Spread of on-going changes in an immigrant language

Turkish in the Netherlands

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Turkish spoken in the Netherlands (NL-Turkish) sounds different in comparison to Turkish spoken in Turkey (TR-Turkish). Analyses of NL-Turkish spoken corpus reveal that NL-Turkish is changing through literally translated Dutch constructions. Combining the cognitive linguistics framework with methods of sociolinguistic analysis, this study investigates to what extent these attested changes are spread within the NL-Turkish speech community. Results of our experimental study show that NL-Turkish speakers recognize the changing constructions and tolerate them more than TR-Turkish speakers (control group). In addition, both NL-Turkish and TR-Turkish speakers exhibit a learning process for the changing constructions during the course of the experiment. However, we did not necessarily find a positive correlation between the frequency of changing constructions and their acceptance rate. We predict that sociolinguistic factors (e.g. group dynamics and continuous contact with TR-Turkish) influence the spread of on-going changes in NL-Turkish at the current stage of contact.

Keywords: frequency, language contact and change, spread of change, usage-based approaches, constructions

1. Introduction

When languages are in contact, it is only natural that they borrow linguistic forms from each other and change. Turkish spoken in the Netherlands (NL-Turkish) often sounds unconventional in comparison to Turkish spoken in Turkey (TR-Turkish). This is mainly due to borrowed Dutch multi-word units (e.g. *examen doen* 'exam do') that are literally translated into NL-Turkish (*sınav yapmak* 'exam do') (Doğruöz, 2007; Doğruöz & Backus, 2007, 2009). In such cases, Dutch serves as the donor language and lends its linguistic features to NL-Turkish, the recipient

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language. These borrowed expressions sound unconventional to TR-Turkish speakers, since TR-Turkish speakers use other expressions (*sınav-a girmek* 'exam-DAT[1] enter') instead. Combining usage-based approaches with sociolinguistic methods, this study explores the extent to which the attested on-going changes (in an NL-Turkish spoken corpus) are spread within the NL-Turkish speech community.

Borrowing linguistic elements and structures is quite common in contact situations around the world (e.g. Aikhenvald, 2003; Heine & Kuteva, 2005; Muysken, 2000; Thomason, 2001). There are various names (e.g. "copying" vs. "borrowing", Johansson, 2002) for the process of importing elements or structures from one language to another. Despite the abundance of terminology, we know little about the mechanisms underlying the borrowing processes and the conditions that help the borrowed forms spread within the speech community. According to Thomason (2001, p. 77), anything can be borrowed among the languages in a contact situation; however, social factors and the attitudes of the speakers influence the spread of the borrowed forms. Speakers are active participants of language change and they are in interaction with the speakers of other languages across their life-time (Wolfram, 2006; Labov, this volume).

According to Thomason and Kaufman (1988), borrowing starts with the lexical items and spreads to syntax as the intensity of contact increases. Regardless of several borrowing hierarchies suggested in the literature (e.g. Field, 2005; Moravscik, 1978; Ross, 2007), a single borrowed form (lexical or structural) does not mean that a change is instantly underway.

Initially, the borrowed form is perceived as an innovation (and often unconventional) and it co-exists with the conventional form for a while (Romaine, 1994; Wolfram, 2006). When someone uses an innovative form for the first time, it does not usually spread immediately to the other speakers. First, it gets entrenched in the idiolect of an individual speaker and then it spreads to the idiolects of other speakers within the speech community (e.g. Croft, 2000; Trudgill, 1986). When the once-innovative form becomes the new convention, the change has finally taken place (Györi, 2002; Labov, 2007; Weinreich, Labov, & Herzog, 1968).

Not every innovation gets the chance to spread and change (e.g. Milroy, 2003; Trudgill, 1986). Rather, social networks and class patterns play an important role in the process of change (Croft, 2006, p. 112). Individual innovations lead to change by increasing their frequency of use (Croft, 2000, 2006; Rostila, 2006). High frequency can only be achieved if the innovative form is approved within the speech community (Trudgill, 1986, p. 20).

The role of frequency is well-known in various disciplines of linguistic analysis. In first and second language acquisition, high-frequency linguistic forms are acquired earlier and faster (cf. Ellis, 2002; Goldberg, 2006; Goodman, Dale, & Li, 2008). In diachronic processes, high frequency linguistic forms are

protected against changes (cf. Nichols, 1992; Pagel, Atkinson, & Meade, 2007). Correspondingly, high frequency forms are referred to as the facilitators of the borrowing process in language contact (cf. Heine & Kuteva, 2005; Mithun, 2007), but data-driven comparative analysis (especially in on-going contact situations) is rare. By combining corpus-linguistic methods with an acceptability-judgment task, we investigate how on-going changes spread within the NL-Turkish community and the role of frequency in this process.

1.1 Turkish in the Netherlands: Sociolinguistic background

Turkish has been in contact with Dutch since the 1960s. Although the initial intention of the first immigrants was to earn enough money and go back to Turkey, their plans soon changed with family reunifications in the 1970s. Currently, the Turkish community is the largest immigrant community in the Netherlands (2% of whole population, CBS 2010).

First generation NL-Turkish speakers did not learn Dutch beyond the basics but the next generations went through the Dutch education system. Although younger generations are fluent Dutch speakers, Turkish is still highly maintained within the community. The factors that enhance the high maintenance (Thomason, 2001) of Turkish in the Netherlands (Backus, 2004) can be summarized as follows:

a. *Continuous contact with Turkey and TR-Turkish speakers*
Until the Bosnian war in the 1990s, most Turkish families from the Netherlands used to go to Turkey by car every year and spend their six-week vacation with their families in Turkey. Today, most families travel by plane and the durations of stays vary. While older members of the NL-Turkish community mainly visit their villages and stay longer, younger generations tend to stay shorter and visit the big cities as well as holiday destinations along the coast.

It is not common for NL-Turkish speakers to marry Dutch partners. Marriage partners (mostly women) usually come from Turkey (cf. Labov (this volume) for the influence of exogamous marriages on language learning in bilingual communities). Recent changes in the Dutch immigration system require the marriage partners to take a Dutch language test in Turkey before arriving in the Netherlands. This may slow down the tendency to bring marriage partners from Turkey in the future.

