Session 1B Abstracts

Production and perception of an unsuccessful merger in East Anglian English

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Merger between two phonemic categories is commonly observed cross-linguistically. In fact, the study of vocalic merger has revealed a series of unusual linguistic phenomena, including 'near-merger', as well as a rarely documented phonological phenomenon known as 'flip-flop' wherein two vowels involved in merger exchange places, while maintaining a distinction involving both original vowels. On the other hand, reversal of merger is rarely reported and, as a result, less understood. It is argued that those mergers reported as 'reversed' must never have truly reached completion (Labov, 1994) and, further, that mergers are irreversible purely by linguistic means (Garde, 1961). It is thus social factors that are most often shown to be the genesis of merger reversal. This study reports on a recent, variable merger between NEAR and SQUARE towards SQUARE in East Anglian English, which is now apparently being reversed. The dialect area in question has undergone rapid shrinkage in recent years, resulting in a classic dialect death situation. Analysis focuses on the links between production and perception of phonemic categories for those with different states of merger, with a view to better understanding how language is represented in the mind during the reversal of a sound change, specifically in the case where merger was not universally realised for the community.

Production data, stratified by age and gender, comes from word lists and minimal pairs (30 participants). Recordings were transcribed in ELAN, automatically aligned using the Montreal Forced Aligner (McAuliffe et al., 2017) and hand corrected. F1 and F2 were measured at 25% and 75%, and normalised using the Lobanov method. Pillai scores (a measurement of the degree of overlap between two distributions) were then derived from a MANOVA as a means of comparison. When constructing the perception tasks, natural speech data were provided by the young male speaker with the highest Pillai score (least category overlap) and used as source stimuli for continua synthesis in a forced choice categorisation task. His speech represented vowel category endpoints along the 7-step scale, which was used across 'pV, fV, tV' environments. All participants completed the task through Psychopy wearing headphones. Each turn presented a single step along the continuum and participants were asked to categorise the token within the relevant vowel category (e.g. *peer* or *pair*). Each step was categorised twice. Participants then completed a same/different (AX) discrimination task comprised of ten minimal pairs taken from natural speech. Each minimal pair was presented twice, and participants were then asked to self-evaluate their response as 'the same' or 'different'.

Overall, results show that a distinction between NEAR and SQUARE is re-emerging amongst the community in question. In a linear model including age and sex, age was a significant predictor of Pillai score ($p=<0.001$), showing increased distinction in younger speakers and serving as evidence of reversal of merger at the community level. Gender was

not statistically significant. Performance during the AX task was almost categorically unimpeded, suggesting that the merger, even for those speakers who exhibit categorical overlap, never took place in perception, thus not meeting the classic definition of a 'near-merger' (Labov, 1991). It is this detail, combined with the fact that merged speakers continue to be exposed to people with a consistent distinction, that allows for reversal of a variable merger to take place.

Degree of merger did not accurately predict performance in the forced choice categorisation task, as both merged and unmerged speakers consistently perceived the boundary at near-same points along the 7-step continuum across all environments, with minor variation. However, this was not shown to be at 50%. Instead, the boundary was repeatedly further along the continuum in the direction of merger (SQUARE). One speaker provided a case of 'flip-flop', although this was stylistically governed. They performed with 100% accuracy in the AX discrimination task and were able to give accurate responses in the self-evaluation task. One merged speaker showed a perceptual merger in the reverse, where all words were categorised as /ɪə/. An explanation for this may lie in the role of 'social' in speech processing, where, as the only non-working-class speaker, she is exposed to more 'reversers', who are prone to greater levels of variation as a result of hypercorrection. Speakers' overall success when categorising words during reversal may also conflict with the idea that a sound change results in a permanent effect on the lexical representation (Bybee, 2001).

