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Abstract

This paper studies the roles of local identity and language attitude in language change by examining Tianjin Chinese tone sandhi in apparent time (90 speakers, sociolinguistic interviews, born 1932-1996). Previous studies on Tianjin Chinese indicated that some dialect features were decreasing in frequency over time (Gao and Lu 2003, Gu and Liu 2003, X. Wang 2017), but some other dialect features were increasing (Shi and Wang 2004, X. Wang 2017). Why are local features of Tianjin dialect changing in different directions under the same social and linguistic conditions? We propose that the influence of Standard Chinese (SC) and negative attitude to Tianjin dialect make the stereotyped local features decrease, while the desire to keep local identity, especially when facing a large number of migrants, makes the unmarked local features increase. This is in line with Labov's (1972) study of Martha's Vineyard, whereby traditional local features may come to index resistance to standardization and to the incursion of new people into the speech community.

Local Identity and Standardization: Evidence for Tianjin Chinese Tone Sandhi

Xiaomei Wang and Suzanne Evans Wagner*

1 Introduction

This paper studies the roles of local identity and language attitude in language change by examining Tianjin Chinese tone sandhi in apparent time (90 speakers, sociolinguistic interviews, born 1932-1996). Previous studies on Tianjin Chinese indicated that some dialect features were decreasing in frequency over time (Gao & Lu 2003, Gu & Liu 2003, X. Wang 2017), but some other dialect features were increasing (Shi & Wang 2004, X. Wang 2017). We ask: Why are local features of Tianjin dialect changing in different directions under the same social and linguistic conditions?

Tianjin Chinese is an urban Mandarin dialect spoken in Tianjin city, about 70 miles south east of Beijing. Tianjin is an industrial and economic center in Northern China, with a population of 15.6 million. 5 million of the city's residents, or almost one third of the total, are domestic migrants from elsewhere in the mainland (Tianjin Bureau of Statistics 2018). This paper will consider the influence of in-migration and of Standard Chinese (SC) on three tone sandhi rules in Tianjin Chinese that are undergoing language change.

2 Tianjin Dialect

Tianjin dialect belongs to the Northern Mandarin dialect group, but it is markedly different from geographically neighboring dialects in the group as well as from Standard Chinese (SC) (Li & Han 1991)¹. Among the differences are its stigmatized low Tone 1 and its tone sandhi rules.

2.1 Tianjin Chinese Tones

Tianjin dialect has four lexical tones, which are cognates to the four lexical tones in SC. However, the pitch values for each tone are different in Tianjin dialect and SC, as shown in Table 1. Pitch values are provided in Chao numbers (Chao 1968), with 5 indicating the highest tone degree and 1 indicating the lowest tone degree. The letters below are phonological representations. H stands for a high tonal feature and L stands for a low tonal feature.

	Tone 1	Tone 2	Tone 3	Tone 4
Tianjin	11/21	45	213/13	53
	LL	HH	LH	HL
SC	55	35	214	51
	HH	HH	LH	HL

Table 1: Lexical tones in Tianjin Chinese and Standard Chinese.

Note especially that whereas T1 is a high (HH) tone in SC, it is a low tone (LL) in Tianjin Chinese. This low tone feature has been used to judge whether a speaker speaks Tianjin dialect (Li & Han 1991, Li & Han 1992, Han 1993, Gao & Lu 2003, Shi & P. Wang 2004). Almost all participants in the present study mentioned that the low T1 is the most socially salient tonal feature of Tianjin dialect.

2.2 Tianjin Chinese Tone Sandhi

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¹ For this reason, Tianjin dialect is also called 'Tianjin dialect island' (Li & Han 1991).

Tianjin dialect is also distinguished from SC by its complex set of tone sandhi processes. Tone sandhi processes refer to phonological alternations of tones due to the tonal, prosodic, or morpho-syntactic environments in which they appear (Chen 2000, Zhang 2014). We notate tone sandhi throughout using a right-pointing arrow \rightarrow . For example, T3+T3 \rightarrow T2+T3 indicates that a Tone 3 changes to be a Tone 2 when the Tone 3 is immediately in front of another Tone 3.

