The intersection of /t/ glottaling and /t/ deletion in word-final consonant clusters

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Description of (t,d) deletion

Phonological process :

- deletion of apical stops /t/, /d/ in final consonant clusters C(C)t, C(C)d:

  "*mist*" [mɪst] ~ [mɪs]
  "*bold*" [bəʊld] ~ [bəʊl]

Explored in:

- Numerous US English dialects (e.g. Guy, 1980);
- York (Tagliamonte & Temple, 2005)
- Manchester (Baranowski & Turton, 2016) and
- Mersea Island (Amos et al. forthcoming)

- Comparably, (t,d) received little attention in the UK

Description of (t) glottaling

Phonological process :

- Glottal reinforcement of (t) (often called 'T-glottalisation' or 'Pre-glottalisation'): "mattress" [mæʔtrəs]
- T-glottaling (or glottal replacement): *"butter"* [bʌʔə]

Explored in:

- Numerous British dialects (e.g. Trudgill 1974; Straw & Patrick 2007)

- The bulk of research focused on the following environment (PreC > PreV > PreP), limiting the preceding context to vowels

Intersection

- In British English, word-final /t/ deletion **intersects** with /t/ glottaling / glottalisation:

  "kept" /kɛpt/ → [kɛp] = deletion or → [kɛʔ] = with glottal

- no systematic investigation has been carried out on their intersection (Amos et al., 2018)

- Does intersection change the frequency of deletion? of glottal forms? How should they be properly counted?

- **Goal**: investigate the phonological co-variation between two linguistic variables **in final consonant clusters** in Colchester, Ipswich and Norwich

Methods

Participants: 36 native East Anglian speakers
Data: gathered through sociolinguistic interviews, reading passages and word lists.

- *N* = 1,275 tokens which intersect, i.e. occur for both variables
- final C(C)d clusters, following /t/ and /d/ are excluded

Tools employed:

- Elan
- Praat - used for critical cases (e.g. following pause)
- Rbrul - mixed-effects regression analysis
- Binary analysis: /t/ deletion vs. /t/ glottaling

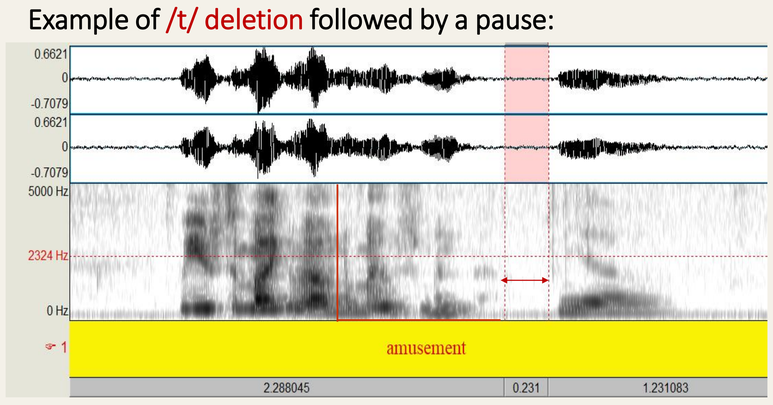
Coding procedure:

- In this analysis, glottal replacement with [ʔ], the few cases of glottal reinforcement of [t] with [tʔ] (n = 2) or [ʔt] (n = 12), and the few cases where a period of creaky voice occurred (n= 4) are all coded the same.

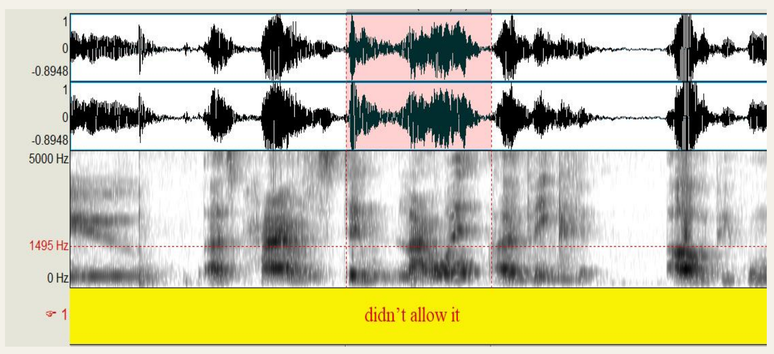
Criterion to measure following pause:

- A typical pause in speech lasts only about a quarter to half a second (Fors, 2015)
- The presence of a glottal indicates some reflex in the signal: creaky vocal fold pulses or a spike in voicing offset
- We consider a pause to begin after the voicing bar either ceases abruptly or fades out
- Interruption of the voicing bar early in the pause indicates a glottal(ised) token
- No evidence of /t/ or glottal gesture early in the pause implies /t/ deletion

