The Perceptual Categorization of Enshi Mandarin Regional Varieties

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The current study used a hand-drawn map task, a dialect difference rating task, and a dialect classification task to explore the relationship between participants' ideologies about dialect differences and their classification of authentic talkers from six regional varieties in Enshi Prefecture, China. The talkers frequently mistaken for each other in the dialect classification task were those who came from counties that were perceived to have similar dialects in the hand-drawn map task and the dialect difference rating task. Participants showed a positive response bias for the Enshi dialect in classifying talkers, corresponding to the dialect difference ratings that Enshi was rated as least different. Thus participants' classification of real talkers was largely consistent with their ideologies about differences among "imagined" dialects. Participants' ideologies about dialect differences were shaped by their home county, and their classification performance was affected by their home county and the talker's social background.

1. Introduction

In perceptual dialectology, a set of methods have been developed to elicit nonlinguists' perceptions of and beliefs about regional varieties (Benson, 2003; Evans, 2011; Hartley, 1999, 2005; Preston, 1986, 1989). These methods, including hand-drawn maps, are typically based on nonlinguists' mental representations of regional varieties that are stored in long-term memory. In dialect identification and categorization studies, listeners are presented with real speech stimuli and are asked to categorize the talkers in terms of region of origin (Clopper & Pisoni, 2004a, 2004b, 2006; Niedzielski & Preston, 2000; Van Bezooijen & Gooskens, 1999). By examining behavioral responses to speech stimuli, researchers are able to determine how listeners identify talkers based only on the talkers' speech characteristics.

Despite substantial previous research using perceptual dialectology and dialect identification and categorization methods, few studies have combined these methods to investigate the relationship between nonlinguists' prior conceptions of dialect differences and their actual classification of talkers when presented with real linguistic stimuli (cf. Montgomery, 2007; Preston, 1993a). Moreover, although previous studies have examined regional dialect perception and categorization in countries such as the United States, Japan, and France (Inoue, 1999; Kuiper, 1999; Long, 1999a, 1999b; Niedzielski & Preston, 2000; Preston, 1989), little attention has been paid to the dialects in China. The current study investigated the perceptual dialect categorization of regional varieties in Enshi

Prefecture, Hubei Province, China. This study aimed to examine how participants' home county affected their perceptions of dialect differences across counties and whether their perceptions differed for different regional dialects. Participants' perceptions of dialect differences were elicited by a hand-drawn map task and a dialect difference rating task. The effects of participants' home county, talker's county origin and talker's urban/rural origin on participants' classification of real talkers were also explored in a dialect classification task, in which participants were presented with authentic speech samples and asked to identify the county origin of talkers. Participants' ideologies about dialect differences were compared with their actual classification of real talkers who spoke these dialects to reveal whether their classification performance matched their ideologies.

1.1 Perceptual Dialectology

Inspired by work in cultural geography (Gould & White, 1986), perceptual dialectology has employed the hand-drawn map task (Preston, 1986) to reveal nonlinguists' perceptions of regional variation. In it, respondents are given a relatively blank map of a country or region and are asked to draw lines to indicate where they think people speak differently. Perceptual dialectology research has also used a dialect difference rating task to explore how nonlinguists perceive other regional varieties to be different from their own variety (Preston, 1993b). In the dialect difference rating task, respondents are presented with a list of regions and are asked to rate individual regions on a scale (e.g., a five-point scale) to indicate how the speech of each region is different from their own speech. The hand-drawn map task and the dialect difference rating task have been used to examine nonlinguists'

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perceptions in a wide range of locations around the world, including Great Britain (Inoue, 1996), Germany (Dailey-O'Cain, 1999), France (Kuiper, 1999), Turkey (Demirci & Kleiner, 1999), Wales (Coupland, Williams, & Garrett, 1999; Williams, Garrett, & Coupland, 1999) and Japan (Inoue, 1999; Long, 1999a, 1999b), among many others. Similar approaches have also been employed to explore nonlinguists' perceptions of regional varieties within the United States. Work in this vein includes exploration of dialect perceptions by respondents from Hawaii, Michigan, New York (Preston, 1989), Oregon (Hartley, 1999), California (Fought, 2002), Boston (Hartley, 2005), and Nevada (Fridland & Bartlett, 2006). Some recent research has focused on nonlinguists' perceptions of smaller regions, for example, dialect variation within a single state. Research has been conducted in Ohio (Benson, 2003; Campbell-Kibler, 2012; Campbell-Kibler & Bauer, under review), California (Bucholtz, Bermudez, Fung, Edwards, & Vargas, 2007; Bucholtz, Bermudez, Fung, Vargas, & Edwards, 2008), and Washington (Evans, 2011), providing a more local understanding of nonlinguists' perceptions of dialect variation than studies involving a whole country.

Previous research has also demonstrated that both linguistic and extralinguistic factors, such as the geographical and cultural environment of the region as well as personal experience and exposure to dialect variation, play a role in shaping perceptions of regional dialects. On the one hand, nonlinguists' conceptions of dialect variation are influenced by the linguistic landscape of the area. Mase (1992) and Lance (1999) have shown that perceived dialect boundaries parallel linguistic divisions to some degree in Japan and the United States, respectively. Pearce (2009) demonstrated that in northeast England, participants responded to real linguistic variation in their judgments of similarity and difference of dialects rather than simply relying on broader nonlinguistic perceptions, such as geographical or cultural proximity. Some other studies, on the other hand, have found that subjective dialect division is greatly influenced by extralinguistic factors such as real-life experience and geographical demarcation. For example, Benson (2003) reported that people from different parts of Ohio categorized varieties spoken within the state differently, partly depending on their exposure to speakers from other parts of the state. Inoue (1996) found that in Great Britain, students' subjective dialect division was influenced by their geographical conceptions. The labels given by students, such as "northern," "southern," and "midland," corresponded well with the commonly used areal divisions in school educational maps. More recently, Bucholtz et al. (2007) found that in California, the perception of dialect variation is affected by highly salient social groups, an

important part of the cultural landscape of California. Finally, Evans (2011) found that participants' perceptions of dialect variation in Washington were influenced by standard language ideology (e.g., beliefs about where standard and nonstandard English is spoken) and an urban-rural dichotomy (e.g., "hicks" and "farmers" were most frequently associated with the category <u>country</u>) (2011: 403). Thus, the patterns of dialect perception reflect linguistic, historical, and social knowledge of the relevant region.

As noted above, compared with perceptual dialectology work that focuses on an entire country, work that elicits perceptions in smaller regions provides a highly detailed picture of local scenes. The current study was conducted to examine nonlinguists' perceptions of dialect variation in a small area in China that we know little about, and to explore the effect of home county on the perception of dialect differences.

1.2 Dialect Identification And Categorization

Perceptual dialectology research reveals how non-linguists conceptualize and represent different regional varieties in long-term memory. This line of research, however, does not address their ability to identify the dialect of a talker in response to real speech stimuli. One of the earliest attempts to get at this level of dialect perception is work by Bush (1967), who presented listeners with utterances and asked them to identify the talkers' dialect in a three-alternative forced-choice task: American English, British English, and Indian English. Later, Preston (1993a) explored perceptual categorization of regional varieties of American English. In a forced-choice dialect categorization experiment, listeners were presented with short utterances and asked to identify the talkers' region of origin. A north-south continuum from Dothan, Alabama to Saginaw, Michigan was provided. The results suggested that while listeners could identify Northern and Southern talkers, they were not able to tell exactly where the talkers came from.

In a dialect classification study on Chinese dialects, Blum (2004) used talkers from various language backgrounds from China: three were speakers of <u>Kunminghua</u> (Kunming dialect), four of Putonghua (Standard Mandarin; these speakers came from various places in China with different accents), and several speakers of other dialects. The listeners were either from Kunming or from other places in Yunnan Province. Most of them (84%) were college students studying in Kunming. The listeners were asked to identify the place of origin of the talker. The results showed that listeners' responses to local Kunming talkers were accurate, with a success rate of 63% for an older talker, and 86% and 94% for the two younger talkers. They were also

accurate in identifying Putonghua talkers, with a success rate between 55%–86% across the four talkers. These results demonstrate that Chinese listeners can accurately identify the local variety and the national language.

Researchers working on dialect categorization and classification have shown that listeners' region of origin has a substantial impact on their dialect categorization performance. For example, Williams et al. (1999) and Baker, Eddington, and Nay (2009) found that listeners more accurately identified talkers from their own region than those from other regions. Niedzielski and Preston (2000) reported that in a dialect classification task, the perceived dialect boundaries were different for different groups of respondents depending on their region of origin. Using a forced-choice categorization task, Clopper and Pisoni (2004b) found greater discrimination between local dialects among local residents than nonlocal residents, supporting the view that the ability to accurately perceive dialect differences was affected by where the listeners came from. In addition to listeners' region of origin, the effect of listeners' geographic mobility has also been documented. Clopper and Pisoni (2004a) found that "army brats," who had lived in at least three different states, demonstrated better overall performance on a dialect categorization task than "homebodies," who had lived only in one state.