Traditionally, four disyllabic tone sandhi patterns have been identified in Tianjin (Li 1956, Li & Liu 1985, Shi 1988, Wang & Lin 2017). We focus on three of the patterns², for the following reasons. First, SC does not have these three patterns. Second, this dialect disparity makes the tone sandhi rules vulnerable to change and even loss under the influence of SC.

Since speakers no longer apply the three tone sandhi rules categorically, we refer to them in parentheses, as is usual in variationist sociolinguistics for indicating the dependent linguistic variable. The variables are designated (53-53)³, (53-21) and (21-21) after their input tonal values in Chao number. The (53-53) tone sandhi variable is illustrated in (1). When there is a pair of falling tones, as is the case for *da hui* ‘meeting’, the first tone in the sequence becomes a low tone, changing from 53 to 21, as in (1a). However, in contemporary Tianjin Chinese, application of this rule is variable, and increasing non-application of the rule, as in (1b), is causing the sandhi rule to disappear (Gao & Lu 2003).

- (1) (53-53) variable
- | | | |
|----|---|---|
| a. | $T4^{(53)} + T4^{(53)} \rightarrow T1^{(21)} + T4^{(53)}$ | <i>application of sandhi rule</i> (traditional) |
| b. | $T4^{(53)} + T4^{(53)}$ | <i>non-application of sandhi rule</i> |
| | da hui | |
| | ‘meeting’ | |

In contrast, the (53-21) tone sandhi rule shown in (2a) is reportedly applied almost without exception among young Tianjin speakers today (Shi & P. Wang 2004, X. Wang 2017), even though it was the least frequently applied sandhi rule in the 1980s (Shi 1988). It is applied more variably by older speakers, as in (2b).

- (2) (53-21) variable
- | | | |
|----|---|---|
| a. | $T4^{(53)} + T1^{(21)} \rightarrow T2^{(45)} + T1^{(21)}$ | <i>application of sandhi rule</i> (traditional) |
| b. | $T4^{(53)} + T1^{(21)}$ | <i>non-application of sandhi rule</i> |
| | jiao shi | |
| | ‘teacher’ | |

Finally, the (21-21) tone sandhi rule is reported to have two application output variants, shown in (3a and 3b). Non-application of (21-21) is highly infrequent, so the focus in this paper will be on its two application patterns. Traditionally, when there is a pair of low tones, the first tone in the sequence becomes a rising tone. This is shown as T3 with Chao values 13 in (3a) below (Li & Liu 1985). But the rule has been attested to have a new output variant with an initial high tone, T2, shown in (3b) with Chao values 45 (Lu 1997, Zhang & Liu 2011, X. Wang & Lin 2017).

- (3) (21-21) variable
- | | | |
|----|---|--|
| a. | $T1^{(21)} + T1^{(21)} \rightarrow T3^{(13)} + T1^{(21)}$ | <i>application of sandhi rule</i> (traditional output) |
| b. | $T1^{(21)} + T1^{(21)} \rightarrow T2^{(45)} + T1^{(21)}$ | <i>application of sandhi rule</i> (new output) |
| | fei ji | |
| | ‘airplane’ | |

² The other traditional Tianjin tone sandhi is T3+T3 sandhi, cognate to the ‘Third-Tone Sandhi’ in SC, which changes a third tone to a second tone before another third tone, $T3^{(213)} + T3^{(213)} \rightarrow T2^{(45)} + T3^{(213)}$.

³ In previous versions of this work, e.g. Wang (2017), Wang & Wagner (2019), we referred to the three dependent variables using acronyms of their English tonal configurations. (53-53), a falling-falling tone sequence, was (FF), (53-21), a falling-low tone sequence, was (FL), and (21-21), a low-low tone sequence, was (LL).

Thus we have three binary dependent variables: (53-53) and (53-21), each with values APPLICATION and NON-APPLICATION, and (21-21) with values OLD and NEW or T3/13 and T2/45 respectively.

