Foreign accent in heritage speakers of Turkish in Germany*

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The present study is concerned with global foreign accent (FA) in heritage speakers (HS). Specifically, we investigate whether (i) HS acquire a native accent in both languages and (ii) whether age of onset (AoO) is relevant. FA was examined in 21 adult HS of Turkish in Germany (AoO in German 0–9 years). FA was assessed for both languages with 15 monolingual raters judging speech samples of 10 seconds. Speakers were divided into two groups: Simultaneous bilinguals (2L1ers) with AoO in German before age 3 vs. early second language learners (eL2ers) with AoO in German after age 4. Our analysis revealed that most speakers had a native accent in one language and a foreign accent in the other, independently of AoO.

Keywords: global foreign accent (FA); heritage speakers (HS); Turkish; Germany

1. Introduction

“Whenever I’m in Turkey people tell me that I sound German, whereas in Germany they sometimes tell me that I sound Turkish.”

(Ayşë, 22 years old, grown up in Germany with Turkish as her home/heritage language)

Is this just an anecdote or could perceiving themselves to sound foreign in both their native languages be a common trait of Turkish-German bilinguals in Germany? A foreign accent stems from different linguistic features that are transferred from one language (usually the first language; henceforth L1) to another

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These features are manifold and can concern prosody, intonation, vowel quality and more (Flege, Munro & MacKay 1995; Flege, Yeni-Komshian & Liu 1999; Darcy & Krüger 2012; Nimz 2011; Queen 2012). Whether or not a speaker has a foreign accent (FA) in an L2 may depend on several factors such as the age of onset (AoO), the amount of continued L1 use, the amount of L2 use, or the identification with the society speaking the L2.

As far as age is concerned, it is generally assumed that a FA tends to be minor or even absent if a speaker starts to learn the L2 early in life (see e.g. Thompson 1991; Flege, Munro & MacKay 1995; Flege, Yeni-Komshian & Liu 1999; Abrahamsson & Hyltenstam 2009; as well as the overviews in Moyer 1999: 82–84; Piske, MacKay & Flege 2001; Jesney 2004). Moreover, there seems to be a consensus that an accent in an L2 cannot be overcome easily if this language has been acquired after puberty (Lenneberg 1967: 176). However, the exact age that is “critical” for the phonetic and phonological properties of a language is controversial. Long (1990: 280) suggests that the acquisition of phonology is constrained as early as age 6. However, some studies show that perceived nativeness is different for children who acquired English from birth and children who started learning English at the age of 3 (e.g. Flege, Munro & MacKay 1995; Flege, Yeni-Komshian & Liu 1999).

In this paper, we investigate the perceived FA of 21 German-Turkish speakers in Germany who acquired Turkish from birth and German as an L2 between the ages of 0 and 9 years. We investigate both of their languages to see whether it is possible to be perceived as a native-like speaker in both languages, or if sounding native in one language implies sounding foreign in the other one. Moreover, we explore the features that the monolingual raters who judged the bilinguals’ accent perceive to be non-native.

Section 2 introduces the German-Turkish population in Germany. Section 3 summarizes language acquisition studies on German-Turkish bilinguals as well as previous research on foreign accent in simultaneous and successive bilinguals. Section 4 introduces our participants and the experimental design; Section 5 presents our study. We conclude in Section 6.

2. The German-Turkish population in Germany

Over the past 50 years, since the recruitment of the first Turkish guest workers in the 1960s, Turkish people have become an integral part of German society. Many guest workers and their families did not return to Turkey when their first contracts ended but continued to stay in Germany. Today, people of Turkish descent represent the largest minority in Germany and comprise approximately 18.5% of the German population; Turkish descent in this context refers to people who
were born in Germany but whose father or mother or both are Turkish. Younger people may be registered in Germany as people with an immigration background without having immigrated themselves (either their parents or their grandparents immigrated to Germany (BAMF 2011:159)). Turkish is the most frequent native language besides German spoken in primary schools.

These days, children born into Turkish families represent the second and even third generation. They mostly grow up speaking both Turkish and German. Generally, Turkish is the language spoken at home, whereas German is learned subsequently during early childhood, often starting in kindergarten. Although this has never been systematically investigated, it is known from anecdotal sources that some Turkish-speaking parents have shifted to speaking German at home, hoping their children will acquire German more easily if they are exposed to it as early and often as possible. Today, bilingualism is more valued and its benefits are better understood; the number of bilingual kindergartens and schools is growing. Some Turkish families have their children attend Turkish kindergartens or German-Turkish bilingual schools. Mixed marriages are still comparatively rare, which means that Turkish receives strong support as the home language during the early years in language acquisition.¹

One issue that needs to be addressed in linguistic studies of German-Turkish bilinguals is whether or not different ages of onset in German affect the acquisition of the two languages. As mentioned before, most of these children in Germany are successive learners of German, and they typically become German-dominant at later ages (Rothweiler 2007:121). They grow up in monolingual Turkish families, but start kindergarten at different ages, which means they differ with regard to their first intensive contact with German.²

In recent research on sensitive periods, the age of around 4 years has been identified as a sensitive period, i.e. a cut-off point between L1 and L2 acquisition (Meisel 2007:106; Meisel 2009, 2011; Rothweiler 2007), and many authors draw a line between bilingual acquisition (2L1) and early second language acquisition (eL2) accordingly. In line with these assumptions, some studies have indicated that bilingual development resembles adult L2 acquisition if learning the second

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1. This information is based on a detailed background questionnaire all our 21 participants filled in.