There is a satellite dish in almost every Turkish household. Turkish TV shows are very popular all day long especially among women. Internet use is very common among the younger NL-Turkish speakers to keep contact with their family and friends in Turkey.

b. *Group dynamics within the NL-Turkish speech community*
There are several opportunities for community members to meet. Mosques, tea and coffee houses, and regional societies (founded by people from the same city/region in Turkey) are common meeting places. There are also Turkish student organizations at colleges and universities for younger generations. The whole community (with different generations) meets regularly during the religious holidays, weddings, circumcision festivities (for boys), birth, and death ceremonies.

TR-Turkish is still regarded as the norm and TR-Turkish speakers (usually marriage partners) are the role models in terms of language use within the community. When asked about her future plans for her children, one of the NL-Turkish speakers (F, 28) mentions that she would like them to learn Dutch and English for job purposes but they should never forget speaking Turkish since it is a reminder of their identity.

Continuous contact with TR-Turkish and strong social and cultural ties within the community make Turkish a strong immigrant language and seem to prevent excessive influence of the contact language (i.e. Dutch) on NL-Turkish at the moment.

1.2 Usage-based approaches to language change

As expected in contact situations, NL-Turkish is borrowing linguistic elements from Dutch. Comparative analyses of NL-Turkish and TR-Turkish spoken corpora have revealed that NL-Turkish is quite similar to TR-Turkish in terms of word order and subject pronoun use (Doğruöz, 2007; Doğruöz & Backus, 2007). In other words, contact with Dutch did not influence these syntactic aspects of NL-Turkish as is often predicted in contact situations (Thomason, 2001).

Despite the stability in word order and subject pronoun use, NL-Turkish still sounds unconventional to TR-Turkish speakers (including the first author of this article). A usage-based analysis of the NL-Turkish corpus reveals that the on-going changes are taking place mainly through the literal translations of Dutch multiword units (i.e. constructions) (see detailed analyses of these unconventional units in Doğruöz & Backus, 2009). Before describing these changing constructions, we will first explain the basic assumptions behind the usage-based approach and how it features in our study.

First of all, usage-based approaches assume that the structure and representation of language in the mind is inextricably related to, and shaped by, how language is used by actual speakers (Croft, 2001; Dabrowska, 2004; Goldberg, 2006; Langacker, 1987; Tomasello, 2003). Secondly, the notion of universal categories that apply to each and every language is avoided since what may appear as universal categories are assumed to result from cognitive universals (Croft, 2001; Evans & Levinson, 2009). Although usage-based approaches do not focus on universal

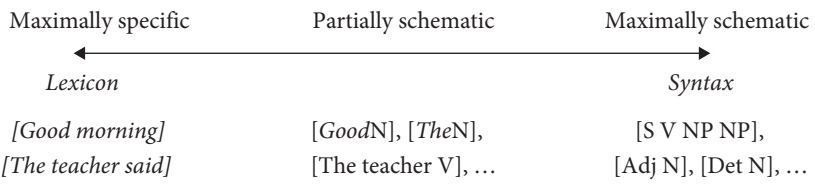

Figure 1. The representation of the constructional schematicity on the Specificity Continuum

categories, they seek out generalizations governing language-specific constructions. Thirdly, language is assumed to be an inventory of constructions (form-meaning pairs) instead of a combination of distinct categories (e.g. lexicon and syntax). In other words, lexicon and syntax are considered regions on a continuum of specificity on which linguistic units are placed (Croft, 2001; Goldberg, 2006; Langacker, 1987). The diversity of these constructions and their positions on the specificity continuum (Doğruöz & Backus, 2009) is represented in Figure 1 and will be illustrated using the utterance in (1).

(1) The teacher said good morning to the student.

At the most schematic level, this utterance could be represented with the [S V DO IO] template without specifying any lexical items that fill the grammatical roles. It is placed on the right hand side of the continuum (maximally schematic side, traditionally referred to as "syntax"). However, this general representation misses the more specific lexical and semantic relationships between the individual linguistic items. If the lexical items in a construction occur very frequently with each other and have consistent meanings/functions, they are perceived as fixed expressions (e.g. [*good morning*] in (1)) and placed at the left hand side of the specificity continuum (maximally specific side, traditionally referred to as "lexicon"). If a construction has both fixed and free lexical/grammatical items, it is perceived as a partially schematic construction (e.g. [*The* N], [*to the* NP], [*The teacher said* NP] in (1)) and placed around the middle section of the continuum.

In everyday conversation, we speak neither with highly schematic patterns nor with isolated lexical items. Instead, we either use the lexically-fixed constructions or recycle the templates of partially schematic constructions preserving their fixed aspects (e.g. a lexical item or a grammatical feature). That is to say, every utterance instantiates many different constructions with different and overlapping levels of granularity (schematicity). We perceive constructions based on their (often unpredictable) formal characteristics, consistent meanings/functions, and their frequency of use (e.g. high frequency of occurrence gives rise to chunking processes).

We make generalizations and produce new utterances using our inventory of fixed and partially schematic constructions.

In contact with Dutch, NL-Turkish is mainly changing through borrowing the literal translations of Dutch constructions which are perceived as unconventional by TR-Turkish speakers. We will illustrate the origins of unconventionality in these constructions and the procedure for their classification through examples (2) and (3).

(2) NL-TR: Abla-m okul-da İngilizce **yap-tı**.
sister-POSS.1sg school-LOC English do-PAST
'My sister did English at school.'
TR-TR: Abla-m okul-da İngilizce **oku-du**.
sister-POSS.1sg school-LOC English read-PAST
'My sister read English at school.'
NL: Mijn zus heeft Engels gedaan op school.
my sister have-3SG. English do-PAST.PART at school
'My sister did English at school.'

In example (2), the NL-TR construction [*İngilizce yap*] 'English do' is unconventional for TR-Turkish speakers, who would use [*İngilizce oku*] 'English read' instead. Due to contact with Dutch, NL-Turkish speakers probably translate the [*Engels doen*] 'English do' construction literally from Dutch. In this case, the origin of the unconventionality is not only the translation of the Dutch verb *doen* 'do' as *yapmak* 'do' but it is rather the translation of [*Engels doen*] 'English do' as [*İngilizce yap*] 'English do'. Since the unconventionality is due to the replacement of specific lexical items together as a unit, we place this type of unconventionality on the maximally specific side of the continuum (see Figure 1).