This paper will confirm that the APPLICATION of (53-53) has been decreasing in apparent time, and that the OLD variant of (21-21) is being replaced by the NEW variant identified by Lu (1997). But we will also show that within the same speech community, not only is the traditional (21-21) sandhi rule still being applied (albeit with the NEW variant), but APPLICATION of the third sandhi pattern, (53-21), is increasing in apparent time. Why should this be? In the next section, we provide some social background on Tianjin dialect, and its relationship to two potential motivations for the simultaneous loss and retention of local features: The standardizing influence of SC, and the presence of domestic migrants in the city.

2.3 Tianjin Chinese in its Social Context

The city of Tianjin consists of 16 administrative districts (Tianjin Municipal Bureau of Statistics 2018). But Tianjin dialect is not used everywhere. It is only spoken in the six central districts of Tianjin, as shown in the triangle area in Figure 1. These districts are thought of by city natives as being the ‘real’ Tianjin. In the more peripheral districts, rural dialects are spoken.



Figure 1: Tianjin and neighboring dialects (Li & Han 1991).

Within Tianjin, people are sensitive to the social meanings of district boundaries. The six central districts are the most prosperous and privileged parts of Tianjin, where house prices are at least three times higher than the houses in the peripheral areas. Constituting the urban heart of Tianjin, these districts have the best social, educational and medical facilities the city can provide. Some participants in the present study had relocated to the peripheral districts, but they were all keen to emphasize that their families were originally from the urban area.

Tianjin dialect exists against the larger backdrop of Chinese national language policy. Starting in 1956, the government has sought to promote SC as a pan-national lingua franca. Thus, although Tianjin dialect and other dialects are spoken in and around the city, most citizens also speak SC. As in other countries where standard language policies have been enforced, this has led to changing social evaluation of Tianjin dialect over time. In Tianjin, SC is viewed as the overtly prestigious variety, suitable for use in formal situations such as education and job interviews. We hypothesize that the rise of bidialectalism in SC and Tianjin Chinese, plus the prestige value of SC, have contributed to the decline in use of some Tianjin tone sandhi.

But this does not mean that Tianjin people’s attitude to SC is completely positive. In the present study, some participants thought that Tianjin people speaking SC is ‘pretentious’, ‘snobbish’ and ‘affected’. Likewise, Tianjin dialect is not viewed entirely negatively, although it is perceived as

less educated. It is appropriate for conversations with family and friends, and participants in the study thought it sounded ‘intimate’, ‘cordial’ and ‘warm’. Furthermore, Tianjin dialect has two social functions that SC does not have:

- It can distinguish residents of the six central districts from people in rural areas.
- It can distinguish longtime Tianjin locals from non-local migrants.

Like other major cities in mainland China, Tianjin has attracted tens of thousands of domestic migrants from other mainland areas since the adoption by the Chinese government of “reform and opening-up policies” in the late 1970s. By the end of 2017, migrants constituted one third of the total number of permanent residents of Tianjin (Tianjin Statistics Bureau 2018).

Since a large number of migrants are living in Tianjin, the fact that Tianjin dialect can distinguish Tianjin locals from migrants is sociolinguistically relevant. We hypothesize that Tianjin locals may want to emphasize their local identity in such a social environment, and therefore they will recycle some unmarked local sandhi features to highlight their local identity (cf. Labov 1972).

3 Data Collection and Methods

Data were collected in Tianjin, China in the summers of 2014-2017. Participants took part in sociolinguistic interviews followed by the reading of a word list. All interviews were conducted in Tianjin dialect by the first author, with only interviewer and interviewee present in the room during each interview. The interviews were recorded with a Zoom H1 Handy Recorder (version 2.10) with a lavalier dynamic microphone. Each interview lasted 45 to 65 minutes, depending on the informant’s willingness to talk. Using the method introduced in Labov (1984), the interview questions were divided into different topic-based modules and the modules were combined into a conversational network. Interview questions started with demographic questions and ended with questions about Tianjin dialect and attitudes toward Tianjin dialect and SC.

