The distribution of obstruent voicing in Afrikaans

Afrikaans, like Dutch and German, is a so-called final-devoicing language, and therefore has paradigms that alternate in the voicing of root-final obstruents (1a), and also non-alternating paradigms (1b).

(1) Singular | Plural  | Singular | Plural
/sa:d/  | [sa:t]  | [sa:da]  | ‘seed’  | /pɔt/  | [pɔt]  | [pɔtə]  | ‘pot’

This is usually analyzed as a surface restriction rather than a morpheme structure constraint: Afrikaans does not allow word-final voiced obstruents on the surface, but voiced obstruents can appear freely in morpheme-final position (i.e. on the underlying level). However, I will show that the distribution of obstruent voicing in Afrikaans is also restricted at the morphemic level. Specifically:

(2) In CᵥVC₂-morphemes, C₂ can be a voiced obstruent iff C₁ is not a viable voicing sponsor.

This pattern is perhaps easiest to represent visually as in (3) and (4) below. The example in (3) is a possible (in fact, actual) Afrikaans morpheme. The slot associated with C₁ on the voicing tier is filled by a voicing feature (since C₁ is a voiced obstruent), and a voicing feature is hence tolerated on C₂. The example in (4), however, is not a possible Afrikaans morpheme. There is an empty slot elsewhere on the voicing tier where the voicing feature of the word-final obstruent could be realized.

(3) Possible voiced obstruent final morpheme = C₁ is a voiced obstruent and hence already voiced

Voice tier: [voice]  [voice]

Segment tier: / P  o  T / [bot] [bodo] ‘bid’

(4) Impossible voiced obstruent final morpheme = C₁ is voiceless obstruent, hence voicing sponsor

Voice tier: [voice]

Segment tier: / T  a  P / [tap] [taba]

Restrictions such as these are problematic for surface oriented grammatical models like Optimality Theory (OT). In these models, generalizations must be stated over surface (output) forms, and cannot be stated over underlying forms. In models like OT, any form is a possible input, and it is the task of the grammar to map even ungrammatical forms. In effect, this implies that underlying /tab/ is indistinguishable from underlying /dap/ on the surface. Both of these roots will have singular–plural paradigms of the form /dap/–/dapa/.

(5) Surface realization of /tab/ in Afrikaans

/ T  a  P / → [ T  a  P ] (=[dap])