(3) a. NL-TR: Türk müziğ-i çok sev-iyor-um.
Turkish music-POSS.3SG. very like-PROG-1SG
'I like Turkish music a lot.'
b. TR-Turkish: Türk müziğ-i-**ni** çok sev-iyor-um.
Turkish music-POSS.3SG-ACC very like-PROG-1SG
'I like Turkish music a lot.'
c. NL: Ik houd veel van Turkse music.
I like much of Turkish music
'I like Turkish music a lot.'

In (3), the NL-Turkish construction [N *sev*] 'N like' sounds unconventional to TR-Turkish speakers, who would use an accusative marker after the noun instead (e.g. [N_{ACC} *sev*] 'N_{ACC} *like*'). The accusative marker appears on the direct objects of transitive verbs in Turkish. The analyses of spoken corpora reveal that NL-Turkish

speakers omit the accusative markers when the verb scores low on the transitivity scale (Doğruöz & Backus, 2009). In other words, accusative omission is not generalized to all [DO V] schematic constructions but is more specific to low-transitive verbs (e.g. *love*, *like*, *think*) whose objects are less affected by the actions of the agent. In the [N_{ACC} *sev*] 'N_{ACC} *like*' construction, the accusative marker and the low-transitive verb (*sev* 'like') are the fixed lexical items whereas the direct object is a free lexical item. Since this construction has both fixed and free linguistic elements, it is placed on the partially schematic side of the continuum (see Figure 1).

The role of constructions in language change has been discussed earlier (cf. Bybee, 2006; Croft, 2001; Heine & Kuteva, 2005) but has not been explored extensively through data-driven analyses of synchronic linguistic variation. Unless the corpora under investigation are large enough, corpus analysis may not be able to reveal to what extent the attested changing forms are spread within a certain speech community. One alternative empirical approach is the experimental collection of acceptability judgments.

There have been opposing findings regarding the relationship between the corpus findings and the acceptability judgments. Bybee and Eddington (2006) find a positive correlation between the frequency of use and the acceptance rate for monolingual Spanish speakers. Similarly, Arnon and Snider (2010) suggest that high frequency multi-word units are processed faster by monolingual speakers. On the other hand, the reverse does not necessarily hold for low frequency items. In an experiment with Polish speakers, Divjak (2008) did not find a correlation between low frequency of use and low ratings of acceptability.

Yet, other studies reject a link between frequency of occurrence and acceptability due to the difference between competence and performance. These studies also differ from usage-based models since they ignore the influence of experience (producing and comprehending language) on the processing and representation of language. In addition, even though the role of frequency in language change has been mentioned earlier (Bybee & Beckner, 2010; Diessel, 2007), a similar link for changing constructions and the acceptability judgments of bilingual speakers in an immigrant setting is still unexplored.

In this study, we will bring these different strands together by exploring the link between the corpus frequency of the changing constructions in the NL-Turkish corpus and their acceptability ratings by NL-Turkish speakers on the basis of experimental data. The on-going nature of Turkish-Dutch contact and its relatively short duration (only about fifty years) allow us to investigate how these attested changes spread within the different speaker groups in the NL-Turkish speech community.

In Section 2, we will outline the design of our experiment as well as how it was statistically evaluated. Section 3 will discuss our results. In Section 4, we will

evaluate our findings with regard to language change in general and sociolinguistic factors operating in the particular immigrant setting.

2. Method

In this section, we describe our methodology. In Section 2.1, we provide some information about our NL-Turkish spoken corpus data. In Section 2.2, we outline how our experiment was designed and carried out. Then, in Section 2.3, we discuss the statistical methods we used to evaluate the subjects' judgments.

2.1 The NL-Turkish Spoken Corpus

The NL-Turkish spoken corpus consists of one-to-one interviews and group conversations with 43 (20 M, 23 F) NL-Turkish speakers between the ages of 17–45. The speakers in the corpus are classified based on the generation of immigration (see Section 2.2). The first-generation speakers were born in Turkey and came to the Netherlands for work purposes or through marriage. They worked mostly in low-paid jobs (e.g. assembly line in the factory, cleaning, security etc.) or they had their own business (e.g. döner shops, grocery, merchandise). There were also first-generation female speakers who were homemakers. The second-generation speakers were either born or arrived in the Netherlands before the age of six. They were mostly college/vocational school students. Although there were no limitations in terms of topic choice and duration, social and cultural differences between Turkey and the Netherlands, work related issues, food, hobbies, and education were the common topics of discussion. The size of the corpus (excluding the interviewers) is 74,461 words.

2.2 Experimental design

For our acceptability judgment experiment, we presented subjects with various utterances that contain conventional and unconventional constructions in a questionnaire and asked them to rate the acceptability of these utterances on a scale. We designed the questionnaire with two main goals in mind. First, we tested the effects of several independent variables and their interactions on the subjects' judgments. Second, we minimized the potential impact of undesirable experimental effects or included them as control 'covariates' (such as habituation, order effects, etc.) and included distractors to guarantee that the subjects could not guess the purpose of the experiment. The instructions and experimental items were tested in a pilot study.

As for the first goal, we included the following variables:

- **Conventionality**: an independent variable that reflects how a TR-Turkish speaker would regard an experimental stimulus. We distinguished two levels:
  - *unconventional:* utterances with constructions that would sound unconventional to TR-Turkish speakers but occurred in the NL-Turkish corpus. The first author went through all the conversations and identified constructions that sounded unconventional to her. A panel of five TR-Turkish speakers confirmed/unconfirmed the unconventional constructions. The experimental items for the questionnaire were chosen based on these decisions.
  - *conventional:* utterances with constructions that would sound conventional to TR-Turkish speakers. The conventional versions of the unconventional constructions serve as the conventional constructions in our questionnaire and they were also approved by a panel of TR-Turkish speakers.
- **Source**: an independent variable that reflects the source of the unconventionality. We distinguished two levels:
  - *morphological:* unconventionality is due to a morphological variation (e.g. lack of accusative marking as in example 3) and the construction would be placed around the partially schematic area on the specificity continuum (see Figure 1).
  - *Lexical:* unconventionality is due to a lexical item (e.g. use of a different lexical item as in example 2) and the construction would be placed around the maximally specific area on the specificity continuum (see Figure 1).

Most of the variation in the NL-Turkish corpus took place within the maximally specific and partially schematic constructions rather than the maximally schematic ones (Doğruöz & Backus, 2009). Since there was not much variation within the maximally schematic constructions, we did not include them into our experimental stimuli.