The patterns seen across apparent time mirror results of an ongoing merger in the same dialect between /ʌu/ and /ʊu/, where the distinction was abruptly lost over one generation. This points to a period of accelerated language change within the dialect, which is likely a result of contact with neighbouring varieties and the recent collapse of the town's fishing industry, which has caused dramatic change to its social makeup. It is concluded that it is these social factors coupled with the reported symmetries between production and perception, as well as exposure to non-mergers, which have likely allowed for restoration of contrast amongst the community.

References

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Priming and "anti-priming" in intra- and inter-speaker variation
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Introduction   A long research line in quantitative sociolinguistics has been aimed at understanding how persistence, the tendency for people to repeat a linguistic variant they have just used, influences language variation and change. In this pilot study, we report both interspeaker and intraspeaker (anti-)persistence in a morphological variable that has been recently found in the Chengdu dialect of Mandarin, a variety which is subject to language contact with standard Mandarin [1]. Previous studies have variously attributed repetitiveness to priming in the psycholinguistic sense, socially-motivated style-shifting, or interspeaker accommodation [2, 3, 4], implying that intra- and inter-speaker priming are potentially different phenomena. This study investigates the relationship between repetitiveness within speakers and repetitiveness across speakers. Results from logistic mixed effects regression models of prime-target tokens of each type find that persistence shows statistically different results but similar overall trends within and across speakers.

The locative alternation is the variation between *-tou*, and *-mian*, as in "shang-*tou*" versus "shang-*mian*"[1] to mean "on top of." Other than marking spatial, *-tou* and *-mian* can also have a temporal meaning, as in "front-*tou/mian*," for "before" and "behind-*tou/mian*," for "after." Based on these facts, we investigate the effects of primes with regard to both their forms and meanings on the probability of variant choice in the subsequent token. Data (930 tokens, 22 speakers) are drawn from 16 sociolinguistic interviews with native speakers of the Chengdu dialect of Mandarin [1], coded auditorily and separated into within-speaker and cross-speaker prime-target pairs.

Intraspeaker priming   We fit a logistic mixed-effects model to predict the probability of getting the standard variant *-mian* in the target token given the form and meaning of the previous token's variant, with sum-coded previous variant and treatment-coded previous token meaning (same/different) as fixed effects and individual speaker as the random effect to account for different baseline rates of variation across speakers. There is a significant main effect of previous variant when prime-target pairs share the same meaning ($\beta=1.50$, $p < .05$): *-mian* is much more common following the same-meaning *-mian*, but much less frequent following the same-meaning *-tou*. When prime-target tokens have different meanings, no priming effect is found. This effect is illustrated by the model prediction of the rate of choosing the standard variant *-mian* for an average speaker, as seen in **Figure 1**.

Interspeaker (anti)-priming   A very similar model is adopted to analyze interspeaker prime-target pairs. In cross-speaker prime-target pairs, there is a small but significant effect in the expected direction when prime and target have the same meaning ($\beta=0.56$, $p < .05$). This effect flips significantly in a negative direction when the prime and target have different meanings, which suggests an anti-priming effect ($\beta=-1.20$, $p < .01$). Another model prediction is made to illustrate the rate of choosing the standard variant for an average speaker, as seen in **Figure 2**.

Conclusion   While the significance levels of priming and anti-priming effects are different for within- and across-speaker conditions, figures 1 and 2 show that the overall trends are in the same direction. It would be premature to rule out the possibility that the underlying phenomena might be same on the basis of the null results within the models. There could be an anti-priming effect when using the variable for different meanings that becomes larger when in cross-speaker scenarios. Perhaps speakers resort to different forms to convey different meanings as a strategy to avoid misunderstanding and facilitate communication. Ultimately we may need to appeal to both

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[1] Other localizers that can have both *-tou* and *-mian* as suffixes include xia (down)'under'; qian (front) 'in front of'; hou (behind) 'behind'; li (inside) 'inside of'; wai (outside) 'outside of'.

communication in social contexts and psycholinguistic priming to explain the full set of persistence facts.

