A recent observation of multi-cultural urban German speech as spoken in Berlin is that the diphthong /oy/ is realized more centralized and fronted compared to the standard variety of Berlin German. For this study, spontaneous speech data was collected through standardized interviews from 11 female speakers from different neighborhoods in Berlin. Their speech was orthographically transcribed and added to a database that allows for searching for all occurrences of the diphthong in its naturally occurring context in unscripted speech. So far, 654 occurrences of these vowels have been analyzed. Measurements of the first and second formants were taken at five equally distanced points throughout the diphthong. Linear mixed effects models were run with different points across the F2-formant as the dependent variable in the two varieties of German. The second formant serves as an estimate of the degree of fronting in the two varieties of German. Results indicate that the nucleus of the /oy/ is realized more centralized in Hood German compared to a standard variety of Berlin German when the speaker associates with the community that is highly associated with this vernacular. Speakers use the centralization of /oy/ as a linguistic marker of their local urban identity.
INTRODUCTION

Researchers have noticed and studied the emergence of linguistic variation and the grammatical innovations introduced by young speakers from multi-ethnic urban neighborhoods in many European cities (Multicultural London English: Torgersen et al. 2006; Kerswill et al. 2008; Straattaal (Netherlands): Nortier 2001; Appel 1999; Rinkeby-Svenska (Sweden): Kotsinas 1998; Bodén 2004; kobenhavnsk multietnolekt (Denmark), Quist 2005; Multiethnolektales Schweizerdeutsch (Schweiz): Tissot et al. 2011). Hood German is one of such urban varieties of German which is characterized by several grammatical features (Wiese, 2012; Auer, 2003; Auer & Dirim, 2004) such as the ‘overuse’ of the particle ‘so’ like marking unspecificity (Jannedy, 2010), the use of bare NPs (Hast Du problem? do you have (a) problem?), lack of prepositions (Ich gehe Schule. I go (to) school), the lack of copula verbs (München weit weg. Munich (is) far away) or the lack of congruency (mein Schwester hat … my-NOM sister has…). In addition, we are just now starting to quantitatively investigate alternations in the sound system such as the alternation of the palatal fricative to an unrounded version of the postalveolar fricative /ç/ → [ʃ] (‘ich’ → .isch’) in speech productions (Jannedy & Weirich, submitted; Jannedy & Weirich, 2011) and also how this alternation is perceived (Jannedy & Weirich, submitted). We have also observed consonant cluster reductions such as /tsum/ → [zum] in ‘zum Haus’ meaning ‘to [the house]’ whereby the affricate is being realized as a fricative. Moreover, there is a process of vowel epenthesis as to avoid consonant clusters such as in Kanzlei -> [kanzɛlai] ‘lawyer’s office’.

Thus, multi-ethnic urban German as spoken by adolescents in Berlin differs morpho-syntactically and phonetically in several significant ways from more standard varieties of Berlin German. Moreover, this vernacular is not only being spoken by speakers with a multi-ethnic background, but also by mono-ethnic Germans. Amongst many adolescents in Berlin, hood German is considered to be innovative and cool (Androutsopulus, 2006) and belongs to the linguistic repertoire of those who speak it, who pretend to be able to speak it and those that mock it alike.

Certain districts of Berlin such as Wedding, Kreuzberg and Neukölln are highly associated with this vernacular. It is however by no means clear that only in these districts, speakers display features of hood German in their speech. The other hypothesis is that this vernacular is less locally distributed but speaker based (meaning, independently of spatial locations) and that this vernacular is being used by speakers if they associate strongly with youth culture and multi-ethnicity.

It has been casually observed that speakers of hood German have a more centralized and quite distinct pronunciation of the /oy/ diphthong in words like teuer ‘expensive’, Häuser ‘houses’ or Leute ‘people’ compared to Berliners who do not speak the hood German vernacular. This quality difference is currently under investigation. Rather, it is distributed through the speakers that use this particular vernacular, independent of location or neighborhood. In addition, we are trying to show that the pronunciation of /ay/ in words like Eis ‘ice’, klein ‘small’ or verheiratet ‘married’ does not differ from the main Berlin vernacular. The implication is that the variation in /oy/ carries sociolinguistic weight and shows a speaker’s linguistic identity across locations.

METHODS

Thus far, we have extracted 654 diphthongs (/ay/: 354 and /oy/: 300) from spontaneously spoken words collected from interviews with speakers from the Berlin area. For this analysis, we have analyzed data from females only because gender differences have consequences on the vocal tract configuration and size, which in turn have consequences on the articulatory dynamics which then influence the acoustics and dynamics of vowels (Simpson, 2002). The data used in this study were obtained from speakers from Kreuzberg, Wedding and Neukölln (districts of Berlin, highly associated with hood German) and from Marzahn, Prenzlauer Berg and Steglitz. These areas are generally less associated with this youth variety of German and people there speak more in a standard variety of Berlin German.