2. German kindergarten can be attended from the age of 3 and usually lasts until the age of 6. However, children can start kindergarten at later ages such as 4 or 5, thereby reducing the total amount of years spent in kindergarten, or they can skip it altogether. If the latter is the case for Turkish-speaking children, their first contact with German may happen only with the beginning of elementary/primary school at the ages of 6 or 7.
language starts between 4–8 years (Meisel 2007; Rothweiler 2007:122; Schwartz 2004; Song & Schwartz 2009). One of the central issues in research on Turkish as a minority language and German as a majority language is whether these speakers pattern with monolinguals in the acquisition of their two languages. For the acquisition of German morpho-syntax, this has largely been confirmed (see Schönenerberger, Sterner & Ruberg 2011 for case marking; Rothweiler 2006 for V2 and finiteness marking), although the acquisition of some phenomena, e.g. articles, seems to be delayed (Schönenerberger 2011). In their Turkish, Turkish-speaking bilingual children have been shown to differ from monolinguals with respect to various grammatical properties (see e.g. Hess-Gabriel 1979; Backus & Boeschoten 1998; Daller & Grotjahn 1999; Herkenrath & Karakoç 2002; Daller, van Hout & Treffers-Daller 2003; Chilla & Babur 2010).

Relative proficiency seems to depend on how much time bilinguals spend in each individual country. Daller and Grotjahn (1999) compared German-Turkish bilinguals who grew up in Germany and stayed there with German-Turkish bilinguals who were born in Germany but moved to Turkey around puberty (called ‘returnees’). Cloze test results indicated that around age 20, only the returnees’ were indistinguishable in proficiency from monolingual Turkish speakers. The German-Turkish bilinguals who had stayed in Germany scored higher on the German C-test than on the Turkish one, and performed significantly worse on the Turkish one. With respect to syntax, bilingual speakers who have had least contact with Turkish were shown to rely on a more limited set of syntactic constructions when employing embedded sentences in Turkish (Treffers-Daller, Özsoy & van Hout 2007). The lexicon of these speakers, too, was found to be more restricted than that of those bilinguals who had returned to Turkey and monolingual Turkish speakers (Daller et al. 2003).

3. Foreign accent in simultaneous and successive bilinguals

Most studies on FA in bilinguals are concerned with L2 learners who start to acquire their second language later in life. There is no univocal evidence for a particular age to be “critical” for attaining a native accent. With respect to global foreign accent, Kupisch et al. (2014), compared German-French and German-Italian simultaneous bilinguals to L2 learners and monolingual speakers of each of the languages, showing that the bilingual speakers tended to have a native accent in their majority language, but a FA in their minority language. This study shows that AoO is not the only crucial variable when it comes to native-like attainment in pronunciation.

Several studies investigated segmental features (mostly vowels) in the speech production and perception of German-Turkish bilinguals and L1 Turkish learners
Foreign accent in heritage speakers of Turkish

Darcy and Krüger (2012) studied the perception and production of 6 German vowels [ı, iː, ɛ, eː and a, aː] by 14 successive bilinguals (mean age: 11;2), who started learning German in kindergarten between the ages of 2 and 4. Vowel production was elicited by means of an uncued word naming task and measured by inspection of wide-band spectrograms. The bilinguals differed from monolinguals in their production of the vowels [a, aː] and [eː], producing them more anterior and higher, respectively. Differences for all other vowels were minor. Nimz (2011) investigated vowel production of adult Turkish speakers who were learning German in high school. The German vowel pairs [ı, iː], [a, aː] and [u, uː] were elicited by means of a picture naming task, and their quantity (duration in ms) and quality (F1 and F2 values) was measured with PRAAT. Results showed that vowel quantity did not present the most problematic feature for the L2ers (for only two out of 18 words Turkish speakers produced significantly shorter vowels than monolinguals). However, vowel quality seems to have been transferred from their L1 into their L2. Specifically, the L2ers’ vowels (except for /iː/) resembled Turkish vowels in either the horizontal (F2) or the vertical (F1) dimension. While there is a lot of evidence for transfer from L1 to L2 in vowel production (for German-Turkish: Nimz 2011; Darcy & Krüger 2012; for German-Dutch: Wenzel 2000; for Spanish-English: Fabiano-Smith & Goldstein 2010; for Russian-English: Gildersleeve-Neumann & Wright 2010), it remains an open question whether early and ongoing exposure to a language will prevent such influence in adulthood.