- **Frequency**: an independent variable representing the frequency of unconventional constructions attested in the NL-Turkish spoken corpus. Again, we distinguished two levels:
  - *high*: represents constructions with lexical and morphological unconventionality with higher frequencies of occurrence. We included three cases of unconventionality with the lexical items y*apmak* 'do', *bir* 'one' and *almak* 'take', which occurred 48, 31, 4 times in the NL-Turkish corpus respectively. Although the unconventional constructions with *almak* 'take' occur less frequently than y*apmak* 'do' and *bir* 'one', we included them in the stimuli

set since NL-Turkish speakers use unconventional constructions with *almak* (unconventionally) very often in daily life. Unconventional constructions which lack accusative and genitive marking and which include extra plural marking occurred 16, 11 and 10 times in the NL-Turkish corpus respectively. These constructions serve as high frequency constructions with morphological unconventionality.

– *low*: represent lexically and morphologically unconventional constructions that occur only once in the NL-Turkish corpus.

As for the second goal, we largely followed Gries's (2009, Section 1.4) recommendations for experimental designs. Since the combination of three binary variables resulted in 2·2·2=8 distinct variable level combinations, we first developed one concrete token set of eight experimental sentences (conventional and unconventional) that differed mainly with regard to the variable levels in question (source of unconventionality and frequency). See Table 1 for a concrete set of experimental conditions.

Table 1. A concrete set of experimental conditions exemplifying our three independent variables (the origins of unconventionality are highlighted)

Source	Frequency	Conventionality: *conventional*	Conventionality: *unconventional*
lexical	*high*	*Abla-m yüksek-okul-a* Sister-poss.1sg high-school-dat *gid-iyor.* go-prog. "My sister goes to a vocational college"	*Abla-m yüksek-okul* sister- poss.1sg high- school ***yap-ıyor.*** do-prog. "My sister goes to a vocational college"
lexical	*low*	*Hollanda-lı-lar çok* Holland-orig-pl very *çalış-ıyor.* work-prog. "The Dutch work hard"	*Hollanda-lı* ***insan-lar*** çok Holland-orig person- pl very *çalış-ıyor.* work- prog. "The Dutch work hard"
morphological	*high*	*Türk müziğ-i-* ***ni*** Turkish music-poss.3sg- acc çok *sev-iyor-um.* very like-prog-1sg. "I like Turkish music"	*Türk müziğ-i* Turkish music-poss.3sg. *çok sev-iyor-um.* very like-prog-1sg. "I like Turkish music"
morphological	*low*	*Burdaki okul* This school *yetmiş-li yıl-lar-da* seventy-adj year-pl-loc *yap-*ıl*-mış.* do-pass-past "This school was built in the seventies"	*Burdaki okul* This school *yetmiş-****inci*** *yıl-lar-da* seventy-adj year-pl-loc *yap-ıl-mış.* do-pass-past "This school was built in the seventies"

In order to guarantee that subjects would not identify the purpose of the experiment and would not be biased towards particular experimental conditions, we created eight different token sets analogous to the one represented in Table 2. This made sure that each subject could be exposed to each condition with an item from a different token set. We also developed 16 filler/distracter items to disguise the purpose of the experiment. Each questionnaire contained eight experimental items (again, from eight different token sets) and 16 filler items in a pseudo-randomized order. We did the pseudo-randomized ordering by first sorting all the 24 items randomly (separately for each subject even if subjects received the same experimental items). Secondly, we edited them in such a way that no questionnaire started with an experimental item and no two experimental items followed each other directly.

The resulting questionnaires were presented to subjects that were categorized with respect to the ternary variable SubjectType as described below:

- NL-Tr1: These speakers (33) were born in Turkey and came to the Netherlands after the age of 18 for work or marriage purposes. At the time of the data collection, they had been in the Netherlands for (at least) five years;
- NL-Tr2: These speakers (49) were either born in the Netherlands or came to the Netherlands before the age of six and went through the Dutch education system. Their parents or grandparents emigrated from Turkey to the Netherlands;
- TR-TR (control group): These speakers (64) were born and raised up in Turkey. Most of them were students at a community college and did not speak any other language than Turkish.

All the subjects were between the ages of 18–30 during the experiment. In order to match the demographic characteristics of the participants in the NL-Turkish corpus, we categorized the subjects in the experiment into two generations. In addition, we matched the ages and the occupations (e.g. student, employed, unemployed, housewife) of the NL-Turkish subjects as much as possible to the speakers in the NL-Turkish corpus.

The instructions at the beginning of the questionnaire requested the subjects to evaluate each sentence on a scale from 'very good/acceptable' to 'very bad / unacceptable' (see Appendix). Consequently, the dependent variable in this study is Rating (a numeric acceptability judgment) ranging from 1 ('very unacceptable') to 7 ('very acceptable'). For stimuli rated lower than 4, the subjects were requested to indicate how they could improve the utterance. In this way, we made sure that the subjects focus on the constructions under question rather than other features of the utterances they may (not) like.

2.3 The statistical analysis

Once all questionnaires and responses were collected, the ratings were analyzed with regard to the following predictors:

- Conventionality: *conventional* vs. *unconventional*;
- Source: *morphological* vs. *lexical*;
- Frequency: *high* vs. *low;*
- SubjectType: NL–Tr1 vs. NL–Tr2 vs. TR–TR;
- StimulusOrder: the number indicating where in the questionnaire a subject provided a rating. This variable was included to determine whether order effects or fatigue interfered with the rating processed;
- all 10 two-way interactions, 10 three-way interactions, 5 four-way interactions, and 1 five-way interaction that resulted from the combinations of these variables.

In addition to the above fixed-effect predictors, we also included two random effects:[2]

- Subject, i.e., random intercepts for each subject;
- Stimulus, i.e., random intercepts for each stimulus sentence.
  Given these predictors and random effects, the data were analyzed with a linear mixed-effects model (lmer in R; cf. Bates & Maechler, 2010; R Development Core Team, 2010). This is because such models (i) are very good at handling uneven cell frequencies, (ii) can take subject- and stimulus-specific variation into consideration in a way that appears superior to the current psycholinguistic default of F_1/F_2/quasi-F statistics (cf. Baayen, 2008, Section 7.2.1), and (iii) both of these characteristics make the obtained regression results and classifications/predictions more precise and robust. More specifically, we adopted a model selection process and first created the maximal model that included all the fixed-effect predictors (conventionality, source of unconventionality, frequency, subject type, stimulus order) and the two sets of random intercepts (subject and stimulus) for the combined effects. Next, we proceeded in a stepwise fashion to delete those fixed-effect predictors that
- had the highest degree of interactivity;
- had the largest p-value when their omission was tested with a log-likelihood test;
- did not participate in significant higher-order interactions.

