FROM SPANDREL TO SIGNAL

THE EMERGENCE OF THE ENGLISH {/z/} SUFFIXES — AN EVOLUTIONARY PERSPECTIVE

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AN EVOLUTIONARY PRELUDE

EXAPTATION: The selection “of parts present for reasons of architecture, development or history” (Gould & Lewontin 1979: 593) which come to fulfill a function different from the original one. These parts are also called spandrels.

THE ARCHITECTURAL SPANDREL

A triangular space between an arch and the adjoining structures. It seems as if it was created to make room for embellishments. However, it is a necessary architectural byproduct when building arches (old function) and only receives its embellishments to increase aesthetic appeal (exaptation).

THE BIOLOGICAL SPANDREL

The obvious thought is that feathers evolved to enable flight in birds. This is not true, however. They originally served the purpose of thermoregulation (old function). During the evolutionary process, feathers were then exapted and used as wings. The feathers of a bird can thus be seen as biological spandrels.

THE {/z/} SUFFIXES AS LINGUISTIC SPANDRELS

The English suffix marking for plural, genitive and 3rd singular has three phonetic realisations:

/z/ after sibilants /s z tʃ dʒ/
e.g. witches [ˈwɪtʃɪz]
/z/ after voiced segments
e.g. he/she/it spends [ˈspendz]
/s/ after voiceless segments
e.g. Rick’s [ˈrɪks]

What we know about the suffixes

The underlying phonological form is voiced /z/ (cf. Zwicky 1972).
The suffixes are historically derived from Middle English /as/ (cf. Fisiak 1968).

What we need to find out

Why did /as/ develop into /z/ and not /s/?
Typologically, final voicing is rare, as articulatory preferences usually trigger devoicing processes in word-final position (cf. Blevins 2006)!

THE EVOLUTIONARY ACCOUNT:

/z/ first developed as a spandrel after schwa-loss and became then exapted as new underlier because of its strong signalling function.

STEP I — SCHWA-LOSS

Middle English	Early Modern English
(1) [kæts] catt-es ‘cats, pl.’ → [kəts]
(2) [gəds] god-es ‘gods, pl.’ → [gədz]

Assimilatory processes require voicing of the suffix in (2).
/z/ developed due to phonetic constraints and can thus be regarded as a linguistic spandrel.

STEP II — EXAPTATION OF /z/

Hypothesis: /z/ was selected as the lexical underlier rather than /s/ because it is better at signalling morphological complexity:

<table>
<thead>
<tr>
<th>sin-s (complex)</th>
<th>since (lexical)</th>
<th>Ambiguity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plural /-s/</td>
<td>[sɪns]</td>
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TESTING THE HYPOTHESIS — A CORPUS STUDY

The Penn Helsinki Parsed Corpus of Early Modern English (PPCEME)

Percent Correct: 80.53%
Percent Correct: 68.66%

Testing the hypothesis with the Penn Helsinki Parsed Corpus of Early Modern English (PPCEME)

PREDICTIVE STRENGTH

Correct: 80.53%
Wrong: 19.47%

Correct: 68.66%
Wrong: 31.34%

χ²-test of independence, p = 2.2e-16, N = 301.

CONCLUSION

The innovative /z/ suffixes signal morphological complexity significantly more reliably than /s/. This may have motivated the choice—or exaptation—of the linguistic spandrels as lexical underliers.

REFERENCES


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THE PENN Helsinki PARSED CORPUS OF EARLY MODERN ENGLISH (PPCEME)

Periods: E2+E3 (1570-1700)

Queries: All items ending in /l m n r/ or V+s /z/,
spelling including final or checked schwa:
<lese>, <ryz>, <aies>,...

SPEAKERS HAVE TWO OPTIONS

GRAMMAR Z — UNDERLIER /z/
Speakers assume that final /z/ indicates morphological complexity.

GRAMMAR S — UNDERLIER /s/
Speakers assume that final /s/ indicates morphological complexity.

Correct: 80.53%
Wrong: 19.47%

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χ²-test of independence, p = 2.2e-16, N = 301.