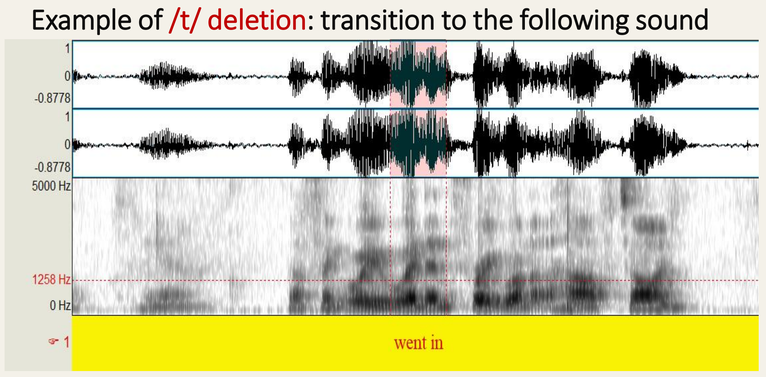
Example of /t/ deletion followed by a pause:



Example of /t/ glottaling followed by a vowel:



Example of /t/ deletion: transition to the following sound



Linguistic constraints: preceding and following phonetic segment; voicing agreement; syllable stress (on the cluster); stress on following syllable

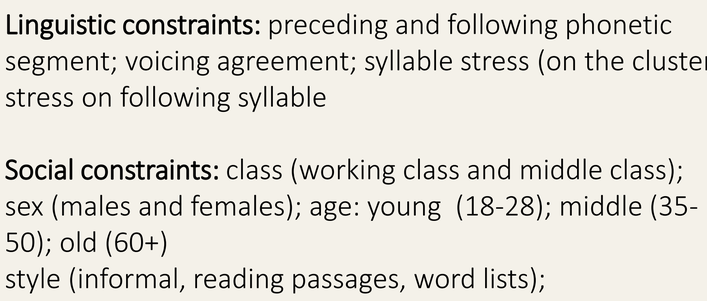
Social constraints: class (working class and middle class); sex (males and females); age: young (18-28); middle (35-50); old (60+)
style (informal, reading passages, word lists);
word frequency (SUBTLEX-UK corpus)

Regression analysis:

- R^2 = 0.532; input prob. = 0.7
- Application value = /t/ deletion
- We consider /t/ glottaling more close to the standard than /t/ deletion following Harris' (1994) lenition scale: **Plosive > ʔ (Glottaling) > Ø (Deletion)**
- T-glottaling in word-final position (before a consonant) is well-established even in RP (Kerswill 2007; Barrera 2015)

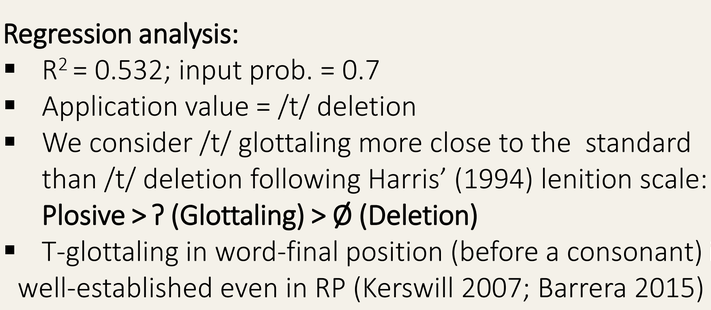
Results – significant predictors

Preceding environment*:

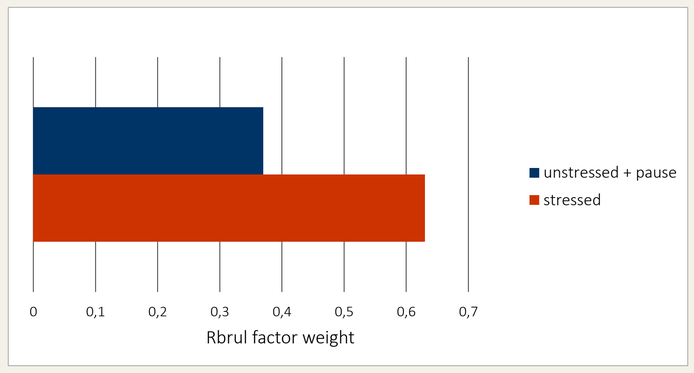


*L-vocalised tokens excluded, e.g. *bolt* [bəʊt] – they are not clusters.