Taken together, listeners' linguistic experience as measured by their region of origin and geographic mobility affects performance on a perceptual dialect categorization task. Specific exposure to a dialect leads to better categorization performance for talkers from that dialect as a result of experience with the phonetic and phonological variation in that particular dialect; general exposure to dialect variation leads to overall more accurate categorization, presumably due to the raised perceptual distinctiveness of different varieties. The present study examines whether participants are able to accurately classify talkers in terms of county origin when they are presented with real speech samples produced by urban and rural talkers from each county, and how their classification performance is affected by the participants' region of origin, the talker's county origin, and the talker's urban/rural origin.

1.3 The Current Study

The main goal of the current study was to examine the relationship between nonlinguists' ideologies about dialect differences and their classification of real talkers who speak those dialects. Their perceptions of difference and similarity between regional varieties were elicited by a hand-drawn map task and a dialect difference rating task. Their reactions to real talkers

from different varieties were revealed in a dialect classification task, in which they were asked to identify the county origin of each of the twelve talkers. To obtain the most authentic speech from speakers of different regional varieties, two speakers from each variety (one urban, one rural) were used as the talkers in the dialect classification task. These speakers were long-term residents of the area and their speech displayed multiple regional dialect features documented in previous production work in Enshi Prefecture (Chao, Ding, Yang, Wu, & Dong, 1946; Yang, 2011; Yuan, 2001), confirming that their speech can be considered typical of the local varieties (see the discussion below for the dialect features present in their speech samples). The current design allowed us to directly address whether nonlinguists are able to accurately identify regional dialects, and whether their classification of talkers in the dialect classification task is consistent with their prior conception of dialect differences revealed in the hand-drawn map task and the dialect difference rating task.

2. About Enshi

Enshi Tujia and Miao Autonomous Prefecture (Enshi Prefecture) is located in the southwest region of Hubei Province, China. Enshi Prefecture comprises eight counties: Enshi, Jianshi, Lichuan, Xianfeng, Laifeng, Badong, Hefeng, and Xuanen. Enshi County is the economic, cultural, and political center of Enshi Prefecture. The maps in Map 1 (from right to left) show Hubei's location in China, Enshi's location in Hubei Province, and the eight counties in Enshi Prefecture. The current study covers six counties (Enshi, Jianshi, Badong, Hefeng, Xuanen, and Laifeng). The two western counties (Lichuan and Xianfeng) were not included due to fieldwork time limitations.

As in most parts of southwest China, residents of Enshi Prefecture speak local dialects that belong to Southwestern Mandarin. Although the dialects in Enshi Prefecture are conventionally classified into eight main dialect groups based on geographic/county divisions (e.g., the dialect spoken in Jianshi county is named Jianshi dialect), there are a larger number of dialect varieties spoken in the territory and many more fine-grained divisions could be made. The dialects spoken in the urban areas are different from the ones in rural areas. Within the rural areas, the dialect differences between two villages 20 miles away from each other can be considerable, although these differences typically do not lead to difficulties in communication. Within the urban areas, distinct varieties coexist. For example, two varieties, laocheng hua 'old city speech' (老城话) and xincheng hua 'new city speech' (新城话) coexist in urban Enshi. Old city speech is almost only used in the Liujiaoting District (六角亭), historically called
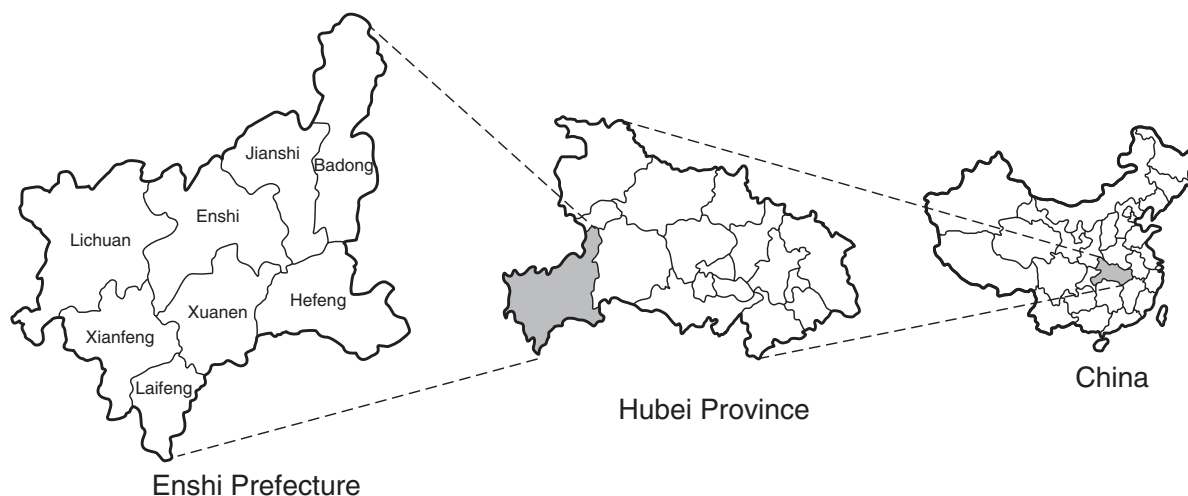
Map 1. (from right to left) Hubei's location in China, Enshi's location in Hubei Province, and the eight counties in Enshi Prefecture.

"old city", and new city speech is used in other districts. In urban Jianshi, two local varieties are distinguished by the glide-dropping phenomenon. The syllable-medial glide /j/ is maintained in one variety, while in the other variety the syllable is simplified and the glide is absent. Since the focus of this study is not to describe dialects in Enshi Prefecture based on production data, I adopt the county-based dialect names that are conventionally used but include both urban and rural speakers in the dialect classification task.

Based on the traditional dialect classification of Mandarin (Guo, 2009), Enshi, Jianshi, and Badong are grouped into <u>Danyi pian</u> 'Danjiangkou and Yichang subarea' (丹宜片), Xuanen and Laifeng are grouped into <u>Yunzhu pian</u> 'Yunxi and Zhushan subarea' (郧竹片), and Hefeng belongs to <u>Changhe pian</u> 'Changde and Hefeng subarea' (常鹤片). This division is based on tonal development, as well as other phonological characteristics, such as the phonetic realization of the consonants in /ʂu/ 'book' and /ɕu/ 'weak', and the vowels in /tu/ (a surname) and /tʂu/ 'help'.

As documented in previous production work in the prefecture (Chao et al., 1946; Yang, 2011), differences in phonology, lexicon, and grammar abound between Enshi dialects and Putonghua, and within various dialects spoken within Enshi Prefecture. A number of noticeable features distinguish Enshi dialects from Putonghua. For example, the initial consonants /n/ and /l/ merge into [n] in the majority of Enshi dialects, thus /lan/ 'basket' becomes [nan], and /lian/ 'face' becomes [nian]. The merger of /x/ and /f/ is another salient feature of Enshi dialects, although the exact merging pattern differs across dialects. In the Badong and Enshi dialects, /x/ and /f/ merge into [x] before all vowels. In the Laifeng dialect, by contrast, /x/ and /f/ merge into

[x] before /oŋ/, and into [f] before other rhymes (Yuan, 2001). The retroflexes /tʂ, tʂʰ, ʂ/ are often realized as alveolars [ts, tsʰ, s] in urban Enshi and Badong. In Laifeng, the retroflexes /tʂ, tʂʰ, ʂ/ become palatals [tɕ, tɕʰ, ɕ] before /u/, and become alveolars [ts, tsʰ, s] elsewhere.

Vowel variation is also observed across the dialects in Enshi Prefecture. The Standard Mandarin /ɤ/ is realized as [o] in the Enshi dialect. /uo/ becomes [ue] in some subvarieties of the Jianshi dialect and [o] in the Enshi dialect. In the Laifeng dialect, the Standard Mandarin /u/ is realized differently depending on the preceding consonant: it becomes [ou] when following alveolars and [y] when following retroflexes.[1] In addition, /uei/ is realized as [ei] after alveolars in several varieties (e.g., Laifeng and Xuanen). Lastly, /uan/ is realized as [an] after alveolars in the Laifeng dialect, and /ue/ becomes [io] after palatals in some Enshi and Jianshi subvarieties.

There are four tonal categories in most varieties in Enshi Prefecture: <u>yīnpíng</u> 55, <u>yángpíng</u> 13, <u>shǎng</u> 53, and <u>qù</u> 214. These four tonal categories are identical to those in Standard Mandarin, but with different tonal contours except <u>yīnpíng</u>. The three other tonal contours in Standard Mandarin can be described as <u>yángpíng</u> 35, <u>shǎng</u> 214, and <u>qù</u> 51. The tone system of the Hefeng variety is quite different from other varieties; even within Hefeng county, tonal differences are found between urban and rural varieties. The variety spoken in urban Hefeng has four tones: <u>yīnpíng</u> 45, <u>yángpíng</u> 11, <u>shǎng</u> 51, and <u>qù</u> 214, whereas the variety spoken in a rural town (Zouma town 走马镇) has five tones: <u>yīnpíng</u> 55, <u>yángpíng</u> 24, <u>shǎng</u> 51, <u>qù</u> 44, and <u>rù</u> 35 (Yang, 2011).

The current study aims to reveal how local residents perceive these differences between their own dialect

and the dialects spoken in other counties, and whether they are able to accurately identify the county of origin of an unfamiliar talker based only on short speech samples. The methods this study employs include hand-drawn maps, a dialect difference rating task, and a dialect classification task.

