

# Pragmatic relativity: Gender and context affect the use of personal pronouns in discourse differentially across languages

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## Abstract

Speakers need to use a variety of referring expressions (REs) (e.g. full noun phrases, pronouns or null forms) in pragmatically appropriate ways to produce coherent narratives. Languages, however, differ from each other in terms of a) whether REs as arguments can be dropped or not and b) whether personal pronouns encode gender or not. Here we examine two languages that differ from each other in these two aspects and ask whether the co-reference context (i.e., referents are maintained or re-introduced) and the gender encoding options affect the use of REs differentially. We elicited narratives from Dutch and Turkish speakers about two types of three-person events, one including people of the same and the other of mixed-gender. Speakers of both languages followed a general principle of using full forms such as noun phrases (NPs) while re-introducing a previously mentioned referent into the discourse and reduced forms (overt or null pronoun) while maintaining the same referent; a language independent strategy in discourse production. Turkish speakers, unlike Dutch speakers, used pronouns mainly to mark emphasis. Furthermore, Dutch but not Turkish speakers used pronouns differentially across the two videos. Thus, we argue that linguistic possibilities available in typologically different languages might tune speakers into taking different principles into account to establish coherence in narratives in pragmatically coherent ways.

**Keywords:** referring expressions; gender encoding; pronouns; cross-linguistic comparison; discourse production

## Introduction

Throughout discourse, speakers often refer to the same entities, but they do not always use the same referring expression (RE). It has been suggested that speakers are sensitive to the information status of the referents: They use fuller forms (e.g. a full noun phrase) to (re-)introduce a new, less accessible referent, and prefer reduced forms (e.g. overt or null pronouns) when maintaining an already given, more accessible referent (Ariel, 1990; Chafe, 1976). A general conclusion of these studies is that speakers encode only as much information as their addressee needs in order to uniquely identify the intended referent. Since an NP encodes more semantic information, it is preferred for less accessible

referents while pronouns, which do not encode much semantic information, are used for maintained that is for more accessible referents. Therefore, the accessibility of a referent and the amount of information encoded in the referring expression that refers to it show an inverse relation. Speakers of different languages seem to follow the same strategy even though languages differ in the forms they make use of, such as whether dropping arguments is allowed or not (Azar and Özyürek, 2015; Berman and Slobin 1994; Perniss and Özyürek, 2015; Yoshioko, 2008). The difference between languages which do allow argument drop (pro-drop languages) and those that do not (non-pro-drop languages) surfaces mostly in contexts where referents are maintained. The default form in non-pro-drop languages is the overt pronoun while for pro-drop languages it is the null pronoun (Carminati, 2002).

This picture raises the question of what function personal pronouns has in tracking reference in different contexts, especially in pro-drop languages. To our knowledge, there are only a few studies comparing pro-drop to non-pro-drop languages directly in a discourse elicitation task (e.g., Aksu-Koç & Nicolopoulou, 2015; Perniss and Özyürek, 2015; Yoshioko, 2008). However, Perniss and Özyürek (2015) collapsed NPs and overt pronouns into one category, *overt* and Aksu-Koç and Nicolopoulou collapsed overt and null pronouns into one category, *pronoun*. Thus there are not enough studies showing how a specific category of RE, especially the overt pronoun, is used across typologically different languages in the same discourse context.

Languages also differ from each other in whether personal pronouns encode gender, and how this affects the organization of extended discourse across languages is not known. It is possible that in addition to general principles of accessibility, there might be other principles that are differentially taken into account during the choice of a specific RE in discourse.

To investigate these questions, we compare adult speakers of two typologically different languages, Turkish (pro-drop) and Dutch (non-pro-drop), in an elicited discourse study. While Turkish has a single third person pronoun, Dutch

third person singular pronouns are gender specific. We manipulated the gender of the characters in the events in our experimental stimuli to see whether Turkish and Dutch speakers organize their discourse and their use of REs differently, especially in the case of pronouns. We also examine the specific functions of personal pronouns in discourse narratives of Turkish speakers.