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Model fixed-effects summary for within-speaker data:

	Estimate	Std. Error	z value	Pr(>|z|)
(Intercept)	0.08	0.53	0.16	0.87
Previous *-mian*	-0.35	0.22	-1.55	0.12
Same meaning	0.69	0.27	2.52	0.01 *
Previous *-mian* : Same meaning	1.50	0.27	5.49	3.93e-08 ***

Figure 1

Predicted -mian rate for within-speaker pairs
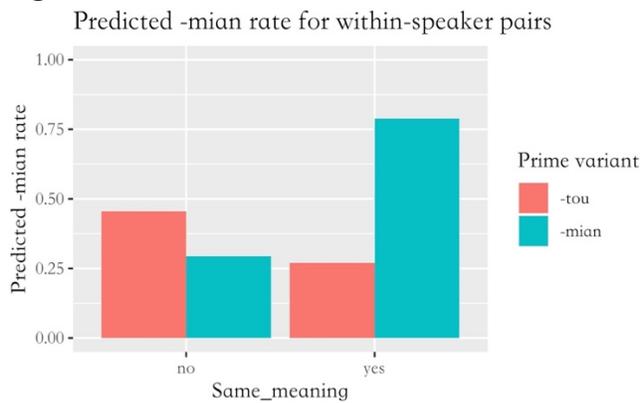
Model fixed-effects summary for cross-speaker data:

	Estimate	Std. Error	z value	Pr(>|z|)
(Intercept)	-0.08	0.37	-0.20	0.84
Previous *-mian*	0.56	0.23	2.41	0.02 *
Different meaning	-0.17	0.34	-0.50	0.61
Previous *-mian* : Different meaning	-1.20	0.35	-3.40	0.000***

Figure 2

Predicted -mian rate for cross-speaker pairs
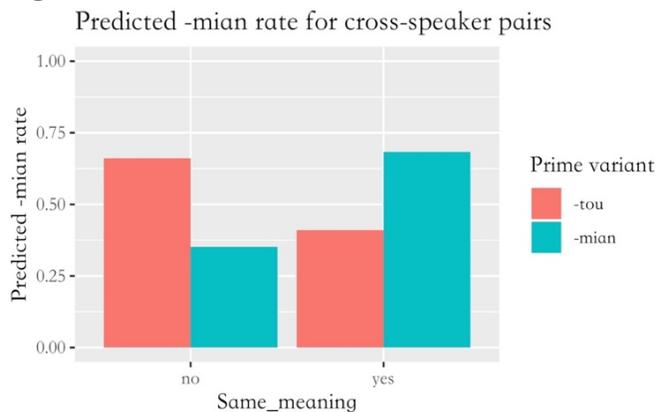
Co-occurrence of /t/ Variants in Young Vermont Speakers

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Despite the social perception that Vermont's rural dialect is dying, /t/ glottalization has been found to be a highly robust feature, especially among adolescent and younger speakers (Roberts 2006). Although glottal reinforcement in word-final or word-medial positions is a prevalent feature of American English (c.f. Redi & Shattuck-Hufnagel 2001, Eddington & Channer 2010), full glottal stop replacement in such environments seems to be a more distinct regional feature. The current study continues the investigation of Vermont glottalization, including seven variants of /t/ and with particular emphasis on a single variant: aspiration following glottal stop replacement ([ʔʰ]).

Bellavance and Roberts (2016) examined familial patterns of glottalization in 15 speakers, looking particularly at how glottalization differed between parents and their children. Aspiration following glottal stop replacement was anecdotally noted in the word-final position, particularly in all three fourth grade speakers. As aspiration following glottal stop replacement has not been previously reported in the literature, the current study explores the linguistic and social constraints demonstrated by this feature. Additionally, the study intends to further our understanding of the Vermont dialect specifically, and the social and phonetic description of glottalization more broadly.

