Synchronic evidence for diachronic pathways of change:

/g/-deletion and the life cycle of phonological processes

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1. Introduction

'Velar nasal plus' refers to the variable presence of post-nasal /g/ in North Western varieties of British English (Wells 1982: 365)

sing [sɪŋg] ~ [sɪŋ] *singer* [sɪŋ.gə] ~ [sɪŋ.ə]

Yet to be studied thoroughly under the variationist paradigm, though its historical development has been discussed in detail. This study aims to:

- show how diachronic accounts of /ŋg/ can explain its synchronic variation
- provide synchronic evidence to support theories of its diachronic development

It also explores the mechanisms behind what appears to be a recent innovation in how /ŋg/ clusters behave pre-pausally

2. The Life Cycle

Phonological rule that deletes post-nasal /g/ in syllable coda

Diachronic trajectory follows the 'life cycle of phonological processes' (Bermúdez-Otero & Trousdale 2012), with the rule's morphosyntactic domain becoming increasingly narrow over time:

- Stage 1: begins as a **PHRASE-LEVEL** rule - sees phrasal content
- Stage 2: narrows to **WORD-LEVEL** - sees only the grammatical word
- Stage 3: narrows to **STEM-LEVEL** - sees only the stem

Stage	Surface form of underlying /ŋg/				Language variety/register
	finger	*sing-er*	*sing it*	*sing ‖ sing tunes*	
0	[ŋg]	[ŋg]	[ŋg]	[ŋg]	Early Modern English
1	[ŋg]	[ŋg]	[ŋg]	[ŋ]	Elphinston (formal)
2	[ŋg]	[ŋg]	[ŋ]	[ŋ]	Elphinston (colloquial)
3	[ŋg]	[ŋ]	[ŋ]	[ŋ]	Present Day English

Adapted from Bermúdez-Otero (2011: 224)

Assuming cyclic application of the deletion rule in a stratified phonological system, the life cycle also makes predictions about the rule's synchronic behaviour that have not yet been tested empirically:

	finger	*singer* _V	*sing it* _#V	*sing ‖* _#‖	*sing tunes* _#C
Stem-level	/fɪŋ.gə/	/sɪŋg/	/sɪŋg/	/sɪŋg/	/sɪŋg/
Word-level	/fɪŋ.gə/	/sɪŋ.gə/	/sɪŋg/	/sɪŋg/	/sɪŋg/
Phrase-level	/fɪŋ.gə/	/sɪŋ.gə/	/sɪŋ.gɪt/	/sɪŋg/	/sɪŋg.tʃuːnz/
Chances to apply:	0	1	2	3	

Prediction: probability of surface deletion is a function of the number of domains in which /g/ is *eligible* for deletion

3. Results and Discussion

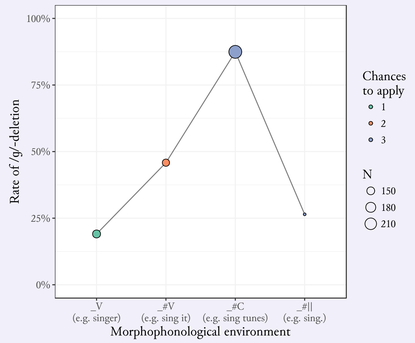
3.1 Conversational data

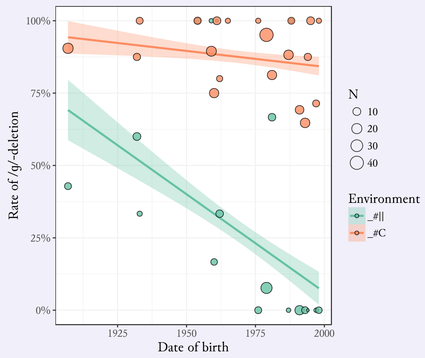
24 sociolinguistic interviews conducted in Greater Manchester and Blackburn, with speaker date of births spanning almost a century (from 1907 to 1998)

941 tokens of (ng)

Mixed-effects logistic regression reveals that the morphophonological environment is the strongest predictor of [g]-presence

BUT there is a surprisingly high level of [g]-presence pre-pausally, contra the life cycle's predictions





Is this problematic for the life cycle? Not if pre-pausal [g]-presence stems from a separate innovation

(ng) variation in pre-pausal position seems to be undergoing *generational change* in apparent time

Linked to a parallel change of increasing ejectivisation? McCarthy & Stuart-Smith (2013) find that it is also favoured:

- phrase-finally
- with velar place of articulation
- and after nasals

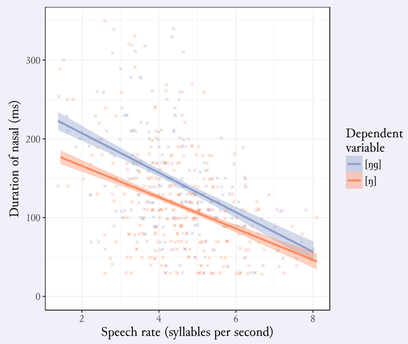
e.g. *think* (cf. *thing*), *sink* (cf. *sing*)

What are the mechanisms underlying this innovation?