While the aforementioned studies were concerned with the production and perception of segments, other studies concentrated on sociolinguistic dimensions of foreign accents. By means of a web-based “betting game” Rödin and Özcan (2011) investigated whether people with non-Swedish looks and a FA in Swedish in Sweden were thought to score better or worse on a knowledge test than more Swedish-looking and Swedish-sounding people. Their results indicated that both foreign looks and a FA contributed to negative beliefs about a person’s performance. Hosoda and Stone-Romero (2008) showed that speakers with a foreign (e.g. Japanese) accent in the U.S. were disadvantaged when applying for a job that required a high amount of communicational demands, even though these speakers were perfectly intelligible. Derwing and Munro (2009), too, showed that comprehensibility and accentedness played a role for the preference of one accent over another. For example, their raters were presented with one sample from a speaker of English with a Slavic accent and one sample from a speaker with a Mandarin accent. Although the Mandarin samples had been previously rated to be more comprehensible than the Slavic ones, the Mandarin samples were not always preferred by the raters. Derwing and Munro (2009) concluded that certain FAs may be dispreferred, irrespectively of how comprehensible they are.

To our knowledge there are no studies on global FA in German-Turkish bilinguals. Our study is concerned with adult successive bilinguals who acquired
Turkish from birth and started learning German between the ages of 0 to 9 years. Specifically, we address the following questions:

a. Is it possible for early successive bilinguals to have no FA in one or even both of their languages?
b. Does no FA in one language imply a FA in the other one?
c. What is the relative role of age of onset of German as the language of the environment?
d. Which features contribute to the perception of a native or foreign accent and can these be assigned to transfer from Turkish to German, or vice versa?

3.1 The phonological systems of Turkish and German

In the following, we compare the essential properties of the Turkish and German phonetic/phonological systems, highlighting differences between the two languages, which may lead to cross-linguistic influence. The present description of the Turkish and German sound system will mainly be based on the information given in the Chapters on Turkish (Zimmer & Orgun 1999) and German (Kohler 1999) in the Handbook of the International Phonetic Association but we are aware that descriptions (including the number of sounds) vary across sources.

3.1.1 Vowels
As shown in Figure 1, Turkish has a symmetric eight vowel system. The phonetic system of German includes 16 vowels, as illustrated in Figure 2.

Generally, Turkish vowels are more centralized than German vowels. Tense-ness is a distinctive feature in German, but not in Turkish (Zimmer & Orgun 1999; Kohler 1999). Another difference is that modern Turkish makes no distinction between short and long vowels, except with words of Arabic or Persian origin (Demir & Yilmaz 2011). In German vowel length is a distinctive feature, as for example in Stadt [ʃtat] ‘city’ versus Staat [ʃtaːt] ‘nation’.

![Figure 1. The Turkish vowel system (Zimmer & Orgun 1999: 155)](image)
Figure 2. The German vowel system (Kohler 1999:86)

3.1.2 Consonants
Following the *Handbook of the International Phonetic Association*, both Turkish and German have 24 consonants, as shown in Tables 1 and 2. There is a marginally different setup for the German consonants in Hall (2000:62) who also listed the affricates [ʤ], [ʧ], [ʦ] and [pf] but not the trill [ɾ] and the fricative [ʁ].

Table 1. Turkish consonants (Zimmer & Orgun 1999:154)

<table>
<thead>
<tr>
<th></th>
<th>Bilabial</th>
<th>Labiodental</th>
<th>Dental</th>
<th>Alveolar</th>
<th>Post-Alveolar</th>
<th>Palatal</th>
<th>Velar</th>
<th>Glottal</th>
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<tbody>
<tr>
<td>Plosive</td>
<td>p b</td>
<td>t d</td>
<td>f  dʒ</td>
<td>c  j</td>
<td>k  g</td>
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<td>Nasal</td>
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<tr>
<td>Fricative</td>
<td>f v s z</td>
<td>f  z</td>
<td>j  ʒ</td>
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<td>Lateral Approximant</td>
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Table 2. German consonants (Kohler 1999:86)