Once the minimal adequate model was reached, all its significant effects were represented both statistically and graphically, using (plots of) mean ratings or slopes of ratings. Our results will be discussed in Section 3.

3. Results

We obtained responses from 146 speakers. The responses of one speaker were discarded because he did not provide a rating for 10 out of his 24 stimuli. We also discarded an additional eight 'I don't know' responses. The size of our final data set and its distribution across subject types is represented in Table 2.

Table 2. The distribution of the final data set of responses

SubjectType: *NL-TR1*	**SubjectType:** *NL-TR2*	**SubjectType:** *TR–TR*	**Total**
262 (33 speakers)	387 (49 speakers)	511 (64 speakers)	1160

Considering the results of a first model selection process, we decided to conflate the two levels of NL-Turkish speakers into a single level because the two levels did not differ from each other substantially in both a monofactorial test and the higher-order interactions in which SubjectType participated. During the second model selection process (using the levels SubjectType: *NL-TR* and SubjectType: *TR–TR*), several predictors had to be deleted. However, most predictors remained in the final minimal adequate model, either because (i) they were significantly correlated with Rating, or (ii) they participated in a significant three-way interaction. Consider Table 3 for the relevant statistics for the significant predictors in the minimal adequate model.[3]

Table 3. Coefficients (*b*), standard errors (*se*), *t*- and *p*- values of the significant predictors included in the minimal adequate model

Predictor	*B*	*Se*	*t*	*p*
Conventionality	1.280	0.141	9.110	<0.001
SubjectType	0.299	0.082	3.645	<0.001
StimulusOrder	0.024	0.008	3.085	0
Conventionality:Frequency	0.223	0.094	2.364	0.018
Conventionality:SubjectType	−0.157	0.051	−3.045	0.002
Conventionality:Source:StimulusOrder	0.017	0.008	−2.128	0.03

In addition, we obtained the following results for both random effects, which could not be removed from the final model without a significant loss (log-likelihood test) in the explanatory power (see rightmost column in Table 4).

Table 4. Standard deviations (sd), Markov chain Monte Carlo sampling statistics and *p*-values of the two random effects included in the minimal adequate model

Random effect	*Sd*	**MCMC mean**	**HPD95 interval**	$p_{removal}$
Subject	0.767	0.604	0.473 / 0.737	<0.0001
Stimulus	0.636	0.599	0.451 / 0.754	<0.0001

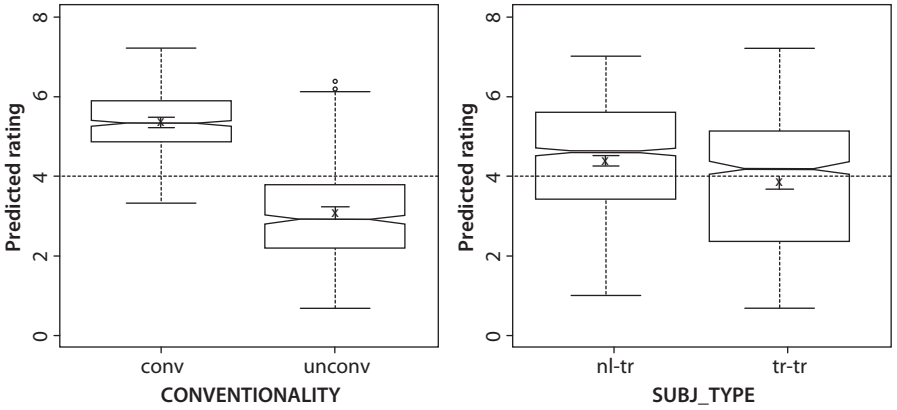

Figure 2. The significant effects of Conventionality (left panel) and SubjectType (right panel)

The overall fit of the minimal adequate model is good. The correlation between the ratings predicted by all predictors in the model and the actually observed ratings is r=0.73. However, such overview statistics are often difficult to interpret. Therefore, we discuss and represent the relevant results in terms of the basis of average tendencies and graphs.

First, consider Figure 1 for the significant main effects of Conventionality and Subject Type; error bars represent 95% confidence intervals of the means indicated by "X".

The two panels in Figure 2 provide a first reassuring glance at the data. As the left panel shows, on the whole, all speaker groups gave higher acceptability ratings to the conventional stimuli than the unconventional ones. However, Conventionality participates in significant interactions, which we will discuss below. As the right panel shows, NL-Turkish speakers gave higher acceptability ratings on the whole; however, SubjectType participates in an interaction, which also requires more scrutiny. The effects of both variables cannot be taken at face value completely because of the interactions to be discussed below. However, they do provide *prima facie* evidence that (i) conventional stimuli were preferred and that (ii) the NL-Turkish speakers gave less conservative ratings. These findings are reassuring since they show that the conventional stimuli are indeed more acceptable. We will discuss the implications of these results in terms of language change in Section 4.

As indicated above in Table 3, the main effect of Conventionality and SubjectType has to be qualified given their interactions. Figure 3 illustrates the two significant two-way interactions.

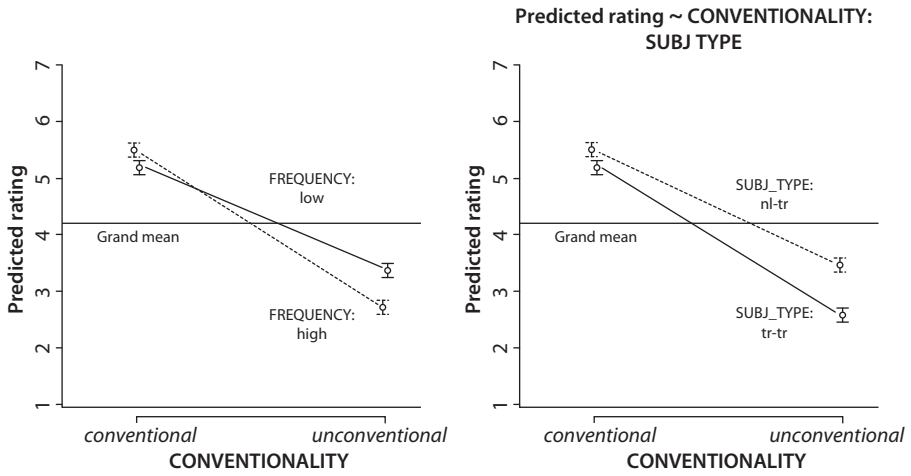

Figure 3. The significant interactions of Conventionality:Frequency (left panel) and Conventionality:SubjectType (right panel)