3. Methodology

3.1 Participants

Participants were recruited through a friend-of-a-friend method and advertisements posted in shopping malls and main streets. The data for this study came from 120 participants, balanced for gender (male, female), education level (high school or lower education, college and higher education), and county affiliation (Enshi, Jianshi, Badong, Hefeng, Laifeng, and Xuanen). There were five participants in each gender, education level, and county affiliation cell. Information about the urban/rural origin of most (82%) of the participants was not obtained because they only provided county names for their birthplace and the places they have lived, without specifying the town or village. The fieldwork was conducted in 4-9 sites in each county, including both urban and rural locations. Based on these fieldwork sites, there were roughly equal numbers of participants of urban and rural origin in each county.

   All participants were monolingual native speakers of Mandarin Chinese (although not necessarily the standard variety) and most of them spoke only one local Mandarin variety. The participants who were bidialectal typically had parents who came from two different counties. Speaking Standard Mandarin (Putonghua) was not required to participate in this study. All tasks and interviews were conducted in Enshi Mandarin (the author's native dialect), not in Standard Mandarin (Putonghua). The participants who completed junior high and higher education were generally able to speak Standard Mandarin, but none of them were native speakers since Standard Mandarin was only acquired at school through formal education. All participants spent all or nearly all of their lives in Enshi Prefecture. Of those who had not lived their entire lives in Enshi, they left either for college or for work for a short period of time. Participants were paid RMB36 ($5) for participating.

3.2 Procedures

3.2.1 Hand-drawn Map Task

Employing the technique of mental mapping (Preston, 1982, 1986, 1988), the hand-drawn map task aimed to reveal nonlinguists' knowledge about regional

Map 2. The map used in the hand-drawn map task.

variation. In this task, participants were given a blank map of Enshi, which showed county boundaries, county names, and the names of contiguous regions (Yichang and Hunan). The use of a blank map without any boundary lines may cause considerable confusion for participants who do not have adequate geographical knowledge of the region (Preston, 1993a: 335). Thus a map with county boundaries was used so that participants had a concrete map with county boundaries to consult. Participants were asked to draw circles or lines on the map to indicate the areas "where people talk alike." They were encouraged to make comments either orally or by writing them down. The map presented to participants is shown in Map 2.

   The hand-drawn map task provides insights about participants' mental representations of place-based regional varieties in Enshi and elicits participant's perceptions of language variation without exposing them to any real speech, therefore establishing their beliefs about the existence of regional dialects and their boundaries.

3.2.2 Dialect Difference Rating Task

Mental representations of regional varieties involve not only where participants believe dialect boundaries

exist, but also how they believe other varieties to be different from their own variety. The rating task, administered following the hand-drawn map task, aimed to measure the perceived degree of difference of nearby dialect varieties from participants' own variety. In this task, participants were given the names of the six counties in Enshi Prefecture included in the map task. They were asked to consider each local dialect and assign a score from 1 to 5 based on the perceived degree of difference of that dialect from their own (1 = same or very similar, 2 = a little different, 3 = quite different, but I can still understand, 4 = I can barely understand that dialect, and 5 = I cannot understand that dialect at all). It is possible that the hand-drawn map task may prime the participants' dialect difference ratings. To minimize this potential priming effect, different instructions were given in the two tasks. In the hand-drawn map task, participants were asked to find areas "where people talk alike" without having to consider their own dialect, while in the dialect difference rating task, they were explicitly asked to evaluate the degree of difference of each dialect compared with their own dialect. Thus, the two tasks differed both in the explicit focus (dialect similarity vs. difference) and in the relevance of the native dialect.

The rating task provides clues about nonlinguists' perceptions of different regional varieties in Enshi and how the perception of dialect difference varies from individual to individual. The rating task, combined with the hand-drawn map task, uncovers Enshi natives' ideological representations of place-based regional varieties.

3.2.3 Dialect Classification Task

The dialect classification task followed the rating task. The goal was to examine the ability of Enshi natives to accurately identify the home county of an unfamiliar talker based on a short voice sample. A comparison between the participants' difference ratings for each regional variety and the classification of each talker in this task can also shed light on the relationship between their beliefs about dialect differences and their responses to real speech.

The perceptual stimuli in the dialect classification task consisted of excerpts from stories recorded by twelve non-mobile, older (above 35 years old) male talkers who were selected to represent the authentic local variants (Chambers & Trudgill, 1998:29; Orton & Dieth, 1962:15; Preston, 1989:128). Two talkers from each county were recorded, including one of urban origin and one of rural origin. Map 3 shows the town/village where each talker was from. In this map, black stars indicate urban talkers, and gray dots represent rural talkers.

Map 3. Locations of twelve talkers' home towns/villages.

Each talker was recorded telling the story "The Emperor's New Clothes." The length of the original recordings varied from talker to talker, with an average length of 150 seconds (range: 88-226 seconds). The talkers were asked to tell the story as if they were telling stories to their children or family members and to speak as naturally as possible. Short clips of each recording were selected for the speech samples played to participants in the dialect classification task. Each sample was approximately 30 seconds in length to provide listeners adequate information to make their judgments. The speech samples were relatively coherent in content. Participants listened to the samples one at a time in a random order and were asked to determine the county origin of each talker.

The story "The Emperor's New Clothes" was selected because it is familiar to Chinese children and adults so that talkers did not have to read a script, and it contained multiple segmental features that differed across varieties and thus could be potential cues for dialect classification. The linguistic cues contained in the speech samples that might influence participants' judgments of the talkers included segmental features, suprasegmental features and lexical items. Segmental

features included initial consonants and syllable rhymes (glides, vowels, and codas), suprasegmental features mainly involved lexical tones, and lexical features included dialect-specific lexical items. For example, syllable final /ŋ/ was realized as [n] in the speech of the Enshi, Jianshi, Xuanen urban, and Enshi rural talkers. Syllable-medial glide /j/ was dropped in the Jianshi urban talker's speech but maintained in the other talkers' speech. Syllable initial /t/ was realized as [tʰ] in the Laifeng, Xuanen, Hefeng urban, and Laifeng, Badong rural talkers' speech, but was deleted in the Enshi rural talker's speech. The realization of /x/ as [f] as in [fan] 'change' and [faɪ] 'or', and the realization of /tʂʰ/ and /tʂ/ as [tsʰ] and [ts] as in [tsʰə] 'match' and [tsɯ] 'knit', respectively, are salient characteristics of the Laifeng urban talker's speech. The Laifeng rural talker also exhibited several local features, including the realization of /ts/ as [tʂ], /s/ as [ʂ], and /tɕ/ as [k]. The vowel /ɤ/ was realized as [o] in the Laifeng urban and rural, Jianshi rural, and Badong urban talkers' speech. The realization of /uo/ as [ue] is a feature of Jianshi urban talker's vowels; for Enshi talkers, /uo/ becomes [o].

3.2.4 Interview

A short semi-structured interview followed the dialect classification task to elicit more comments from participants.

3.3 Statistical Analysis

For the hand-drawn maps, the percentage of participants who drew boundaries to indicate the areas "where people talk alike" was calculated to find out the main perceptual dialect regions. The percentages of participants from each of the six counties who identified each of the main perceptual dialect regions were also calculated.

For the dialect difference rating task, a one-way ANOVA on the difference ratings with rated county (Enshi, Jianshi, Badong, Hefeng, Laifeng, Xuanen) as the factor was conducted to find out whether the dialect difference ratings were significantly different for the six counties. Post hoc t tests were used to reveal any significant differences in the difference ratings between six rated counties. A series of one-way ANOVAs on the difference ratings for each county with participants' home county (Enshi, Jianshi, Badong, Hefeng, Laifeng, Xuanen) as the factor was then conducted to explore whether participants from different counties gave significantly different difference ratings for each county. Post hoc Tukey tests were conducted to reveal whether there were significant differences in the difference ratings for each county by participants from different counties.

For the dialect classification task, to reveal the effect of the talker's country of origin and urban/rural origin, and the participant's home county on classification accuracy, a repeated measures ANOVA was calculated using talker's county origin (Enshi, Jianshi, Badong, Hefeng, Laifeng, Xuanen) and talker's urban/rural origin (urban, rural) as within-subject factors and participant's home county (Enshi, Jianshi, Badong, Hefeng, Laifeng, Xuanen) as a between-subject factor for participant's classification accuracy. Post hoc Tukey and t tests were conducted to reveal whether participant's classification accuracy was significantly different for urban and rural talkers, talkers of different county origins, and participants from different counties.

4. Results and Discussion

The analysis of the hand-drawn maps and the dialect difference rating task will reveal how participants' home county affected their perceptions of dialect similarities/differences across counties and whether different regional dialects were perceived differently in terms of the degree of difference. The analysis of the dialect classification task will show the effects of participants' country of origin, talker's county origin, and talker's urban/rural origin on participants' classification of real talkers. Participants' hand-drawn maps and their dialect difference ratings will be compared with their classification of real talkers to reveal whether participants' classification performance was consistent with their ideologies about dialect differences.

4.1 Hand-drawn Maps

To determine the main perceptual dialect regions in Enshi, the percentage of participants who drew boundaries to indicate any particular regions where people talked alike was calculated. The majority of participants drew lines or circles along county boundaries; a few drew lines within the territory of one county. In the latter case, the grouping of only part of one county with another county was not included in the estimation of the main perceptual regions. Very few participants grouped three or more counties together. Since only a small number of participants made comments in the hand-drawn maps, the comments they provided are not discussed here.