### Linguistic characteristics of Turkish and Dutch

One of the differences between Turkish and Dutch that is relevant for reference tracking is that they differ in which specific context null pronouns are allowed. Overt realization of arguments is normally required for grammatical productions in Dutch. However, subject arguments may be left unmentioned when consecutive clauses refer to consecutive actions performed by the same subject. Null subjects have been reported to be relatively low in Dutch discourse narratives (e.g., 23.38% in Flecken, 2011; 12% in Gullberg, 2006). In Turkish, however, in maintained contexts the null pronoun is the default form. It is argued that an overt pronoun is used only when the referent has an emphatic or contrastive function (Enç, 1986). Some of the studies on Turkish, however, are based on native intuitions of the authors and not on empirical data (Enç, 1986; Erguvanli-Taylan; 1986; Özsoy, 1987) or on written discourse (Kerslake, 1987; Turan, 1995). A few studies with discourse production data from adults in an experimental setting either focused on only one RE form (e.g. Küntay, 2002, NPs only) or collapsed overt and null pronoun into one category (Aksu-Koç & Nicolopoulou, 2015) or they had a relatively small sample size (Azar & Özyürek, 2015). Thus, the function of overt pronouns in relation to null pronouns in tracking referents in adult discourse in Turkish and especially in marking maintained and re-introduced referents is still not very clear.

The other relevant difference between the Turkish and Dutch is (+/-) gender encoding of the personal pronouns. Turkish third-person pronoun (*o* for singular and *onlar* for plural) does not encode gender and is the equivalent of *he, she, it* in English. On the other hand, Dutch singular third person pronouns *hij* (he) and *ze/ zij* (she) are gender specific.

### Predictions

Concerning the general reference tracking strategies, we expect both Turkish and Dutch speakers to re-introduce referents dominantly with NPs, thus with fuller forms. We expect both groups of speakers to prefer maintaining referents with reduced forms, null pronoun for Turkish (pro-drop) speakers and overt pronoun for Dutch (non-pro-drop) speakers. As for gender, we expect Dutch speakers to use more overt pronouns while narrating the mixed-gender video compared to the same-gender video, specifically in the re-introduction context. In that context, speakers can refer back to a previously mentioned referent with a personal pronoun encoding gender without causing an ambiguous interpretation of the pronoun. We hypothesize

that a personal pronoun might be more helpful for the addressee in an event narration with mixed-gender characters as it uniquely identifies a particular character. This advantage is absent with same-gender characters. Compare (1a) to (1b); personal pronouns in (1a) are ambiguous while in (1b) the hearer can easily identify who the personal pronouns *she* and *he* refer to. Since the third person pronoun encodes gender only in Dutch, we expect an effect of gender on pronoun use only for Dutch speakers but not for Turkish speakers

(1a)

Suzan and Ellen went to college together.  
She was studying math while she was studying literature.

(1b)

Suzan and Robert went to college together.  
She was studying math while he was studying literature.

## Method

### Participants

Twenty pairs of native speakers of Dutch studying in Nijmegen (14 female; mean age 21.5) and twenty pairs of native speakers of Turkish studying in Istanbul (17 female; mean age 22.2) participated in our study in return for payment or course credits. They had normal or corrected-to-normal vision and no history of language impairment.

### Stimuli

Our stimuli consisted of two short silent videos. Figure 1 illustrates stills depicting different actions from each video. In one video three women (same-gender condition) were engaged in cooking activities (Perniss and Özyürek, 2015). The two women who are seen to be cutting vegetables in the stills below had a more prominent role compared to the woman who is standing, and both were involved in a similar number of actions (N=10; 11). In the other video two women and one man (mixed-gender condition) were engaged in office activities. The woman and the man seen to be sitting in the first still were more prominent compared to the woman sitting behind a computer, and again each was involved in a similar number of actions (N=15; 16). Both videos included actions mainly performed by a single character although the overall activity depicted in each video (cooking and office activities) could be seen as joint.

### Procedure

Participants were invited to a quiet room in pairs and randomly assigned the role of either the speaker or the addressee (they were not made aware of the role division). The addressees were not confederates and were naïve to the stimulus materials. Participants were instructed by the experimenter in the relevant language. Speakers were instructed to watch the videos one by one and to tell the addressee what they had seen after each video.



Figure 1: Still frames from the same-gender (all female) and the mixed-gender (two females; one male) video stimuli

The stimuli were presented on a computer screen. The addressees did not see the videos. Addressees were instructed that after each narrative, they could ask clarification questions. They were also informed that they would be given two short written questions about each narrative. The purpose of this was to ensure that the speakers included enough details in their narratives and that the addressees pay attention to the narratives. Once the instructions were given, the experimenter left the room and came back with the questions for the addressee after each narrative. The order of the two videos was counter-balanced. Each session was video recorded.

