Phonetics and L1 as learners' little helpers

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Phonological acquisition covers learning about the inventory of phonemes in a language, figuring out the combinations with which these sounds occur in a language and also rules and patterns. Research with children and adults has dealt with the factors that may be of help during this task but it often lost sight of the fact that adult learners are already equipped with an L1 phonology. On the basis of experimental studies, I'll discuss two mechanisms at work during phonological acquisition: the phonetic motivation of an alternation and the L1 knowledge of the participants.

Biases are argued to guide the learner along the cognitively favored way: A fruitful methodology in this research area is artificial language learning (AL). In experiments using this method, different groups of subjects are trained with slightly different patterns and the performance in a subsequent test phase is compared. It is assumed that the more successful group has benefitted from a mechanism, a bias, that pushed the learners towards acquiring a certain pattern but not another one. Researchers may disagree on the question as to how strict and powerful these biases are. On the basis of AL studies we find many arguments on that these biases are universal.

One case of such a bias is the substantive bias – a bias that favors phonetically motivated patterns. The more support a phonological pattern receives from articulatory or perceptual constraints the easier it is to learn. On the basis of my research I argue that this bias acts as a soft bias, favoring phonetically motivated patterns early in the learning process but not restricting it to the extent that an unnatural pattern cannot be learned. I want to present some recent research on the role of phonetics in phonological acquisition (Strütjen et al., submitted; Baer-Henney, 2015; Baer-Henney, in preparation), which is starting with a broader focus and finally going into the very details of phonetic support during learning. These studies have in common, that they demonstrate phonetics act as a soft bias.

Effects of biases, although only found in a subgroup of speakers of one language, are often discussed with a broad focus, and implications are made for speakers of other languages, and so studies with many languages to validate cross-linguistic impact are very important (White et al. 2018). Most other AL studies, however, are silent on the possible influence of the L1 of the learners. Adult subjects are, of course, equipped with knowledge about the set of phonemes and the phonotactics of their native language. So often it may not be clear whether a result – that pattern A is learned more easily than pattern B – is a consequence of the bias under investigation or a consequence of the design of the artificial language: Disentangling the effects of a bias and L1 is a topic, which has been underestimated in AL research. I will show the effect of L1 on AL by means of an ongoing study with German and Chinese speakers (Tang & Baer-Henney, in preparation). Adapting an artificial language learning design by Linzen & Gallagher (2017) we show that rapid generalization of identity patterns is shaped by different factors. And crucially lexical variables of L1 do not necessarily show the expected supportive effect.

There is a risk that L1 phonology shapes the outcome of the experiment and researchers mistakenly interpret their data as the consequence of a bias rather than as a possible consequence of the influence of L1. While the mechanisms such as a bias and L1 may sometimes pull the learner into the same direction, they may also work against each. In this way, I will discuss different factors shaping phonological acquisition to highlight that we as researchers need to be very careful when assessing the factors that guide the learner's path.

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