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<th>Bilabial</th>
<th>Labiodental</th>
<th>Dental</th>
<th>Alveolar</th>
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<th>Palatal</th>
<th>Velar</th>
<th>Uvular</th>
<th>Glottal</th>
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<tbody>
<tr>
<td>Plosive</td>
<td>p b</td>
<td>t d</td>
<td>k  g</td>
<td>?</td>
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<td>Nasal</td>
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</tr>
<tr>
<td>Fricative</td>
<td>f v s z</td>
<td>f  z</td>
<td>j  ʒ</td>
<td>ç  x  h</td>
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<td>Thrill</td>
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<td>Lateral Approximant</td>
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As illustrated in Tables 1 and 2, the consonants are nearly the same in Turkish and German, and both languages distinguish voiced and voiceless consonants. One difference is that German, unlike modern Turkish, has a glottal stop \( \text{ʔ} \), which precedes syllable-initial vowels. The glottal stop is not considered to be a phoneme in German (Hall 2000). Another important difference as far as segmental features are concerned, is the realization of /r/. Whereas in Turkish, it is an alveolar trill, in German it is often realized as an alveolar tap, but realizations may display regional variation. This difference in manner of articulation may thus lead to deviant pronunciations of the respective /r/ sound in bilinguals.

3.1.3 Prosody
Prosody comprises phonological processes applying to units of more than one segment, or phoneme, such as intonation, stress, rhythm, speed/speech rate. Here, German and Turkish differ in various respects. Whereas Turkish is a syllable-timed language, meaning that syllable duration is relatively constant, German is a stress-timed language, which shows variation in syllable duration that lead to more irregular rhythmic patterns. Moreover, word accent in Turkish is always on the last syllable (except for some grammatical suffixes) (Kornfilt 1997), whereas word accent in German is variable and can be distinctive (‘umfahren’ ‘run over’ vs. umfahren ‘make a detour’). Also, unlike Turkish intonation (Erguvanlı 1984), German intonation is used to distinguish declarative from interrogative sentences. Declarative sentences show a falling intonation, whereas interrogative sentences usually have a rising intonation.

3.1.4 Phonological processes
One of the most frequent phonological processes is assimilation. Assimilation is present in both Turkish and German, but there are assimilation rules that only exist in one of the two languages. Both languages exhibit terminal devoicing which means that voiced consonants become voiceless in word-final position. Unlike in German, pronunciation is reflected in the spelling in Turkish. Examples are given in (1):

(1) a. banda [‘banda] ‘band.DAT’ vs. bant [bant] ‘band-NOM’ (Turkish)
   b. Bänder [‘bendə] ‘band.PL’ vs. Band [bant] ‘band.sg’ (German)

Unlike final devoicing, vowel harmony is a process that only applies in Turkish, meaning that within a word only certain vowels can co-occur. Vowel harmony in Turkish is an example of progressive assimilation, as the vowels in suffixes depend

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3. The glottal stop used to be present in Turkish standard pronunciation especially in borrowings from Arabic, but is no longer present in modern Turkish (Kornfilt 1997).
on the vowels in the stem. Examples for vowel harmony are given in Table 3 (Clements & Sezer 1982: 216). The vowels /i/ and /e/ are both front vowels and can thus co-occur; /u/, /a/ and /ı/ are all back vowels, which may co-occur. Note that this rule does not apply to words of Arabic or Persian origin (Lewis 2001).

Table 3. Vowel harmony in Turkish

<table>
<thead>
<tr>
<th>Nom-sg</th>
<th>Gen-sg</th>
<th>Nom-pl</th>
<th>Gen-pl</th>
</tr>
</thead>
<tbody>
<tr>
<td>ip 'rope'</td>
<td>ip</td>
<td>ip-in</td>
<td>ip-ler</td>
</tr>
<tr>
<td>pul 'stamp'</td>
<td>pul</td>
<td>pul-un</td>
<td>pul-lar</td>
</tr>
</tbody>
</table>

Finally, Turkish vowels are phonetically short but they can undergo a process of compensatory lengthening, indicated orthographically by 〈y〉 and often referred to as “y-deletion” (Sezer 1986). For instance, in the presence of the palatal glide [j], front vowels undergo a process of compensatory lengthening, as e.g. in teyze ‘aunt’ [te:jze]. Another consonantal segment that has some phonological effects on vowel length is the ‘soft g’, orthographically indicated by 〈ğ〉. In syllable-final position, it triggers the lengthening of the preceding vowel, e.g. çağıış ‘contemporary’ [tʃaːdadaş] (see Kornfilt 1997: 487–488).

In summary, the major differences between Turkish and German concern vowels (tenseness and length) and rhythm (syllable-timed vs. stress-timed). Furthermore, vowel harmony and compensatory lengthening are typical features of Turkish, which are altogether absent in German.

4. Foreign accent rating in German-Turkish bilinguals

4.1 Participants (speakers)

The participants were 21 adult German-Turkish bilingual speakers resident in Hamburg (Northern Germany) at the time of testing. All hold German high school diplomas, and their average age was 27.9 years (range: 20–42 years). Most were born in Northern Germany, one in Nuremberg and three in Turkey. All spoke standard varieties of German and Turkish, but two were proficient speakers of a dialect in addition to the standard variety.