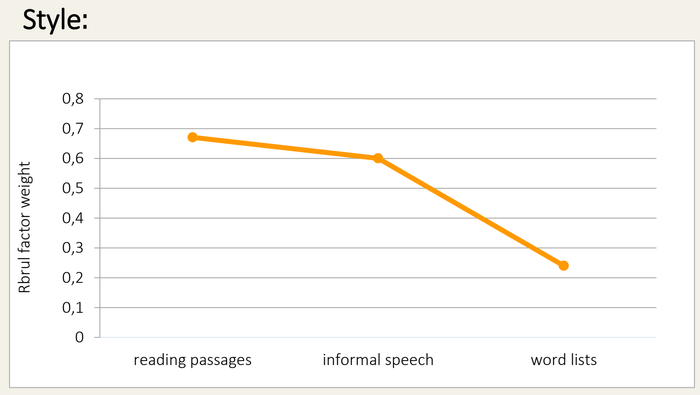
Following environment:



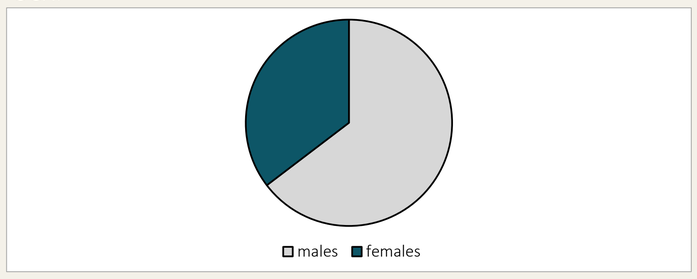
Stress on following syllable:



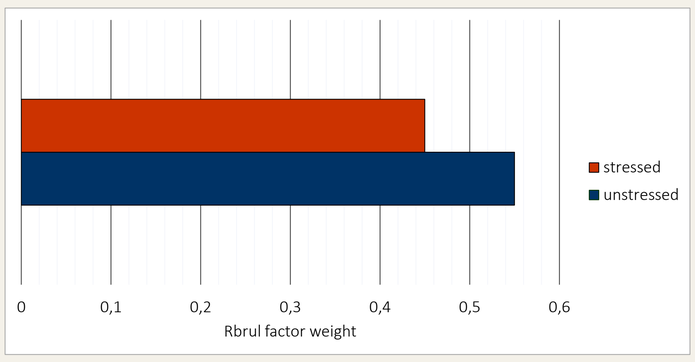
Style:



Sex:



Syllable stress (on the cluster):



Conclusion

Preceding environment: preceding stops and fricatives favour deletion, whilst preceding nasals and preceding /l/ favour glottal(ised) variants;
Following environment: nasals, fricatives and stops slightly favour deletion – the final stage of the lenition scale – whilst vowels and approximants favour glottal(ised) variants.
Following stress: unstressed syllables and pause trigger glottal(ised) variants, whereas stressed ones favour /t/ deletion;
Style: more glottal(ised) variants in words in isolation than reading passages and informal speech;
Sex: females glottal(ise) more than males, whilst males delete /t/ more than females;
Syllable stress (on the final consonant cluster): more deletion than glottal(ised) variants in unstressed final clusters;
Non-significant predictors: voicing agreement, social class, age and word frequency.

References

Amos, J., J. Kasstan & W. Johnson (2018). Reconsidering (t, d)-deletion as a single variable in English. Paper presented at the Linguistic Association of Great Britain, 13th September, University of Sheffield.
Baranowski, M. & Turton, D. (2016). The morphological effect in British English T/D-deletion. Paper presented at the Linguistic Association of Great Britain, 7th September, University of York.
Barrera, B. B. (2015) A sociolinguistic study of T-glottaling in Young RP: Accent, Class and Education. Unpublished PhD thesis: University of Essex.
Fors, K. L. (2015) *Production and Perception of Pauses in Speech.* University of Gothenburg.
Guy, G. R. (1980). 'Variation in the group and the individual: the case of final stop deletion'. In: W. Labov (ed.), *Locating Language in Time and Space*. New York: Academic Press, 1-36.
Harris, J. (1994). *English sound structure*. Oxford: Blackwell.
Kerswill, P. (2007). Standard and non-standard English. In Britain, D. *Language in the British Isles. Cambridge*: Cambridge University Press.
Straw, M. & P. L. Patrick (2007). Dialect acquisition of glottal variation in /t/: Barbadians in Ipswich. Language Sciences (29), 385- 407.
Tagliamonte, S., & R. A. M. Temple (2005). New perspectives on an ol' variable: (t,d) in British English. *Language Variation and Change* 17, 281–302.
Trudgill, P. (1974a) *The Social Differentiatin of English in Norwich*. Cambridge: Cambridge University Press.

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