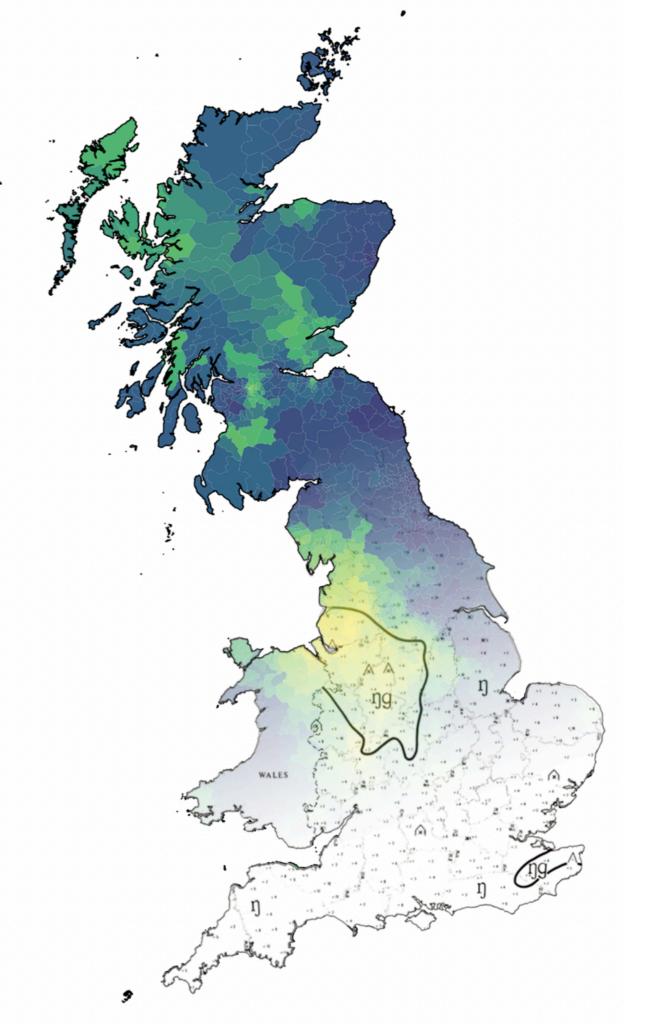
Computational approaches to British English dialectology

George Bailey
University of York

Manchester Forum in Linguistics 29th April 2021



"America: You drive for four hours. You are still in the same part of the country.

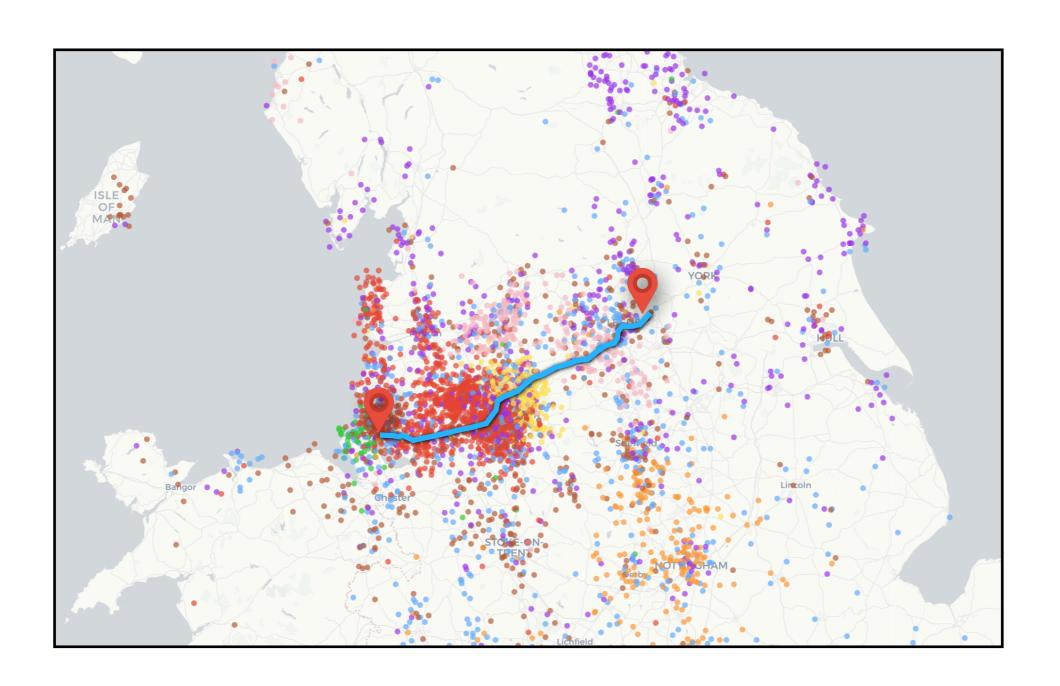
UK: You drive for two hours. The local accent has changed twice. Bread rolls have a new name"

- Stefan (@Zin5ki) on Twitter

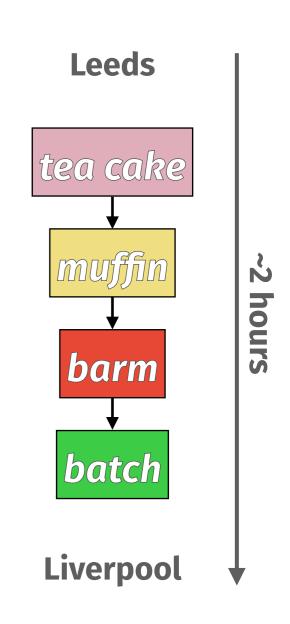
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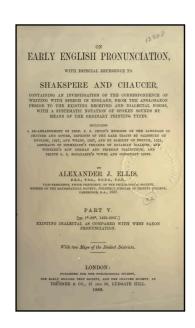
British English dialectology

Long history of dialectological research in the UK

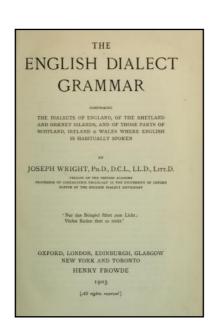
"geographical differentiation of local accents is densest in those places which have long been settled by Englishspeaking populations"

(Wells 1982:10)

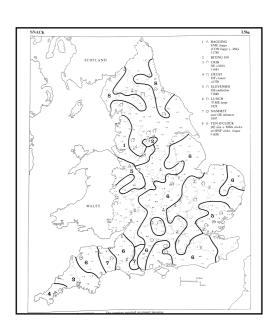
Early examples:



Alexander Ellis (1889)
The Existing Phonology
of English Dialects



Joseph Wright (1905) The English Dialect Grammar



Harold Orton (1962) Survey of English Dialects

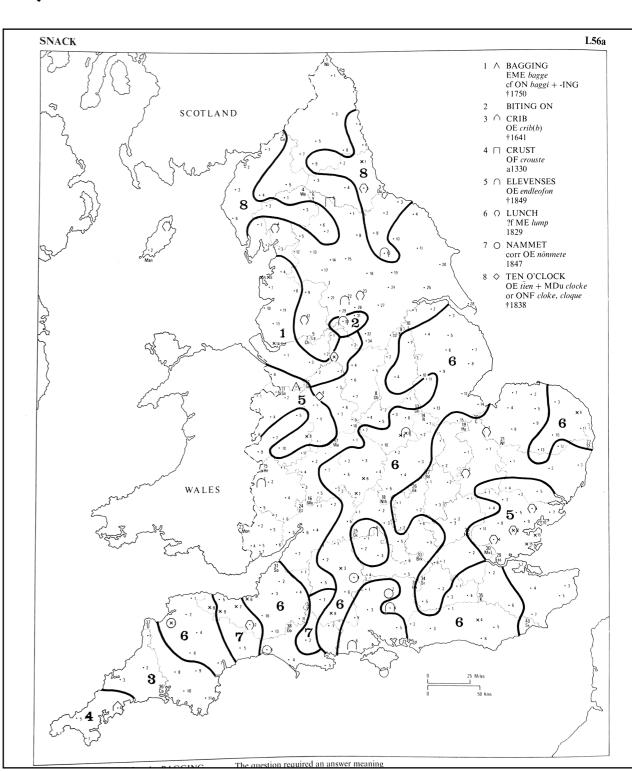
British English dialectology

Survey of English Dialects (Orton 1962)

- Project led by Harold Orton at the University of Leeds
- Data collection between 1950 and 1961



Stanley Ellis interviewing an informant near Ilkley



Survey of English Dialects (Orton 1962)

- Project led by Harold Orton at the University of Leeds
- Data collection between 1950 and 1961
- It wasn't always plain sailing!



Stanley Ellis interviewing an informant near Ilkley



Israel foots bill for Arab homes

Dialect survey needs cash Call for tight grip

Dialect survey needs cash

"We consider it a history of England and the real English people much more, say, than treaties or battles"

"In a sense we have performed a salvage operation in the face of the dilution of dialects by the mass communication media"

"The area was found to use 23 different summonses for calling pigs, 16 for cows, and 12 for poultry" Birmingham, Sept. 16

After 23 years, and an outlay of £45,000, a major English dialect survey being conducted from Leeds University is in danger of foundering through lack of finance.

The ultimate object of a linguistic atlas of England is unlikely to be realized unless a further £10,000 can be found from outside sources to complete the work.

The university, which has provided the bulk of the money, can no longer help. Although Emeritus Professor Harold Orton, cofounder of the survey, may try to publish part of the atlas there is a danger of a foreign publisher producing a full atlas when the 12 basic books of the survey have been publisheed by 1971. Already 30 copies of the survey so far published have been bought by Iapan.

Any attempt by American universities or foundations to take over the survey are likely to be resisted strongly if strings are attached, Mr. Stewart Sanderson, director of the Institute of Dialect and Folk Life Studies at Leeds, said.

Mr. Sanderson and field workers were in Birmingham for today's publication of the section of the survey dealing with the Midlands and East Anglia, which covers 24 counties.

Mr. Sanderson said tentative approaches had been made by American interests to Professor Orton. "I am resisting these for the survey is important for the history of the English people. In fact we consider it is a history of England and the real English people much more, say, than treaties or battles.

"In a sense we have performed a salvage operation in the face of the dilution of dialects by the mass communication media."

In this context Mr. Sanderson said he was hoping to approach the Independent Television Authority for financial assistance.

Since the main fieldwork started in 1950 volumes covering northern and southern England have been published. Most of the tape recordings of unscripted speech are now in the B.B.C.'s permanent sound record library.

The survey is concerned with rural dialects, and 313 selected villages and their inhabitants have been investigated. Most of the people interviewed were men, usually retired and agricultural workers in their seventies or eighties. It was considered

that men speak the vernacular more frequently and genuinely than women.

Field workers found they had to dress in old clothes to gain the confidence of elderly villagers. Otherwise they found they were respectfully addressed as "sir" or "the gentleman from the city". Frequently wives said they had tried for 25 years or more to refine their husbands' speech.

In the survey of the Midlands it was found that Watling Street formed an important dividing line. To the west of what is now the A5 most people still said "varmer" instead of farmer and the retroflex rolling "r" of the west did not cross the road although it had found its way to Belfast, where much of the dialect originated in the west Midlands.

Among words that had sur vived from old English was "mommet" for scarecrow, which was the villain of the medieval mummers' plays. The area was found to use 23 different summonses for calling pigs, 16 for cows, and 12 for poultry. The area with probably more variations in speech than anywhere else was Gloucestershire, particularly in the Forest of Dean.

