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Hamann, S.; de Jonge, A.

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ELICITING THE DUTCH LOAN PHONEME /g/ WITH THE *MENU TASK*

Silke Hamann & Alma de Jonge

University of Amsterdam, the Netherlands
silke.hamann@uva.nl; alma.de.jonge@gmail.com

ABSTRACT

This article introduces the *menu task*, which can be used to elicit infrequent sounds such as loan phonemes that only occur in a restricted set of words. The menu task is similar to the well-known *map task* and involves the interaction of two participants to create a menu on the basis of a list of words (all referring to food).

This new task was used to obtain realizations of loanwords with a voiced velar plosive /g/ by an older and a younger group of native speakers of Dutch, which lacks this phoneme. Results show that all participants were fairly consistent in their pronunciations per word. However, the younger group had word-specific realizations: they employed a voiceless uvular fricative [χ] in *spaghetti* and a voiced velar stop [g] in *gorgonzola*, while the older group used a voiced or voiceless plosive in both words. These findings indicate a lexically diffusing sound change in the adaptation of /g/ into Dutch.

Keywords: loan phonemes, Dutch, map task, sound change, Laboratory phonology.

1. INTRODUCTION

In the last decades, the field of acoustic phonetics underwent a huge change from laboratory speech based on reading lists to spontaneous productions collected in natural settings. The latter avoids the problem of participants using normative forms due to the formal setting and allows the researcher to study the influence of social factors on speech in interaction. A drawback in the collection of spontaneous speech is its uncontrolled nature: we cannot enforce the occurrence of specific forms to ensure enough repetitions by the same speaker in the same linguistic context. Even in times where big data management is possible and large databases of spoken speech are available, this remains a problem for low-frequency words and segments that occur only in a very limited set of words.

This problem might be solved by collecting semi-spontaneous speech with the use of the *map task* [1, 4, 8]. In this task, pairs of participants have to interact and negotiate a path on two versions of a map that show partly differing landmarks, where the names of the landmarks contain the forms of interest. However, the map task seems of limited use for the study of loanwords, which are usually restricted in their occurrence to certain semantic domains such as specific scientific areas, fashion, food, or sports. For the purpose of eliciting such loan phonemes, the present study introduces the *menu task*, which builds on the area-specificity of loanwords by using vocabulary referring to food.

2. DUTCH /g/

The Dutch plosive system consists of voiced and voiceless labial and alveolar plosives and a voiceless velar plosive. The voiced velar plosive /g/ is lacking as phoneme, but is an allophone of the voiceless velar /k/ due to regressive voice assimilation that occurs for clusters of obstruents followed by voiced plosive (cf. [3]), see e.g. *zakdoek* /zɑk+duk/ [ˈzɑgduk] 'handkerchief'.

A number of recent loanwords (mostly from English) seem to have filled this accidental gap in the plosive system of Dutch, see e.g. *goal* or *Google*, though especially older speakers often replace this new sound by native /k/ ([12]) or (less often) a uvular fricative ([10]). (Nagy [9] reports that Belgian Dutch speakers generally use /ɣ/ for the word *goal*). For loan /g/ in intervocalic or postnasal context, Dutch pronunciation dictionaries usually list [ɣ] or [χ] ([4, 6, 9]), e.g. in the words *Malaga*, *flamingo* or *tango*.

Earlier phonetic studies on loanword adaptation in Dutch that dealt with the loan phoneme /g/ (e.g. [12, 13]) used reading lists for the elicitation of their data. This proves to be problematic as the orthographic representation draws the attention of the participants to the topic at hand and triggers pronunciations that the speaker thinks are correct rather than the ones the speaker would produce naturally. This criticism holds especially for the study by van der Velde & Van Hout ([13]), whose participants were Dutch language teachers and therefore particularly prone to refer to an expected norm.

3. PRODUCTION STUDY

In a production study we employed a new task, which we termed the *menu task*, to elicit natural realizations of the Dutch loan phoneme /g/. We categorized the realizations of this sound in three loanwords in order to check for possible variation of pronunciation. We expected to find differences in the adaptation strategies for the loan phoneme /g/ depending on the age of the speaker and possibly also on the word under investigation, based on previous occasional auditory impressions.

3.1. Methodology

3.1.1. Participants and recordings

21 native speakers of Standard Dutch, 10 older ones (mean age of 68.9 years; ranging from 57 to 80) and 11 younger ones (mean age of 22.3 years; ranging from 19 to 26) took part in the experiment.

Speakers were invited to the lab in pairs of two (the two participants of each pair belonged to the same age group and knew each other beforehand). They were recorded in a soundproof room using a Marantz solid-state PMD661MkII recorder (at a 48 kHz sampling rate).