### Data coding

We coded and analyzed speech only from the speakers of each tested pair. We transcribed the video narratives using the standard orthography of each language with the frame-by-frame video annotation software ELAN<sup>1</sup>. Each narrative was divided into main clauses, defined as utterances with a single subject argument and a single predicate. The subject argument of a main clause itself could express an event or an activity as in the case of nouns modified by a relative clause (e.g., the woman who is cooking). We coded only main clauses with an animate grammatical subject. Each subject referent was coded for one of the following referring expressions: *noun phrase (NP)* (bare noun, noun with a simple modifier or relative clause modifier, etc.), *overt pronoun* (personal pronoun, demonstrative pronoun, indefinite pronoun, etc.) and *null pronoun*. In addition, each main clause was coded for subject-to-subject local co-reference (cf. Hickmann and Hendricks, 1999). A *Maintenance* context implies that the subject referent of the current main clause is identical to that of the immediately preceding main clause. A *Re-introduction* context implies that the subject referent of the current main clause is not identical to the subject in the immediately preceding main

<sup>1</sup> ELAN is an annotation tool developed at the Max Planck Institute for Psycholinguistics, Nijmegen at The Language Archive department (cf. Lausberg, H., & Sloetjes, H., 2009).

clause but has been previously mentioned in the discourse (cf. Gullberg, 2006). (2) contains four successive clauses extracted from a single discourse narrative in our Turkish dataset as an example of these coding categories. Subject referents are italicized and letters donate co-referentiality.

- (2)
- |  |                            |
|--|----------------------------|
| <i>Kız<sub>i</sub></i> ; ordan kalkıyo.          | NP/re-introduction         |
| <i>Ø<sub>i</sub></i> ; kitaplığın yanına gidiyo. | null pronoun/ maintenance  |
| <i>Çocuk<sub>j</sub></i> ; kalkıyo masadan.      | NP/re-introduction         |
| <i>O<sub>j</sub></i> da gidiyo kitaplığa.        | overt pronoun/ maintenance |

*Girl<sub>i</sub>* is standing up.  
*(She)<sub>i</sub>* is going to the bookshelf.  
*The boy<sub>j</sub>* is standing up off the table.  
*He<sub>j</sub>* is also going to the bookshelf.

## Results

We analyzed a total of 1.046 Turkish main clauses (426 re-introduced and 620 maintained) and 792 Dutch main clauses (360 re-introduced and 432 maintained) for the proportion of subject referents encoded with an NP, overt pronoun and null pronoun. We did not attest a systematic reason why Turkish speakers produced more clauses than Dutch speakers. Turkish speakers seemed to provide more details regarding the events in the stimulus videos. We will first present how co-reference context affects the choice of a specific RE cross-linguistically and later whether this effect is modulated by the gender of the characters mentioned in the discourse.

### Effect of context

We calculated the mean proportion of NPs, overt and null pronouns out of all animate subject referents in narratives. Arcsine transformation was performed on the means before any analyses were carried out. We report the untransformed means.

We performed a mixed-effect analysis of variance with the RE type (NP, overt pronoun, null pronoun) and co-reference context (re-introduction, maintenance) as repeated measures and language (Turkish, Dutch) as independent measure. Bonferroni corrections were applied for multiple comparisons to all analyses and Greenhouse-Geisser correction was applied where the assumption of sphericity was violated. We report the corrected degrees of freedom. The analysis showed a significant main effect of RE type  $F(2) = 16.390, p < .001, \eta^2 = .301$ . It also showed a significant interaction of RE type and language  $F(2) = 68.986, p < .001, \eta^2 = .645$ , RE type and co-reference context  $F(2) = 247.436, p < .001, \eta^2 = .867$  and RE type, co-reference context and language  $F(2) = 31.891, p < .001, \eta^2 = .456$ .