Images 1 and 2 in Map 4 show the two main perceptual dialect regions designated by participants. The first region is comprised of Xuanen and Laifeng, which were identified as sharing a dialect by 68.3% of all participants. The second most frequently designated region was Enshi and Jianshi, recognized by 36.7% of all participants. Images 3 and 4 in Map 4 show two other less frequently identified regions: Jianshi and Badong,
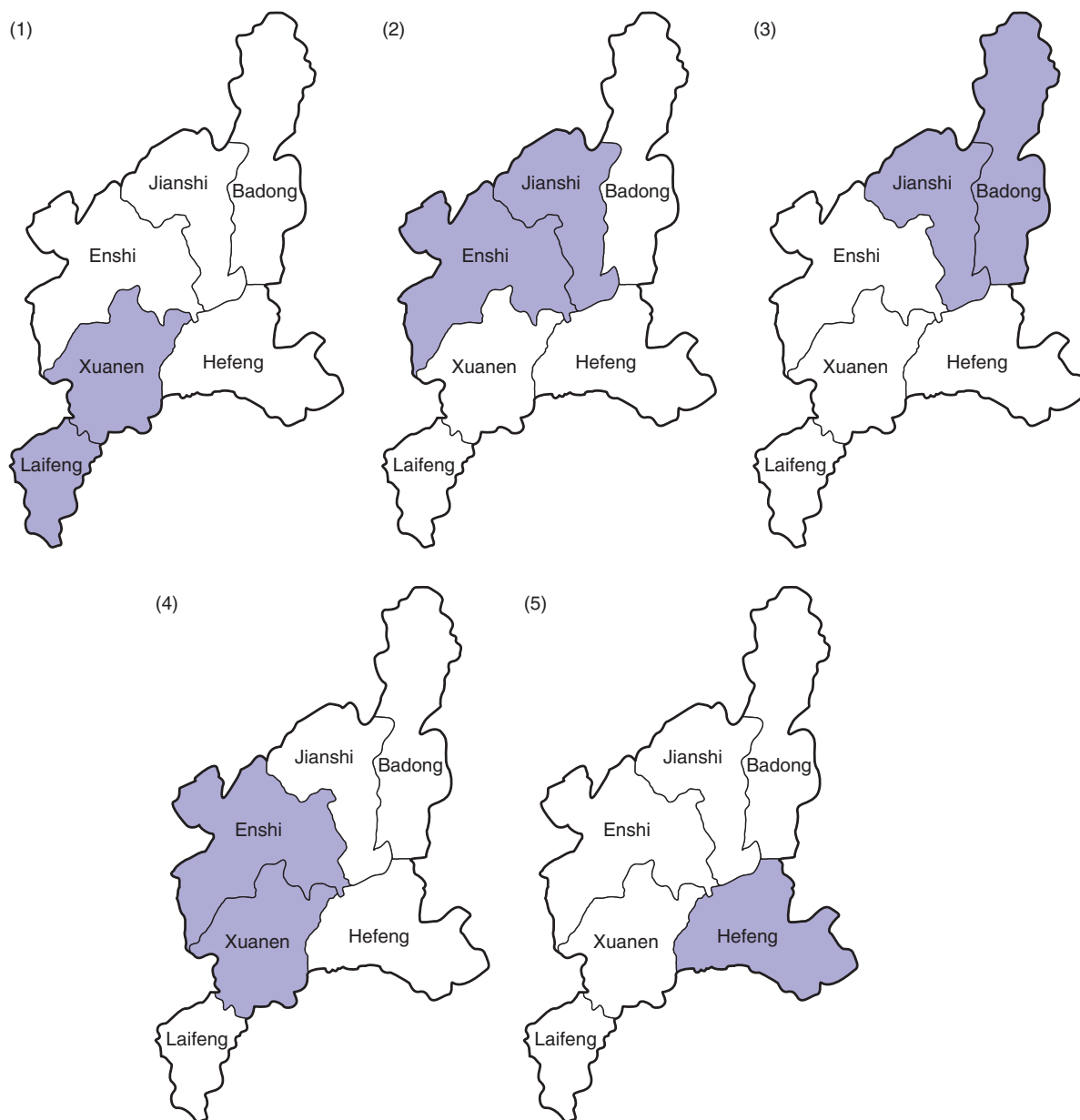
Map 4. Five perceptual dialect regions in Enshi Prefecture.

and Enshi and Xuanen, designated by 30.0% and 23.3% of participants, respectively. Hefeng was rarely grouped with any other counties, and thus forms its own region as shown in image 5.

Table 1 shows the recognition percentages of each of the main perceptual dialect regions by participants from the different counties. Participants who grouped Xuanen and Laifeng as a single region were almost evenly distributed across counties. Thus, it appears that regardless of home county, participants shared the consensus that the Xuanen and Laifeng dialects are similar. The participants who grouped Enshi and Jianshi together were mainly from these counties,

whereas participants from other counties identified Enshi and Jianshi as a region less frequently. Therefore, local participants contributed to the Enshi-Jianshi grouping more than nonlocal participants, where "nonlocal" is defined as participants whose home county is not the county in question. A similar pattern was found for the Jianshi and Badong grouping: local Jianshi and Badong participants grouped Jianshi and Badong together more frequently than nonlocal participants. As for the Enshi and Xuanen region, an unbalanced contribution of local participants was found: whereas 42.9% of the participants who grouped Enshi and Xuanen were from Xuanen, only 10.7% were from

Table 1. *Percentages of participants who identified each of the four main dialect regions by participant's home county. For each dialect region, percentages for the local participants are in bold.*

Dialect regions	Participant's home county					
	Enshi	Jianshi	Badong	Hefeng	Laifeng	Xuanen
Xuanen-Laifeng	14.6%	13.4%	18.3%	17.1%	**19.5%**	**17.1%**
Enshi-Jianshi	**22.7%**	**29.5%**	11.6%	14.0%	15.3%	6.9%
Jianshi-Badong	5.5%	**27.8%**	**27.8%**	11.1%	19.4%	8.4%
Enshi-Xuanen	**10.7%**	7.1%	10.7%	3.6%	25.0%	**42.9%**

Enshi. This result suggests that more Xuanen participants and fewer Enshi participants perceived the Xuanen and Enshi dialects to be similar. This unbalanced perception of dialect difference can be partially attributed to the fact that the Enshi variety was perceived to be the most correct one in Enshi prefecture while Xuanen was perceived to be much less correct (Yan, under review). To align themselves more closely with the more perceptually correct Enshi variety, Xuanen participants grouped Enshi County with their own county to form a single dialect region.

The results of the hand-drawn maps correspond with the dialect subarea division based on production data (Guo, 2009). The first main region identified by the majority of participants, Xuanen and Laifeng, belongs to <u>Yunzhu pian</u> 'Yunxi and Zhushan subarea.' Hefeng, which was rarely grouped with other counties, belongs to <u>Changhe pian</u> 'Changde and Hefeng subarea.' The other counties are included in <u>Danyi pian</u> 'Danjiangkou and Yichang subarea.' This similarity between the hand-drawn maps and the dialect divisions based on production data indicates that participants are able to perceive some noticeable differences within the prefecture, and their mental representations of regional dialects and dialect boundaries reflect the actual patterns of dialect variation to some extent. This result is consistent with previous findings that nonlinguists' perceptions of dialect boundaries parallel real linguistic variation (Inoue, 1972; Lance, 1999; Mase, 1992).

4.2 Dialect Difference Rating Task

In the rating task, participants considered each local dialect and assigned a value of 1 to 5 based on the perceived degree of difference of that dialect from their own. A high score for a particular county suggests that, overall, participants view the variety in that county as being different from their own; in contrast, a lower score suggests similarity. The mean scores of the degree-of-difference ratings for the six counties are represented in Table 2. In this table, the columns represent the home county of the participants, and the rows represent the

county being rated. The highest mean score for each county is in bold, and the lowest mean score for each county by nonlocal participants is in italics.

As shown in Table 2, the difference ratings by local participants (the diagonal) are all very close to 1, confirming that participants were doing the task correctly.[2] As for the ratings by nonlocal participants for each county, Enshi was perceived to be most different by Laifeng participants. Jianshi was rated highest on difference by Hefeng and Laifeng participants. The highest difference ratings for Badong, Hefeng, and Laifeng came from Enshi participants. Xuanen was perceived to be most different by Badong participants. Most counties were rated highest on difference by participants from a county which did not border the counties in question (except Hefeng participants rating Jianshi), suggesting that geographical remoteness may have led to higher perceived dialect difference. With regard to how nonlocal participants perceived a dialect to be least different, Enshi was rated lowest on difference by Xuanen participants, Jianshi by Badong participants, Badong by Hefeng participants, Hefeng by Jianshi participants, Laifeng by Xuanen participants, and Xuanen by Laifeng participants. Thus, a dialect was likely to be perceived as similar by participants from nearby counties.

