Accidental repairs: how to get rid of final voiced obstruents without trying

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The devoicing of word-final obstruents illustrates what has come to be known in phonology as the 'too many solutions' (TMS) problem. The problem reveals itself when devoicing is treated as a repair undertaken to satisfy a markedness constraint that penalises obstruent voicing (*VoicedObstruent) in final position. There are other processes that could also conceivably effect the repair, including lenition, nasalisation, consonant deletion and vowel insertion. According to the literature on TMS, the problem is that, while these other processes certainly occur, they do not do so in response to this particular constraint. The claim then is that a unique causal link holds between final devoicing and *VoicedObstruent. It is further claimed that this link needs to be expressed in the phonological grammar, for example, by imposing universally fixed rankings on the relevant constraints, or by developing feature-geometric representations that inherently favour certain feature changes over others.

In this paper, I argue that the link between devoicing and unmarked obstruent voicelessness (i) is not unique, (ii) is causal only in a historical sense and (iii) should not be formally expressed in phonological grammar.

Much of the literature on TMS reveals a strong, albeit usually implicit element of teleological reasoning: devoicing is directed towards the specific goal of avoiding or eliminating voicing in final obstruents. The reasoning persists in spite of the acknowledged conceptual and empirical difficulties associated with teleological explanations, not just in phonology but in science in general. If an account of this type is not to lapse into circularity, it needs to supply some independent motivation for the link between an event and its supposed goal.

Perhaps the best-known independent motivation proposed for final devoicing is the aerodynamic voicing constraint (AVC): the oral constriction associated with obstruents creates a build-up of intra-oral air pressure that reduces transglottal airflow and thus inhibits vocal fold vibration.

There is disagreement over the relevance of phonetic constraints such as the AVC to phonological grammar: do they act as purely historical pressures on the direction of sound change, or do they actively operate within synchronic grammars, or are they altogether irrelevant to grammar? One thing is clear, though: the evidence on which the AVC is based does not indicate a unique link between devoicing and unmarked obstruent voicelessness. While devoicing might be viewed as the line of least resistance to the AVC, there is a range of other processes that, it has been claimed, derive historically from active articulatory measures talkers take to maintain voicing by delaying the build-up of oral pressure. Some of these processes, especially nasalisation and lenition, include

those identified in the TMS literature as not being directed towards satisfying *VoicedObstruent -- but that's what they wind up doing anyway. In this synchronic respect, they are little different from processes such as final consonant deletion and vowel epenthesis that accidentally produce the same outcome.

Evaluating the relevance of final devoicing to the TMS problem requires us to provide explicit answers to a number of long-standing questions about the very nature of the process. I will review evidence that supports the following answers. Devoicing is weakening rather than strengthening. It is best represented as the deletion or suppression of a monovalent feature rather than a switch in the value of a bivalent feature. Plosive release is not the same as aspiration and requires an independent feature specification.