The predominant language in the bilingual speakers’ homes when they were growing up was Turkish. Their parents are all native speakers of Turkish born in Turkey, and Turkish was also the language that most parents used with one another (with two exceptions). Interaction between the participants and their parents was mostly in Turkish, only five participants spoke both Turkish and German with
their parents. When talking to their siblings, most used German and switched to Turkish only occasionally.

For eleven participants, the first intensive contact with German occurred between birth and 3 years, for six participants between 4–5 years, and for four participants between 6–9 years. For the purpose of our analysis we divided the bilingual participants into two groups: 2L1 (German-Turkish) speakers whose exposure to German started before the age of 3 and early L2ers (eL2) (German-Turkish) speakers whose exposure to German started after the age of 4 (see Table 4).

Table 4. Overview of participants

<table>
<thead>
<tr>
<th></th>
<th>2L1 group (n = 11)</th>
<th>eL2 (n = 10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AoO in Turkish</td>
<td>birth</td>
<td>birth</td>
</tr>
<tr>
<td>AoO in German</td>
<td>0:0–3:0</td>
<td>4:0–9:0</td>
</tr>
<tr>
<td>Language of the parents</td>
<td>Turkish</td>
<td>Turkish</td>
</tr>
</tbody>
</table>

With respect to language shift at home, eight bilinguals reported an increased use of German after the age of 6 (when they started attending school), one person reported using more Turkish over the years, the remainder reported no changes. At the time of testing, most participants (n = 11) reported using more German than Turkish, seven reported using both languages equally frequently, one used more Turkish, and two used only German. All participants but one felt at ease using both German and Turkish, but according to self-ratings participants generally considered themselves to be more proficient in German than in Turkish. All 2L1ers in this study were classified as German-dominant according to self-ratings, although the majority had acquired Turkish first and was exposed to German only later (except for two speakers with exposure to German from birth).

Four control groups were included in the experiments. In the German experiment, we included speech samples of five monolingual speakers of German and of five speakers of German as a L2 who were native speakers of Turkish. In the Turkish experiment, we included samples of five monolingual speakers of Turkish and five speakers of L2 Turkish with German as their only L1. The monolingual Turkish speakers represented the varieties spoken by the bilingual subjects, including varieties spoken in the Black Sea region, East Anatolia, the Aegean region and Istanbul.

4.2 Preparation

There were two separate accent rating experiments, one testing the 2L1 speakers’ perceived FA in German (“German experiment”), and one testing their perceived FA in Turkish (“Turkish experiment”). For both, two speech samples of each speaker were extracted from naturalistic interviews, one lasting 10 seconds and
one lasting 20 seconds. The interviews lasted about 20 minutes and were recorded with an *M-Audio MicroTrack II*. The Samples were cut from parts of the interview in which the speakers were talking without major interruptions by the interviewer and during which the content was general enough as to not give away any clues about the speaker’s linguistic background. Typically, but with some exceptions, samples were cut out after the first five minutes of the interviews since the first minutes of the interview usually served to discuss specific questions about the speakers’ linguistic background. Grammatical errors, long pauses as well any clues about the speakers’ linguistic and/or cultural background were eliminated in order to prevent the raters from basing their judgments on factors other than the speakers’ accent. The motivation for using samples from naturalistic interviews is that these samples reflect the speakers’ actual speech as perceived in real communicative situations. As shown in Section 2, having a perceived FA or not might imply social and/or socio-economic disadvantages for immigrants and/or bilingual speakers.

### 4.3 Raters

A total of 15 monolingual German and 14 monolingual Turkish raters took part in the two experiments. Their ages ranged from 20 to 63 (mean: 33 years) for the monolingual German group and from 28 to 58 (mean: 46 years) for the monolingual Turkish group. Most German and Turkish raters held university degrees. The criterion for being monolingual was that only one language was used at home during childhood and that this was the only language of instruction at school. The German experiment was carried out in Hamburg, Germany. The Turkish experiment was carried out in Istanbul and Bursa, Turkey. The raters had no special training in phonetics or linguistics. Moreover, the raters in the Turkish experiment did not know German, and the raters in the German experiment had no knowledge of Turkish, although they may have overheard the languages in their environment (Hamburg, Germany).

### 4.4 Procedure

Stimuli were presented by means of a *PowerPoint* presentation. There was a training session with two examples, one presenting a speaker who was clearly identifiable as a native speaker and one of a speaker whose accent was clearly foreign. These speakers were not part of the actual study. Raters were explicitly told that regional

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4. Since there is some controversy regarding the question of whether it is preferable to have phonetically trained raters or not (see Thompson 1991: 183; Flege & Piske 2002), we did not try to recruit only phonetically trained raters.
accents, such as Bavarian or Austrian for German, or Anatolian for Turkish, were to be judged as native, even if these accents differed considerably from their own. The raters were also asked to focus on the speakers’ accents and not on their choice of words. The method was inspired by De Leeuw et al. (2010) and Kupisch et al. (2014) with some modifications.