An ANOVA was conducted to examine whether the six counties were rated significantly differently on the degree of difference. The result showed a significant effect of rated county ($F(5,714) = 9.49$, $p < 0.001$). Post hoc paired-sample t tests were conducted to examine the effect of rated county and revealed that the degree of difference ratings for Enshi were significantly lower than those for Xuanen, Laifeng, Badong, and Hefeng (all $p < 0.05$). The difference between Enshi and Jianshi was just beyond the level of significance ($p = 0.06$). Jianshi was rated significantly lower than Laifeng, Badong, and Hefeng (all $p < 0.01$), but not significantly lower than Xuanen. Xuanen was rated significantly lower than Laifeng, Badong, and Hefeng (all $p < 0.05$). Thus, overall, the Enshi variety is perceived as the least different variety by participants from other counties,

Table 2. *Mean scores of the degree-of-difference ratings for six counties. The columns represent the home county of the participants and the rows represent the county being rated. The highest mean score for each county is in bold, and the lowest mean score for each county by nonlocal participants is in italics. Overall mean rating for each county collapsed across participants of different counties is shown in the rightmost column.*

County	Participant's home county						Mean
	Enshi	Jianshi	Badong	Hefeng	Laifeng	Xuanen	
Enshi	1.05	1.80	1.65	1.90	**2.05**	*1.50*	1.66
Jianshi	1.85	1.00	*1.65*	**2.20**	**2.20**	1.90	1.80
Badong	**2.55**	2.20	1.05	*2.15*	2.25	2.35	2.09
Hefeng	**2.80**	*2.20*	2.55	1.00	2.30	2.25	2.18
Laifeng	**2.70**	2.60	2.65	2.25	1.00	*1.40*	2.10
Xuanen	2.05	2.20	**2.35**	2.05	*1.50*	1.05	1.87

Table 3. *Results of ANOVAs and pairwise Tukey tests ($p < .05$) on the dialect difference ratings.*

Rated county	Main effect of participant's home county	Pairwise comparisons by participant's home county
Enshi	$F(5,114) = 11.35, p < 0.001$	Enshi < Badong, Hefeng, Jianshi, Laifeng, Xuanen Xuanen < Laifeng
Jianshi	$F(5,114) = 17.54, p < 0.001$	Jianshi < Enshi, Badong, Hefeng, Laifeng, Xuanen Badong < Hefeng, Laifeng
Badong	$F(5,114) = 15.89, p < 0.001$	Badong < Enshi, Hefeng, Jianshi, Laifeng, Xuanen
Hefeng	$F(5,114) = 18.85, p < 0.001$	Hefeng < Enshi, Badong, Jianshi, Laifeng, Xuanen Jianshi < Enshi
Laifeng	$F(5,114) = 30.77, p < 0.001$	Laifeng, Xuanen < Enshi, Badong, Hefeng, Jianshi
Xuanen	$F(5,114) = 16.17, p < 0.001$	Xuanen, Laifeng < Enshi, Badong, Hefeng, Jianshi

and Jianshi is the second least different variety, followed by Xuanen. The difference ratings for Enshi, Jianshi and Xuanen are in line with the results in the hand-drawn maps, where Enshi and Jianshi were identified as one dialect region by 36.7% of participants, and Xuanen was grouped with Enshi by 23.3% of participants. Since Enshi is rated as least different, it is not surprising that Jianshi and Xuanen, which are frequently grouped with Enshi to form dialect regions, are perceived as less different than Laifeng, Badong, and Hefeng.

The low difference ratings for Enshi may reflect true similarities between the Enshi variety and the other varieties, prestige associated with the Enshi variety, or both. Based on participants' evaluations of each variety (see Yan, under review) and their comments in the interview, it is likely that the prestige associated with Enshi accounts for the low difference ratings it received from nonlocal participants. Most participants want to align themselves more closely with the Enshi variety than with any other variety. As a result, the Enshi variety is perceived to be the "neutral" dialect which is relatively similar to everyone's own dialect.

To examine the effect of participant's home county on the dialect difference ratings, a series of ANOVAs was conducted. The detailed results of the ANOVAs are summarized in Table 3. Participants' home county was a significant contributor to the difference ratings for all six counties. Post-hoc Tukey tests confirmed that the difference ratings given to a particular county by non-local participants were significantly different from those given by local participants.

The ANOVA on the effect of rated county reveals that in contrast to the low difference ratings for Enshi, Jianshi, and Xuanen, the mean scores for Laifeng, Badong, and Hefeng by nonlocal participants were significantly higher (Tables 2 and 3). The ANOVA on the effect of participant home county shows that Laifeng received high difference ratings from Enshi, Badong, Hefeng, and Jianshi participants, but not from Xuanen participants (Table 3). Again, these difference ratings correspond to the results of the hand-drawn maps. In the hand-drawn map task, Hefeng was seldom grouped with any other counties; Badong, though grouped with Jianshi by 30.0% of participants, was not

recognized as being similar to any other varieties; Laifeng was frequently grouped with Xuanen to form a single region in the map task, but was not frequently grouped with any other counties. Thus, it is not surprising that Hefeng was regarded to be highly different by nonlocal participants, that Badong was viewed as being quite different, and that Laifeng was also perceived to be different by nonlocal participants except for Xuanen participants.

Post hoc Tukey tests further confirmed the high degree of perceptual similarity between Laifeng and Xuanen. As shown in Table 3, for Laifeng, there was not only a significant difference between the ratings by local Laifeng participants and those by Enshi, Jianshi, Badong, and Hefeng participants, but also a significant difference between the ratings by Xuanen participants and those by Enshi, Jianshi, Badong, and Hefeng participants. A similar pattern was observed for Xuanen, for which a significant difference in rating was found not only between local Xuanen participants and Enshi, Jianshi, Badong, and Hefeng participants, but also between Laifeng participants and participants from the four other counties. These results suggest that Laifeng and Xuanen participants perceived each other's variety to be highly similar to their own.

Although Laifeng and Xuanen participants perceived their varieties to be alike, they differed in their ratings for Enshi. Laifeng participants rated Enshi much higher than Xuanen participants did, indicating that they perceived the Enshi variety to be more different from their own variety than Xuanen participants did. One possible explanation for this difference is that Xuanen borders Enshi while Laifeng is farther away. This geographical proximity may have led Xuanen participants to regard the Enshi variety as more similar to their own variety than the Laifeng participants did. In the hand-drawn maps, 23.3% of all participants grouped Xuanen and Enshi together, whereas no participant grouped Laifeng and Enshi as a dialect region, indicating that the Xuanen and Enshi varieties are perceptually more similar than the Laifeng and Enshi varieties.

Unlike participants from other counties who perceived at least one other variety to be similar to their own speech, Hefeng participants rated all other varieties higher than 1.90, indicating that they perceived other varieties to be different from their own. Interestingly, while Hefeng participants viewed Enshi as being only "a little different" from their own variety, Enshi participants did not return the favor; they viewed the Hefeng variety as the most distinct one, with a mean score of 2.80. This difference in perception highlights the attempts of Hefeng participants to align themselves with the more prestigious Enshi variety and confirms the status of the Enshi variety as the regional "norm" that participants from other varieties want their speech to be like. A similar discrepancy in perception between speech varieties was reported by Blair (1990) and Grimes (1995) for mutual intelligibility. Some varieties are inherently intelligible to some extent; however due to social and historical reasons (e.g., political conflict), or different cultural and historical attitudes held by speakers of different varieties, the intelligibility is not mutually perceived.

In summary, the results of the dialect difference rating task show that while the difference ratings for any particular variety by local participants were significantly different from those given by outsiders, participants from different parts of Enshi Prefecture believed the Enshi variety to be similar to their own way of speaking, even when Enshi is not their neighbor geographically, reflecting its position as the local norm. Jianshi was rated as the second most similar variety. Hefeng and Badong were perceived to be quite different by nonlocal participants; Laifeng was viewed as being rather distinct except by Xuanen participants.

The hand-drawn map task and the dialect difference rating task revealed participants' ideologies about difference and similarity between regional varieties. The finding that Enshi, Jianshi, and Xuanen were rated low on overall difference in the dialect difference rating task is consistent with the result of the hand-drawn maps in which Enshi and Jianshi, and Enshi and Xuanen were identified as overlapping regions. The fact that Hefeng was perceived as most different by nonlocal participants corroborated the hand-drawn map task result that Hefeng was rarely grouped with any other counties. In addition, the fact that Xuanen and Laifeng participants perceived each other's variety to be highly similar verified what was revealed in the hand-drawn maps.

Participants' home county shapes how they perceive regional dialect difference. In the hand-drawn map task, dialect regions were generally more frequently designated by local participants than by nonlocal participants (e.g., Enshi-Jianshi and Jianshi-Badong), consistent with the results reported by Benson (2003) and Preston (1986). In the dialect difference rating task, local participants perceived the local dialect to be most similar. A dialect was perceived to be more similar by participants from neighboring counties than those from more remote counties.

4.3 Dialect Classification Task

4.3.1 Classification Performance

Participants were able to correctly classify the talkers by regional dialect with 56% accuracy. This overall success rate was significantly higher than statistical chance (chance performance being 17%; $t(119) = 2.07$, $p < 0.05$), and also higher than the 30% overall success rate reported by Williams et al. (1999) and Clopper and

Pisoni (2004a, b). Moreover, given that this study was conducted in a small geographic region (the area of Enshi Prefecture is equal to one fifth of the state of Ohio), participants may find it difficult to accurately identify the county origin of talkers. Nonetheless, dialect varieties in this small region are quite distinct partly due to long-term isolation between different counties, and even villages. Enshi Prefecture is a mountainous area and the high mountains have served as geographical barriers for thousands of years. Thus, distinct regional dialects have developed and their differences are well maintained today.