Subjects

Table I summarizes the number of tokens obtained for each of the eleven speakers for the six neighborhoods, separated by their respective other language. All speakers are female and consider themselves to be native speakers of German. However, several of them are bilingual and have Arabic or Turkish as another language (AR = Arabic; TR = Turkish; DE = German). Note though that also monolingual monoethnic German speakers use the hood
German vernacular such as one of the speakers from Kreuzberg. Speakers were between 14 and 53 in age. In order to calculate a potential age effect, more subjects in each age group are needed.

<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>Other language</th>
<th>Number of Speakers</th>
<th>Vernacular</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kreuzberg</td>
<td>AR, DE, TR</td>
<td>3</td>
<td>Hood German</td>
<td>114</td>
</tr>
<tr>
<td>Wedding</td>
<td>TR</td>
<td>3</td>
<td>Hood German</td>
<td>155</td>
</tr>
<tr>
<td>Neukölln</td>
<td>TR</td>
<td>1</td>
<td>Hood German</td>
<td>73</td>
</tr>
<tr>
<td>Marzahn</td>
<td>DE</td>
<td>1</td>
<td>Berlin German</td>
<td>39</td>
</tr>
<tr>
<td>Prenzlauer Berg</td>
<td>DE</td>
<td>2</td>
<td>Berlin German</td>
<td>205</td>
</tr>
<tr>
<td>Steglitz</td>
<td>AR</td>
<td>1</td>
<td>Hood German</td>
<td>68</td>
</tr>
</tbody>
</table>

Since our data was obtained from linguistic interviews, we were able to analyze the linguistic co-occurrence of features that are specific to Berlin German as opposed to hood German. Speakers of hood German display a co-occurrence of identified linguistic features such as the profuse palatalization of /ç/ to /ʃ/ or the use of bare nouns and the omission of prepositions, which make it possible to identify their linguistic heritage. Thus, we classified the speakers as either speaking some standard Berlin variety of German or as speaking hood German. Note that the speaker from Steglitz was added to the hood German group since she revealed many hood German features in her speech. She visited a school in the district Tempelhof-Schöneberg which borders on the district of Neukölln. After school she started to work in Neukölln. Thus, even though she is not living in one of the typical hood German districts she has a lot of contact to speakers from Neukölln.

**Measurements**

To investigate whether part of hood German’s repertoire is the production of different vowel qualities, we measured the first and second formant values from two types of diphthongs: /oy/ and /ay/. Judging from casual observation, /oy/ particularly is realized differently in hood German compared to more standard Berlin German. We automatically extracted five measurement points for each diphthong via a praat script. First, the onset and the offset of each diphthong was marked off in Praat (Boersma & Weenink, 2012). The duration of each interval was time normalized by taking five measurement points throughout the vowel: The first and the fifth measurement points were at the onset of the nucleus and the offset of the final glide. A third value was logged in the middle of the vowel. Two more points were logged in the middle between the initial measurement point and the middle as well as the middle measurement point and the final offset of the glide. Thus, measurements were taken at 0% (start), 25% (early), 50% (mid), 75% (late) and 100% (end) throughout the vowels.

**Statistics**

Separate linear mixed effects models were run in R (R Development Core Team 2008) with the five formant values as the dependent variable. Although we analyzed the F1 values as an indicator of vowel height, there were no significant differences found between Berlin German and the vernacular Hood German for the two diphthongs. Therefore, the following analyses concentrate on F2 only.

The second formant is an indicator of the front-back dimension, with higher values indicating a larger degree of fronting. The start, early and mid point measurements of the F2-formant value are assumed to be in the vocalic part of the diphthong whereas the late and the end points are assumed to be reflecting the glide part of the diphthong. The respective mother tongue (Arabic, German or Turkish) of the speaker, the diphthong type (/ay/ or /øy/) and the variety the speakers were coming from (Berlin variety or hood German) were included as factors. We calculated the interaction of diphthong type with the speaker’s vernacular (Berlin German vs. Hood German) and the factors district and speaker were added as random factors. For each calculation, we generated the significance level and report here the pMCMC values as an estimate of a significant effect.
RESULTS

Our results indicate that the respective mother tongue of the speaker (Arabic, Turkish or German) has no effect on the realization of the F2 at any of the five measuring points. Thus, there is no interference of L1 on L2 or L2 on L1 that would explain the patterning of the results. The most interesting result is, that the vernacular, the speech variety that is spoken (hood German vs. Berlin German), has an influence on the realization of the /øy/ vowel but not on the /ay/ diphthong.

The results for the different time points are shown in Figures 1 and 2 and summarized in Table 2. For each panel, we have plotted the logged value of the second formant for /øy/ and /ay/ at a particular time point (Fig.1: start, early; Fig2: mid, late) by the language vernacular (Berlin German vs. Hood German). We omitted showing the values for the formant values at the end of the diphthong as there was so significant effect of vernacular.