British English dialectology

Survey of English Dialects (Orton 1962)

- Surveyed 313 localities across England
- Questionnaire containing over 1,300 questions + recorded interviews
 - focus on agricultural terms, but also covers phonetic and syntactic variables
- Targeted NORMs: Non-mobile Older Rural Males



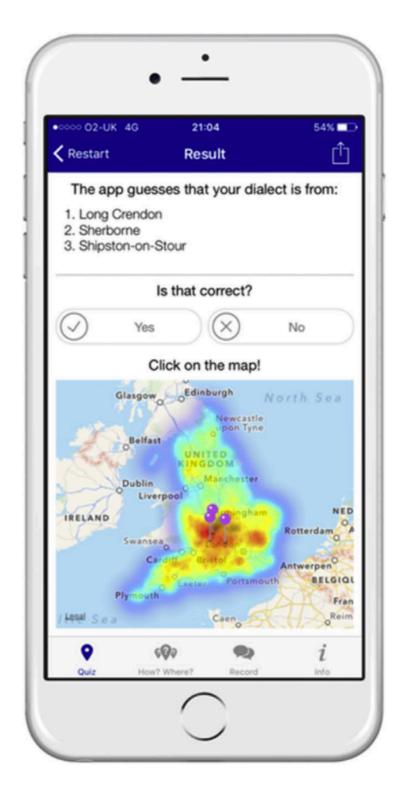
Bill Cross (Dolphinholme, Lancashire) b. 1880



British English dialectology

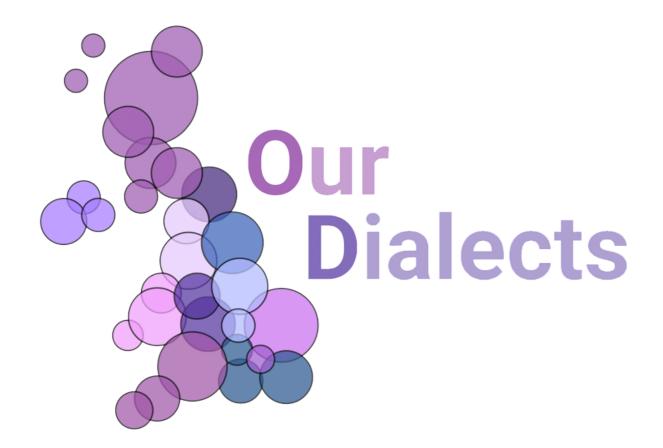
English Dialects App (Leemann et al. 2018)

- Advances in smartphone technology have opened up new/easy ways for large-scale data collection
- Dialect quiz + >3500 recordings of 'The boy who cried wolf' passage
- Specific sociophonetic studies using this data:
 - realisation of laterals (Kirkham et al. 2020)
 - regional variation in General Northern English (Strycharczuk et al. 2020)
 - East Anglian English (Britain et al. 2020)
 - dialects in the South East of England (Jansen et al. 2020)
 - regional variation in the FACE vowel (Leeman et al. 2019)



This talk

Two modern approaches





The 'Our Dialects' project

'Twittalectology'

Mapping variation in English in the UK



Collaboration with Laurel MacKenzie (New York University)
 Danielle Turton (Lancaster University)

Mapping variation in English in the UK

- Started out in 2013 as an undergraduate assignment set for students taking Language Variation and Change
- Printed dialect survey distributed to at least 10 friends/family members

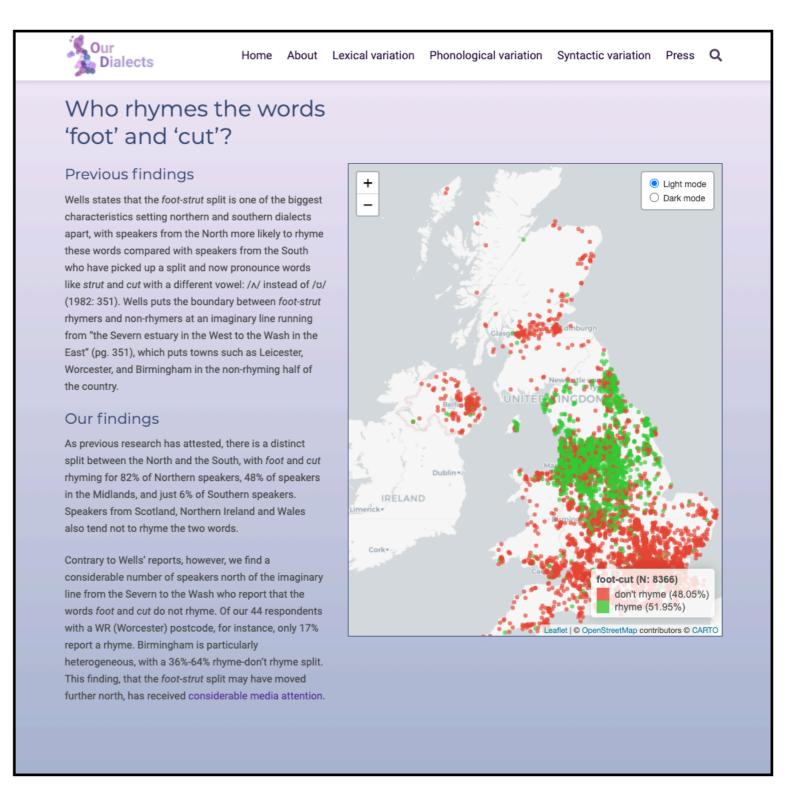
-	Thank you for yo	our participation!	will be kept anonymous.
Name:	Sex:	Ethnicity:	Age:
What town(s)/village(s) were you raised in	n between the ages	of 4 and 13?
What is the postcode fup? Only the first half			
I. Please put an "X" ne more than the others,	xt to all answers that select only that one.	at apply. If there is If you select "othe	one you've used much r", write in your answer.
1. What would you cal	l the soft, round bre	ad in picture (a)?	(a)
barm bap m batch bun te other	uffin cob ea cake	roll	
2. What would you cal	l the item of footwea	ar in picture (b)?	
(b)		_ daps pur	nps
3. What would you cal	l the item of clothing	g in picture (c)?	(c)
	other		
pants trousers			

Mapping variation in English in the UK

- Started out in 2013 as an undergraduate assignment set for students taking Language Variation and Change
- Printed dialect survey distributed to at least 10 friends/family members
- Creation of a public-facing website:

www.ourdialects.uk

• Over 37,000 visitors since 2016



Data collection

- Data collection started in 2013 via questionnaire, now online
- Over 14,000 respondents, all raised in UK between ages 4–13
- Demographic information: age, sex, occupation, postcode
- Questions targeting lexical, phonological, and morphosyntactic variation

Lexical variables

bread roll

 bap, barm, batch, breadcake, bun, cob, muffin, roll, teacake

evening meal

- dinner, supper, tea

footwear

 daps, gutties, plimsolls, pumps, sandshoes

clothing

 breeks, kecks/kegs, pants, trousers

prank

 doorbell ditch, knock down ginger, knocka-door run, cherry knocking, nicky nicky nine doors

furniture

- couch, settee, sofa

· group of people

you, you guys, you lot, youn(s), yous(e)

• gum

 gum, chewy, chuddy, chuggy, speg, spidge

walkway between buildings

 alley(way), cut, entry, gennel, ginnel, gully, jitty, passage, snicket, twitchel

frozen treat

- ice lolly, lolly ice

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Phonological variables

- foot-cut
 - [Λ] ~ [ʊ]
- class-farce
 - [αː] ~ [a]
- singer-finger
 - [ŋ] ~ [ŋg]
- one-gone
 - [a] ~ [a]
- fur-bear
 - [3ː] ~ [εə]
- for-more
 - [ɔː] ~ [oː]
- book-spook
 - [σ] ~ [uː]

Do these words rhyme?

- pour-poor
 - [ʊə] ~ [ɔː]
- eight-ate
 - [εɪ] ~ [eː]
- mute-moot
 - [juː] ~ [uː]
- spa-spar
 - [aː] ~ [aɹ]
- thin-fin
 - [θ] ~ [f]
- fool-full-fall
 - [uː] ~ [ʊ] ~ [ɔː]

Do these words sound the same or different?

Data collection

- Data collection started in 2013 via questionnaire, now online
- Over 14,000 respondents, all raised in UK between ages 4–13
- Demographic information: age, sex, occupation, postcode
- Questions targeting lexical, phonological, and morphosyntactic variation

Morphosyntactic variables

- "Give it me"
- "I done it"
- "They're just things what we've used"
- "You was outside when she called"
- "The beaches was superb"

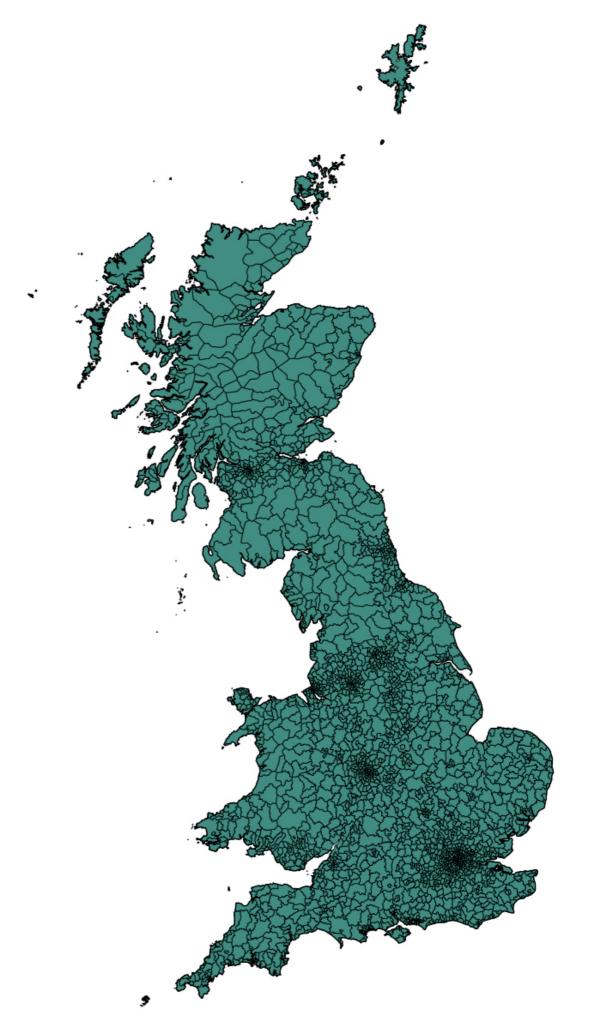
- "They was late for the party"
- "We was waiting for you"
- "I've not got it"
- "Look at them animals"
- "I was sat next to him"

Options:

- a) I'd say this myself
- b) I wouldn't use it, but people from my area would
- c) I've heard some people use this expression
- d) A speaker of English might say this, but I haven't really heard it
- e) No native speaker of English would say this

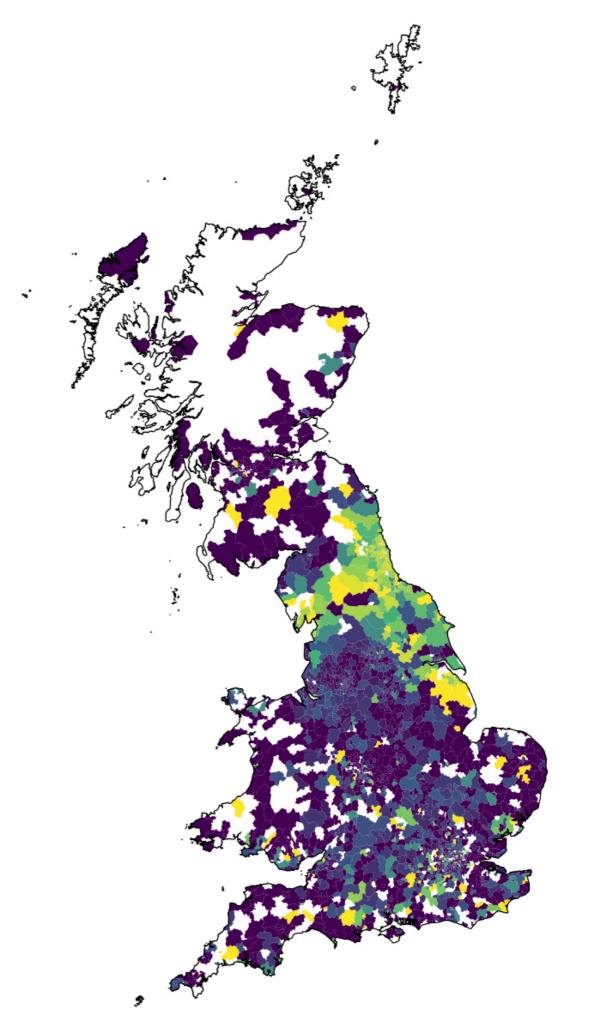
Geospatial analysis

- Responses geocoded by postcode district (>2800 across England, Scotland and Wales)
- 'Hotspot analysis' using local spatial autocorrelation
 - smooths over raw data to highlight significant areas of high and low variant usage



