

A transparent-opaque blocking effect
Ashley W. Farris

With the advent of Optimality Theory (Prince & Smolensky, 1993/2004), one of the most challenging tasks has been accounting for opacity effects, outputs which are either not surface-true or not surface-apparent, such as chain shifts or derived environment effects. In both of these types of opacity, a rule is blocked from applying, either by rule ordering or by limiting the rule's domain of application. Addenda to the theory, namely local conjunction (e.g., Smolensky, 1995; Kirchner, 1996; Lubowicz, 2002) and comparative markedness (McCarthy, 2002), have attempted to account for both chain shifts and derived environment effects, and in many cases, the two theories are equally adequate. The purpose of this paper is to highlight another type of blocking effect, doubly-derived environment blocking. Doubly-derived environment blocking is interesting in that it does not result in opaque outputs, but it seems to require an account motivated by opacity effects. This paper demonstrates that faithfulness-based extensions to optimality theory, such as local conjunction, can easily account for the effect. However, markedness-based extensions, such as comparative markedness, cannot.

In doubly-derived environment blocking, a sound [X] is allowed to surface for input /X/, and it is allowed to surface for input /Y/, provided that [X] only differs from /Y/ by a single derivational 'step' or feature. However, [X] is blocked from surfacing from input /Z/ where /Z/ differs from [X] by two 'steps' or features. DDEBs are a particularly interesting case because the sound [X] is allowed whether faithful or derived; it is only blocked when it is too distant in terms of features or steps in the derivation from the input. An example comes from Amahl's acquisition data (Smith, 1973). At the early stages of acquisition, Amahl exhibited two interacting processes: fricative stopping (e.g., [bʌt] 'bus') and word-final devoicing (e.g., [bɛt] 'bed'). The doubly-derived environment blocking effect is exemplified by words in which the two processes could interact. In these words, however, a word-final voiced fricative /z/, which might be expected to both stop and devoice, is instead deleted (e.g., [nɔɪ:] 'noise', rather than *[nɔɪt]).

Doubly-derived environment blocking produces transparent outputs; because of the deletion, [nɔɪ:] 'noise' is neither non-surface-apparent nor non-surface-true. However, classic OT cannot account for such phenomena; a ranking paradox results. Turning to theory addenda created to deal with opacity effects, we show that locally conjoined constraints can account for the doubly derived environment blocking: a conjoined constraint forbidding changes in place and voice in the same segment rules out a mapping like /nɔɪz/ → *[nɔɪt]. Comparative markedness, on the other hand, cannot be used to solve the doubly-derived environment blocking dilemma; the problem lies in the fact that *new* voiceless stops are allowed as substitutes in words like [bʌt] 'bus' and [bɛt] 'bed'; there is no way to formulate a constraint disallowing *new* voiceless stops only when derived from voiced fricatives. This result is a reminder that the path from the input to the output, as represented by faithfulness constraints, is a key component in opacity effects; markedness alone is not sufficient to account for doubly-derived environment blocking.