Raters were asked to judge the speakers’ accents in five steps. They were presented with a sample of 10 seconds. They were asked to (i) decide whether they thought the speaker’s accent was foreign or native, (ii) specify how confident they were about their judgment (“certain”, “semi certain” and “uncertain”). The raters were then asked to (iii) specify what their judgment was based on, and they were encouraged to repeat individual sounds, words or phrases. Finally, they were presented with another sample of the same speaker, this time 20 seconds long. After listening to the second sample, the raters were asked (iv) whether they wanted to revise their original judgment. When they received their judgment, they were asked to specify once more whether the speaker’s accent sounded foreign or native, how certain they were of their revised judgment and, optionally, which feature(s) or characteristic(s) of the sample their revision was based on. Revisions typically included (a) a shift in the overall perception of the speech sample from foreign to native or vice versa, or (b) a shift in the degree of certainty with which a sample was rated as either foreign or native. This last step, i.e. the possibility to revise their judgments was included in order to find out whether raters need more speech material when judging bilingual speakers’ accent as opposed to the accent of monolinguals and L2 speakers.

Figure 3 illustrates the PowerPoint slides used in the experiment (to be read from left to right, top to bottom; colors have been changed).

**Figure 3.** Experimental design (German)
Both experiments took between 40 and 50 minutes and there were two semi-randomized versions of each experiment. The ratings and comments were manually protocolled and tape-recorded. Protocols and recordings were compared to eliminate potential errors.

5. Foreign accent in German-Turkish bilinguals

5.1 Foreign accent

For a first overview, the judgments of the bilingual speakers’ samples were converted into a 6-point-scale (the results for the L1 and L2 controls are not reported here). If the rater deemed the speaker native (step i) and was certain (step ii) about her judgment, a score of 1 was assigned; if the rater deemed the speaker foreign and was certain, a score of 6 was assigned (native/semi certain = 2; native/uncertain = 3, foreign/uncertain = 4, foreign/semi-certain = 5) (see De Leeuw et al. 2010). In other words, the higher the score, the more clearly the accent was perceived to be foreign. Results are represented in a scatterplot in Figure 4. With increasing AoO in German, there is neither a clear increase of FA accent in German nor a clear decrease of FA in Turkish. As for certainty, Figure 4 shows a higher number of speakers with average scores between 3 (native/uncertain) and 4 (foreign/uncertain) in Turkish (n = 9) than in German (n = 3). When taking average scores between 1 and 2 to be indicative of a native accent that the raters are confident about, then more speakers were considered native with confidence in German (n = 10) than in Turkish (n = 5).

Figure 4. Perceived foreign accent, plotted on a 6-point-scale (1 = native, 6 = foreign)
In a second analysis, only the first judgment (step i) was taken into account, i.e. only whether a speaker was rated as native or foreign, not how certain the rater was, dividing the speakers into two groups: (i) AoO in German 0–3 years and (ii) AoO in German 4–9 years. Figure 5 illustrates the number of times speakers in each of the groups were taken to be native speakers.

For this experiment, a 1(age of onset) x 2(nativeness in Turkish and in German) factorial design was used, and an independent sample t-test was conducted to see if there was any significant effect of age of onset on the nativeness in one of the languages. The difference in age of onset does not indicate any significant effect in Turkish between the group with an age of onset between 0–3 years (M = 0.63, SD = 0.26) and the group with an age of onset between 4 and 9 years (M = 0.61, SD = 0.25; t(19) = 0.223, p = 0.82). Similarly for accentedness in German, there is no significant difference between the group with an age of onset between 0–3 years (M = 0.71, SD = 0.30) and the group with an age of onset between 4 and 9 (M = 0.61, SD = 0.25; t(19) = 0.636 p = 0.53). In other words, the result of this experiment indicated that age of exposure to German language was not a reliable predictor for foreign accent later in life, neither when speaking Turkish, nor when speaking German.

A within group correlation analysis has been conducted to assess if there were other conditions that could have had a significant effect on nativeness in one language or in the other. For this analysis, speakers were classified as foreign or native based on how often they were deemed foreign or native by the raters. Specifically, they were classified as “native”, if they were sounded native-like for at least 80% of the raters; otherwise they were classified as “foreign”. (80% was

![Figure 5. Perceived native accent in German and Turkish by age groups](image-url)
chosen as a benchmark, because this was the minimum frequency at which L1 monolinguals were identified as natives in a previous experiment by Kupisch et al. (2014). According to this analysis, three bilingual speakers were considered native in both languages, five bilingual speakers were considered native in neither language, four were considered native only in Turkish, and nine only in German. Using this classification, for the age of onset between 0–3 years nativeness in Turkish and German are weakly correlated, \( r(9) = 0.214, p > 0.05 \). This means that, for this age group, having a native-like accent in one of the languages does not predict or exclude the possibility of having a native language in the other. The fact that this correlation is weak, negative or positive, may be taken to indicate that acquiring a native like accent in both languages is possible, but nativelikeness in one language does not predict nativelikeness in the other. For the ages of onset between 4–9 years, a strong negative correlation \( r(8) = –0.665, p > 0.05 \) could be found. This result seems to imply that after the age of 4 subjects are no longer able to acquire a native-like accent in both languages, and that sounding native in one language excludes the possibility of sounding native in the other.