3.1.2. Stimuli

The test items are the three Dutch loanwords listed in (1), where we also give their pronunciation as listed in pronunciation dictionaries ([5, 7]). All three contain a /g/ in the language they were borrowed from. The first two were borrowed into Dutch from Italian (*gorgonzola* at the beginning of the 20th century, *spaghetti* at the end of the 19th, [11, 14]), the third from Indonesian (at the end of the 16th century [14]).

(1) *gorgonzola* [gɔrgɔnˈzola]
     spaghetti [spɑˈgɛti] ~ [spɑˈχɛti]
     mango [ˈmɑŋgo]

Control words were *ijsbergsla* [ɛɪzbɛrχsla] 'iceberg lettuce' containing native /χ/, and *bakbanaan* [bɑgbaˈnan] 'plantain', containing an allophonic [g] (due to regressive voice assimilation).

As fillers to distract from the intention of our study, we used the words *croutons*, *entrecôte* (type of steak), *dame blanche* (type of desert), and *tomaat* 'tomato'. This yielded a total of nine stimuli.

3.1.3. The menu task

Speakers were provided with pens and received separate lists that contained six of the nine stimuli described in section 3.1.2. The two word lists had three identical words and three words (all the test items) in which they differed.

The pairs of speakers were seated so that they could not see each other's list. They were instructed to discuss which ingredients they had on their list, to set up a three-course menu including all of the ingredients (including those that were initially missing from their personal list), and at the end to recapitulate the whole menu they had created together.

3.1.4. Analysis

The test items were initially analysed using Praat [1]. However, in several instances of the word *mango* the loan phoneme /g/ was not realized or was extremely short, so that the intended measures of *harmonics-to-noise* ratio (to discern the possible fricative realization) and *percentage voicing* could not be applied. Instead, the realizations were auditorily categorized by the two authors (with additional visual inspection of the sound wave or the spectrogram where necessary). In cases of disagreement, a third phonetically-trained listener was asked to judge the questionable items. If this third judgment was in disagreement with both previous categorizations, the item was not further used in the analysis (this applied to nine instances). The categories employed for the auditory categorization were [g] (a voiced plosive realization), [k] (a voiceless plosive realization), [χ] (any kind of velar or uvular fricative realization, independent of voicing), and "∅" (no realization; this category was only relevant for the word *mango*).

The control words were used to check whether participants pronounced [g], [k] and [χ] as expected.

3.2. Results

The realizations of the loan phoneme /g/ in the three test items are given for all speakers in table 1 on the next page. Please note that the initial and medial /g/ in the word *gorgonzola* are treated separately (boldface indicates the /g/ that is analysed). The number of items provided by each speaker varied from 7 (young 3 and young 4) to 35 (old 6), with a total of 341 items.

With the exception of one speaker (old 6), the participants showed little variation in the pronunciation of a word. Most of them (6 of the old speakers and all of the young ones) used the same realization for the two /g/-sounds in the word *gorgonzola*.

Table 1: Number of different realizations of the loan phoneme /g/ in the three test items (sound in question given in boldface) by 10 older and 11 younger speakers. [χ] stands for a back (usually uvular) fricative, independent of voicing though usually voiceless. The table lists only those categories that were used by the speakers (no [k] or [χ] for the word *mango*, no deletion for *gorgonzola* or *spaghetti*).

Subject	*man**g**o* [g]	Ø	***g**orgonzola* [k]	[g]	[χ]	*gor**g**onzola* [k]	[g]	[χ]	*spa**gh**etti* [k]	[g]	[χ]	sum
old 1	8	0	0	3	0	0	3	0	2	1	0	17
old 2	2	1	1	3	0	1	3	0	0	4	0	15
old 3	6	1	3	0	0	3	0	0	2	0	0	15
old 4	3	0	3	0	0	2	1	0	0	1	0	10
old 5	1	1	1	3	0	1	3	0	0	3	0	13
old 6	4	3	4	3	1	2	5	1	6	4	2	35
old 7	3	1	4	0	0	3	1	0	0	0	3	15
old 8	4	0	1	1	0	0	2	0	1	2	1	12
old 9	1	0	0	2	0	0	2	0	4	0	0	9
old 10	8	2	0	3	0	0	3	0	0	6	0	22
sum old	**40**	**9**	**17**	**18**	**1**	**12**	**23**	**1**	**15**	**21**	**6**	**163**
young 1	4	0	0	2	0	0	2	0	1	3	0	12
young 2	4	1	0	5	0	0	5	0	0	0	6	21
young 3	1	3	0	1	0	0	1	0	0	1	0	7
young 4	0	1	0	2	0	0	2	0	0	0	2	7
young 5	5	1	0	3	0	0	3	0	0	0	5	17
young 6	6	0	0	6	0	0	5	0	0	0	5	22
young 7	1	1	0	3	0	0	3	0	0	0	4	12
young 8	4	0	0	10	0	0	10	0	0	0	4	28
young 9	4	0	0	0	4	0	0	4	0	0	5	17
young 10	2	2	0	6	0	0	6	0	0	0	2	18
young 11	4	1	0	4	0	0	4	0	0	0	5	18
sum young	**35**	**10**	**0**	**42**	**4**	**0**	**41**	**4**	**1**	**4**	**38**	**179**
total	**75**	**19**	**17**	**60**	**5**	**12**	**64**	**5**	**16**	**25**	**44**	**341**