The informal interviews of 30 speakers were analyzed. The speakers comprised five females and five males in each of three age groups: kindergarten, fourth grade, and high school. 11,954 tokens were perceptually coded for seven variants of /t/: glottal stop replacement, glottal reinforcement, flap, deletion, aspirated /t/, creak, and aspiration following glottal stop replacement. The study included four independent linguistic variables: position (medial or final), preceding segment (consonant, vowel, /l/, /ɹ/, nasal, or deleted nasal), following segment (front consonant, middle consonant, back consonant, front vowel, central vowel, back vowel, liquid, /n/, /m/, /ŋ/, glide, or pause), and grammatical status (monomorpheme, regular past tense verb, semi-weak past tense verb, irregular past tense verb, one syllable negative contraction, or two syllable negative contraction). The study included two independent social variables: age (kindergarten, fourth grade, or high school) and gender (male or female).

A quantitative analysis of the data for the combined replacement variants using Rbrul (Johnson 2009) revealed significant differences ($p < 0.05$) for the linguistic constraints of word position, preceding segment, following segment, and grammatical status. Social factors were not significant. Results show the pre-adolescent age group with the highest proportion of [ʔʰ] occurrence. Although this is not surprising given initial observations, the finding goes against the expected age group for language innovation (i.e. high school).

The combined variants of replacement ([ʔ], [ʔʰ], and creak) showed a higher probability of occurrence word-finally. Deleted nasal was found to be the most favorable preceding segment for replacement, which may indicate corpus effects for tokens ending in [nt]. Following pause was found to be a highly favorable environment for the following segment, which aligns well with the favorability of the word-final position. Although the following segment has been an area of interest in glottalization studies, a following vowel would most likely indicate flap, rather than glottalization. It may be useful to consider that exemplar theory could account for the high probability of a following vowel. That is, glottalized /t/s occur in words that are normally followed by non-sonorant segments, and thus retain their replacement even when followed by

segments that would normally condition for flap (Eddington & Channer 2010). Monomorphemes were found to favor replacement more than other grammatical status variants.

The aspiration variant appears to follow similar phonological patterns to glottal stop replacement. Crosstabulations revealed [ʔʰ] to be overwhelmingly prepausal (as we would expect); however, there were several tokens that were not utterance-final. A few of these tokens were especially unusual, given that they were followed by a sibilant (Figure 1). The proportions of the preceding segment variants for [ʔʰ] align well with the replacement model, except for preceding deleted nasal. [ʔʰ] occurred almost exclusively in monomorpheme words, with the exception of two-syllable negative contraction words. Overall, however, the variant is phonetically acting as expected.
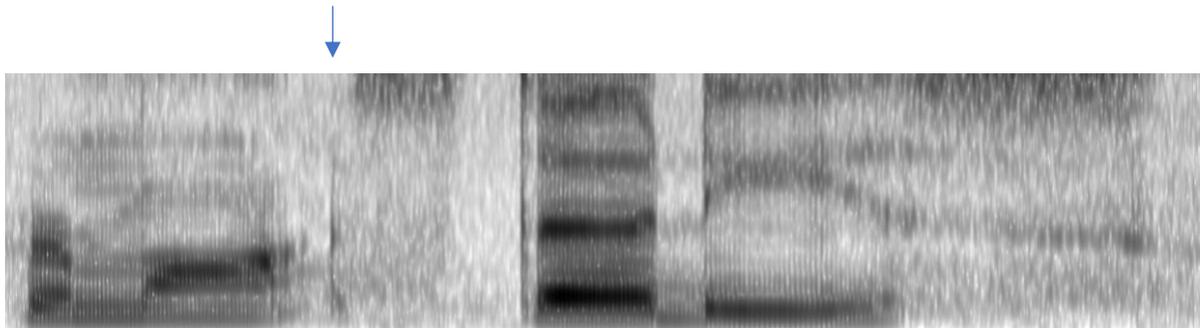

Figure 1 Spectrogram of "Vermont studies" [vɚmɔ̃ʔʰ stʌɹis]. Arrow indicates glottal closure (followed by brief aspiration).