3.1 Speaker Sample

A total of 90 speakers from the 6 inner-city “central” districts were recruited through the ‘friend of a friend’ or ‘snowball sampling’ method (cf. Milroy 1980). Younger speakers aged 18 to 35 were deliberately oversampled, with 42 speakers. 23 to 25 speakers were recruited for two additional age groups, Middle-aged (age 35-65) and Old (age 65+). Speakers are quite well balanced across and within two social class groups, Middle Class and Working Class.

Categorization by social class was done with consideration of occupation, education and income. The first author used her intuition as a member of the Tianjin speech community, also consulting the classification system of Li (2013).⁴ Since all the Young participants were undergraduates and not yet in the workforce, they were classified by their parents’ social class. The age, gender and social class distributions of the participants are given in Table 2.

	Total	Middle class		Working class	
		Male	Female	Male	Female
Young	42	7	15	10	10
Middle-aged	25	5	5	7	8
Old	23	5	5	8	5
Total	90	17	25	25	23

Table 2: Entire participant sample by age group, gender and social class (N=90).

Participants’ attitudes to migrants and to Tianjin dialect were also determined, to test the hypothesis that local identity triggered by migrants is the main force that maintains local sandhi features, while negative attitude to Tianjin dialect under pressure from SC has accelerated the decrease of the stereotyped local low tone feature in (53-53).

⁴ See X. Wang (2020) for details on this, and on the age groupings.

A general subjective, qualitative assessment (positive vs negative) of each participant's attitudes to migrants was made based on their answers to the interview questions 'Do you like migrants?' and 'Why?'/ 'Why not?'⁵.

Attitudes to Tianjin dialect were operationalized based on the language attitude questions given at the end of each interview, summarized in (4).

- (4) Language attitude questions given at the end of each interview
- a. Is it pleasant to hear Tianjin dialect?
 - b. Do you prefer to speak Tianjin dialect at home?
 - c. Do you think people speaking Tianjin dialect are less-educated or/and from a lower social class?
 - d. Do/Will you allow your children to speak Tianjin dialect?
 - e. Do/Will you allow your grandchildren to speak Tianjin dialect?

Responses to the questions in (4a-b) and (4d-e) were coded as 1 for a 'yes', while a 'yes' to question (4c) was coded as -1, and vice versa for 'no' responses. If the response was judged to be unclear, it was coded as 0. Young speakers were not asked questions (4d) and (4e). Scores were summed, giving an overall score for attitudes to Tianjin dialect for each individual. If a participant's overall score was higher than 0, that participant was considered as having a positive attitude to Tianjin dialect. If a participant's score was lower than 0, that participant was considered as having negative attitude to Tianjin dialect. The distribution of all participants by attitudes to migrants and Tianjin dialect is shown in Table 3. Notice that while two thirds (n=59) had a positive attitude to Tianjin dialect, of these, the majority of these (n=35, 59%) also had a negative attitude to migrants.

Attitude to migrants	Attitude to Tianjin dialect		Total
	Negative	Positive	
Negative	13	35	48
Positive	18	24	42
Total	31	59	90

Table 3: Entire participant sample by attitudes to migrants and Tianjin dialect (N=90).

3.2 Data Sample

The interview data were exhaustively mined for all of the linguistic environments in which the relevant three Tianjin sandhi patterns would be expected to obtain. All relevant tokens were also extracted from the word list. Tokens were coded impressionistically for the binary variants of the (53-53), (21-21) and (53-21) tone sandhi. The reliability of this coding was verified through acoustic analysis of a subsample of the data in Praat.

A total of 3876 tokens of (53-21), 5662 tokens of (53-53) and 2497 tokens of (21-21) were extracted, for a total of 12035 tokens in interview style. For the word list reading, a total of 1800 tokens of (53-21), 1800 tokens of (53-53) and 1800 tokens of (21-21) were extracted, but 181 tokens had to be excluded because of neutral tone or mispronunciation, reducing the overall total to 1800 tokens of (53-21), 1799 tokens of (53-53) and 1622 tokens of (21-21).