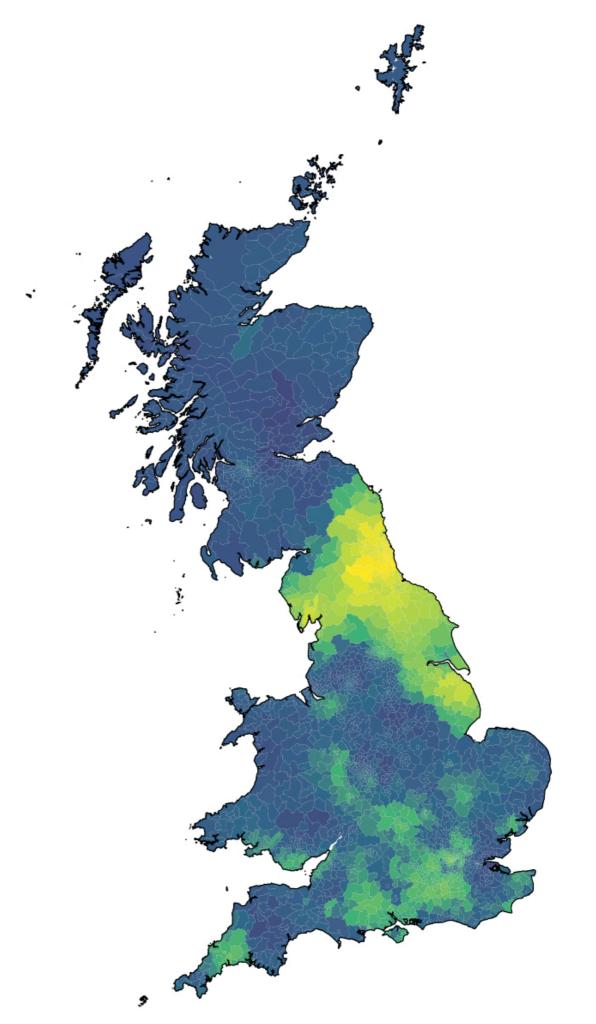
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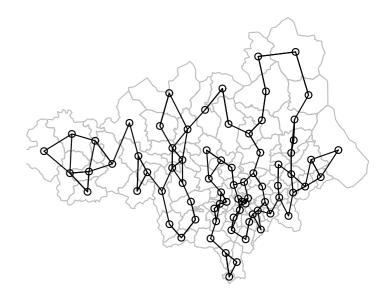
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 - spatial weights matrix based on reciprocal distance between neighbouring districts

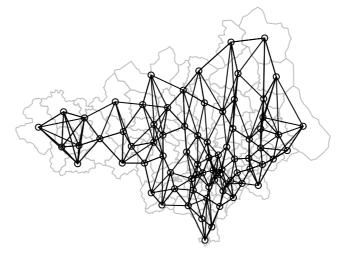
k = 0



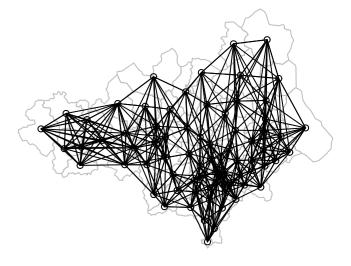
k = 2



$$k = 5$$



$$k = 10$$



Results

- 1. UK-wide patterns
- 2. Greater Manchester

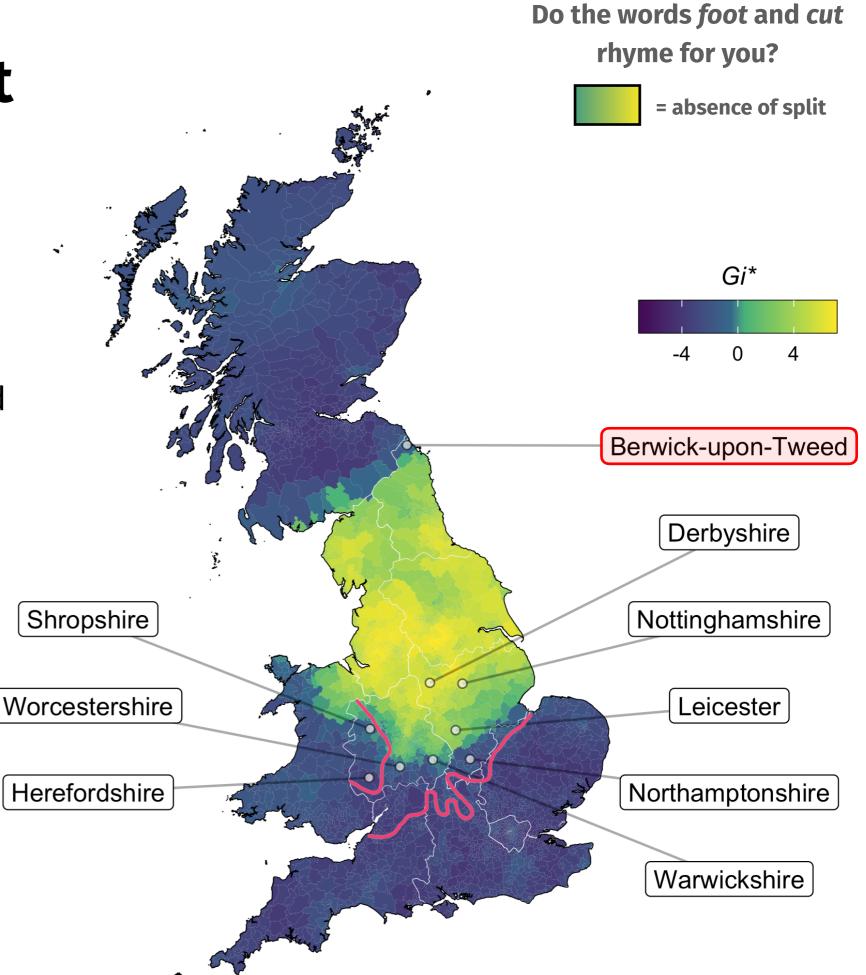
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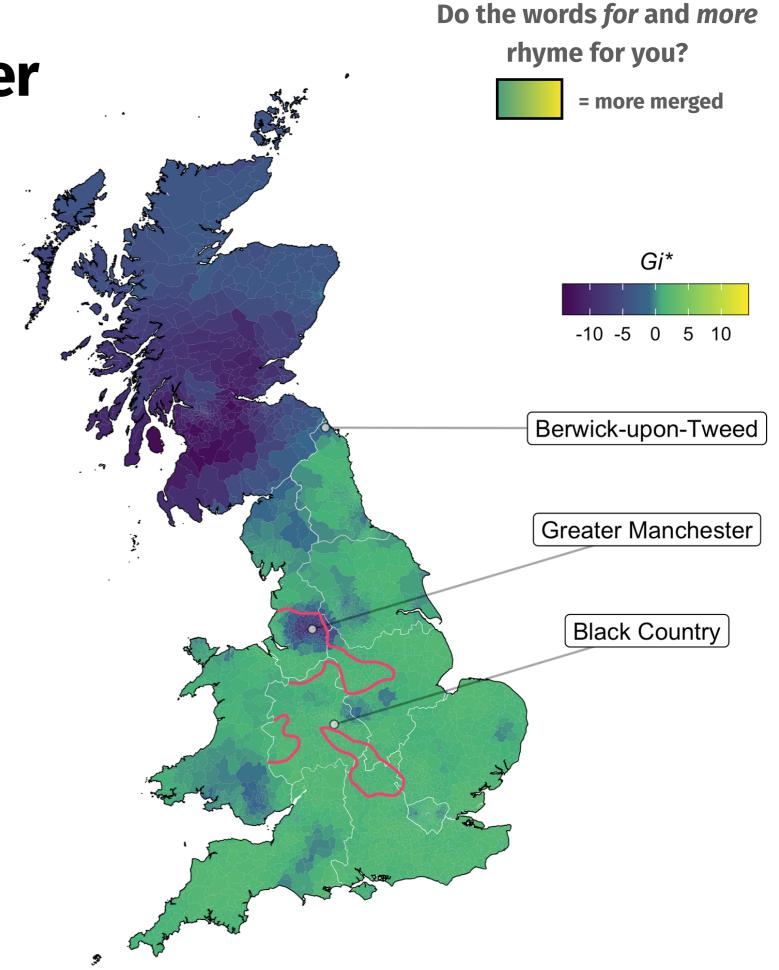
FOOT-STRUT split

- Phonemic split in 17thC → different vowels in e.g. foot [fʊt] cut [kʌt]
- Stark divide between the North and South of England
- But comparison to SED isogloss suggests northwards spread of the distinction since 1950s
- Northern limit aligns closely with the Anglo-Scottish border
 - exception: Berwickupon-Tweed is linguistically aligned with Scotland



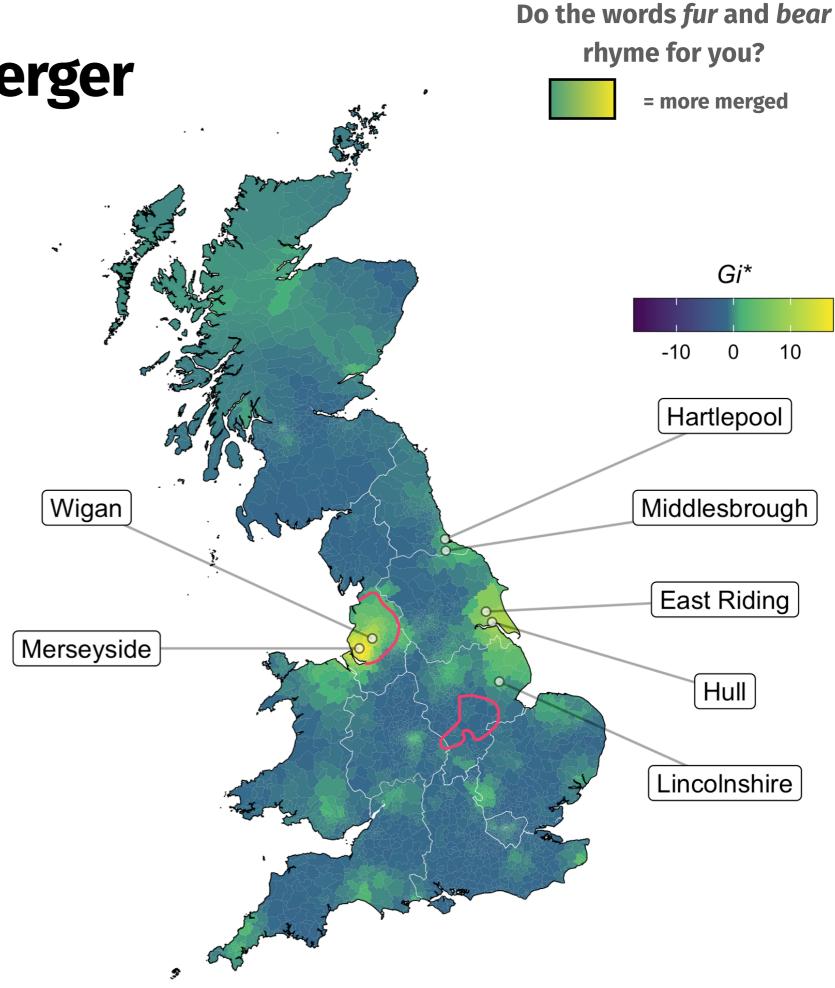
NORTH-FORCE merger

- NORTH-FORCE merger → homophony between pairs such as for-four, war-wore
- Distinction now prominent only in Scotland and Manchester
- Further retrenchment of distinction relative to 1950s merger isogloss
- Loss of this distinction in the Black Country may be quite recent: Clark (2008) reports its presence among older speakers



NURSE-SQUARE merger

- NURSE-SQUARE merger →
 homophony between pairs
 such as fur-fair, her-hair
 etc.
- Merseyside/Lancashire largely stable compared to 1950s merger isogloss, but lost in Leicestershire (noted as variable in Wells 1982)
- Merger on east coast wasn't present in SED, but now well-established in Hull and surrounding areas (see also Williams & Kerswill 1999; Llamas 2001)

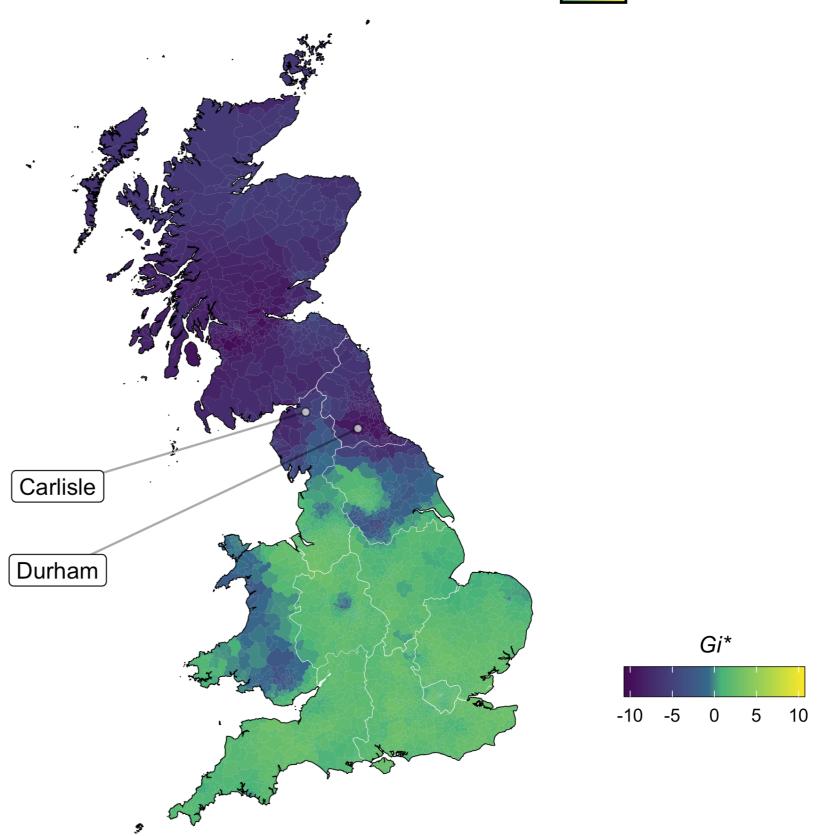


FORCE-CURE merger

Do the words *pour* and *poor* sound the same or different?