Is [g]-presence triggered pre-pausally by virtue of:

- its (final) position in the phonological phrase/ utterance
- *or* the phrase-final lengthening invoked in this position (i.e. is the probability of [g]-presence positively correlated with the duration of the preceding nasal?)

There appears to be a durational effect (right), but crucially this disappears when pre-pausal tokens are excluded, suggesting that [g]-presence is triggered directly by **phrasal position** rather than segmental duration



3.2 Elicitation data

Elicited word-final /ŋg/ before prosodic/syntactic boundaries of different 'strengths', adapted from Sproat & Fujimura (1993)

- **1. Suffix boundary** e.g. *The [**wrong**]-ful accusation was very insulting*
- **2. NP-internal boundary** e.g. *He liked feeding [the **young** baboon]$_{NP}$*
- **3. VP boundary** e.g. *[The **sting**]$_{NP}$ [became painful]$_{VP}$*
- **4. VP-internal boundary** e.g. *She sent [the **gang**]$_{IO}$ [potential targets]$_{DO}$*
- **5. Intonational phrase boundary** e.g. *["The film was too **long**"]$_{IP}$ Michelle said*
- **6. Utterance boundary** e.g. *[Her fans didn't like the new **song**.]$_{U}$*

Stronger

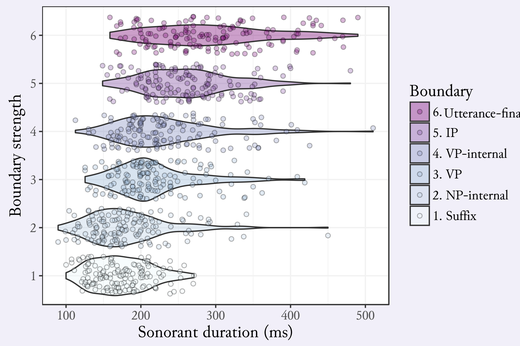
864 tokens of (ng) from 18 speakers across the North West

The stimuli successfully elicit a gradient scale of lengthening (right)

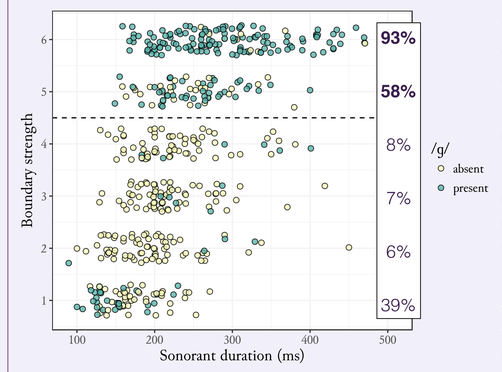
- strong, positive correlation (ρ=0.63) between boundary strength and duration of the sonorant period ([Vŋ])

1	2	3	4	5	6
174	183	218	233	262	292

Average sonorant duration (ms) by boundary strength



But do we also find a gradient scale of [g]-presence along this cline of boundary strengths?



Not really - more like a categorical distinction between phrase-medial and phrase-final tokens

But is the effect triggered by finality in the utterance, or the *intonational* phrase? Inter-speaker variation!

Gradient effect of duration overlaid on a categorical effect of phrasal position is possible…

…**but** you would expect the [g]-ful tokens within each boundary category to be those with longer nasals, and this doesn't appear to be the case

Additionally, adding sonorant duration to a model making a categorical distinction between phrasal position does **not** lead to a significantly better fit by ANOVA comparison (p = 0.187)

4. Conclusion

The strongest predictor of (ng) variation in the North West is the morphophonological environment, in ways that are predicted by the life cycle of phonological processes. Good example of how synchronic and diachronic analyses can inform each other.

- intra-speaker variation in /td/-deletion (Guy 1991) and /l/-darkening (Turton 2014) have previously been analysed under similar frameworks with comparable success

Suggestive evidence of a separate innovation undergoing generational change, with increasing rates of [g]-presence pre-pausally. This effect seems to be triggered directly by phrasal position rather than segmental duration.

- other lenition processes show similar variability pre-pausally, e.g. /s/-debuccalisation in varieties of Spanish (see Kaisse 1996) and /td/-deletion in varieties of English (see Santa Ana 1991, Bayley 1994)

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