The left panel shows that the overall effect of Conventionality is not constant across the two Frequency conditions. As already mentioned above, there is an overall preference for conventional over unconventional stimuli. The average judgments for the conventional stimuli (on the left) are higher than those for the unconventional stimuli (on the right). However, the direction of preference varies as a function of Frequency. On the one hand, high-frequency conventional stimuli receive better ratings than low-frequency conventional stimuli. This effect is only small but not unexpected since conventional stimuli generally receive high ratings regardless of their frequency. On the other hand, within the unconventional stimuli, both NL-TR and TR–TR speakers rated the low-frequency stimuli as more acceptable than the high-frequency stimuli.

As illustrated in the right panel, Conventionality does not have the same effect for both subject types. Both NL-TR and TR–TR speakers prefer the conventional stimuli over the unconventional stimuli. At the same time, NL-TR speakers are more tolerant towards unconventional stimuli than TR–TR speakers.

As for the final fixed-effect predictor, let us turn to the three-way interaction. This effect is very hard to represent graphically without colors, but fortunately its main nature can be explained fairly straightforwardly. Over the course of the experiment, all types of subjects assign better ratings to unconventional stimuli. In other words, the more stimuli a subject has seen so far, the higher rating s/he gives to the unconventional constructions. This correlation is also twice as strong for constructions with morphological unconventionality as for constructions with lexical unconventionality. Kendall's τ between the predicted rating and the

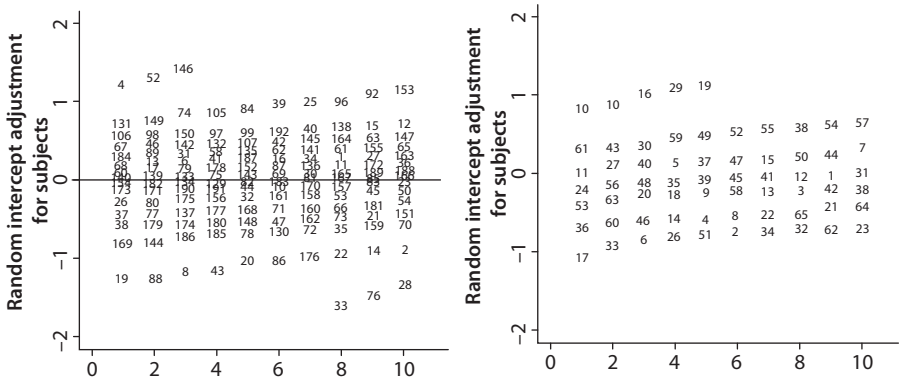

Figure 4. Sizes of random adjustments to intercepts: SUBJECT (left panel) and STIMULUS (right panel)

position in the questionnaire for these expressions are 0.223 and 0.117 respectively (both significant). This clearly indicates the importance of including such control covariates in the statistical analyses of experimental data. In addition, this finding provides *prima facie* support for a usage-based approach of learning and processing. In first language acquisition, there is evidence that very young children can be trained to use nonce-words in existing constructions or even in constructions that do not exist in their own language (cf. Casenhiser & Goldberg, 2005; Tomasello & Brooks, 1998). Similarly, our NL-Turkish and TR-Turkish speakers also exhibit a learning/accommodation process that significantly improves their acceptability ratings of the unconventional constructions even within the course of a short experiment.

In addition to the fixed effects, we also explored the structure of the two random effects included in the final model. Figure 4 represents the random adjustments made for subjects/speakers (left panel) and experimental stimulus sentences.

The intercept adjustments (mentioned in note 2) for the subjects are more varied and more extreme than those of the stimulus sentences. There are quite a few subjects whose idiosyncratic judgment tendencies require adjustments of more than one full grade on our seven-point scale. While we are not going to discuss this in detail and just take advantage of how these adjustments make the model's parameter estimates more precise, it is worth mentioning that an exploratory third model selection process (elimination of six speakers who gave rather extreme average ratings for the filler items) did not change the overall results.

4. Discussion

Like in any other immigrant community, Turkish in the Netherlands is undergoing change. Analyses of an NL-Turkish corpus reveal that most of the change is taking place through the literally translated Dutch constructions. These expressions sound unconventional (if not strange) to TR-Turkish speakers.

Our aim in this study was to investigate to what extent these unconventional constructions are spread within the NL-Turkish speech community. To that end, we explored the link between frequency of unconventional constructions in NL-Turkish spoken data and how NL-Turkish and TR-Turkish speakers (control group) rate them in an acceptability judgment test. Both groups of speakers were asked to give ratings to unconventional (i.e. changing constructions as they are attested in NL-Turkish corpus) and conventional stimuli (conventional TR-Turkish counterparts of the unconventional stimuli).

The results of our analyses indicate that (i) both NL-Turkish and TR-Turkish speakers have a preference for conventional stimuli over unconventional stimuli, but NL-Turkish speakers seem to tolerate unconventional stimuli more than TR-Turkish speakers, and (ii) within the unconventional stimuli, both groups of speakers gave higher acceptability ratings to low frequency stimuli (as observed in the NL-Turkish corpus) than high frequency stimuli.

Given these results, we need to address the following two issues to explain how the on-going change progresses:

1. Even though NL-Turkish speakers hear/use unconventional (i.e. changing) constructions in daily life, why do they have a preference for conventional (i.e. TR-Turkish) constructions in our study?
2. Why do high frequency unconventional constructions receive lower acceptability ratings than low frequency constructions?

The first question could be answered with regard to the nature of the language change process and the sociolinguistic characteristics of the NL-Turkish community. As we have mentioned earlier, the duration of Turkish-Dutch contact has been relatively short (about fifty years). The change process is not completed yet but it is still going on. According to Croft (2010), both the conventional (existing forms) and unconventional constructions (the 'varying forms', in Croft's terms) co-exist and compete with each other in the changing languages until one of them 'wins the game'. That is, the spread of changing constructions depends on the sociolinguistic characteristics of the community (Labov, *this volume*). Similar to some of the immigrant communities in Europe (e.g. the Chinese community in Britain as discussed in Milroy and Wei (1995), the members of the NL-Turkish speech community also have strong social and cultural ties with each other.