- Merger by transfer: members of the cure set move to the FORCE set
 - e.g. poor [ʊə] → [ɔː] and merges with pour
- Very much distinct in Scotland and North East England - also Carlisle
 - more evidence that geographic diffusion (and dialect contact) doesn't necessarily align with county/regional borders

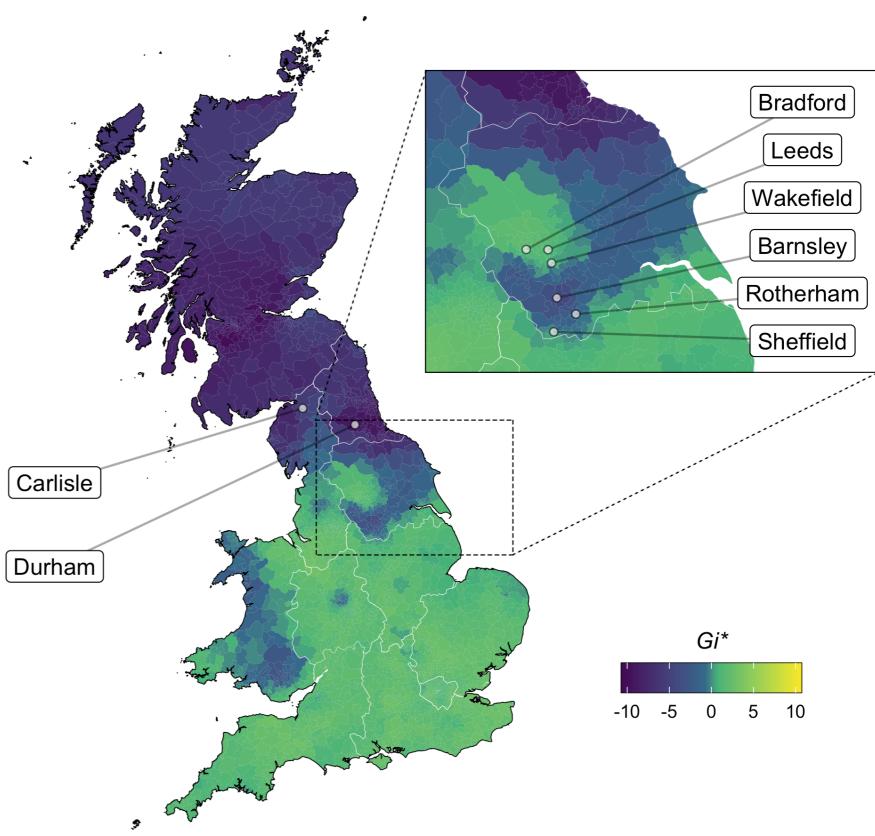


FORCE-CURE merger

Do the words *pour* and *poor* sound the same or different?



- Interesting geographic diffusion in Yorkshire
- Large urban centres of Leeds and Sheffield are merged
- But rural localities inbetween more mixed: Wakefield matches Leeds, but Barnsley and Rotherham more variable
- Cities showing the effects of sound change first (Trudgill 1974; Britain 2002)
- Future work: closer look at dynamics of population movement, transport routes, commuting etc.



Results

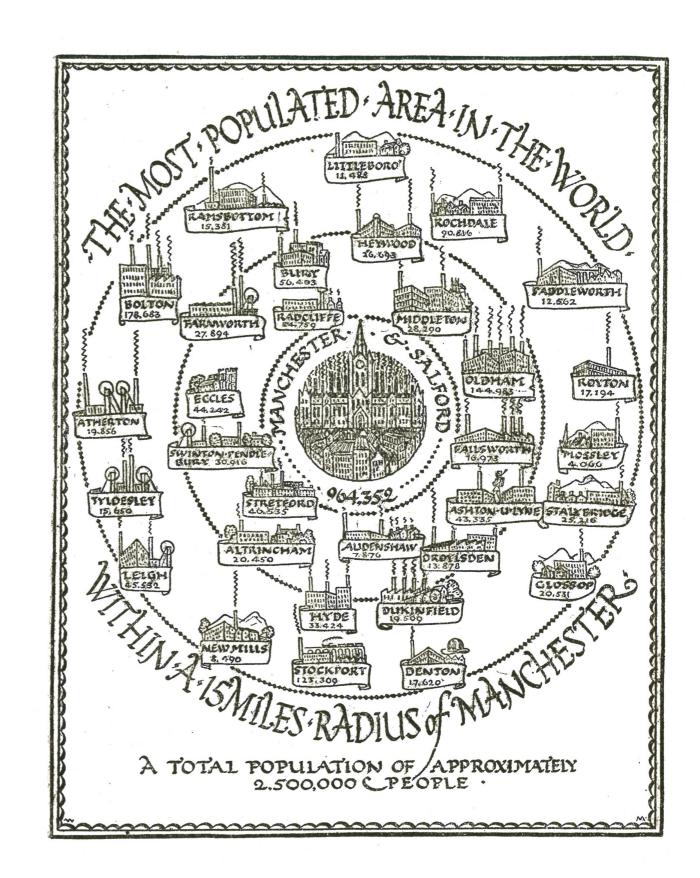
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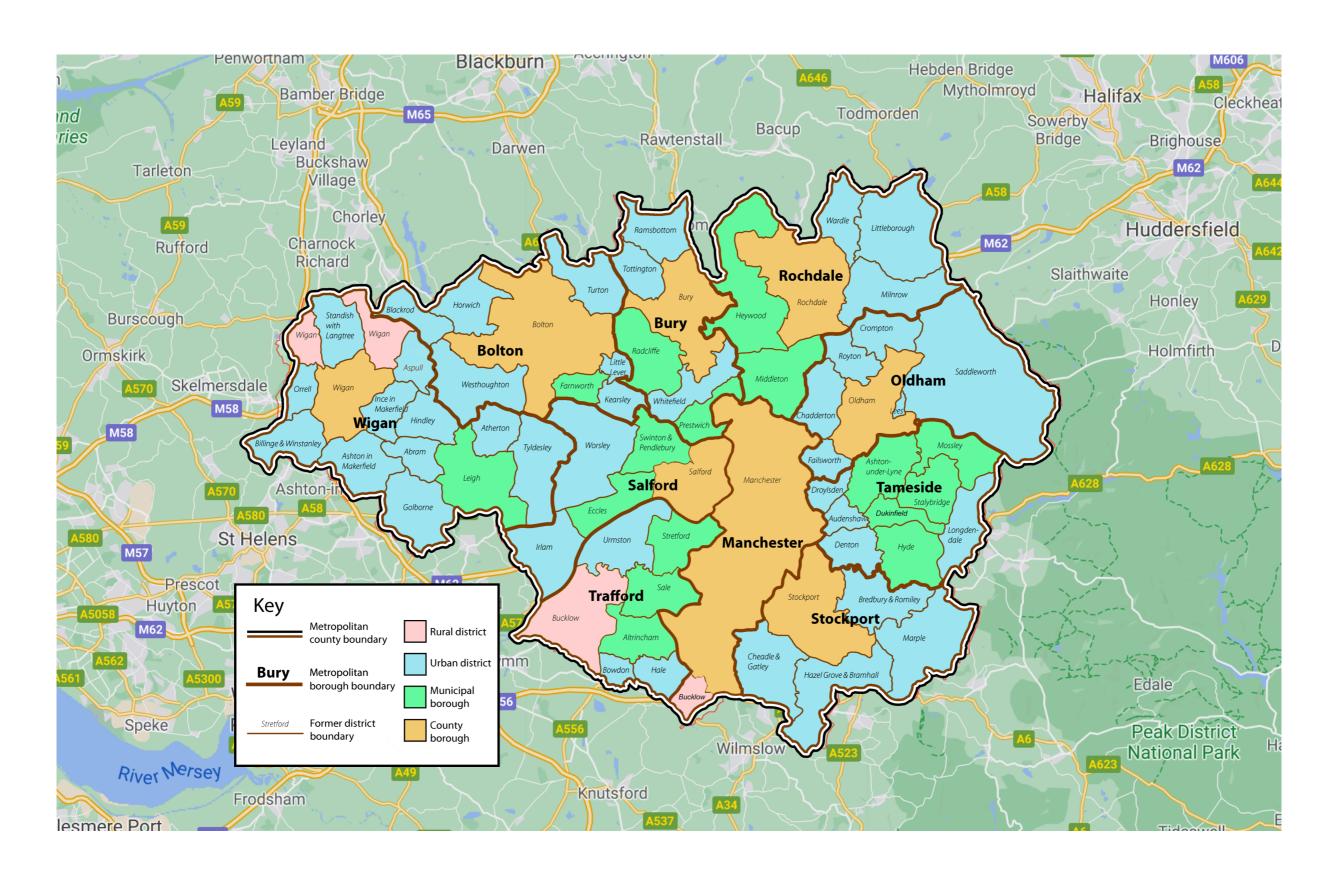
Results

1. UK-wide patterns



- Greater Manchester is a particularly interesting site for studies of variation and change
- Large metropolitan area (population 2.8 million) consisting of ten boroughs, including the large urban city centres of Manchester and Salford
- But Greater Manchester is a relatively recent 'creation' -Local Government Act of 1972
 - unification of areas that were previously part of Lancashire, Cheshire and Yorkshire

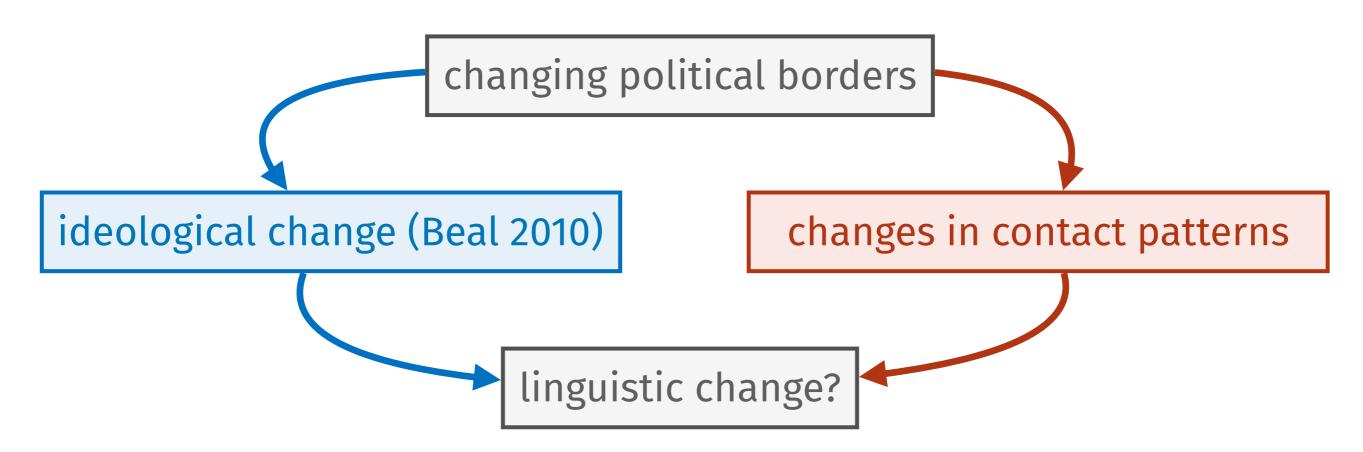






Research questions

 Has the creation of Greater Manchester in 1974 resulted in a redefined speech community?