Although overall classification accuracy was 56%, participants varied considerably in their ability to identify the talkers' county origin. Five participants correctly classified eleven talkers out of twelve (success rate 92%), whereas two participants were only able to identify one talker (success rate 8%). 110 participants (92% of all participants) correctly identified at least four talkers (success rate above 33%).

A repeated measures ANOVA with talker's county origin and talker's urban/rural origin as within-subject variables and participant's home county as a between-subject variable revealed a significant main effect of talker's urban/rural origin ($F(1,1438) = 8.09, p < 0.01$), a significant talker's urban/rural origin x talker's county origin interaction ($F(5,1434) = 28.05$, $p < 0.001$), a significant participant's home county x talker's county origin interaction ($F(25,1414) = 4.11$, $p < 0.001$), and a significant participant's home county x talker's urban/rural origin x talker's county origin interaction ($F(25,1414) = 2.22, p < 0.001$). The effect of participant's home county was just beyond the level of significance ($p = 0.052$).[3]

Participants' classification performance in response to real talkers revealed their different perceptions of urban and rural varieties, which was not obtained in the hand-drawn maps and dialect difference ratings. Figure 1 shows the proportion of correct responses for urban and rural talkers from each variety, collapsed across participant groups. Post hoc Tukey tests revealed that performance on rural talkers was better than performance on urban talkers overall ($p < 0.05$), but this pattern was not observed for all dialects. Performance on the Badong and Hefeng rural talkers was significantly better than performance on the Badong and Hefeng urban talkers, respectively (both $p < 0.001$), but the Enshi and Jianshi urban talkers were classified more accurately than the Enshi and Jianshi rural talkers, respectively ($p < 0.01$ and $p < 0.001$, respectively). No significant difference was found between the classification accuracy of the Laifeng urban and rural talkers, or the Xuanen urban and rural talkers.

The locus of the participant's home county x talker's county origin interaction confirms that the performance
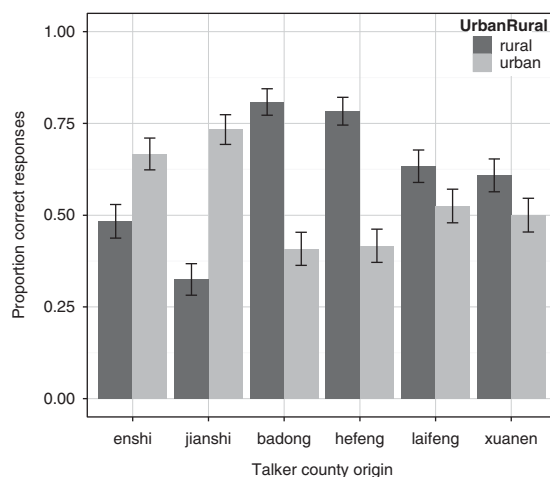

Figure 1. Proportion of correct responses for urban and rural talkers from each variety, collapsed across participant groups. Error bars indicate standard error.

on talkers from any given county differed by participant's home county. The significant participant's home county x talker's urban/rural origin x talker's county origin interaction further indicates that the performance on talkers from any given county differed not only by participant's home county, but also by talker's urban/rural origin. The results of the paired sample t tests for the participant's home county x talker's county origin interaction are shown in Table 4, and the results of the paired sample t tests for the participant's home county x talker's urban/rural origin x talker's county origin interaction are presented in the third column of Table 5.

Consistent with previous research (Baker et al., 2009; Clopper & Pisoni, 2004b; Williams et al., 1999), local participants performed better overall on talkers from the same county than nonlocal participants in terms of classification accuracy, as shown in Table 4. Some nonlocal participants also performed well. For example, Badong participants classified the Enshi talkers significantly more accurately than Laifeng and Xuanen participants, and Enshi and Hefeng participants classified the Badong talkers significantly more accurately than Laifeng participants. Laifeng participants' performance on the Enshi, Jianshi, Badong, and Hefeng talkers was significantly worse than the local Enshi, Jianshi, Badong, and Hefeng participants' respectively. Given the geographical location of Laifeng as the southernmost county in Enshi Prefecture and only bordering Xuanen, Laifeng participants' difficulty in classifying the Enshi, Jianshi, Badong, and Hefeng talkers was likely due to their unfamiliarity with the regional varieties spoken in more remote areas.

The fact that local participants performed better overall on local talkers than nonlocal participants does not mean that they performed equally well on local

Table 4. *Results of the paired-sample t tests (p < .05) for the participant's home county x talker's county origin interaction in the dialect classification task.*

Talker's county origin	Main effect of participant's home county	Pairwise comparisons by participant's home county
Enshi	$F(5,234) = 2.70$, $p < 0.05$	Laifeng, Xuanen < Enshi, Badong; Laifeng < Hefeng
Jianshi	$F(5,234) = 8.15$, $p < 0.001$	Enshi, Badong, Hefeng, Laifeng, Xuanen < Jianshi; Laifeng < Enshi, Hefeng
Badong	$F(5,234) = 2.13$, $p = 0.06$	Laifeng < Badong, Enshi, Hefeng
Hefeng	$F(5,234) = 3.73$, $p < 0.01$	Enshi, Badong, Laifeng, Xuanen < Hefeng; Laifeng < Jianshi
Laifeng	$F(5,234) = 1.29$, $p = 0.27$	Enshi, Xuanen < Laifeng
Xuanen	$F(5,234) = 1.53$, $p = 0.18$	Jianshi < Xuanen, Enshi

Table 5. *Results of the paired-sample t tests (p < .05) for the participant's home county x talker's urban/rural origin x talker's county origin interaction in the dialect classification task.*

Talker's county origin	Talker's urban/rural origin	Pairwise comparisons by participant's home county
Enshi	Urban	Laifeng, Xuanen < Enshi
	Rural	Laifeng < Badong, Hefeng
Jianshi	Urban	Badong, Hefeng, Laifeng < Jianshi
	Rural	Enshi, Badong, Hefeng, Laifeng, Xuanen < Jianshi
Badong	Urban	N/A
	Rural	Laifeng < Badong, Enshi, Hefeng
Hefeng	Urban	Badong, Laifeng, Xuanen < Hefeng; Laifeng < Jianshi
	Rural	Enshi < Hefeng
Laifeng	Urban	Enshi, Jianshi, Hefeng, Xuanen < Laifeng
	Rural	N/A
Xuanen	Urban	N/A
	Rural	N/A

urban talkers and rural talkers. As shown in Table 5, Enshi participants performed better than Laifeng and Xuanen participants on the Enshi urban talker, but not on the Enshi rural talker. Similarly, Laifeng participants classified the Laifeng urban talker, not the Laifeng rural talker, more accurately than nonlocal participants. Badong participants only classified the local rural talker more accurately than Laifeng participants. Only Jianshi and Hefeng participants performed better on both local urban and rural talkers than nonlocal participants.

The Jianshi and Enshi urban talkers were classified most accurately among urban talkers. The status of the Enshi urban variety as the regional norm which was least accented may be responsible for the high success rate for the Enshi urban talker. In fact, there was a response bias for Enshi. Table 6 shows the proportion of correct responses to each of the six talker groups, collapsed across urban/rural talkers from each of six counties and 120 participants. The proportion was calculated by dividing the number of actual responses/ classifications by the total number of responses to the

urban and rural talkers from each county (i.e., 240). The Jianshi, Badong, Hefeng, and Laifeng talkers were classified as Enshi more frequently than the Enshi talker was classified as Jianshi, Badong, Hefeng, and Laifeng, suggesting a positive response bias for Enshi. In particular, participants chose Enshi as a response more often than other response alternatives for the Badong and Hefeng talkers, indicating a strong bias toward Enshi responses. For the Jianshi, Laifeng, and Xuanen talkers, Enshi was the second most frequent incorrect response.