5.2 Accentedness features

Recall that in the third step of the experiment the raters specified what their judgments were based on, and they were encouraged to repeat individual sounds, words or phrases. For the analysis of these data, we included all instances in which a speaker was judged foreign, but if a rater commented on several features in one sample (e.g. vowel quality and intonation), we counted each comment separately. This is why the number of comments exceeds the number of times a speaker's accent was deemed foreign. Comments that did not explicitly address accentedness (e.g. “seems to come from an educated family”) were excluded from the analyses and are not listed in Table 3 below.

The 21 bilingual speakers were considered foreign 143 times in Turkish and 106 times in German. There were 200 comments on specific features in the Turkish experiment and 168 comments on specific features in the German experiment. Since the raters could decide themselves to give a comment or not and since foreign accent perception is largely subjective, the results presented in the following should be seen as tentative and could be followed by objective, acoustic measures. Note that we summarized different types of comments under the term “prosody” because we suspected that our raters, not being phonologically trained, referred to the same phenomenon by different means. For example, comments like “there was something wrong with the musicality”, “the strokes are wrong”, “the intonation is strange” or “he speaks staccato” were all counted as comments on prosody. We included unclassifiable comments about pronunciation, e.g. “the words sounded
strange” (without specifying what exactly sounded strange) or “there is some problem with the pronunciation” under the category “other comments”. Table 5 summarizes the results.

Table 5. Rater comments on accentedness features

<table>
<thead>
<tr>
<th>Comment</th>
<th>Turkish experiment</th>
<th>German experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Reference to German/Turkish (“speaker sounds German…”/“speaker sounds Turkish…”)</td>
<td>2 (1%)</td>
<td>11 (6.5%)</td>
</tr>
<tr>
<td>2. Reference to another language</td>
<td>2 (1%)</td>
<td>7 (4.2%)</td>
</tr>
<tr>
<td>(e.g. “Mediterranean/French/Russian/Chinese…”)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Vowels</td>
<td>48 (24%)</td>
<td>14 (8.3%)</td>
</tr>
<tr>
<td>4. Consonants other than /r/</td>
<td>21 (10.5%)</td>
<td>13 (7.7%)</td>
</tr>
<tr>
<td>5. /r/</td>
<td>33 (16.7%)</td>
<td>2 (1.2%)</td>
</tr>
<tr>
<td>6. Hesitation markers (e.g. ähm, erm)</td>
<td>7 (3.5%)</td>
<td>1 (0.6%)</td>
</tr>
<tr>
<td>7. Prosody</td>
<td>56 (28%)</td>
<td>45 (26.8%)</td>
</tr>
<tr>
<td>8. Fluency</td>
<td>0</td>
<td>11 (6.5%)</td>
</tr>
<tr>
<td>9. Over-articulated pronunciation</td>
<td>0</td>
<td>2 (1.2%)</td>
</tr>
<tr>
<td>10. Morpho-syntax</td>
<td>0</td>
<td>11 (6.5%)</td>
</tr>
<tr>
<td>11. Choice of expressions</td>
<td>0</td>
<td>37 (22%)</td>
</tr>
<tr>
<td>12. Content</td>
<td>0</td>
<td>4 (2.4%)</td>
</tr>
<tr>
<td>13. Other comments</td>
<td>31 (15.5%)</td>
<td>20 (11.9%)</td>
</tr>
<tr>
<td>Total</td>
<td>200 (100%)</td>
<td>168 (100%)</td>
</tr>
</tbody>
</table>

In both the German and the Turkish experiment, most raters considered prosodic features to be an indicator of the accent (28% and 26.8% of the time, respectively). In Turkish, the second most frequent indicator of a foreign accent were vowels (24%), which could either refer to quantity or quality or both. Other pronunciation-related comments related to consonants (10.5%), especially the pronunciation of /r/ (16.7%). Reference to other languages that potentially determined the accent were infrequent, and so were comments on hesitation markers.

In the German experiment, comments on specific features of the speakers’ pronunciation were less common than in the Turkish experiment. Besides prosody, most raters commented on vowels (8.3%) and consonants (8.9%, including /r/). There were also a few references to hesitation markers and over-articulation. Unlike in the Turkish experiment, raters commented on fluency (6.5%) and many...
aspects that were unrelated to pronunciation, such as morphosyntax, choice of expressions (22%) and content, although the instruction had been to judge the speakers’ accent.