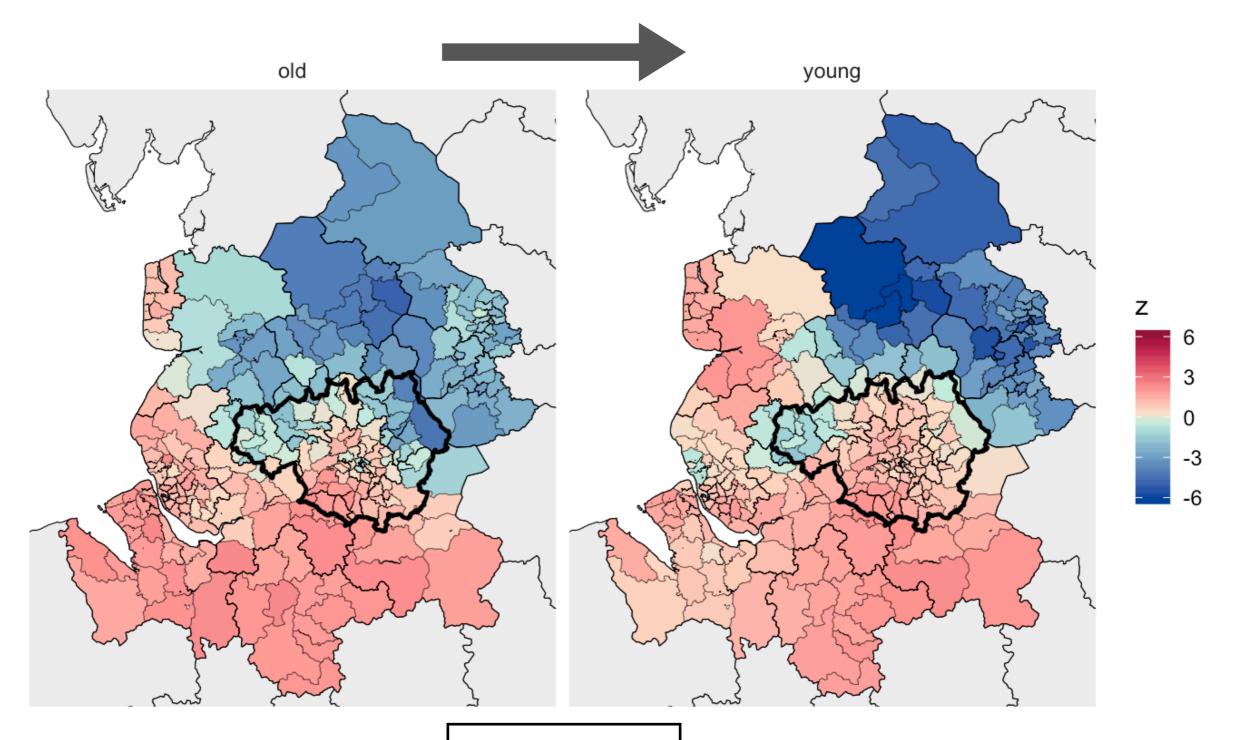


- see e.g. Llamas (2007) on the unification of Middlesbrough and an increased sense of local identity

eight-ate merger

The *eight-ate* distinction is typically associated with Lancashire

Here: notable 'retreat' from the Greater Manchester region

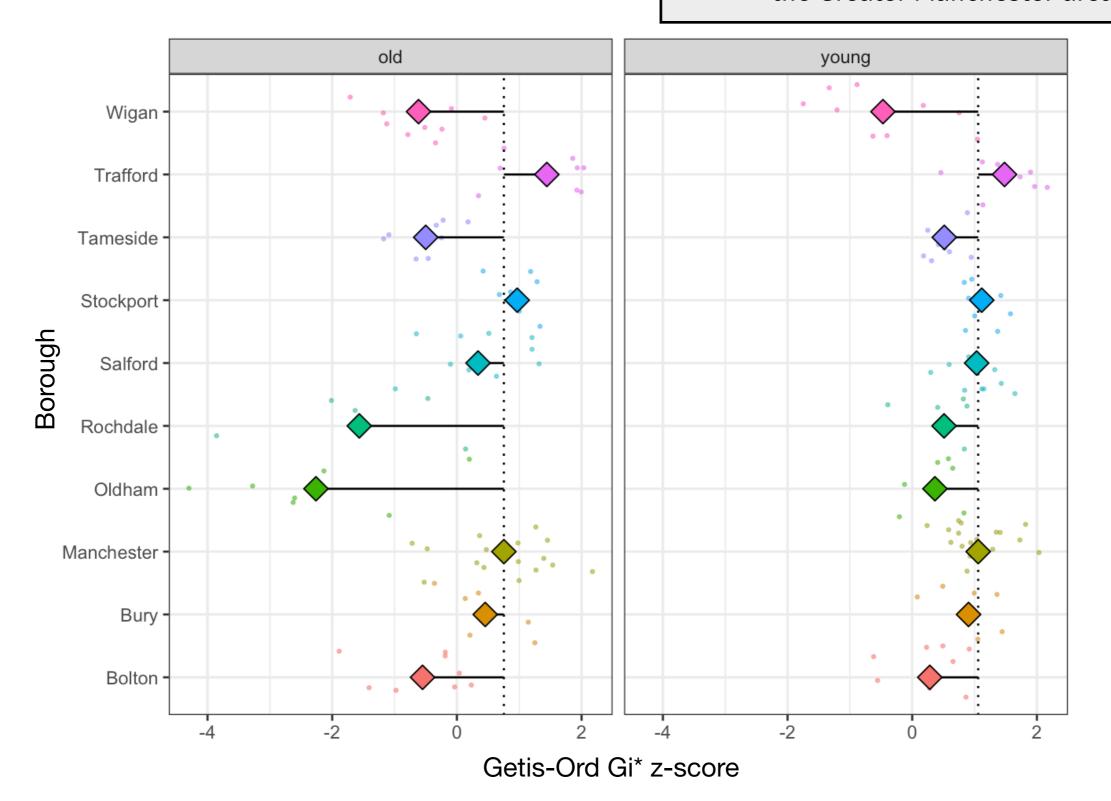


blue = distinct

EIGHT-ATE merger

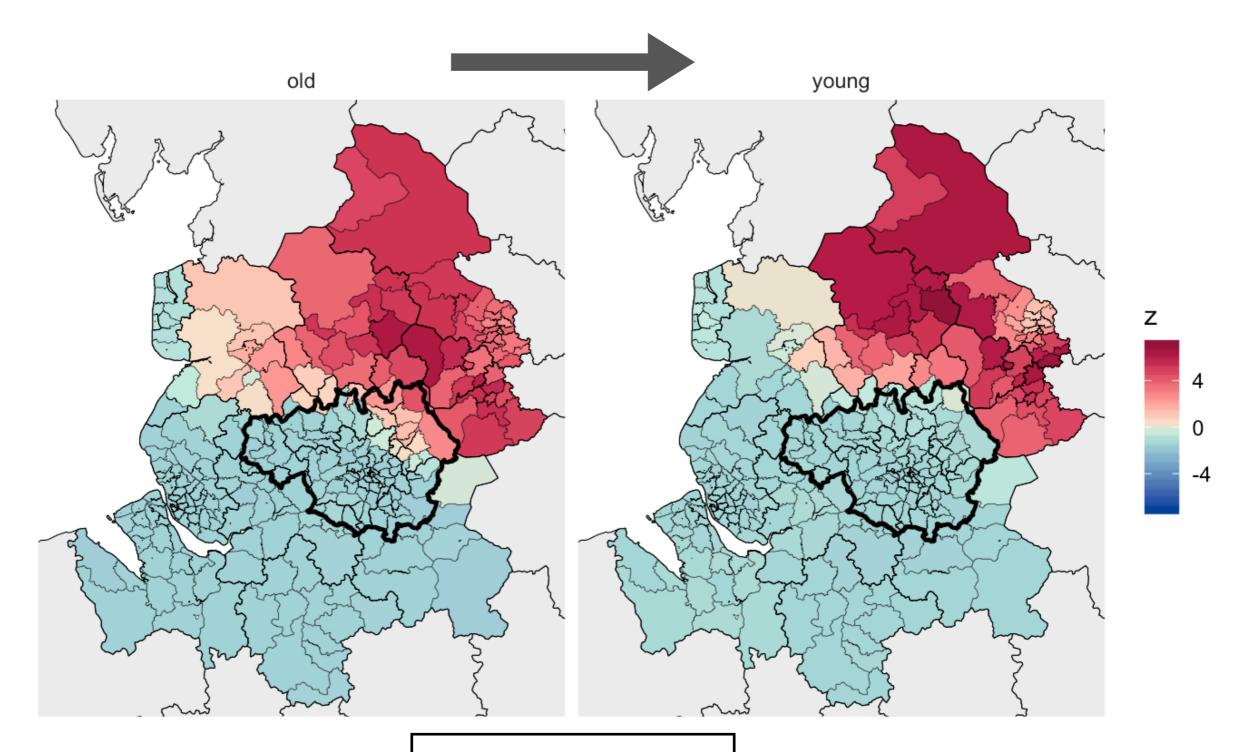
These 'swing plots' visualise betweenborough variability

Less deviation from the dotted line (central Manchester) → more homogeneity within the Greater Manchester area



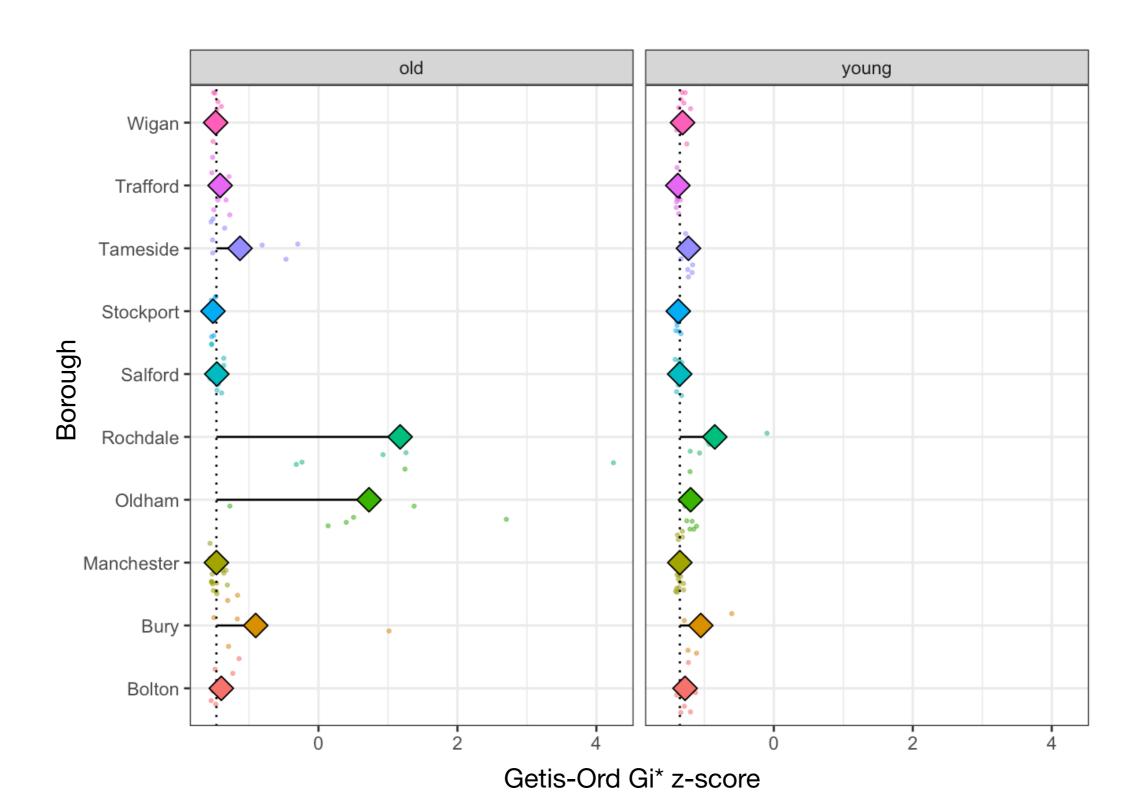
'tea cake' for bread roll

Previously found in the likes of Oldham and Rochdale, but now lost completely from those parts since they became part of Greater Manchester