4.3.2 Perceptual Similarity Between Dialect Varieties

In the dialect classification task, each talker was classified to different county origins since not every participant gave the correct answer (see Table 6). To explore how perceptually similar the talkers sounded to participants, and to determine the effect of participants' home county on perceptual dialect similarity, an Individual Differences Scaling (INDSCAL) analysis (Carroll & Chang, 1970) was used. A 6 × 6 county dissimilarity matrix was constructed

Table 6. *Proportion of responses from each of the six response alternatives to each of the six talker groups in the dialect classification task. The correct responses for each talker group (the diagonal) are in bold.*

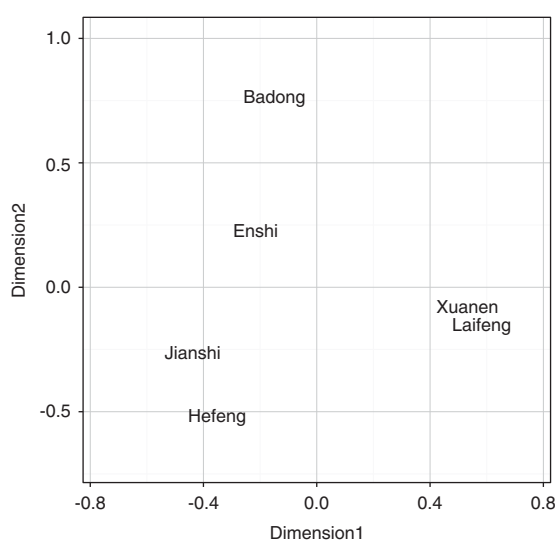|	Response					
Talker	Enshi	Jianshi	Badong	Hefeng	Laifeng	Xuanen
Enshi	**.58**	.14	.09	.05	.04	.10
Jianshi	.16	**.53**	.04	.23	.02	.02
Badong	.16	.10	**.61**	.03	.05	.05
Hefeng	.15	.10	.06	**.60**	.03	.06
Laifeng	.08	.01	.01	.02	**.58**	.30
Xuanen	.07	.04	.06	.03	.25	**.55**

Figure 2. The perceptual similarity space for the talkers in the dialect classification task.

for each participant group. When the talkers from one county were correctly classified, the value of the corresponding cell was set to 0. When the talkers from one county were incorrectly classified as talkers from other counties, the value of the corresponding cell was set to 1. One participant group corresponds to participants from one county, thus a total of six dissimilarity matrices were entered into the INDSCAL analysis. The perceptual similarity space calculated over all of the participants regardless of their home county is shown in Figure 2. In this figure, each label represents one talker group, collapsed across urban/rural talkers from the same county. Talkers that are perceived to be similar are plotted near each other, and those perceived to be different are plotted far away from each other (Hartley, 2005).

In the perceptual similarity space shown in Figure 2, the first perceptual dimension divides the Xuanen and

Laifeng talkers from talkers from other counties. The Xuanen and Laifeng talkers are located in the right-hand portion of the space, clearly distinguished from the other talkers who are in the left-hand region. The Xuanen and Laifeng talkers cluster together because they were most often mistaken for each other in the dialect classification task. The proportion of Xuanen responses for the Laifeng talkers and the proportion of Laifeng responses for the Xuanen talkers are much higher than the incorrect response proportion for other talkers (Table 6), suggesting that the Xuanen and Laifeng dialects are perceptually most similar among the dialects in Enshi prefecture. Importantly, the proportion of the Xuanen or Laifeng talkers being classified as Enshi, Jianshi, Badong, or Hefeng talkers is smaller than 0.08, indicating that Xuanen and Laifeng dialects as a whole are highly linguistically marked and can be easily distinguished from other dialects. Thus, the first perceptual dimension is related to perceived dialect markedness. In the hand-drawn map task, Laifeng and Xuanen stood out as the most frequently identified dialect region. In the dialect difference rating task, Laifeng and Xuanen participants perceived their varieties to be alike. The results of the dialect classification task further confirm that these two varieties are highly similar such that it is hard to distinguish one from the other. These results also suggest that the ideologies about the similarity between the Laifeng and Xuanen dialects uncovered by the hand-drawn maps and the dialect difference rating task are consistent with participants' responses to actual linguistic input.

The second perceptual dimension divides the Badong and Enshi talkers from other talkers. This dimension is related to the perceived dialect correctness/standardness, with the more correct and standard dialects on the positive side of Dimension 2 and the less correct and standard dialects on the negative side. The correctness/standardness of a dialect is evaluated relative to Standard Mandarin (Putonghua). In a dialect rating task, Enshi and Badong were rated as the most and second most correct dialects in Enshi prefecture (Yan, under review). Xuanen, Laifeng, and Hefeng were rated to be less correct than Enshi, Badong, and Jianshi. Although Jianshi was ideologically perceived to be more correct than Xuanen, Laifeng, and Hefeng, the Jianshi talkers are located on the negative side and next to the Hefeng talkers. The location of the Jianshi talkers in the second dimension can be explained by the classification of the Jianshi rural talker, who was correctly identified only 32.5% of the time and was misidentified as a Hefeng talker 45.8% of the time. The Jianshi rural talker was born and grew up in Guandian village which was near the border of Jianshi and Hefeng county (Map 3). The Guandian dialect is highly similar to the Hefeng dialect such that many Hefeng

participants classified this talker as being a Hefeng talker. Although the Jianshi urban talker was correctly classified 73.3% of the time and was classified as an Enshi talker 13.3% of the time, the high proportion of Hefeng responses for the Jianshi rural talker decreases the distance between the Jianshi and Hefeng talkers, and increases the distance between the Jianshi and Enshi talkers. The discrepancy between the perceived similarity between the Enshi and Jianshi variety as shown in the hand-drawn maps and the perceived similarity between the Jianshi and Hefeng talkers in the dialect classification task does not imply that participants' classification performance contradicts their ideologies about dialect differences. Since the hand-drawn maps and dialect difference ratings only elicited participants' ideologies about the differences between various imagined place-based dialects without specifying urban/rural varieties, it is likely that participants' ideologies about the similarity between Jianshi and Enshi was based on the urban variety, rather than the rural variety. In fact, participants' responses to the Jianshi urban talker support their prior perceptions of the similarity between Jianshi and Enshi varieties which are evident in the Enshi-Jianshi dialect region designated in the hand-drawn maps and the similar low difference ratings for Enshi and Jianshi in the dialect difference rating task. Thus, the urban varieties may play a larger role in constructing linguistic ideologies than rural varieties, at least for the participants from Enshi prefecture. The finding that participants' ideologies about dialect differences are generally consistent with their responses to real talkers demonstrates their knowledge about dialect variation; the fact that their classification of some rural talkers does not exactly match their prior conceptions of dialect differences suggests that their ideologies associated with imagined place-based dialects are likely based on urban varieties rather than rural varieties.

In addition to the interpretable two dimensions, the distance of a particular talker from the center of the plot can be viewed as an indication of the perceived difference between that talker and the Enshi variety, the regional "norm" which is regarded as most correct and standard in Enshi Prefecture (Yan, under review). The Enshi talkers are located around the zero point of both dimensions and thus near the center of the plot. The further away from the center, the more different a talker is perceived to be from the Enshi norm. The Hefeng, Laifeng, and Badong talkers are quite far from the center, suggesting that these talkers are perceptually distinct from the Enshi norm. The Jianshi and Xuanen talkers are closer to the center than the Hefeng, Laifeng, and Badong talkers, indicating that the former is perceptually more similar to the Enshi norm than the latter. In the hand-drawn map task, Enshi and Jianshi,

and Enshi and Xuanen are delimited as the second and third main dialect regions, respectively, indicating that the varieties spoken in these three counties are alike. In addition, Enshi, Jianshi, and Xuanen are rated as less different than Badong, Hefeng, and Laifeng in the dialect difference rating task. Thus, participants' classification of real talkers is consistent with their ideological perception of dialect difference as revealed in the hand-drawn maps and the dialect difference ratings.

The INDSCAL analysis also returned weights for the two dimensions for each input matrix, and the weights are given in Table 7. Dimension 1 was weighted more heavily than Dimension 2 for all six participant groups, suggesting that the perceived dialect markedness is more relevant in assessing talker similarity than the perceived dialect correctness/standardness. Jianshi, Enshi, and Hefeng participants showed more attention to the dialect markedness dimension than other participants, and Badong participants were least attentive to this dimension. Badong is located in the northeastern corner of Enshi prefecture, far away from Xuanen and Laifeng. Due to Badong's geographic location, Badong participants may be less sensitive to the difference between Xuanen/Laifeng dialect and other dialects than other participants. As for Dimension 2, Hefeng and Laifeng participants, who came from the counties that were perceived to be less correct and standard than the Enshi norm, were most attentive to the dialect correctness/standardness dimension. Jianshi participants showed the least attention to this dimension. Participant group differences are slightly larger in Dimension 2 than in Dimension 1, indicating that participants from different counties differed more in the attention to the dialect correctness/standardness dimension than the attention to the dialect markedness dimension.

The results of the INDSCAL analysis revealed perceptual similarity between dialect varieties, indicating that although participants varied in their ability to correctly identify the talkers' county origin, their classification performance was not random. Participants more often

Table 7. *Weights for each of the six participant groups for each of two dimensions in the INDSCAL analysis.*

Participant groups	Dimension 1 (markedness)	Dimension 2 (correctness)
Enshi	1076.34	770.97
Jianshi	1078.44	695.34
Badong	997.20	750.56
Hefeng	1072.66	819.14
Laifeng	1057.86	800.66
Xuanen	1020.25	772.01

mistook the talkers from varieties that were highly similar and much less frequently confused talkers from counties with distinct varieties. The INDSCAL analysis also revealed two perceptual dimensions: the perceived dialect markedness and correctness/standardness. Participants from different counties differed in perceiving dialect similarity. Jianshi, Enshi, and Hefeng participants showed more attention to the dialect markedness than Laifeng, Xuanen, and Badong participants; Hefeng and Laifeng participants paid more attention to dialect correctness/standardness than Xuanen, Enshi, and Jianshi participants. Although a discrepancy was observed between the ideological similarity between the Enshi and Jianshi variety and the perceived similarity between the Jianshi and Hefeng talkers in the dialect classification task, the overall classification pattern demonstrates that participants' responses to actual linguistic stimuli in the dialect classification task are largely consistent with their ideologies about dialect differences uncovered by the hand-drawn map task and the dialect difference rating task. The observed discrepancy was driven by the Jianshi rural talker, whose speech was highly similar to the Hefeng dialect. The classification of the Jianshi urban talker matched participants' ideologies about the similarity between the Enshi and Jianshi variety. These results suggest that participants' ideological representations of regional dialects are based more on urban varieties than rural varieties.

