

ENGLISH SOUNDS IN GERMAN: LISTENERS' CHOICES

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ABSTRACT

To figure out, whether native German speakers tend to prefer English xenophones or their nativised German counterparts in the pronunciation of Anglicisms and English proper names, a preference test was carried out. Listeners had to rank the different varieties in a web-based test. The results show clearly that two groups of sounds can be made out: sounds which listeners like to hear in their original English pronunciation and those which are expected to be substituted by native equivalents.

Keywords: Language contact, English, German, TTS, xenophones.

1. INTRODUCTION

English foreign words are very common in German and their status reaches from almost indiscernible (*Pullover*) to more recent high-fashion borrowings (*Anchorman*, *Cash Flow*).

When these words or English proper names are to be pronounced in professional contexts (news-reading, audio books or the like) the question arises, to what extent these words should be adapted, or nativised, to German. Should the example given above be pronounced as [kæʃfləʊ] or [kɛʃflo:] or something in between? Is it possible to determine which of the English sounds, that do not hold phoneme status in German (*xenophones* as named by Lindström and Eklund [7]) should be substituted by German sounds?

Different speakers may prefer different pronunciations. However, for text-to-speech systems, the problem lies in the specification of only *one* transcription for each word (unless alternative lexica for special purposes are defined). To ensure an appropriate pronunciation of foreign-language material, non-native phones have to be included in the sound inventory for transcription and corpus recordings. For some TTS systems, varying sets of xenophones are used to extend the native language phone set ([2], [4], [8]).

An empirical foundation of favored pronunciations would also be helpful to create pronunciation recommendations for English words in German dictionaries (cf. the nativisation of English /eɪ/ and /oʊ/ to German /e:/ and /o:/ as in [3], which at least is worth discussing).

Production studies which investigate the pronunciation of English words and names provide insight into the strategies of native speakers in pronouncing such words. It can be observed which xenophones are pronounced (and how often), and which native sounds and sound sequences are used to substitute them (see e.g. [1], [4], [6], [9]). However, it can be assumed that what speakers pronounce does not always match what they expect to hear from others. For speech synthesis purposes, it may be necessary to choose a 'higher' level of pronunciation including more xenophones than the average speaker of German would use. On the other hand, choosing too high a level or even the source-language pronunciation of a word or name could lead to a rejection of the system by the user, because the output would sound too conceited or high-brow, or might even be unintelligible to some users.

To figure out, whether native German speakers tend to prefer English xenophones or their nativised German counterparts in the pronunciation of Anglicisms and English proper names, a preference test was carried out, which will be described in the following sections.

2. DATA AND METHOD

Based on the results of a previous production experiment (see [1]), a preference test was set up. German listeners were asked to choose between different realisations of English words in German contexts. The data and method of the test are described in the subsequent sections.

2.1. Sounds

The English language contains several sounds, which sound foreign to German listeners. Although

it could be argued that even comparable sounds are produced differently in both languages (e.g. a less rounded articulation of [ʊ] in English than in German) and therefore would be worth examining, highly similar sounds were excluded from the test. The tested sounds are the following:

Vowels and diphthongs:

[æ, a:, ʌ, ɜ:, ɒ, ɔ:, ɪə, εə, uə, əʊ, εɪ]

Consonants:

[θ, ð, dʒ, ɹ, ʔ, w]

Some sounds and sound sequences were incorporated that are restricted to certain positions by German phonotactics:

Consonants at the syllable coda:

[b, d, dʒ, g, v, z]

Consonants at the syllable onset:

[s, sp, st]

2.2. Stimuli

The selected English sounds were presented in Anglicisms and English proper names to ascertain whether there would be a difference in the preference for nativisation in the two groups.

Only quite common Anglicisms were chosen that should have been recognised as English or foreign by most of the listeners, so that at least an English coloured pronunciation should have been acceptable. Fully integrated loanwords like *Pullover* were excluded.