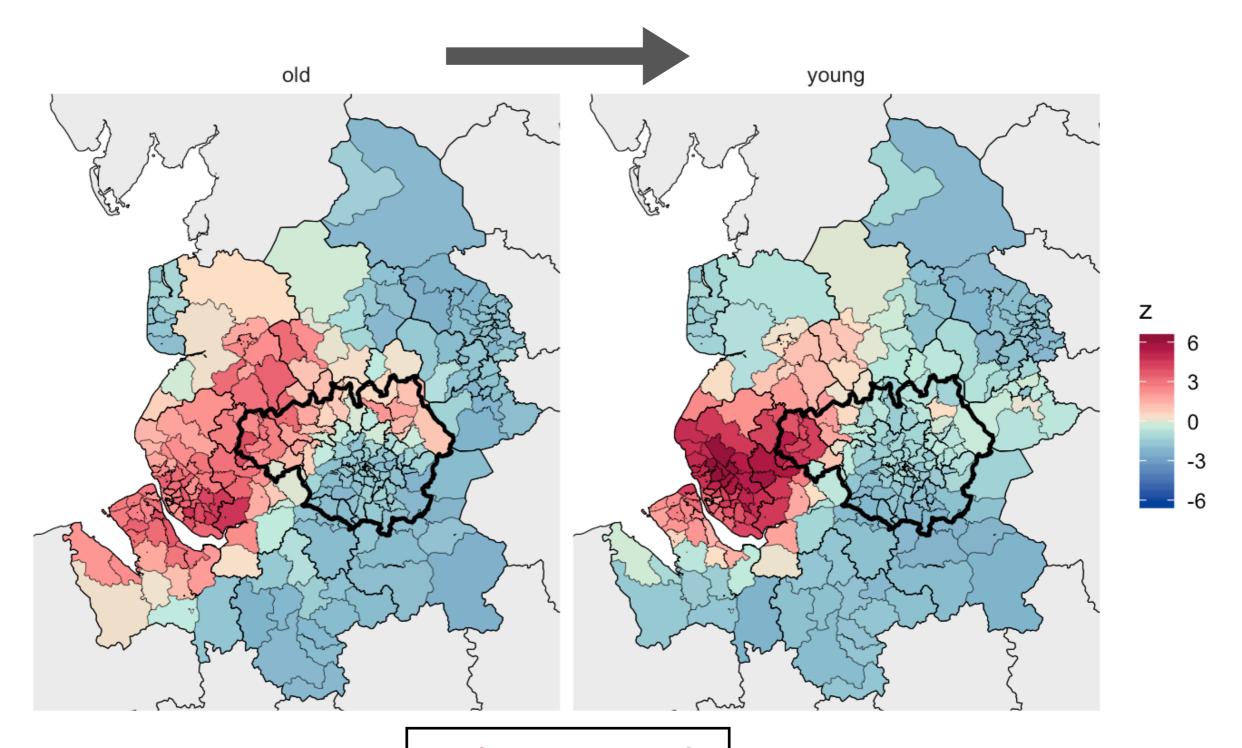
red = more tea cake

'tea cake' for bread roll



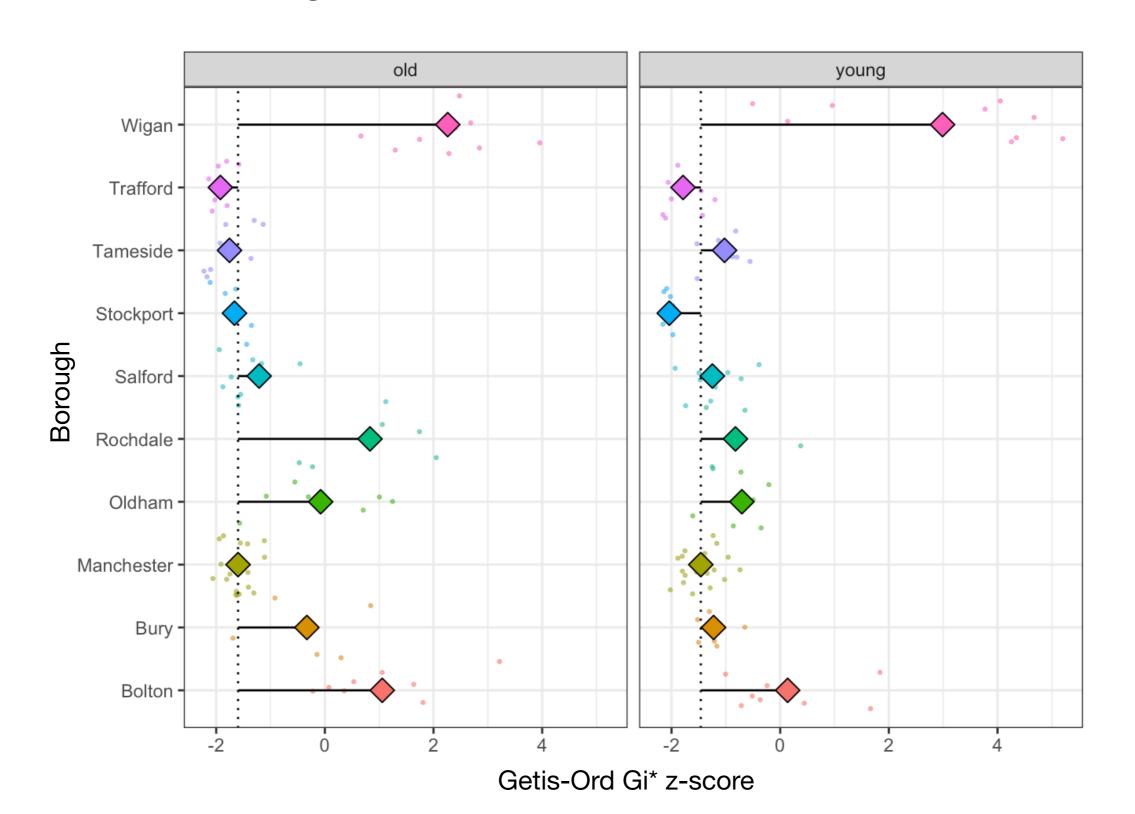
NURSE-SQUARE merger

Merger appears to be retreating from parts of Greater Manchester and Lancashire → more confined and tightly clustered around Merseyside now



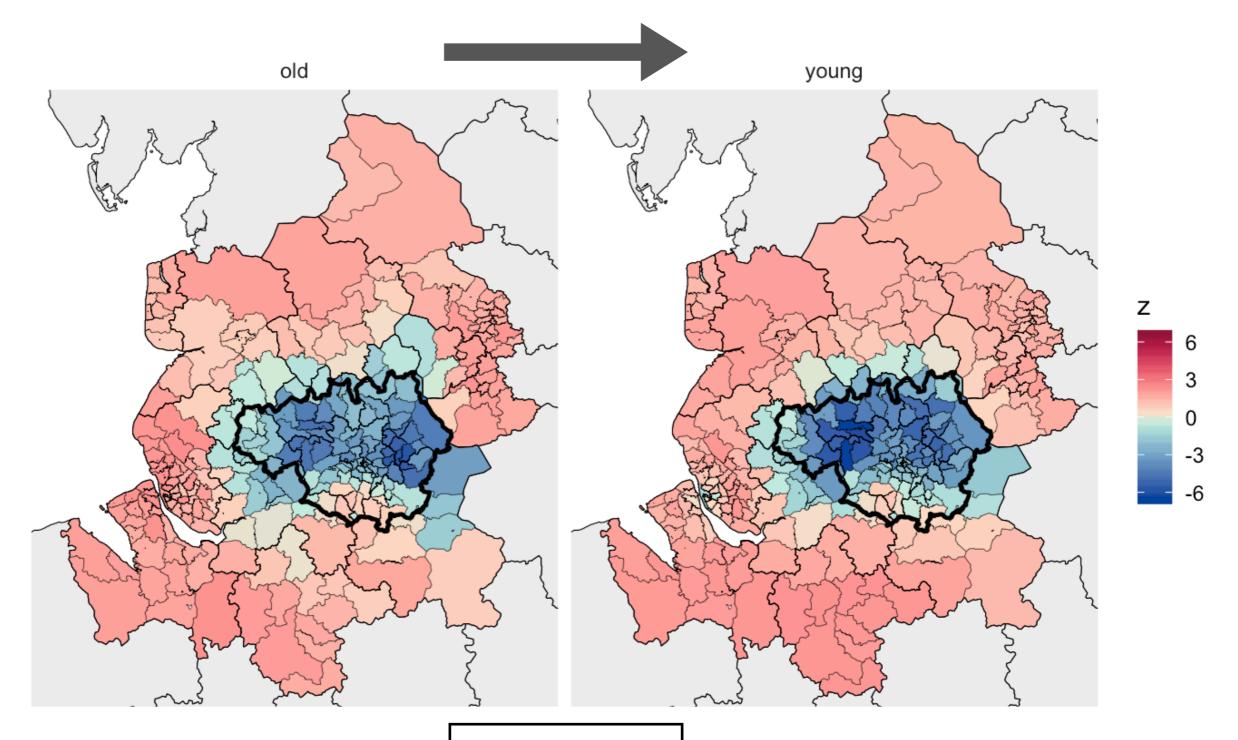
red = more merged

NURSE-SQUARE merger



NORTH-FORCE merger

Stability with certain variables, particularly those that were already widespread throughout the wider area even before the inception of Greater Manchester



blue = distinct

Interim summary

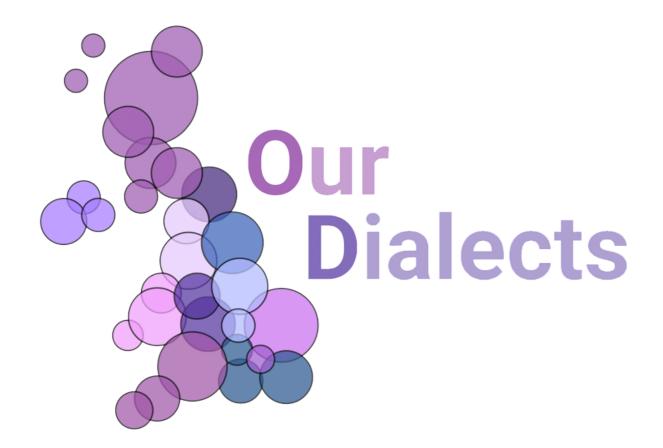
Key findings that also represent areas for further study:

- 1. Identified potential changes in progress, which can contribute to our understanding of the transmission and diffusion of changes from above and below (Labov 1994, 2007)
 - e.g. northward diffusion of a FOOT-STRUT split the Midlands
- 2. Nature of geographical diffusion across urban/rural areas
 - e.g. diffusion of the FORCE-CURE merger in rural Yorkshire
- 3. Dialect regions crossing county and even national boundaries

 - but geographic proximity not enough: central Wales ≠ West Midlands
- 4. The levelling of traditional features across Greater Manchester
 - e.g. eight-ate distinction, NURSE-SQUARE merger

This talk

Two modern approaches



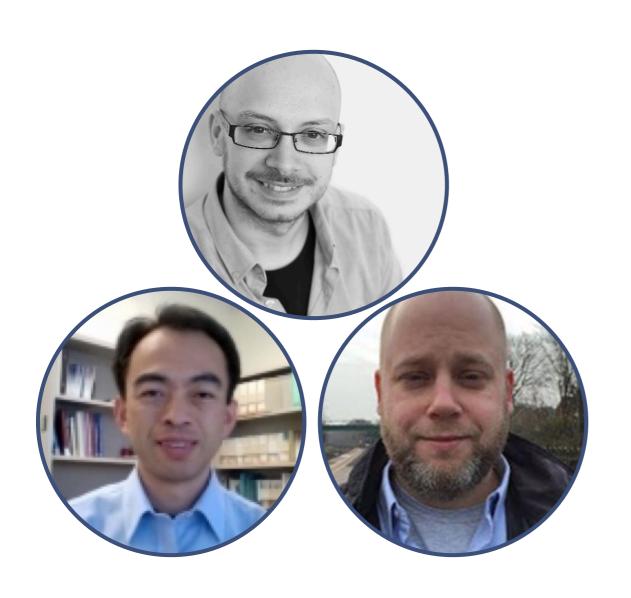


The 'Our Dialects' project

'Twittalectology'