4 Results and Discussion

The distribution of (53-53), (53-21) and (21-21) is different for each variable in apparent time, as shown in Table 4. The APPLICATION variant of (53-53) and OLD (or T3) variant of (21-21) are very low among young speakers, 4.2% and 2.6% respectively, but their application rates are comparatively high among old speakers, 43.7% for (53-53) and 70.8% for LH variant, indicating they are decreasing in frequency over time. The application frequencies of (53-21) and HH variant

⁵ Although all participants' attitudes to migrants are classified into two categories, quite a lot of participants talked about both the positive and negative aspects of migrants.

of (21-21) are very high among young speakers, 90.1% and 85.6% respectively, while their application rates are comparatively low among old speakers, 73.2% for (53-21) and 25.6% for HH variant, indicating they are increasing in frequency over time.

Age group	(53-53)		(53-21)		(21-21)		
	Total N	% APP	Total N	% APP	Total N	% NEW	% OLD
Young	2260	4.2	1943	90.1	1199	85.6	2.6
Middle	1861	26.2	1111	83.7	740	56.8	39.2
Old	1541	43.7	829	73.2	558	25.6	70.8
Total	5662	22.2	3883	84.7	2497	63.6	28.7

Table 4: Rates of use by variant of (53-53), (53-21) and (21-21) by age in interview style⁶.

In sum, APPLICATION of the (53-53) variable is almost obsolete, as few young speakers use it. (53-21) is still robustly present in Tianjin dialect, and in fact younger people are using it more frequently than older people. For the (21-21) variable, tone sandhi is still widely employed. In fact, non-application of the rule is quite rare. But as we saw in Table 4, the *nature* of the sandhi output has changed, from the OLD rising tone, which young people almost never use, to a NEW high tone which older people almost never use. There has been rapid abandonment of the old pattern in favor of the new one over the last three generations.

To determine whether these changes over time have a relation to demographic factors (age, gender and social class) and psychological factors (attitude to migrants and attitude to Tianjin dialect), mixed effects logistic regression analyses were conducted in R using the lme4 package (Bates, Macchler, Bolker, & Walker 2015). Two random effects were included: PARTICIPANT, and the first word in each token, W1. For example, in *jiaoshi* (53-21) ‘teacher’, the first word *jiao* would be coded as W1. P-values were obtained by likelihood ratio tests of the full model with the effect in question against the model without the effect in question. The significance threshold was set at <0.5. The results of the three variables will be presented respectively. All three dependent tone sandhi variables show similar tendency in both word list and interview styles.

4.1 (53-53) Results and Discussion

The logistic regression found that APPLICATION of the traditional Tianjin (53-53) tone sandhi rule is significantly higher in the working class and by men. In other words, the change towards the new, standard and prestigious NON-APPLICATION of the rule is led by the middle class and women. This social profile is characteristic of externally-borrowed ‘change from above’ (Labov 1966), and it is further corroborated by Figure 2.

The avoidance of APPLICATION (i.e. the traditional Tone 1 or LL output) in word list style suggests that speakers are aware (at some level) of the differences between the two variants, and therefore that (53-53) is at least somewhat above public consciousness. This is another characteristic of change from above. (For the Young group, rates of (53-53) application are so low that style-shifting is irrelevant.)

⁶ Proportional use of old and new variants in each generation do not total 100% within generations because about 7% of the total (21-21) tokens were non-applications of the rule.

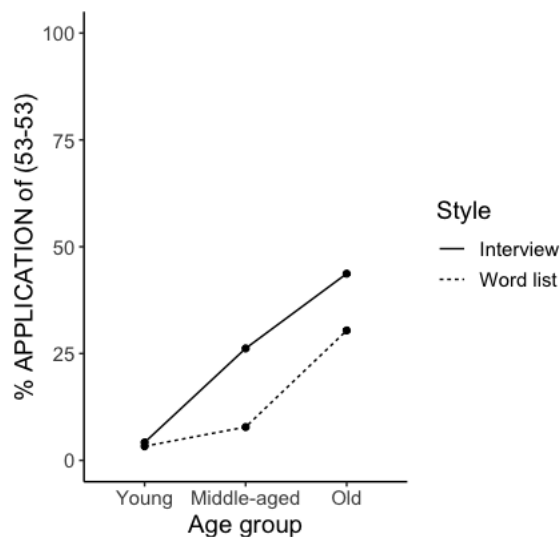


Figure 2: APPLICATION rates of (53-53) in word list and interview styles by age group.