Every sound appeared in one (e.g. [ʊə]) to four (e.g. [w]) different stimuli. This was due to the constraints applied to the Anglicisms and to the frequency of the sounds. Some sounds are very rare in English, like [ʊə], and others are especially infrequent in borrowings from English in German, like [θ]. Altogether, the test set contained 68 words.

In a first step, the words were transcribed in British English in accordance to [10]. Afterwards, the xenophones defined in chapter 2.1 were converted into nativised phones. These were chosen according to the results of the production experiment. The one or two most frequent substitutions used by German speakers were selected. Only phonetic nativisations were considered, spelling pronunciations were avoided. Where different from the British version, an American English transcription was provided as well. Below, an example is given for three

different transcriptions of the xenophone [εɪ] in the name *Amy*:

Amy [ʔεɪmi:] [ʔε:mi:] [ʔε:mi:]

In case several xenophones occurred in a word, phones which were often pronounced true to the English original in the production test were transcribed as English in *all* variants, the others as their most frequent nativised substitutions. This approach was carried out to avoid forms like [lɔ:kʌst], which seemed very unlikely. The remaining alternatives were:

Lowcost [lʌʊkɔst] [lɔ:kɔst] [lɔʊkɔst]

with [ɒ] nativised to [ɔ], but

Reed [ɹi:d] [ɹi:t]

with no nativisation of [ɹ].

To create a natural context, the stimuli were embedded in German sentences taken from the Leipzig Wortschatzlexikon [11].

Example:

Die dortige Gesellschaft kooperiert mit Reed.

2.3. Method

The preference test was carried out through the internet. The subjects were not informed about the aim of the test, they were only asked to rank the sentences of a given set based on their personal preferences. The subjects were allowed to listen to each sentence as often as they liked. The stimuli were presented in their written forms as well. The ranking was done by choosing a rank from a drop-down-menu behind each sentence. Each rank could only be chosen once. The assigned ranks were treated as grades for analysis with 1 as the highest grade and the total number of sentence alternatives as the lowest grade (2 to 4).

2.4. Subjects

After the test was completed, every subject filled in a questionnaire with their personal data. Due to the way the test was carried out, there was no control on the subjects' age or gender. Therefore, the participation of 27 men and 23 women aged from 16 to 75 was highly welcome.

Knowledge of English was of particular interest for the later analysis of the data. Two subjects stated to have no or only very marginal skills, 15 to have elementary, 21 good and twelve very good knowledge. The subjects attended on average 7.42 years of formal English teaching.

3. RESULTS

The results of the study are manifold, so that only selected outcomes can be described in this article (all results are described in detail in [1]). First, we will have a look at the ratings for some of the xenophones or their substitutions across all subjects before turning to the effect of the parameters age and knowledge of English on the results.

3.1. General preferences

Apparently, not all xenophones are generally more accepted than their substitutions, nor are all of them refused. For different sounds, listeners seem to have different preferences. Table 1 shows two striking examples.

Xenophone	Carrier Word	Realisation	Average Grade
ð	Big Brother	ð	1.14
		z	1.86
	Heather	ð	1.08
		z	1.92
	Ø	ð	1.11
		z	1.89
æ	Cusack	æ	1.94
		ɛ	1.06
	Backup	æ	1.86
		ɛ	1.14
	Paddy	æ	1.8
		ɛ	1.2
	Ø	æ	1.87
		ɛ	1.13

Table 1: Average assessments of xenophones [æ] and [ð] (n=50)

The consonant is clearly preferred in its English version, the vowel in its nativised variant [ɛ]. This is a tendency which is evident for most of the data.

As can be seen from Table 1, the carrier words have only marginal effects on the results. Xenophones are in general assessed similarly throughout the set of carrier words. An example of a comparatively high amount of deviation is the assessment of the words containing [ɜ:]: in *Curt* listeners favour the English sound slightly over the germanised variants [œ:] and [œɐ], the American pronunciation [ɜ] rated worst; in *Burnout* and *Percy*, listeners prefer [œ:] to the other variants

with the British one receiving the worst grades; in *Girlie* the two German pronunciations receive equally good ranks and the two English variants are both refused. In summary, the overall acceptance seems to be better for a nativised pronunciation.