![FIGURE 1. Mean F2 values at the start (left) and 25% (early) points (right panel) of the diphthongs /øy/ and /ay/, separated by the two vernaculars Berlin German and Hood German.](image)

The left panel in Figure 1 shows the values of F2 at the start of /øy/ and /ay/. The higher the mean F2 value indicated by the dot in each bar, the more fronted is the vowel constriction. Overall, the /øy/ in the hood German vernacular has a more fronted quality than the /øy/ in the general Berlin dialect. A comparison with /øy/ as the reference level reveals a significant difference between the two vernaculars at the start of the /øy/ (p<.05), while for /ay/ no significant effect was found. The same relationship holds for the early F2-formant value, for /øy/, there is no effect by vernacular spoken and for /ay/, there is a significant effect (p<.05). Thus, the nucleus part of the /øy/ diphthong is realized differently in these two varieties of Berlin urban German while the /ay/ diphthong is rather stable across these two varieties.

![FIGURE 2. Mean F2 values at the mid (left) and late (right) points of the diphthongs /øy/ and /ay/, separated by the two vernaculars Berlin German and Hood German.](image)
The first panel in Fig. 2 summarizes the results for the F2 values at the middle of the diphthongs. Again, there is no difference between the F2 for the /ay/ but there is a difference in the F2 for the /oy/ (p<.05) depending on the vernacular spoken. Even though the exact dynamics of the diphthongs are not known at this point, it is reasonable to assume that the mid point marks the transition between the nucleus and the offglide.

For the late F2 value (right panel) which was taken 75% into the vowel and which is most likely already within the glide part of the diphthong, the difference for the /oy/ vowel fails to reach significance (p=.07). For the end point the F2 values of the two vernaculars are even more similar. Thus, during the glide part of the diphthong, there is no difference between the realizations of /ay/ and /oy/ in dependence to the vernacular spoken.

Table 2 states the relevant summary statistics for this pilot study based on the pMCMC (Markov-Chain Monte-Carlo sampling) values. The column Ref. indicates the reference level of the factor ‘Diphthong Type’, it has two levels: /oy/ and /ay/. The numbers in the columns are the significance values.

**DISCUSSION**

Our present results indicate that speakers of hood German have a more centralized and higher realization in terms of F2 for /oy/ compared to the standard Berlin vernacular. The difference is marked specifically in the nucleus portion of the diphthong and levels out towards the glide part. The internal dynamics of the diphthong has not yet been investigated, however, our pilot data suggests that the nucleus part of the diphthong serves to mark a speaker’s identity, independently of her mother tongue. Even monolingual mono-ethnic German speakers show this feature. In addition, speakers of hood German do not have to come from one of the typical multi-ethnic neighborhoods like our speaker form Steglitz showed. We presume that through contact with this vernacular in school, work and social networks (Milroy & Milroy, 1992), this variant spreads through the community and is adopted by speakers who associate with this vernacular. It is thought of as being cool, creative, urban, non-establishment, multi-ethnic and street slang. The respective social networks of the speakers and contact to other speakers of this vernacular seems to be a better predictor for certain linguistic alternations to be observed than having been born and raised in Kreuzberg, Wedding or Neukölln. That is, by now the hood vernacular seems to have spread past the bounds of the original creators’ neighborhoods and has become more of a youth style rather than a local variant spoken in distinct neighborhoods of Berlin.

Labov’s 1962 study (1972a; 1972b) conducted on Martha’s Vineyard illustrated that the centralization of the diphthongs /ay/ as in ‘right’ and ‘light’ and /au/ as in ‘cow’ and ‘loud’ was regional in character and a feature of the speech of the people of Martha’s Vineyard. Labov found that this linguistic marker spread from the community of fisher men to the general population of the island was used by the islanders as a social marker to set themselves off from the economically more powerful tourists and visitors coming to the island for summer vacations. Labov also found an age effect, with older islanders centralizing more than younger people. All in all, centralization of /ay/ and /au/ in the Martha’s Vineyard speech community was a linguistic marker of social and local identity. Blake & Josey (2003) found this effect not longer to exist in this speech community, probably due to socio-economic restructuring of the speech community.

Here in the Berlin context, we did not find any difference in the realization for the /ay/ between hood German and standard Berlin German. Yet, the centralization of /oy/ clearly sets off one speech community from the other. In a different study (Jannedy & Weirich, submitted), we were able to show that the palatalization of /ç/ to [ʃ] was highly associated with the Hood German speakers. Thus by now, we have identified and analyzed two co-occurring phonetic-phonological features of Hood German which speakers use to place themselves in a linguistic landscape of an urban area such as Berlin.
The data presented in this short paper is a pilot study and will be extended to more females and also male speakers from Berlin. In an extended study, we hope to include AGE as a factor, as well and code all words for their preceding and following segmental and prosodic context.

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REFERENCES