The widening gap between styles with decreasing age (x% for Old but x% for Middle) supports the hypothesis that negative social evaluation of the traditional APPLICATION variant increased over the generations, at the same time that it was decreasing in frequency. In other words, increasing fluency in the overtly prestigious SC and the high social salience of the low Tone 1, led to the demise of APPLICATION of (53-53) over time. This is a classic case of dialect contact between standard and regional varieties (c.f. Hinskens 1998, Gao 2018), whereby traditional dialect features are lost.

4.2 (21-21) Results and Discussion

For (21-21), recall that the tone sandhi rule is still applied, but the output variant is changing from the OLD T3 rising tone (LH) to the NEW T2 high tone (HH). As for (53-53), the new, non-traditional form was significantly more likely to appear in the speech of the middle class. Use of the new variant was also significantly more frequent among people who expressed a negative attitude toward Tianjin dialect. This social and attitudinal complex is not surprising, since the NEW HH tone is more like SC, and therefore it is the overtly prestigious variant. The increasing use of the NEW sandhi output variant looks like another case of change from above. There is some support for this diagnosis in Figure 3, which displays the application rates of the NEW HH variant in word list and interview styles.

The NEW HH variant is used very little by Old speakers (about 25-30%), so style-shifting is evident only for Young and Middle-aged speakers. For these age groups, the NEW variant is more likely to appear in word list style than in interview style in the Young and Middle-aged groups, suggesting it is above awareness to some degree for them.

We propose that the emergence of the NEW HH variant seems to be due to avoidance, by phonetic means, of the stereotyped low T1 in the input sequence. Avoidance of low T1 is reflected not only in the decrease in (53-53), but also in the rising of the starting point of T1. T1 had Chao pitch values of 11 (Li 1956) or 21 (Li & Liu 1985) in the past. X. Wang (2020) shows that T1 has changed to 41 among young speakers. This means that for young speakers, T1 is not really a low tone, but more of a falling tone.

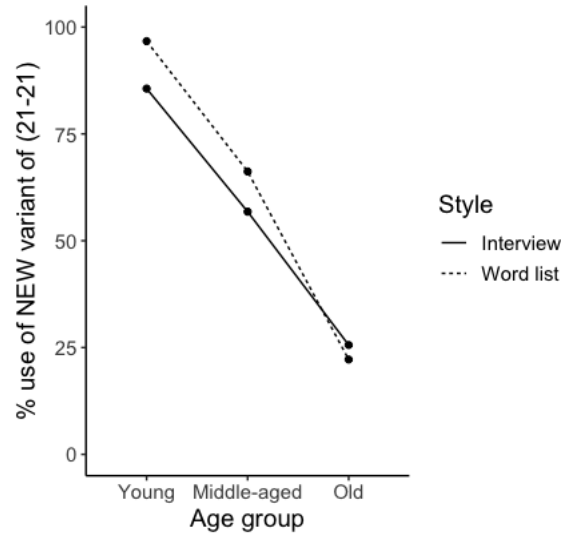


Figure 3: Rate of NEW variant of (21-21) in word list and interview styles by age group.

For the old speakers, the starting point of T1 has risen less, to only 31, so it is still a low tone (LL). According to Chen (2000) and J. Wang (2002), Tianjin bars two types of tonal juxtapositions: (a) a sequence of two contiguous identical tones (except two high tones); and (b) a falling tone followed by a low tone. In (5a), the input is a sequence of two contiguous identical low tones, which is not allowed in Tianjin, so the second tonal feature of the first T1 changes to a H feature, and therefore the first tone becomes a low rising tone (T3). In (5b), the input is a falling tone followed by a low tone, not allowed in Tianjin, so the second tonal feature of the first T1 changes to a H feature, and therefore the first tone becomes a high tone.