In the south of the Netherlands, where the data was collected, the community members usually live very close to each other, sometimes even in the same street. They are mainly from the same region (e.g. Central Anatolia) and most of them have their extended families (e.g. parents, siblings, aunts, uncles, cousins) in the same city. As mentioned in Section 1, there are many social occasions (e.g. weddings, tea parties, religious festivals) and strong networks (e.g. tea houses, Turkish mosques, etc.) where members of the community could meet each other regularly and practice speaking in Turkish. In addition, marriage partners are usually brought from Turkey.

TR-Turkish is still very influential and it is widely accessible via Turkish TV transmitted through the satellite dishes. Similar influence of Turkish TV was observed on Romani and Pomak speakers in Greece (Adamou, 2010; Georgalidou, Sypropulos, & Kaili, 2011) as well. In addition, there is constant contact with TR-Turkish speakers (e.g. family members in Turkey, marriage partners from Turkey). As a result, TR-Turkish is still regarded as the norm by many NL-Turkish speakers. Regardless of their generation of immigration, most of the NL-Turkish speakers regard TR-Turkish as the prestigious dialect and they try to speak like TR-Turkish speakers as much as they can (cf. 'overt prestige' in Labov, 1966). Therefore, it is not surprising that the NL-Turkish speakers have a tendency to favor the TR-Turkish (conventional) constructions in an experimental setting such as ours.

With respect to the second question, there are several arguments to be considered. First of all, it is not uncommon to find mismatches between the frequency results in a corpus and experimentation (cf. Arrpe & Järvikivi, 2007; Divjak, 2008).

Secondly, it is necessary to discuss the operationalization of frequency and its role in usage based approaches to sociolinguistics. While the frequency of a construction in a corpus is assumed to reflect the preferences of speakers in the speech community, the degree to which corpora are representative and/or balanced is often hard to assess or control. Therefore, the frequency of a construction (i.e. an unconventional construction in this case) can differ as a function of the context even between supposedly representative and comparable corpora. In this respect, our NL-Turkish corpus is quite diverse with regard to the dimensions of speakers and topics, but it is still limited in terms of the range of contexts. Therefore, additional studies based on larger corpora (as yet to be constructed) may yield different results with regard to our variable of frequency.

In line with this argument, additional frequency data from the web provide some support for our findings. For example, the utterance [*Hollandalı insanlar çok çalışıyor*] 'Dutch people work very hard' contains one of the low frequency constructions (as they are observed in the NL-Turkish corpus) in our experimental stimuli set. The unconventionality of this utterance stems from the construction [*Hollanda-lı insan-lar*] 'Holland-ORIG. person-PL', which is a literal translation of

the Dutch construction [*Turkse mensen*] 'Turkish people'. In the pilot study, TR-Turkish speakers considered the [*Hollanda-lı insan-lar*] 'Holland-ORIG. person-PL' as unconventional and corrected it with the conventional TR-Turkish version [*Hollanda-lı-lar*] 'Dutch-ORIG-PL'. Despite being labeled as unconventional and appearing only once in the NL-Turkish spoken corpus (thus, it was classified as a low frequency item), this construction has received high ratings both from NL-Turkish and TR-Turkish speakers in the current study.

The explanation for this unexpected result seems to indicate a discrepancy between the frequency of occurrence in the NL-Turkish corpus and the actual use within the speech community. According to the results of the Google search engine, both the conventional (TR-Turkish) and unconventional (NL-Turkish) versions of the same construction are in use on the web but ([*Hollanda-lı-lar*] 'Dutch-ORIG-PL') has a higher frequency of use than ([*Hollanda-lı insan-lar*] 'Holland-ORIG. person-PL') (see Table 5). Interestingly, the unconventional construction ([*Hollanda-lı insan-lar*] 'Holland-ORIG. person-PL') is often used on the web-forums that are often visited by NL-Turkish speakers.

Table 5. Google search engine frequencies for conventional vs. unconventional constructions

Unconventional	Frequency	Conventional	Frequency
Hollanda-lı insan-lar	100	*Hollanda-lı-lar*	18100
Holland-ORIG. person-PL		Holland-ORIG.-PL	

It is possible that NL-Turkish speakers are familiar with this unconventional construction in their own variety but they did not encounter contexts that may have triggered an excessive use in the given NL-Turkish corpus. Due to their familiarity with the construction (in other contexts), they may have given higher acceptability judgments than expected (based on the frequency of the particular construction in the NL-Turkish corpus). A further study is also planned to investigate "overt" and "covert" prestige (Labov, 1966) associated with this particular form within the NL-Turkish community.

Thirdly, there is a more general issue about frequency that all usage-based approaches have to tackle. As mentioned above, these approaches assume that our linguistic knowledge is based on the specific constructions that we experience as a speaker. All constructions are connected to each other in a network, and new/emerging constructions (e.g. unconventional constructions) are categorized on the basis of their similarity to the existing ones (Bybee, 2006). However, we do not exactly know at which level of schematicity a new construction is entrenched for individual speakers. Let us look at an unconventional NL-Turkish construction to illustrate this problem.

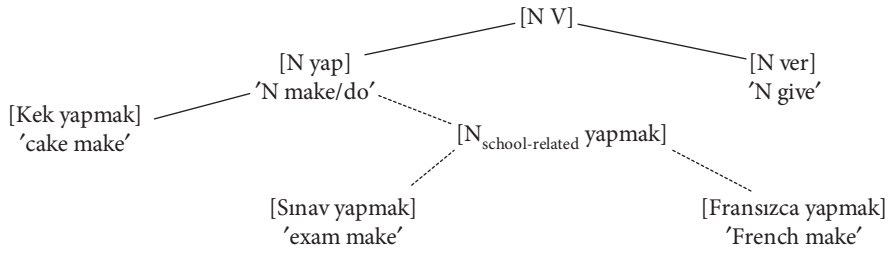

Figure 5. Addition of new nodes to an existing network of a construction

TR-Turkish does not differentiate between the verbs *make* and *do*, but uses the same verb (i.e. *yap* 'do/make') to express both of them. For example, both [*make a cake*] and [*do homework*] will be translated into Turkish as [*kek **yapmak***] 'cake do/make' and [*ödev **yapmak***] 'homework do/make'. In Bybee's terminology, [N *yap*] represent a node in the [N V] network of constructions in Turkish (see Figure 5).