Next, we performed a mixed-effect analysis of variance separately for each co-reference context with RE type (NP, overt pronoun, null pronoun) as repeated measure and language (Turkish, Dutch) as independent measure. The analysis for the re-introduction context showed a significant

main effect of RE type  $F(1.240) = 184.903, p < .001, \eta^2 = .830$  and a significant interaction of RE type and language  $F(1.240) = 7.391, p = .006, \eta^2 = .163$ . Separate repeated measures of analysis of variance for each language showed a significant main effect of RE type for both Turkish  $F(1.278) = 109.752, p < .001, \eta^2 = .852$  and Dutch  $F(1.013) = 87.661, p < .001, \eta^2 = .996$ . Both groups of speakers re-introduced subject referents mostly with NPs ( $M = .737, SE = .026$  for Turkish;  $M = .767, SE = .036$  for Dutch). Turkish speakers used more null pronouns ( $M = .185, SE = .024$ ) than overt pronouns ( $M = .078, SE = .015$ ). Dutch speakers showed the reverse pattern. They used overt pronouns more ( $M = .230, SE = .036$ ) in comparison to null pronouns ( $M = .003, SE = .002$ ). Compared to Dutch speakers, Turkish speakers used overt pronouns less  $t(38) = -3.875, p < .001$  and null pronouns more  $t(38) = 7.452, p < .001$ .

The analysis for the maintenance context showed a significant main effect of RE type  $F(1.194) = 52.922, p < .001, \eta^2 = .940$  and a significant interaction of RE type and language  $F(1.194) = 95.725, p < .001, \eta^2 = .736$ . Separate repeated measures of analysis of variance for each language showed an effect of RE type both for Turkish  $F(2) = 352.838, p < .001, \eta^2 = .960$  and Dutch  $F(1.109) = 39.875, p < .001, \eta^2 = .677$ . Turkish speakers maintained subject referents mostly with null pronouns ( $M = .747; SE = .016$ ),  $p < .001$  and they used NPs and overt pronouns equally often ( $M = .126, SE = .013; M = .128, SE = .014$ ). Dutch speakers on the other hand maintained subject referents mostly with overt pronouns ( $M = .699; SE = .049$ )  $p < .001$ , then null pronouns ( $M = .236, SE = .046$ ) and the least with NPs ( $M = .065, SE = .014$ ),  $p < .007$ ). The frequency of null subjects in maintenance contexts in Dutch is similar to the numbers reported in previous literature on Dutch narratives; see (3) for an example where the speaker introduces a referent into discourse and leaves the subject referent unexpressed in the consecutive clauses. Independent sample t-tests showed that compared to Dutch speakers, Turkish speakers used fewer overt pronouns  $t(38) = -9.135, p < .001$  but more null pronouns  $t(38) = 10.788, p < .001$  and NPs  $t(38) = 3.158, p = .003$ .

(3)  
*Die andere vrouw<sub>i</sub>* staat op. NP/re-introduction  
*Ø<sub>i</sub>* zet bureaustoel ook weer weg. null pronoun/maintenance  
*Ø<sub>i</sub>* loopt naar 'n boekenkast. null pronoun/maintenance  
*Ø<sub>i</sub>* gaat daar staan. null pronoun/maintenance

*That other woman<sub>i</sub>* stands up.  
*(She)<sub>i</sub>* put the office chair back.  
*(She)<sub>i</sub>* walks to the bookshelf.  
*(She)<sub>i</sub>* stands there.

As these analyses show (Figure 2), the overt pronoun is not the preferred option for any of the contexts in Turkish, unlike in Dutch. Further paired sample t-test showed that Turkish speakers used more pronouns in maintenance contexts  $t(19) = 2.869, p < .010$  than in re-introduction

contexts. Additional analysis showed that when overt pronouns were used in Turkish, 82% percent of the occurrences were accompanied by the clitic *-de/-da* (meaning *also*) which modifies the noun preceding it (see 4a). This clitic has been suggested to be a marker of focus and emphasis (Bican, 2000). In (4a) the speaker emphasizes that the woman is helping the man, she is also participating in the action the man has been performing. In Dutch on the other hand overt pronouns were used as the default form to maintain referents and were not accompanied by an extra emphasis marker (see 4b).

(4a)  
 Ondan sonra  $\emptyset_i$  oturuyor yanına. maintenance/null pronoun  
*O<sub>i</sub>* da yardım ediyor. maintenance/overt pronoun

Then *(she)<sub>i</sub>* is sitting next to (him).  
*She<sub>i</sub>* is also helping.

(4b)  
 En  $\emptyset_k$  gaat naast die jongen zitten. maintenance/null pronoun  
 En *ze<sub>k</sub>* helpt mee. maintenance/overt pronoun

And *(she)<sub>k</sub>* is sitting next to that boy.  
 En *she<sub>k</sub>* is helping along.