(5) The old and new variants of (21-21)

a. $T1^{(31)} + T1^{(31)} \rightarrow T3^{(13)} + T1^{(31)}$
 (LL) (LL) (LH) (LL)
 Old speakers' input OLD output variant

b. $T1^{(41)} + T1^{(41)} \rightarrow T2^{(45)} + T1^{(21)}$
 (HL) (LL) (HH) (LL)
 Young speakers' input NEW output variant

This proposal is consistent with the acoustic results in X. Wang (2020) and the impressionistic results of the current study. T1 among Old speakers is 31, so the application rate of the OLD variant (LH) for them is high. T1 among Young speakers is 41, so the application rate of the NEW variant (HH) among young speakers is high.

4.3 (53-21) Results and Discussion

The social profile of the (53-21) tone sandhi variable is very different from the two we have just reviewed. First, the mixed model regression indicated that speakers are significantly more likely to exhibit APPLICATION of (53-21) if they are from the working class, and if they have a negative attitude to migrants. Furthermore, as shown in Figure 4, rates of APPLICATION of (53-21) are higher in word list style than in interview style in every age group (albeit only very slightly for Old speakers), indicating that Tianjin speakers do not actively avoid the local variant in their most formal (i.e. word list) style. This indicates that the change in (53-21) may be below public awareness.

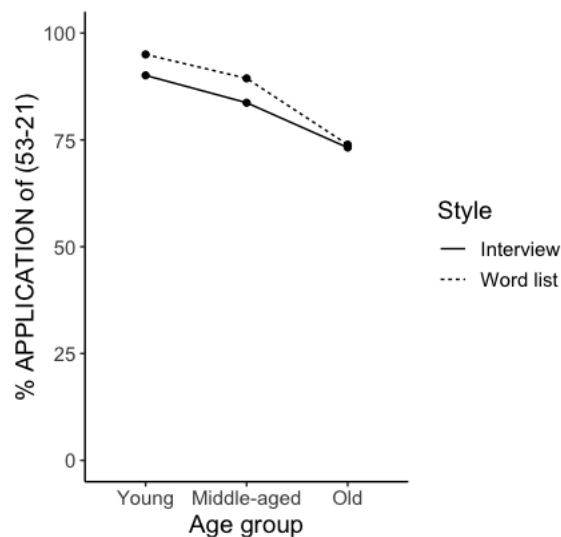


Figure 4: APPLICATION rates of (53-21) in word list and interview styles by age group.

If Tianjin speakers were aware of the change toward the local variant and considered the local (53-21) sandhi pattern to be undesirable, the frequency of the more prestigious non-application variant would be higher in the word list reading style than in interview.

Why is the traditional (53-21) increasing in frequency in apparent time? There is no linguistic reason as far as we know. And it does not appear to be due to convergence with SC. In fact, the NON-APPLICATION variant is more like SC. We propose a sociolinguistic motivation. Because (53-21) is below public awareness, carrying no overt social meaning of ‘old-fashioned’ or ‘traditional’, it is available for recycling (Dubois & Horvath 2000) as a positive marker of ‘real’ Tianjin identity for young people. This is similar to Martha’s Vineyard residents using local features to index resistance to the incursion of new people into the speech community (Labov 1972).

5 Conclusion

We found that standardization is leading to the loss of two traditional Tianjin sandhi phenomena: The APPLICATION of the (53-53) sandhi rule and the OLD output of the (21-21) sandhi rule. But we also speculate that Tianjiners’ assertion of local identity is leading to language reversal for a non-salient traditional feature, the APPLICATION of the (53-21) sandhi rule. Overall, these are well-known sociolinguistic outcomes, observed in other speech communities, and of course mostly in Western communities. This is good confirmation of the general applicability of the principles of language change we draw from all those studies.

We propose that standardization, and the accompanying negative evaluation of Tianjin dialect, has led to increased stigmatization of its most socially salient features, and a resulting decrease in those features in the community over the generations. But for an unmarked dialect feature, the (53-21) rule, we speculate that the large-scale incursion of domestic migrants into Tianjin has led to the foregrounding of local identity, and an increase in this local feature.

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