British English dialectology

'Twittalectology'





Collaboration with **Andrea Nini** (University of Manchester) **Diansheng Guo** (University of South Carolina) Jack Grieve (University of Birmingham)

Language variation and change on Twitter

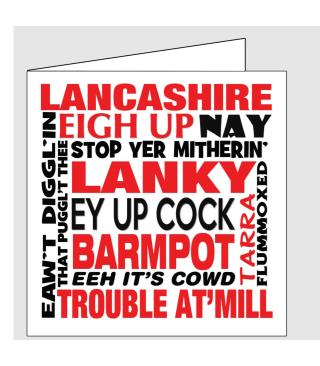
- A range of topics have been addressed using Twitter as a source of natural language data:
 - tracing lexical innovations (Grieve, Nini & Guo 2017)
 - morphosyntactic variation (Stevenson 2016; Willis 2020)
 - stylistic variation in orthography (Ilbury 2019)
 - written form of sociophonetic variables (Eisenstein 2015; Tatman 2016)
- Issues of representativeness, but relatively easy to conduct largescale analysis (N typically in the millions)
- Tweets can be sent with 'geotagging' specific latitude/longitude coordinates of user location



Dialect writing

- Dialect writing: The representation of a 'non-standard' dialect in written form, involving one or more of the following:
 - dialectal lexis
 - dialectal morphosyntactic structures
 - dialectal 'respellings' to reflect phonological features

(Honeybone & Maguire 2020)



- Found across a range of texts, including poetry, novels, cartoons, tourist souvenirs, and tweets
- Studies of dialect writing lend insights into cultural salience of linguistic features, identity construction, and dialect enregisterment (Agha 2007)

Dialect writing

Traditional example

```
there → <theer>
holding → <howdin'>
rights → <reets>
our → <eawr>
and \rightarrow <an'>
shouting → <sheawtin'>
the \rightarrow <t'>
taste → <tast>
gave \rightarrow \langle gav' \rangle
your → <thi>
```

The weaver Joss Wrigley was a veteran of Peterloo. Here, he tells a young boy what Peterloo was about:

'Peterloo, lad! I know. I were theer as a young mon. We were howdin' a meetin' i' Manchester on Peter's Field, — a meetin' for eawr reets for reets o' mon, for liberty to vote, an' speak, an' write, an' be eawrsels - honest, hard-workin' folk. We wanted to live eawr own lives, an' th' upper classes wouldn't let us. That's abeawt it, lad. We were howdin' a meetin', a peaceful meetin', an' they sent t'dragoons among us to mow us deawn. T' dirty devils - they sent t' dragoons slashin' at us wi' their swords. There were some on us sheawtin' 'Stop! Stop! What are yo' doin' that for? We on'y want eawr reets.' An' they went on cuttin' through us, an' made us fly helter-skelter — aw because we were only howdin' up t' banner o' liberty an' t' reets o' mon. Bournes (Burns) says as 'Liberty's a glorious feast.' But th' upper classes wouldn't let us poor folk get a tast on it. When we cried... freedom o' action they gav' us t' point of a sword. Never forget, lad! Let it sink i'thi blood.)Ston up an' feight for t' reets o' mon t' reets o' poor folk!'

As recalled by James Haslam, who heard the account of Joss Wrigley as a young boy.

Reported in *The Manchester Guardian* 16 August 1919

Dialect writing

Modern example



ey up Angela, tha munt tek no notice o' them soft southern Jessies. If tha speaks wi' flat vowels tha's allus considered thick

RQ: To what extent do users project their own dialect in social media posts, and do these dialectal features show the same regional profile in writing as they do in speech?

Methods

Data collection

- Corpus of 183 million geocoded tweets collected using the Twitter API
- 1.8 billion words produced by 2 million unique users
- Split into sub-corpora by postcode area
- 11 sociophonetic variables chosen
 - possible to be reflected orthographically
 - previously established regional distribution
- Automated search for non-standard spellings of most frequent words in each variable category (Zipf > 5, based on SUBTLEX-UK frequency counts)

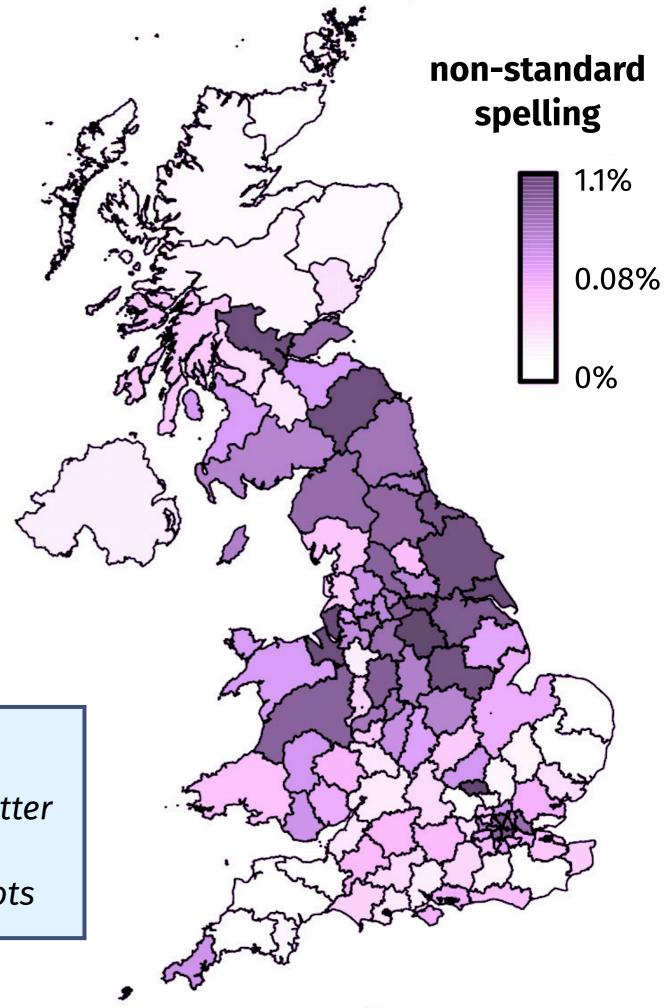
T to R

e.g. get a [gɛtə] ~ gerra [gɛɹə]

- Replacement of word-final /t/ with [ɹ] when followed by a vowel-initial word
- Associated with Liverpool English (Watson 2007) but also attested in Tyneside English (Watt & Milroy 1999)
- On Twitter: clearly favoured in the North of England, particularly around Liverpool and along the East coast

Example tweets:

- so much for revising ya liar **gerrof** twitter
- Some people walk so stupid that it actually annoys me. **Gerra** grip ya idiots



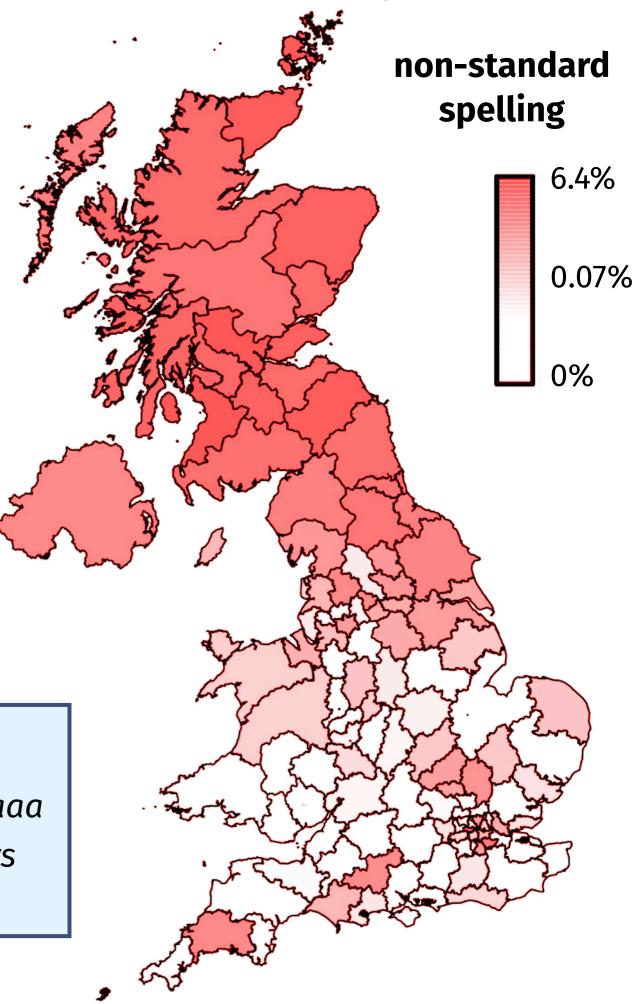
MOUTH as /uː/

e.g. down [daun] ~ doon [dun]

- Retention of /uː/ in моитн characteristic of Tyneside English (Hughes et al. 2012) and Scots (Johnston 1997)
- Claimed to be particularly frequent in lexical items relating to local identity, e.g. toon and broon (Beal et al. 2012)
- On Twitter: highest rates found in North East England, and Scotland



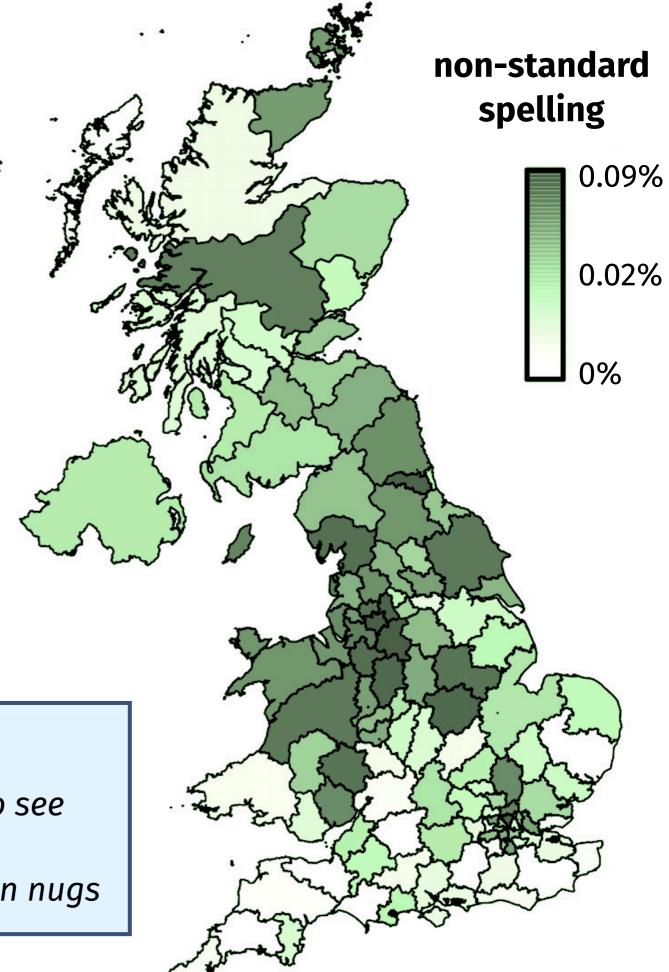
- I miss you too and the doon toon bantaaa
- Was going to go for a nap but as always cooncil are cutting the grass



HAPPY laxing

e.g. city [sɪtɪ] ~ citeh [sɪtɛ]

- Word-final unstressed /i/ usually either tense [i] or lax [ɪ], but can be super-lax [ε] in Manchester English (Ramsammy & Turton 2012)
- On Twitter: no strong clustering, but most frequent in the North West and around Greater Manchester