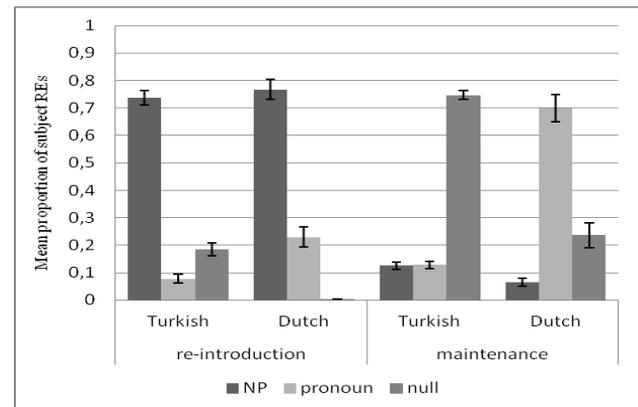


Figure 2: The distribution of RE types across the two co-reference contexts in Turkish and Dutch. Error bars represent standard errors of the mean.

### Effect of gender

Since we found an interaction of RE type and co-reference context, we analyzed the two contexts separately in looking for effects of gender in the videos. We conducted a mixed effect analysis of variance separately for each co-reference context, re-introduction and maintenance, with RE type (NP, overt pronoun, null pronoun) and video type (same-gender, mixed-gender) as repeated measures and language (Turkish, Dutch) as independent measure. The Greenhouse-Geisser correction was applied in all analyses. We report the corrected degrees of freedom.

The analysis for the re-introduction context did not show a significant main effect of video type or an interaction of RE

type and video type. It only showed a significant main effect of RE type  $F(1.210)=186.847$ ,  $p<.001$ ,  $\eta^2 = .831$  and a significant interaction of RE type and language  $F(1.210)=7.234$ ,  $p=.007$ ,  $\eta^2 = .160$ . Therefore, contrary to our prediction, neither Turkish nor Dutch speakers re-introduced subject referents differently in the narratives of the two types of videos.

The analysis for the maintenance context on the other hand did show a significant main effect of RE type  $F(1.227)=47.899$ ,  $p<.001$ ,  $\eta^2 = .558$ , and language  $F(1)=5.563$ ,  $p=.024$ ,  $\eta^2 = .128$ . It also showed a significant interaction of RE type and language  $F(2)=91.540$ ,  $p<.001$ ,  $\eta^2 = .707$ , video type and language  $F(1)=8.163$ ,  $p=.007$ ,  $\eta^2 = .177$  and RE type and video type  $F(1.652)=11.938$ ,  $p<.001$ ,  $\eta^2 = .239$ . Separate repeated measures of analysis of variance for each language showed an interaction of RE type and video type only for Dutch  $F(1.208)=9.325$ ,  $p=.004$ ,  $\eta^2 = .329$ . Therefore further analyses were conducted only in Dutch. Due to the interaction of RE type and video type, we performed repeated measures of analysis of variance for each video type separately. The analysis showed a significant main effect of RE type for both the same-gender  $F(1.164)=61.429$ ,  $p<.001$ ,  $\eta^2 = .723$  and the mixed-gender videos  $F(1.196)=24.235$ ,  $p<.001$ ,  $\eta^2 = .525$ . Pairwise comparisons of RE type within each video showed that in the same-gender narratives, Dutch speakers used overt pronouns ( $M=.780$ ,  $SE=.050$ ) significantly more often than NPs ( $M=.047$ ,  $SE=.016$ ) and null pronouns ( $M=.172$ ,  $SE=.046$ ),  $p<.001$ , but did not differentiate between the last two  $p=.057$ . While narrating the mixed-gender videos, Dutch speakers again used the overt pronoun as the most preferred RE type ( $M=.63$ ,  $SE=.056$ ). However, this time they used null pronouns ( $M=.280$ ,  $SE=.054$ ) more frequently than NPs ( $M=.09$ ,  $SE=.020$ ). Further paired sample t-tests showed that Dutch speakers used more pronouns while maintaining referents during the narratives of the same-gender video compared to the mixed-gender video  $t(19)=3.163$ ,  $p=.005$ . Figure 3 depicts the preferred expressions for each type of videos in maintenance context for both languages.

## Conclusion and Discussion

We have shown that speakers of typologically different languages in general use fuller forms while re-introducing a previously mentioned referent into the discourse and reduced forms while maintaining the same referent. This provides additional support to the previous theoretical and empirical work on reference tracking that has identified this as a language independent strategy in discourse production.