When creating an unconventional construction, NL-Turkish speakers use the existing pattern (e.g. [N *yap*], and change a part of it (i.e. the noun) to add a new, more specific pattern (e.g. [*Fransızca yapmak*] 'French do') to the existing network. In our case, a follow-up exploration of our corpus revealed that NL-Turkish speakers use a variety of maximally specific unconventional constructions where the noun in [N *yap*] is related to school/university frames (cf. the bottom of Figure 5). The addition of different school-related nouns in the N slot gives rise to a slightly more abstract schema of [$N_{\text{SCHOOL-RELATED}}$ *yap*].

In order to test the link between frequency and acceptability, we only looked at the most specific constructions (e.g. [*sınav yap*] or [*Fransızca yap*]) that appear in the NL-Turkish corpus and assume that they represent the more schematic nodes (e.g. [$N_{\text{SCHOOL-RELATED}}$ *yap*] or [N *yap*]). Given the lack of a larger and more representative corpus, we do not really know whether the on-going change is confined to specific constructions (e.g. [*Fransızca yap*]) or could be generalized to more schematic patterns (e.g. [$N_{\text{SCHOOL-RELATED}}$ *yap*]) within the NL-Turkish speech community. A similar dilemma also exists for the individual speakers who provided the acceptability judgments. If an NL-Turkish speaker is still attending a school, s/he may use a particular unconventional construction in his/her idiolect more frequently than someone who has nothing to do with school.

Given the scarcity of large and representative corpora for some languages or registers, this study proves the necessity of reconsidering how to define/operationalize frequency in corpus linguistics and language change studies. Especially with small corpora, frequency of occurrence may reveal more about the sociolinguistic characteristics of a speech community than cognitive entrenchment, lexical strength, or on-going language change.

Finally, while the experimental result was unexpected in the way Conventionality interacted with Frequency, we nevertheless obtained evidence that supports the role of frequency as postulated in usage-based approaches. Recall that both NL-Turkish and TR-Turkish speakers accommodate to the unconventional stimuli over the course of the experiment. In other words, what sounds unconventional at the beginning sounds only less conventional at the end of the experiment for both NL-Turkish and TR-Turkish speakers (cf. Kaschak & Glenberg, 2004 for learning effects in adults). This experimental finding provides evidence for how languages change and new constructions get accepted in a speech community, where more socially-loaded constraints and motivations are also at work. In addition, it also indicates the similarities between language acquisition (cf. Kidd, Lieven, & Tomasello, 2010) and change since both processes make use of existing templates to create new ones.

In this study, we combined cognitive linguistic approaches with sociolinguistic methods in order to measure the spread of on-going changes within the immigrant Turkish speech community in the Netherlands. Although a spoken corpus analysis of NL-Turkish revealed that there are changing constructions, these constructions have not replaced the conventional TR-Turkish variants of the same constructions yet. In other words, the changing NL-Turkish constructions are still in competition with the TR-Turkish constructions. The results indicate that the sociolinguistic characteristics of the bilingual speech community (NL-Turkish) and the continuous contact with the non-contact variety (i.e. TR-Turkish) intervenes with the process of change greatly. In this respect, more research from various on-going contact situations with diverse sociolinguistic characteristics is needed to compare how language change unfolds in these situations.

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Notes

1. The following abbreviations are used: adj-adjective, acc-accusative, loc-locative, obj-object, np-Noun Phrase, prog-progressive tense, orig-originative, past-past tense, pl-plural, pp-prepositional phrase, poss-possessive, sg-singular, subj-subject, vp-Verb Phrase

2. A multiple linear regression computes for each variable a regression line, which requires an intercept (the *y*-coordinate when *x*=0) and a slope (the increase on the *y*-axis for every unit on the *x*-axis). In a traditional regression, all subjects and variables share the same intercept, which means that subject- or item-specific variation is disregarded. The advantage of including 'random intercepts' is that, in this application, every subject's overall preference to give better/worse ratings is accounted for, as is every stimulus sentence's tendency to be judged better/worse, which is one big aspect of what makes mixed-effects model more precise.

3. The provided *b* coefficients are based on sum contrasts; the *p*-values were computed using Markov chain Monte Carlo sampling.

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Appendix

Instructions

In a short while, you will read some sentences in Turkish. We would like you to evaluate them with regard to how they sound to you on a scale from 'very good' to 'very bad / unacceptable'.

The idea is that you evaluate a sentence as 'very good' if you think you would use this sentence yourself in your daily live in some context. On the other hand, you evaluate a sentence as 'very bad' if you think you would never use this sentence yourself. Crucially, this means that we are asking you to leave grammar and/or style rules you may have learned at school aside. We are not interested whether you speak according to the rules that you were taught in Turkish classes — only decide if you would use these sentences yourself, there are no right or wrong answers and we are interested in your intuitions.

Below every sentence, you will see a scale from 1–7. The very left side of the scale indicates "very bad" (I would definitely not use, it sounds very bad), the very right side indicates "very good" (I definitely use it, it sounds very good to me) and the middle indicates (I may use it or I may not use it). If you don't know or you are not able make an evaluation, please tick the box "I don't know" near the scale.

Very bad			**Not too bad/good**			**Very good**	**I don't know**
1	2	3	4	5	6	7	

Read the sentence, quickly (!) and decide how it sounds to you.

(1) *Murat 9 trenini aldı "Murat took the 9 o'clock train"*

You might have learned that this sentence may not be right. However, you may be using this sentence in some contexts yourself (e.g. in your family, speaking with Turkish people in the Netherlands). If that was indeed the case, you should mark this sentence somewhere close to the left end of the line, depending on the strength of your evaluation, maybe like this:

Very bad			**Not too bad/good**			**Very good**	**I don't know**
1	2	3	4	5	6	7 **X**	

Another example:

(2) *Murat school go.*

For a Turkish speaker, this sentence sounds very bad and you will probably never want to use it. If that was indeed the case, you should mark this sentence somewhere close to the right end of the scale, maybe like:

Very bad			**Not too bad/good**			**Very good**	**I don't know**
1	2 **X**	3	4	5	6	7	

Now, if you mark a sentence on the left half of the scale, please also note how you would improve the sentence to make it better/right, maybe like:

Murat goes to school.

Please evaluate the questions quickly in the given order. If you have any questions, please ask before we start. Thank you very much for your participation.

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