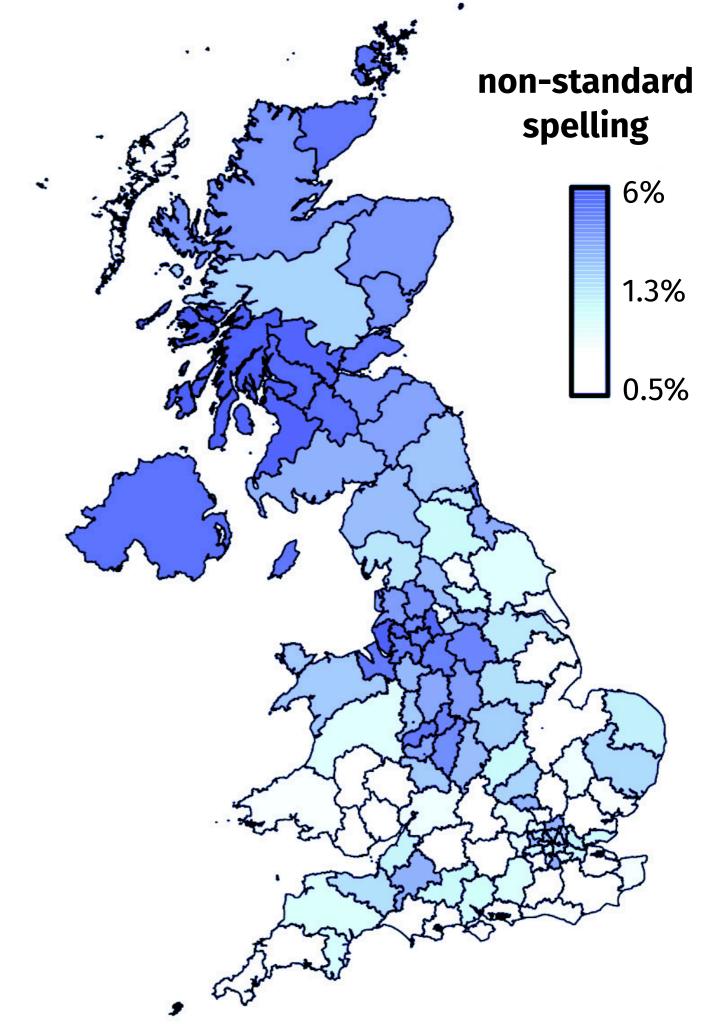
Example tweets:

- Don't care if it's pre-season, I'd like to see the red men smash Citeh tonight!
- oh yes so **happeh** to be eating chicken nugs

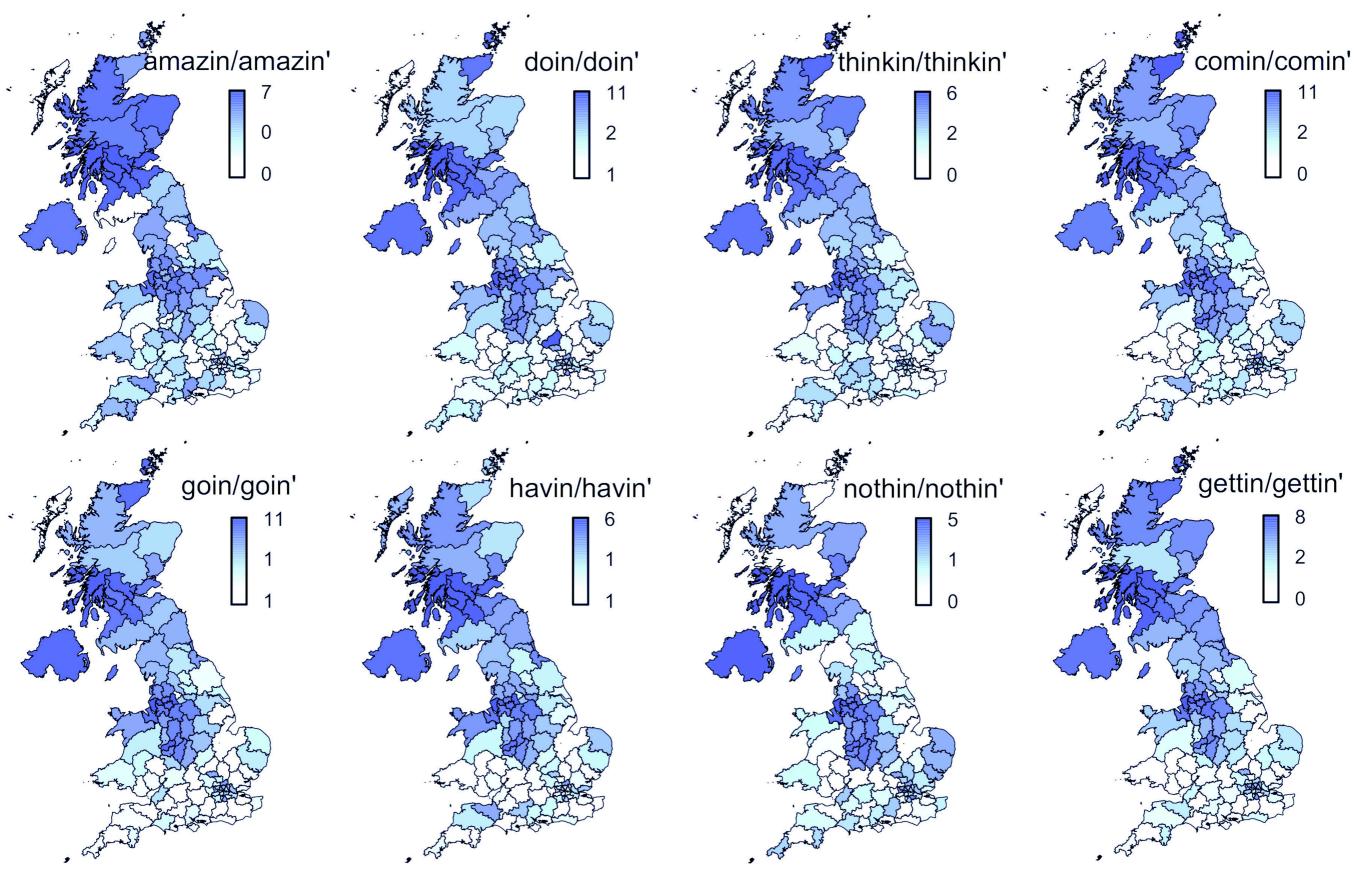
'G-dropping'

e.g. eating [ixtɪŋ] ~ eatin(') [ixtɪn]

- Realisation of unstressed -ing clusters with an alveolar or velar nasal attested across the world's Englishes
- Consistent social stratification but in the UK claimed to be more of a regional variable than a social variable (Levon & Fox 2014)
- [In] more frequently used in the North of England and in Scotland (Houston 1985; Watts 2005)
- On Twitter: parallel regional distribution, with clear hotspots in the North West of England and Scotland/NI



'G-dropping'



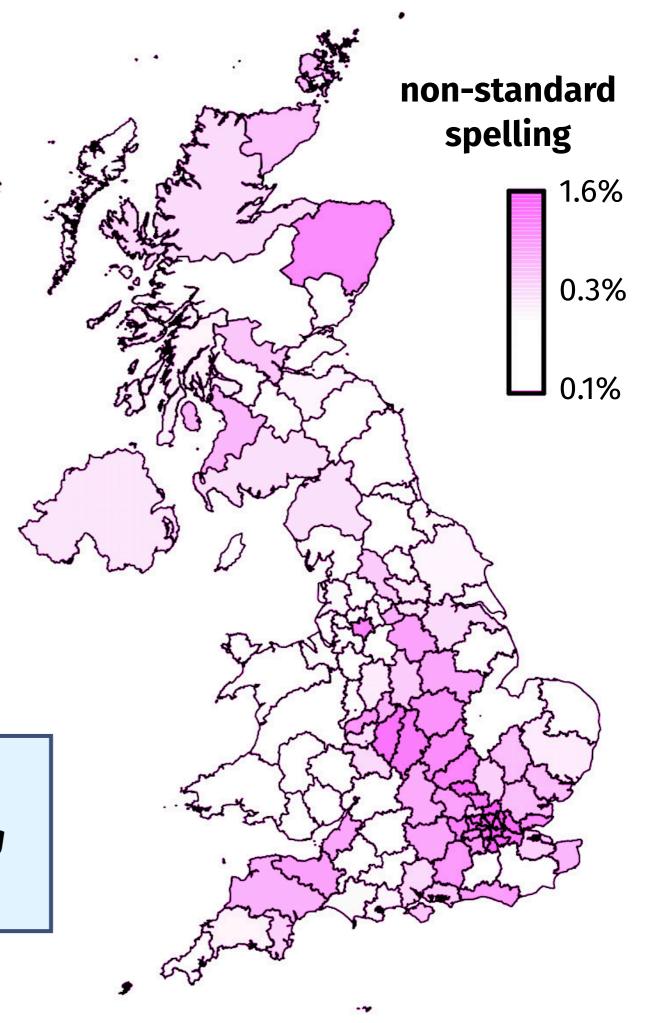
TH-stopping

e.g. then [oen] ~ den [den]

- Dental fricatives can be realised as stops instead, i.e. $/\theta$, δ/\rightarrow [t, d]
- Strong ties to Multicultural London English but more strongly associated with performance of ethnic rather than regional identity (Drummond 2018)
- On Twitter: most frequent in London but also areas of the Midlands

Example tweets:

- fam dis trip every day is jus a long ting
- dese man jus vexing my life

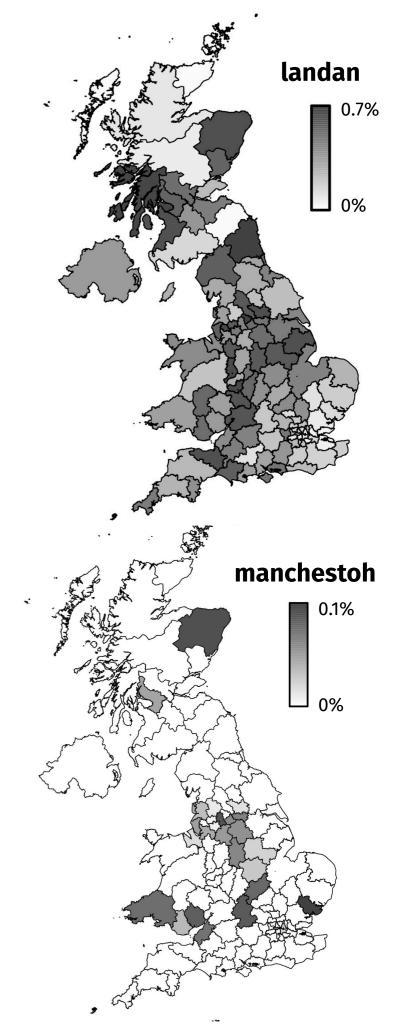


Issue: dialect imitation

- Certain features show unexpected regional patterns, particularly when used in place names
 - LETTER-backing, characteristic of Mancunian accents e.g. Manchester [mantsestp]
 - FOOT-STRUT split, characteristic of the South of England
 e.g. London [landən]
- Issue in orthographic transparency, or just a form of dialect imitation registered most strongly in place names?

Example tweets:

- he's the biggest FOOL in Manchestoh
- apparently I sound like I'm from saaaahf landan when drinking



Interim summary

Caveats/considerations

- spelling != speech, but this does lend insight into issues of salience, linguistic stereotypes and identity construction (Eckert 2000; Zhang 2005; Pharao et al. 2014)
- latitude/longitude of tweet origin != where that user was born and raised
- small Ns → requires a huge dataset to conduct reliable analysis

Despite these issues the results here are promising: clear parallels between written and spoken forms

 → similar process of dialect enregisterment (Agha 2005) seen in other text genres

Future work

- Complementary qualitative research digging into individual tweets/users for a micro-analysis of dialect performance on social media
- Looking more closely at co-variation between different features
- Comparing usage across different contexts: e.g. 'open audience' vs 'closed audience' tweets
- Investigation of conditioning factors as a further parallel between written and spoken mediums (e.g. lexical frequency, part of speech effects)

Final conclusions

- There are still significant insights to be gained from dialectological study today, particularly with new methods and approaches
- Advances in the field have:
 - 1. opened up new ways of addressing long-standing questions regarding regional variation and the diffusion of change
 - 2. led to new *kinds* of questions being asked, e.g. regarding dialect projection on social media
- Our Dialects
 - Traditional survey-based approach combined with online/crowdsourced mode of data collection and advanced geospatial statistics
- Twittalectology
 - Novel approach to dialect writing through the study of geo-referenced computer-mediated communication
- Final message: no we're not all speaking the same!

Thanks!

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- to Marije Van Hattum for help with data collection
- to the respondents of the Our Dialects survey
- to the mFiL organisers
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