5.3 Revisions

In the fifth step of the experiment, raters were given the possibility to revise their first judgments after listening to another sample by the same speaker. In total, there were 59 revisions (out of 465 ratings) in the German experiment (12.7%) and 121 revisions (out of 480 ratings) in the Turkish experiment (25.2%). Note that revisions do not necessarily imply changing the original judgment (native vs. non-native speech). Instead, they may merely reflect a change in the degree of certainty. We therefore established separately, how often a revision involved a change from ‘sounds foreign’ to ‘sounds native-like’, or vice versa. This separate analysis showed that in the German experiment raters changed their opinion 6.2% of the time, and in the Turkish experiment 9.2% of the time. Revisions of the raters’ first judgments were thus more frequent in the Turkish experiment, which is in line with the fact that the raters also judged with less certainty when rating the Turkish samples.

6. Discussion and conclusions

Our study set out to explore the question of whether early successive Turkish-German bilinguals will have a native accent in one or both of their languages, or whether a native accent in one language implies a FA in the other language. Speech samples of 21 adult bilinguals were rated by 15 native speakers in two experiments, one for each language. Our results show that exposure from birth to Turkish and early exposure to German do not guarantee a native-like production in both languages. Very few speakers were clearly perceived as native-like in both languages (n = 3), and there were also speakers with a perceived FA in both languages (n = 5). The majority were perceived to have a FA in one language, but not in the other (n = 13).

We further examined whether age of onset in German determined the perceived accent in either Turkish or German by dividing the speakers into two groups: (i) 2L1 speakers with an AoO in German before 3, and (ii) eL2 speakers with an AoO German after 4. In neither language was there a statistically significant difference between the two groups. A more detailed analysis, however, revealed that with an AoO in German after age 4, most subjects did not acquire.
a native accent in both languages. Instead, for this group, sounding native in one language seems to exclude the possibility of sounding native in the other language. The ability of sounding native in *two languages* thus seems to decrease when acquisition of the second language starts after age 4. In a previous study on simultaneous bilinguals who had acquired German and French or German and Italian during early childhood participants were perceived to have native-like accents in the language of the environment, while they were often perceived as foreign-sounding in their heritage or minority language (Kupisch et al. 2014). More specifically, German-French/Italian simultaneous bilinguals living in Germany have a native-like accent in German but a foreign accent in French/Italian. Compared to that study, the German-Turkish speakers in the present study were less often deemed native in the majority language (German) and relatively more in their heritage language (Turkish). The question is whether these different results can be attributed to *successive* bilingualism. Similar to the present study, Darcy and Krüger (2012) found differences between German-Turkish bilingual children and monolingual children when producing the German vowels \([a\ddot{o}, a, e\ddot{o}]\). Although their 2L1 speakers were children, the results are relevant because they show that differences in accent between 2L1 and L1 speakers may already be present during childhood, suggesting that at least some children develop their languages differently from monolinguals, rather than developing monolingual-like systems that start changing at a later age (in the sense of “attrition”).

Another result of our study was that the bilingual speakers were rated with a higher degree of certainty when speaking German than when speaking Turkish. This can be seen in accentedness scores in Figure 4, where scores around 3–4 occur for Turkish but not for German, and it could also be the reason for the higher number of revisions in Turkish. These results raise the question of why the Turkish raters were less certain about the bilinguals’ accent in Turkish than about their accent in German. One explanation may be that the German raters, most of whom were living in Hamburg (Germany), were more used to hearing Turkish and thus more sensitive to this particular accent. Another possible reason is that most of the German raters and most of the bilingual speakers had a similar regional (northern German) accent, whereas the Turkish raters and the bilinguals’ Turkish ancestors were more heterogeneous in terms of their respective regional origins.

Finally, we investigated which features contributed to the perception of a native accent, and whether these could be related to transfer from Turkish to German, or vice versa. An analysis of the raters’ comments with regard to perceived accentedness features indicated that in Turkish it was predominantly the speakers’ vowels and their intonation that contributed to the perception of a FA. In German, too, a FA was often identified based on intonation. Since German
and Turkish differ in intonation and vowel quantity and quality, it is plausible to assume that the perceived foreign features are due to transfer from the respective other language. Nevertheless, surprisingly few raters explicitly mentioned that the speaker sounded “German” or “Turkish”. On the other hand, the raters also paid attention to properties that were unrelated to accent per se, particularly choice of words or expressions. A potential problem of accent rating studies like ours is the fact that FA rating is a largely subjective method, and that raters may not report all the properties that they perceived, possibly because they can remember only the most prominent feature or because they are simply unable to articulate their impressions. Ideally, the present study should be complemented by an objective, i.e. acoustic, study based on the same data in the future.

References


