From spandrel to signal: The emergence of the English {/z/} suffix from an evolutionary perspective

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This paper accounts for the emergence of the -*s* suffix marking plural, genitive case and 3rd singular present in terms of cultural evolution. The Modern English {/z/} suffix derives from Early Middle English {/əs/}, which is surprising, as final voicing is typologically rare due to greater articulatory difficulties (cf. Blevins 2006, Stampe 1979, Westbury & Keating 1986). Thus, extant accounts of the voiced suffix in terms of sporadic voicing (cf. Pinsker 1974, Ringe 2003) are questionable. Our account proposes a two-stage evolutionary process with {/z/} and {/s/} as competing replicators (see Croft 2000, Ritt 2004 for a discussion on potential linguistic replicators). We show that the development of the suffix follows Gould & Lewontin's pathway of evolution as the exaptation and selection "of parts present for reasons of architecture, development or history" (1979:593, see Lass 1980 on linguistic exaptation).

In the first stage final [z] emerged as a linguistic 'spandrel' (cf. Gould and Lewontin 1979) in the wake of schwa loss, which deleted unstressed vowels both in word-final and checked positions, yielding word-final clusters (1):

(1) ME EModE
    a. [katəs] *catt-es* 'cats, pl.' → [kæts]
    b. [godəs] *god-es* 'gods, pl' → [gɒdz]

While the post-schwa-loss plural in (1a) retains the voiceless [s] of the Middle English ancestor as expected, the suffix surfaces as voiced [z] in plurals of the type in (1b). At this stage, however, [z] represents merely a by-product of an articulatory constraint on obstruent sequences, which requires them to agree in voicing. It is only at a second stage that [z] comes to be re-functionalised, or 'exapted', as a potential lexical underlier {/z/} of the plural suffix, and likewise of the genitive and 3rd person singular present suffixes.

We argue that the ultimate selection of innovative {/z/} over resident {/s/} reflects speakers' preferences for linguistic transparency. As pointed out by Mayerthaler (1981), many-to-one meaning-signal mappings – i.e. ambiguous structures – are dispreferred and avoided in favour of indexical structures, i.e. one form fulfilling one function. This raises the possibility that the innovative {/z/} suffix was selected because it was morphonotactically less ambiguous, and signalled the complexity of plural, genitive and 3rd person singular present forms more reliably than the resident {/s/} suffix, as illustrated in Table 1 below:

Table 1. Meaning-signal mappings for /z/ and /s/ plurals

	sin-s (complex)	*since* (lexical)	*Ambiguity*
plural {/-s/}	[sɪns]	[sɪns]	Yes
plural {/-z/}	[sɪnz]	[sɪns]	No

Clearly, however, the argument works only if the number of simple word forms ending in a sonorant or vowel followed by /s/ (such as *since* or *peace*) exceeds the number of simple forms ending in a sonorant or vowel followed by /z/ (such as *cleanse* or *rise*). We

demonstrate, by means of a statistical analysis of historical corpus data, that this was indeed the case in the relevant period.

We therefore conclude that the innovative suffix {/z/} satisfied the requirements for efficient communication – one form fulfils one function – much better than the resident {/s/} variant, and significantly decreased the ambiguity between complex and simple word form tokens, and was selected, or 'exapted', for that reason.

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