All speakers (independent of age) realize /g/ in the word *mango* in the same way, namely as a (usually very short) voiced plosive [g], which is occasionally not realized at all. With respect to the other three occurrences of /g/, the two age groups differ largely. The older group varies between [g] and [k] for all three, with occasional realizations of [χ], and only one speaker, old 7, shows a consistent realization of [χ] in all her 3 instances of the word *spaghetti*. The younger group, on the other hand, uses almost exclusively the voiced [g] for both instances in *gorgonzola* (with one exception: young 9, who produces all four instances as [χɔrχɔnˈzola]). For the word *spaghetti*, all but two young speakers (young 1 and young 3) use [χ].

4. DISCUSSION AND CONCLUSION

The results of the present experiment show a large word-specific difference in the pronunciation of the three loanwords.

The /g/ in the old loanword *mango* was adapted by both young and old speakers predominantly as [g]; in some instances the segment was deleted. This finding is in line with Jakobson's ([6]) observation that loan phonemes which constitute a new combination of already employed phonological features (in the present case: [+voice] and [+dorsal, –continuant]) are expected to be stable. However, this would predict the same adaptation strategy for *all* words with /g/, which we could not observe in our data. Instead, we found for the younger generation word-specific realizations also for the remaining two words.

While the older speakers used a voiced or voiceless plosive both in *gorgonzola* and *spaghetti*, the younger speakers used a [g] in the former and a [χ] in the latter. Exceptions were three individuals, one older speaker who consistently used [χ] (old 7), thus employing the pronunciation of the younger generation, and two younger speakers who used [g]

for *spaghetti*, thus using the pronunciation typical for the older group.

This result indicates a general shift in the realization of /g/ in the newer loanwords from default (voiced or voiceless) plosive to [χ] in *spaghetti*, but no change thus a realization as [g] for both segments in *gorgonzola*. This together with the established form of [g] for *mango* can be interpreted as evidence for a lexical diffusion in the adaptation of /g/ into Dutch. The newly introduced realization as [χ] is only occurring in one of the three tested items, and no one prevailing adaptation strategy emerges for the foreign sound.

A comparable word-specificity in the realization of /g/ was also found in the study by van Bezooijen and Gerritsen [12]. In their study, the word *drugs* was realized as [g] in 23%, [k] in 40%, and [χ] in 37% of the cases, while *goal* was realized as [g] in 49%, [k] in 21%, and [χ] in 29% of the cases. Their explanation of this difference is the application of final devoicing in the case of *drugs*, but they refer also to the frequency of words as possible explanation, and argue that *drugs* is much more frequent and therefore shows more native realizations ([k]) than *goal*.

For the words used in the present experiment, frequency can also be applied as explanation for the lexical diffusion we observed: the word *spaghetti* occurs much more frequently than the other two, and therefore can have developed a more native-like pronunciation norm for the loan /g/.

The stable adaptation of /g/ as [g] for the older loanword *mango* is further supported by the findings by van der Velde and van Hout [13], who also included this word in their set of loans, and found that it was realized with [g] in 79% of the cases by speakers from the Netherlands (they did not include deletion as a possible realization strategy).

With respect to the menu task, we can conclude that it worked well for the elicitation of the loan phoneme /g/ without drawing the awareness of the participants to the purpose of the experiment. The speakers were mainly consistent in their production within words (only speaker old 6 showed large variation).

One drawback of the task seems to be the large variation in the number of produced tokens. The participants were expected to produce at least two tokens of every test item (one in completing the list of ingredients at the beginning, and one at the end when repeating the whole menu), though four speakers (old 4, old 9, young 3 and young 4) produced (at least) one of the three words only once, and the speakers young 3 and young 4 used only 7 instances of the loan phoneme in total. As an improvement of the task we therefore propose to entice more discussion between participants by e.g. not requiring that all ingredients should be used for the menu.

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