Significant deviations in assessments of the sounds in Anglicisms and in proper names could not be found. In general, British pronunciation variants are rated better than American variants (except for the pair [əʊ] – [ou]).

The following English sounds are rated better than their German substitutions: [θ, ð, dʒ, ɹ, w, əʊ, ɛɪ, ɒ], [z] in the syllable coda and [s, sp, st] in syllable onsets (the results for [ɒ] and [z] being less clear than the others). Most of the vowels, velarised [ɨ] and [b, d, dʒ, g, v] in syllable codas are not accepted by German listeners for English words in German contexts. That result seems to stay stable regardless of the listeners' awareness of the respective pronunciation being "correct".

3.2. Speakers' age and language skills

In the preceding section we saw that the assessments of single xenophones are comparable across different carrier words. But how strong is the influence of listener characteristics? Is it even possible to give a reference which xenophones to use in a formal speaking situation or in a speech synthesis system that matches the preferences of all or most listeners? Despite the influences of subjects' age and their language skills, the answer seems to be 'yes'.

Table 2 gives an illustration of the judgements for pronunciations with the xenophone [ɹ].

Age group	Average Grade [ɹ]
1 (16-29), n=20	1.07
2 (30-49), n=16	1.09
3 (50-75), n=14	1.36

Table 2: Average assessments of xenophone [ɹ] for the three age groups

Although the subjects older than 50 years rated the xenophones lower than younger subjects did, the tendency that [ɹ] is preferred over the nativised variant [ɾ] remains. For most xenophones there are differences in listener rankings depending on age groups, but they are not as unidirectional as our

example may suggest. For many vowels, elderly subjects give better ratings to English sounds than younger listeners do. In general, younger people seem to have more distinct preferences, maybe due to their greater exposure to the English language in their everyday culture.

The parameters age and knowledge of English only show a minor correlation in our data (Pearson $r = -0.29$) and have to be analysed separately. Nevertheless, they are not completely independent, because on average younger people attended English tuition for a longer period of time.

Subjects with no or only marginal knowledge of English – they never attended any formal training – prefer a higher level of nativisation than other subjects do. Yet, for nearly all xenophones, tendencies remain stable, that is, either the English or a nativised sound is preferred by all four groups of subjects, although the group with poor language skills may prefer the sound less clearly. For [ɛɪ], [θ] and [ɪ], nativised variants are preferred by that group. For the other three groups, only marginal differences in the rankings of sound varieties appeared.

4. CONCLUSION

The pronunciation of Anglicisms and English proper names in German contexts poses some difficulties to professional speakers or phoneticians who have to decide upon the transcriptions of such words for applications such as speech synthesis systems. To date, consistent entries of nativised variants of English words in German pronouncing dictionaries are rare. Obviously, an adequate level of nativisation has to be defined. To this purpose, a preference test was conducted.

Listeners ranked different realisations of xenophones in carrier words embedded in natural sentences according to their personal preferences. The stimuli contained British English xenophones, their American English counterparts and germanised varieties that occurred regularly in a previous production experiment (see [1]).

The results show that listeners do have strong preferences for special sounds, not necessarily only English or only German ones. In general, assessments apply to a sound in all carrier words. The differences based on the listeners' age and English skills are small enough to allow for a general recommendation which English sounds should be used.

The analysed English consonants (except for [ʃ]), the vowels [ou, ɛɪ, ɒ], [s, sp, st] in syllable onsets and [z] in syllable codas are favored over their nativised variants. As [ɒ] and [z] in the coda are sounds that are virtually never produced by German native speakers, they should be excluded from our list of recommended xenophones. To know about the second group of phones, namely those that are refused by listeners, is at least of equal importance. Most vowels belong to that group, as well as [ʃ] and voiced obstruents in syllable codas. The use of those sounds in a German TTS system could lower the acceptance and even the intelligibility of the system. Likewise, these sounds should be substituted by their German counterparts in the recommendations given in pronunciation dictionaries of German.

5. REFERENCES

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