents, and also stops vs. affricates vs. fricatives, and so forth. Indeed, the relative sonority of each of these sounds varies from one study to another, basically depending on language-specific patterns. This procedure often derives from circular arguments, since particular versions of the sonority scale are invoked to account for specific language patterns, and these specific language patterns are adduced to justify the selection of these particular versions of the sonority scale (see Ohala 1990 for discussion on this direction).

2.2 Another object of traditional debate is whether it is a licit resort or not to appeal to sonority confabulations and reversals to justify differences across languages. Those who disagree with this view argue that the sonority scale is universal, categorical (composed of discrete units) and immutable, and that discrepancies across languages must exclusively be derived from constraint reranking.

3. Goal

The purpose of this paper is to discuss whether it is a licit resort or not to appeal to sonority confabulations and reversals to justify differences across languages and, provided that it is, which sonority confabulations and reversals should be possible and which should not. In other words, we will attempt to determine to which extend the organization of sounds in the sonority scale should be categorical, as assumed in most studies, or gradient, or both, categorical for the organization of some sounds, and gradient, for that of others. On the one hand, we are going to investigate how these language-specific details could be formalized and be accessible to the mechanism of evaluation of candidates within Optimality Theory.

4. Discussion. The sonority scale: categorical or gradient?

There are different arguments which advocate a flexible or gradient approach to the sonority scale and which make evident that any attempt to obtain a categorical and universal sonority hierarchy indeterminately falls into arbitrariness.

4.1. The specific phonetic features of each sound and each class of sounds can fluctuate from one language to another, although the given label coincides.

4.2. The relative sonority of each sound can slightly vary depending on the structural position that they occupy: the study of Parker (2002), for instance, illustrates that the relative sonority of sounds varies depending on the syllabic position that they occupy.

4.3. The relative sonority of sounds can diverge depending on the phonetic context: Larson (1993) proposes a model in which sonority is considered not absolute, but the result of a mutual (bidirectional) excitation between adjacent segments.

4.4. The relative sonority of sounds can oscillate depending on the physiological properties of the speakers: in Parker (2002), slight sound sonority differences are detected in males and females.

4.5. Languages do not share the same segment inventories, so that the relative sonority distances between sounds across languages may be different.

4.6. Languages can make an equal or a different phonological use of the same physical properties of speech sounds (see Moten 2007).

5. Phonetically grounded sonority scale (Parker 2002: 236)

for vowels > mid vowels > high vowels > [c] > glides > laterals & /fl/ > /tr/ > nasals /l/ > /n/ > voiceless fricatives > voiceless stops > voiceless voiceless stops & affricates. **

6. Illustration: liquids

a. vowels > glides > liquids > nasals > obstruents (Clements 1990)


1. Hungarian manner expression

2. Italian manner expression

3. Laterals

4. Stops

5. Nasals

6. Glottals

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