Results from the study raise questions as to the allophonic status of [ʔʰ], its usage among age groups, and the implications of a lenition account of glottalization. Although topic was not included in the coding scheme, anecdotal evidence for the usage of the aspirated variant in the high school speakers may indicate a shift in the type of usage of the variant between age groups. This may be due to acquisition, or change in, stance in speech. Further work could be pursued along this vein. Additionally, a larger sample solely consisting of the most likely producers of the variant (namely, nine and ten year-olds) could provide a richer source of instances of the variant, thus providing significant projections for its linguistic and social constraints.

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Official or Unofficial?: The influence of policy on Suzhou dialect and Pingtan culture

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Background

In order to achieve mutual communication in China, Mandarin has been promoted since 1956, largely by the government, through a series of education policies, such as the incorporation of Mandarin into the Chinese Constitution (China, 1983)and the prohibition of the use of dialects on television series (National Radio and Television Administration, 2009). The dominance of Mandarin in daily life, however, has exerted pressure on dialect usage and preservation (Li, 2015). I discovered the decrease in the population who speaks Suzhou dialect, a dialect under the category of Wu and spoken in the Eastern part of China, from personal experience with the younger generation in Suzhou. Previous literatures have shown that both the development of society and the government policies on the promotion in Mandarin have an influence on the gradual endangered situation of the Suzhou dialect (Wang, 2003). When the official language in a country has reached great popularity, there will be contradictions and even conflicts between regional dialects and the official language (Li, 2015). As You (1985) pointed out, dialect can be the most distinctive characteristic of regional culture. Hence, consideration in cultural functions will be necessary during language planning as it will broaden people's perspectives and reduce potential problems. In Suzhou, Pingtan is a traditional art form performed in the Suzhou dialect. Related studies have shown that the decline of population who speaks the Suzhou dialect influences the degree of cultural inheritance and development of Pingtan (Wu, 2007). Existing studies focus on either language or cultural perspectives with the use of mainly qualitative or basic quantitative analysis. Moreover, no existing literature has been identified to examine the meaning and the function Pingtan carries for marginalized populations, for example, senior people. This project fills the gap by combining the dialect and the cultural perspectives, examining the current situation of the Suzhou dialect and potential factors through analyzing 161 survey responses as well as qualitative interviews and field observations. The results yield surprising yet informative discussions regarding language/dialect policies, which can potentially drive changes in the near future.

Data and Preliminary Results

This project first looks at national, provincial, and municipal policy texts regarding language and dialect usage and promotion from the year 1956 up to now. Suggested by previous research, the promotion of Mandarin plays a significant role in the popularity of dialects. The government implements policies mainly on education, which directly influences the language used in teaching and school life. Other indirect policies such as opening up real estate purchase policy for non-local people will also subconsciously change the language used in households (Wu, 2018).

In order to evaluate the effect of these elements on heritage language, the Suzhou dialect, the study applies mixed research methods by conducting a survey of 19 questions, three qualitative interviews, two field observations at a local Pingtan museum, and one observation at a Pingtan performance. A total of 161 responses were collected from the survey, and descriptive statistics, correlations, and linear regression were used to analyze the survey responses. Quantitative results showed that various factors are associated with Suzhou dialect proficiency. Older generations are more proficient in speaking Suzhou dialect ($r = 0.689$, $p < 0.01$), while all the ages are proficient in Mandarin (no correlation, a standard deviation of 0.73). Older people used the dialect more frequently in their school years. (Classroom: $r = -0.232$, $p < 0.01$; Classmate: $r = -0.411$, $p < 0.01$). Another factor in predicting Suzhou dialect proficiency is the communication language used at school with classmates ($r = -0.308$, $p < 0.01$). What's more, family earning also reflects a positive correlation with Suzhou dialect proficiency ($r = 0.479$, $p < 0.01$), and a higher educational degree earned indicates a higher proficiency as well ($r = 0.624$, $p < 0.01$). Considering all the potential factors mentioned, I came up with a main effects model ($R^2 = 0.558$, $p < 0.01$):

$$Suzhou\ Dialect\ Proficiency = 2.319 - 0.159\ Dialect\_Home + 0.228\ Mandarin\_Home - 0.128\ Dialect\_Classmate - 0.192\ Mandarin\_Classmate + 0.563\ Age$$