We have also provided additional cross-linguistic evidence by directly comparing adult speakers of two typologically different languages. This study also investigated which reduced form (overt or null pronoun) is preferred in each co-reference context and for what functions. Pronouns are used differently in creating coherent discourse in different languages.

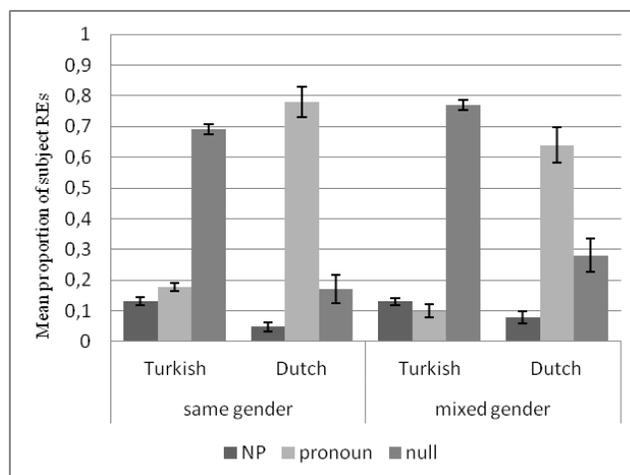


Figure 3: The distribution of RE types in maintenance contexts across the narratives of the two types of videos in Turkish and Dutch. Error bars represent standard errors of the mean.

Our findings from adult data support previous claims that Turkish speakers use overt pronouns mainly to mark emphasis in extended discourse and mostly in maintenance contexts. They use null pronouns as the default form in maintenance contexts. Dutch speakers on the other hand do not necessarily use pronouns to mark emphasis but rather as a default form in maintenance contexts. This current analysis directly comparing two languages then specifies the differential functions that pronouns might have in typologically different languages.

A novel contribution to the existing literature on spoken discourse production and reference tracking is our focus on gender. By manipulating the gender of the referents to be mentioned throughout the extended discourse, we were able to show that whether the genders of the people mentioned in the story are the same or not influences the reference tracking strategies of Dutch speakers but not of Turkish speakers. Pronoun use in Turkish is limited to pragmatic purposes and additionally pronouns do not encode gender. Thus using pronouns when the referents are of different gender is not an additional discourse strategy that Turkish speakers can use to create unambiguous references. Differences in gender encoding, however, manifested in different ways than we originally predicted.

We had predicted that speakers of Dutch, which encodes gender in third person singular pronouns, will use more overt pronouns while re-introducing referents during the mixed-gender narratives. Although we found an effect of gender manipulation for Dutch, we found it in the maintenance context rather than in the re-introduction context. We tentatively argue that it could be cognitively more challenging for Dutch speakers to use pronouns with mixed genders in the maintenance contexts since in order to use the correct pronoun they need to keep track of the gender of the character they just mentioned, on top of the actions they are engaged in. Tracking both actions and the

gender of the referents may be cognitively more demanding and therefore the speakers might use fewer pronouns the mixed-gender narratives compared to the same-gender narratives. While narrating the same-gender video, on the other hand, speakers do not have to keep track of the gender of their referents in maintenance contexts since all the characters in that video are female. Speakers do not necessarily need to activate the gender of the referents; using 'zij/ze' (*she*) is always grammatically correct and therefore a "safe" strategy. The reason why we do not find a similar effect in re-introduction context may be because speakers re-introduce referents mainly with an NP in narratives of both videos, almost all the time and thus the use of pronoun does not seem to be a common strategy in this context anyway.

The comparisons we provide in this study open new ways for the "pragmatic relativity", namely revealing differential attention (at least as measured by the use/non-use of certain forms) to those aspects of events and contrasts across speakers of typologically different languages to create pragmatically appropriate and coherent narratives. Further research needs to systematically study the interplay between different factors and discourse contexts, drawing extended discourse data from typologically different languages to understand the whole mechanism underpinning how speakers of different languages track referents and their significance for non-linguistic cognition.

### Acknowledgements

This research is funded by the Center for Language Studies, Radboud University Nijmegen, the Netherlands and partially by the European Council Erasmus Staff training grant awarded to the first author by the International Office Radboud University. We thank Dr. Pamela Perniss for the same-gender stimulus video. We also thank Dr. Ayşe Caner and Dr. Nihan Ketrez for providing the location for the data collection in Istanbul, Turkey and their help for recruiting participants.

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