4.4 Interview

Participants were also asked about how they judged the county origin of the talkers in the dialect classification task. Participants' responses to this question can be divided into two categories: those based on linguistic features and those based on paralinguistic features. Linguistic features mainly included phonetic features, intonation, and lexical items. Participants identified a range of specific phonetic features associated with various dialect varieties. For example, several features frequently noted were glide-dropping in the Jianshi urban variety, the realization of /f/ as [x] in the Enshi urban variety and the Hefeng urban and rural varieties, the pronunciation of /ŋ/ as [n] in the Enshi rural variety and the Jianshi urban variety, and the realization of /tʂʰ/ as [tɕʰ] or [tsʰ] in the Laifeng varieties. Glide-dropping for the Jianshi urban talker was the phonetic feature most frequently commented on by participants from throughout the prefecture. Many participants mimicked the glide-dropping pronunciations such as [pʰɪn], [mɪn], and [tʰɪn] (the underlying forms are /pʰjɛn/, /mjɛn/, and /tʰjɛn/, respectively) and remarked that such pronunciations were not standard. Participants' responses revealed their sensitivity

to the acoustic-phonetic characteristics of the different dialects.

In addition to individual phonetic features, participants also relied on intonation to classify talkers. One participant, in describing how he classified the Jianshi rural talker, stated that "I can tell by his intonation; nobody from other places speaks with that intonation" [Jianshi male]. Another participant pointed out that "there is not much intonation fluctuation in Enshi dialect. It is simply flat" [Xuanen female]. One participant suggested that "Hefeng residents prolong their final intonation" [Badong male].

Dialect-specific lexical items were also commonly used to identify the county origin of the talkers. For example, one participant claimed that "some particular words, such as me de 么的 'what' and guai 乖 'nice, good-looking,' are sufficient to tell the talker came from Hefeng" [Enshi male], and another participant pointed out that "zen ger 怎个儿 'why' is commonly used in Badong dialect" [Hefeng male]. Another participant noted that "nowadays the younger generation in Hefeng prefers to add war 娃儿 'child' to people's names to show intimacy" [Badong male].

The paralinguistic features participants listed ranged from the attributes of a dialect variety to its comprehensibility. In discussing the Enshi variety, one participant remarked that "the Enshi dialect is affectedly sweet, particularly when spoken by young females" [Badong male]. Others suggested that "the Badong dialect is soft and gentle" [Laifeng female], and "the Hefeng dialect is coarse and the most accented dialect in Enshi Prefecture" [Xuanen female], while another pointed out that "Hefeng natives change the tone on the last word, which makes their speech sound more friendly" [Jianshi female]. One participant claimed that "Laifeng residents have a very peculiar way of pronouncing words such that it is not easy for me to understand" [Jianshi female]. The fact that participants pointed to both linguistic and paralinguistic features and that they provided specific and broad details about dialect variation revealed their knowledge about dialect differences in the prefecture and their sensitivity to different linguistic levels of variation.

5. Conclusions

Combining methods developed in the fields of perceptual dialectology and dialect identification and categorization, the current study aimed to address an area that was understudied: the relationship between non-linguists' ideologies associated with dialect differences and their classification of real talkers from these varieties based on authentic voice cues, and the effect of

participant's home county on the perception of dialect differences and classification of real talkers.

Participants' classification of real talkers in the dialect classification task was largely consistent with their ideologies about differences among dialects as uncovered in the hand-drawn maps and dialect difference ratings. The talkers who were most frequently mistaken for each other in the dialect classification task were those who came from counties that were perceived to have similar dialects in the hand-drawn map task and the dialect difference rating task. The positive response bias for Enshi in the dialect classification task corresponds to the finding that the Enshi dialect was perceived to be least different in the dialect difference rating task.

The participant's home county is an important factor in shaping participants' perceptions of regional dialects. In the hand-drawn map task, how participants grouped counties as dialect regions was affected by where they came from. In the dialect difference rating task, local participants consistently rated the local dialect as most similar, as expected. Finally, in the dialect classification task, local participants performed better on local talkers than nonlocal participants overall. The INDSCAL analysis showed that participants from different counties differed in their attention to two perceptual dimensions: the perceived dialect markedness and correctness/standardness.

The results of the hand-drawn maps, the dialect difference ratings and the dialect classification performance not only revealed how nonlinguists divide geographic regions on a linguistic basis, but also what they think about various regional varieties. For example, in the hand-drawn map task, the Enshi-Xuanen dialect region was identified much more frequently by Xuanen participants than Enshi participants, suggesting an unbalanced perception of how similar Enshi and Xuanen dialects were by Enshi and Xuanen participants. In the dialect difference rating task, the low difference ratings Enshi received from nonlocal participants can be largely attributed to the prestige associated with Enshi throughout the prefecture. Thus most nonlocal participants (particularly Hefeng participants) wanted to align themselves with the Enshi variety more than with any other variety. In addition, in the dialect classification task, the positive response bias for Enshi further confirms the status of the Enshi variety as the regional "norm." The current results uncovered participants' implicit desire to affiliate with the more prestigious variety, thus providing a deeper understanding of the linguistic landscape of the Enshi community from the perspective of the community members.

Two questions remain regarding the perceptual salience of linguistic features and the perception of urban/rural varieties. First, it is unclear which linguistic features are perceptually salient for participants in classifying unfamiliar talkers. Participants' responses in the interview indicated that some linguistic features are highly salient, and the recognition of these features alone can lead to high classification accuracy. For example, glide-dropping in the Jianshi urban talker's speech, intonation in the Jianshi rural talker's speech, and several particular lexical items used by the Hefeng and Badong talkers are salient properties for some participants. Additional research is needed to determine the complete set of linguistic features that are perceptually salient for listeners, and the relative salience of various linguistic features in dialect classification. In the context of Mandarin regional dialects, it is also necessary to explore the role of lexical tone and intonation.

Second, although the current study used one urban talker and one rural talker from each county to capture the difference between urban and rural dialects, this design does not fully represent the dialect variation in Enshi Prefecture. Dialect differences within the rural areas in one county are considerable; even in the urban areas, different varieties are used. Although the hand-drawn maps and dialect difference ratings were not designed to elicit participant's perceptions of urban and rural varieties, the results of the dialect classification task showed that talker's urban/rural origin interacted with participant's home county and talker's county origin to affect participant's classification accuracy. Enshi, Laifeng, and Badong participants performed better on either local urban or rural talkers than nonlocal participants, indicating that the "local advantage" may not be equally applied to talkers even from the same county. Additionally, participant's urban/rural origin was not collected in this study, thus the effect of participant's urban/rural origin on their perceptions and classifications of dialects is not clear. More research is needed to explore participants' perceptions of various varieties in urban areas and those in rural areas within one county, and how participants' urban/rural origin affects these perceptions.

In summary, this study provides a local understanding of folk perceptions of dialect varieties in an under-studied region, Enshi Prefecture in China. Through an examination of hand-drawn maps, dialect difference ratings, and dialect classification performance, I have shown that nonlinguists are able to identify perceptual dialect regions and explicitly judge the degree of dialect difference in an area much smaller than a single province. They are also able to accurately classify unfamiliar talkers by county origin based on short speech samples, and importantly, their classification performance was largely consistent with their prior conception of differences among the dialects. These results indicate that nonlinguists' beliefs about dialect variation have a linguistic basis; the dialect differences

are not only represented in the minds of nonlinguists, but also commented on by them in the interview.

This study adds to the discussion of perceptual dialectology and dialect categorization in China, where more similar studies are needed. Although substantial production work has been conducted in China to investigate dialect variation, very few perceptual dialectology or dialect categorization studies have been done to examine how nonlinguists perceive their own dialects and other dialects spoken in China. The present study shows that the perception of dialect variation can be examined within small geographical regions and can yield results that complement production studies.

Acknowledgements

Notes

[1] The retroflexes become palatals before /u/ in the Laifeng dialect. This /u/ does not correspond to the /u/ in Standard Mandarin. The Standard Mandarin /u/ is realized differently in the Laifeng dialect. The Standard Mandarin /u/ corresponds to [y] when it follows retroflexes in the Laifeng dialect.

[2] There were several Enshi, Badong, and Xuanen participants who assigned score 2 to their own variety, which is reflected in the mean scores in the corresponding cells for Enshi, Badong, and Xuanen in Table 2. In the dialect difference rating task, a rating of 1 indicated the dialect in question was the same or very similar to participants' own dialect, and 2 indicated "a little different." When participants evaluated the degree of difference of their own variety, in principle the rating should be 1. The ratings of 2 given by some participants may reflect their perception that their own dialect was a little different from the "imagined" dialect spoken in the county where they lived.

[3] It is possible that the classification accuracy was also affected by participant's urban/rural origin. However, this information was not collected from every participant; thus, the effect of listeners' urban/rural origin on their classification performance cannot be determined.

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