The following model includes interaction effects between respondents' language use and their age ($R^2 = 0.636$, $p < 0.01$):

$$Suzhou\ Dialect\ Proficiency$$
$$= 7.083 - 0.687Age - 0.968Dialect\_Home + 0.418Mandarin\_Home$$
$$-0.262Dialect\_Classmate - 0.202Mandarin\_Classmate + 0.228Age * Dialect\_Home$$
$$-0.076Age * Mandarin_{Home} + 0.039Age * Dialect_{Classmate} + 0.023Age * Mandarin\_Classmate$$

Quantitative results also revealed that multiple factors are associated with people's perceptions of the Pingtan culture. Age is positively associated with how frequently people attend Pingtan ($r = 0.476$, $p < 0.01$). In addition, a higher proficiency in the Suzhou dialect positively correlates with the frequency of watching Pingtan. ($r = 0.490$, $p < 0.01$). Qualitative results indicate that family influence is an important factor in language use selection, which is in line with existing literatures (Schwartz, 2008; Dale, 2015). Similarly, two of the three interviewees who are both local students show that family upbringing with the Suzhou dialect will increase one's ability in speaking dialect. Moreover, whether or not they speak the Suzhou dialect will influence their comprehension and overall experience of Pingtan and therefore affect their choice to watch Pingtan or not.

I identified the following themes from my research results. Firstly, education plays a major role in language learning, both through formal, school-based education and informal education at home. Compulsory policies on educational language were settled in the China Constitution in 1956 (China, 1956). Recently, in 2003, it is required to pass the Mandarin Level Test in order to become a teacher (The Ministry of Education of the People's Republic of China, 2003), so all public-school teachers are teaching in Mandarin. The overall Mandarin skill reflected in the survey has reached 4.52/5, indicating a significant result of government policies. In terms of dialect proficiency, the languages used at school with classmates and at home are both predictors of proficiency in the Suzhou dialect. The municipal government recently started taking action on some educational policies to protect the Suzhou dialect; however, the effect is still not satisfactory (Suzhou Educational Bureau, 2017).

Secondly, carefully designed policies targeting dialect culture should be introduced. For example, the new policy released by the Suzhou Educational Department encourages students to visit museums including the Pingtan Museum. According to my two-day observation in the museum and the statistics, an increasing amount school-aged teen have been visiting the museum responding to the government's call ($r = 0.676$, $p < 0.01$). However, some students leave directly after they obtained the proof of visit and the average visiting time is very short. In addition, statistical result has shown that people are likely to not attend the Pingtan performance after visiting the museum ($r = 0.713$, $p < 0.01$). The fundamental appreciation of Pingtan is not reached, therefore it still requires future effort.

Last but not least, audience group of Pingtan is mainly the elderly as observed in one of the regular performances, whom gradually formed a social group. Due to the lack of attention on Pingtan, the elderly reported a feeling of social abandonment and isolation. Increasing social awareness of Pingtan would offer the elderly more opportunities to enjoy and socialize. The lack of policies promoting Pingtan culture marginalized the elderly, while creating a vicious cycle where fewer younger enjoy Pingtan but more older people immerses themselves in the dialect and culture. Policies such as establishing more performance arenas may stress the importance of dialect culture and encourage schools to organize dialect-related events more frequently.

Scholarly Significance

This project contributes to the field of dialect and dialect culture preservation by starting the conversation of examining the Suzhou dialect and Pingtan culture together under the influence of government policies, while revealing social implication on marginalized populations that extend beyond its linguistics context. Although the local government began to introduce policies to preserve the Suzhou dialect, it is overshadowed by the effect of promotion and eventual domination of Mandarin on the younger generation. To make sure the language and the culture can be passed down to future generations, domestic environment and education in school settings are both of great importance. With hope, we may witness a natural raise in the attention to dialects and dialect culture by both the local and central government.