Challenges for incremental models: outwardly sensitive phonologically conditioned affix allomorphy and the affix pervasiveness effect

The present abstract addresses two empirical issues relevant to the assessment of incremental models of grammar. First, there are cases of phonemic alternations in suffixes, which are clearly sensitive to more peripheral phonological structure but may not be capturable in terms of regular phonological rules. If these are recognized as instances of genuine affix allomorphy they indicate the type of look ahead to external phonological structure predicted to be absent in incremental models (Gouskova & Bobaljik 2020:10ff). The second challenge concerns affix pervasiveness effects, that is, the consistent association of certain phoneme strings located at the periphery of words belonging to a certain morphosyntactic category with idiosyncrasies pertaining to specific affixes. This association raises the question of what prevents the existence of simplexes exhibiting the relevant phoneme strings in the position in question. This effect arguably requires reference to complete complex words, subject to morphological parsing based on the presence of phonological structure in specific positions ("affix stripping"). Both challenges are illustrated with case studies.

Here I will discuss arguments for {/øz/, /oz/} allomorphy in German. In German the adjectival suffix /øz/ *-ös* has a special allomorph /oz/, which occurs when a stressed suffix follows as in (1a) (I assume that the voiceless pronunciation of the final fricative in *nervös* is due to phonetic implementation (*Final Devoicing*))

(1) [nɛʀˈv**øz**] <nervös> - [nɛʀv**oz**iˈtæt] <Nervosität>

I consider the alternation in (1) allomorphic because it does not lend itself to a phonological analysis in terms of changing feature values in specific contexts. The vowels /ø/ and /o/ differ only in the values of the feature [±back] but there is no phonological reason for switching the value before a stressed suffix. It is true that /ø/ is more marked than /o/ and that marked phonemes are often restricted to prominent positions but the approach to reducing markedness in front rounded vowels, at least in English, Yiddish, or German, is to unround them (cf. historical unrounding of front rounded vowels in English *bridge, kiss, king*), not to modify backness. It is also true that alternations between /ø/ and /o/ are extremely common in German, but it is typically the case that the back vowel in the base corresponds to a front vowel in the derived form as in *Sohn* 'son' – *Söhnchen* 'son+DIM', *Franzose* 'Frenchman' – *Französin* 'Frenchwoman', not the other way around. Moreover both corresponding vowels in this alternation known as "umlaut" favor prominent positions, where the following umlaut-triggering suffix is unstressed. The peculiar affix alternation in (1) is presumably due to borrowing (cf. French [nɛʀˈvø] <nerveux> [nɛʀˈv**øz**] <nerveuse> - [nɛʀv**oz**iˈte] <nervosité>), where the loan words as in (1) preserved the relevant alternations. The claim that the suffix allomorphy {/øz/, /oz/} is part of German morphology is supported by the stability of the pattern, which also extends to novel formations such as *Skrupulosität* based on *skrupulös* ‚scrupulous'.

Assuming the listing of both allomorphs {[øz], [oz]}) in the input, the alternation in (1) vis-à-vis the preservation of the marked vowel in *Obszönität* ‚obscenity', is easily captured. Regular patterns of foot structure, not indicated in the grammar in (2), yield main stress on the rightmost suffix *-ität*. Assuming that I-O-CORR requires strict correspondence of phonemic structure between candidates and input forms, the presence of the suffix allomorphs allows for the constraint against marked vowels in non-prominent position to be satisfied in (2a), while the absence of such allomorphs results in violation in (2b).

(2)a.	[[[nɛʀv]$_{STM}${[øz],[oz]}$_{SFX}$]$_{STM}$[itæt]$_{SFX}$]$_{WRD}$	I-O-CORR	*V{[+rd][-bk]}/(unstressed)
	➪ [nɛʀv**oz**iˈtæt]$_{WRD}$		
	[nɛʀv**øz**iˈtæt]$_{WRD}$		*!
b.	[[ɔpstˢøn]]$_{STM}$[itæt]$_{SFX}$]$_{WRD}$		
	[ɔpstˢoniˈtæt]$_{WRD}$	*!	
	➪ [ɔpstˢøniˈtæt]$_{WRD}$		

The analysis in (2) hinges entirely on the assumption of the respective inputs, which in turn presupposes a morphological parsing of complete words, in particular the abstraction of affixes (so called “affix -stripping). Such parsing is restricted by the category of the word (word-final /øz/ is abstracted in adjectives, not in nouns or stems (cf. (3a) vs. (3b), (3c)), and by the remaining material: word-final /øz/ is not abstracted when no syllabic stem material remains ((cf. (3a) vs. (3d)). Proper affix-stripping then triggers lexical association with relevant allomorphs (indicated by the arrow “↣” in (3)).

(3)a. [nɛʀvøz]$_{A}$ <nervös> → [[nɛʀv]$_{STM}$[øz]$_{SFX}$]$_{A}$ ↣ [[nɛʀv]$_{STM}${[øz], [oz]}$_{SFX}$]$_{A}$)
b. [kɑʀɑgøs]$_{N}$ <Karagös> (*Karagös* is not an adjective)
c. [fʀantsøz]$_{STM}$ <französ-isch> (*französ* is not an adjective)
d . [bøz]$_{A}$ <bös> ‘mean’ ([b] is not a possible stem in German)

The presence of affix allomorphs then accounts for the satisfaction of markedness in (2), as opposed to the violation in cases like [fʀantˢ**ø**ˈziʀən], [fʀantˢ**øz**iˈziʀən] <französ(is)ieren> 'Frenchify'. These patterns support the claim that the alternation in (1) is truly allomorphic, not phonological. They also highlight the phenomenon of affix pervasiveness. In German, every adjective ending in [øz]/[øs] exhibits robust final main stress, where [z] appears before a vocalic suffix (e.g. the inflected forms [nɛʀˈv**øz**ə], [skʀupuˈl**øz**ən]. When a suffix attracting main stress follows, /øz/ regularly alternates with /oz/. The fact that there are no simplex adjectives ending in [øz]/[øs], which fail to exhibit these properties indicates the central role of morphological parsing, in particular affix-stripping, along with the lexical association of relevant allomorphs.

Not all affixes exhibit this sort of pervasiveness but many do. I will present additional cases for both affix pervasiveness and affix allomorphy conditioned by external phonology, including French {[ãt], [a]} as in [ʀes**ãt**]$_{A}$ <récente> 'recent' - [ʀes**a**mã]$_{ADV}$ <récemment> 'recently'.

Assuming that the recurrence of certain phonological structures at the periphery of words sharing the same word class may lead to the recognition of an affix, which is then used in morphological parsing, the observation that certain strings at the periphery of certain types of words consistently function as exponents of that affix can be accounted for. Moreover, if affixes favor lexical association with allomorphs (more so than stems), and if inputs in word-formation consist of complete sequences of such sets, more external affixes can influence the choice of allomorphs. All of these patterns require reference to phonemic structure only, not to putative underlying structure nor to phonetic implementation. If analysed in an OT framework, it is also predicted that the choice of the allomorphs is conditioned by phonological markedness constraints (along with possible fixed rankings among allomorphs). The data to be presented at this workshop support these restrictions (reference to phonemic structure only, phonologically optimizing affix allomorphy). It is unclear how they can be captured in incremental models.