Cognition 265 (2025) 106285

Contents lists available at ScienceDirect

Cognition

journal homepage: www.elsevier.com/locate/cognit

Brief article

Discourse genre predicts demonstrative use in text: Experimental evidence from Dutch and Mandarin

David Peeters [a,*], Suzanne Schuurman [b], Tianning Zhai [b], Emiel Krahmer [a], Yan Gu [c,d], Alfons Maes [a]

[a] Tilburg University, Department of Communication and Cognition, TiCC, Tilburg, the Netherlands
[b] Leiden University Centre for Linguistics, Leiden University, the Netherlands
[c] Department of Experimental Psychology, University College London, London, UK
[d] Department of Psychology, University of Essex, Colchester, UK

ARTICLE INFO

Keywords:
Discourse genre
Demonstratives
Reference
Deixis
Experimental pragmatics

ABSTRACT

In written language, demonstratives such as *this* and *that* allow writers to produce coherent texts and readers to build up a consistent mental model of the message that is conveyed. But what makes a writer decide to use one demonstrative (*e.g.*, *this*) over another (*e.g.*, *that*)? Here we present experimental evidence, from both Dutch and Mandarin, that discourse genre is the main predictor of writers' demonstrative use in text. Specifically, the results of a text elicitation task show that expository texts mainly elicited proximal demonstratives (*this*, *these, here*) while narrative texts showed a significant increase in distal demonstrative (*that*, *those*, *there*) use. This finding is taken to reflect that writers mentally position textual referents in psychological proximity to themselves or to the reader as a function of the genre of their text.

1. Introduction

The importance for human communication of the seemingly simple words *this, that*, *here* and *there* cannot easily be overstated. In everyday talk, such demonstratives allow us to link our thoughts to the world around us (Bühler, 1934), shifting the visual attention of our interlocutors to that aspect of the physical world we are speaking about (Ahn, 2022; Küntay & Özyürek, 2006), often in close collaboration with concurrent pointing gestures and eye movements (Cooperrider, 2016; Rubio-Fernández, 2022). Demonstratives exist in all languages (Diessel, 2006), and they may even be considered the basic evolutionary foundation our present-day spoken languages were built on (Rubio-Fernández, 2024; Tomasello, 2008).

Demonstratives not only linguistically link the mental models in our minds to the physical reality outside of it, but also form the verbal glue that keeps larger stretches of discourse together (Maes et al., 2022b; Peeters et al., 2021). In written texts, they may establish the anaphoric connection between different textual elements within and across sentences, by effectively reactivating previously introduced information in the mind of the reader (Ariel, 1990; Gundel et al., 1993). Indeed, text-based demonstratives taking the form of a pronoun, determiner, or adverb may efficiently link back to a noun phrase or proposition that was mentioned earlier in the text and which, through the anaphoric use of the demonstrative, becomes its antecedent (Çokal et al., 2014; Maes et al., 2022b).

Interestingly, most if not all spoken languages have more than one type of demonstrative and make at least a two-way differentiation between a 'proximal' and a 'distal' term (Diessel, 1999; Levinson et al., 2018). For instance, a typological distinction can be made between *this* and *that* in English, *dit* and *dat* in Dutch, and 这 (*zhè*) and 那 (*nà*) in Mandarin. The mere existence of more than one type of demonstrative per language raises the question what factors determine whether a writer selects one demonstrative or another in the discourse they produce. Broadly speaking, two opposing theoretical views can be distinguished in this domain, focusing on local *versus* global explanatory variables respectively.

A first theoretical position is that 'local' discourse-internal variables explain why a writer selects one demonstrative and not another (Ariel, 1990; Gundel et al., 1993). Under this account, discourse referents are assumed to have a variable degree of activation in the mind of the reader, making them more or less accessible or given. According to the accessibility hierarchy, for instance, the more accessible a referent is

* Corresponding author at: Department of Communication and Cognition, Tilburg University, P.O. Box 90153, NL-5000 LE Tilburg, the Netherlands.
E-mail address: d.g.t.peeters@tilburguniversity.edu (D. Peeters).

https://doi.org/10.1016/j.cognition.2025.106285
Received 16 December 2024; Received in revised form 13 June 2025; Accepted 6 August 2025
Available online 13 August 2025

(still) deemed in the mind of the reader, the higher the chance a proximal (*vs* a distal) demonstrative will be used by the writer (Ariel, 1988). This view predicts that proximal demonstratives occur more often when their antecedent is in the same or directly preceding clause, while distal demonstratives should have more remote antecedents. Indeed, "distal demonstratives tend to refer to more remote entities, while proximal demonstratives refer to more immediate entities" (Ariel, 1988, p. 76). In addition, since accessible and given topics are often presented in initial and subject positions in a sentence (Chafe, 1976; Kaiser & Trueswell, 2008), this account predicts that, when used anaphorically, proximal demonstratives should appear more often in subject and sentence-initial positions compared to distal demonstratives (*cf.* Ariel, 1990, p. 52).

A second theoretical position is that the 'global' discourse genre of a text is most important in explaining which exact demonstrative a writer selects (Maes et al., 2022a; Peeters et al., 2021). Under this account, writers mentally position referents somewhere in the shared psychological space between themselves and their reader as a function of the genre of their text. In expository texts, which "are primarily intended to inform" the reader (Mar et al., 2021, p.733), referents are conceptualized as psychologically close to the knowledgeable writer, predominantly eliciting proximal demonstratives across the entire text. For this type of text, "it is rare that readers can rely on common knowledge to generate inferences" (Mar et al., 2021, p.733). Narrative texts, in contrast, "generate more knowledge-based inferences" (Mar et al., 2021, p.733), for instance by appealing to the common ground between writer and reader. They often primarily aim "to tell a story" (Weaver & Kintsch, 1991, p.230). As such, they 'reach out' by mentally positioning referents close to the reader, rather than close to the writer, as indicated through the predominant use of distal demonstratives in this discourse genre. Overall, the global view therefore predicts that expository texts should primarily contain proximal (*vs* distal) demonstratives, while narrative texts should predominantly contain distal (*vs* proximal) demonstratives (Maes et al., 2022a; Peeters et al., 2021). In this view, the 'local' variables that are central to the theories relying on notions such as accessibility and givenness may play only a relatively minor, secondary role (Maes et al., 2022b).

A recent corpus study provided preliminary evidence for the importance of discourse genre in explaining writers' demonstrative choice (Maes et al., 2022a). In line with earlier corpus work (Kirsner, 1979; Maes, 1996), it was observed that 'expository' texts taken from Wikipedia indeed predominantly contained proximal demonstratives while intrinsically 'narrative' news articles were found to mainly contain distal demonstratives. As such, in this corpus analysis, the texts' global discourse genre (expository *vs* narrative) explained significantly more variance in writers' demonstrative choice than the local variables proposed by theories that rely on a referent's local accessibility and givenness (Maes et al., 2022a).

However, the expository and narrative corpora that were analyzed consisted of texts produced by different writers with variable writing experience, comprised widely differing topics, and contained different referents. We know that idiosyncratic preferences of individual writers as well as intrinsic properties of a referent may influence which demonstrative that writer uses (Castro Ferreira et al., 2016; Kruse et al., 2024; Peeters et al., 2021; Rocca, Tylén, & Wallentin, 2019). Therefore, to properly contrast and test the two theoretical views outlined above, we need an experimental study in which the same writers describe events in different discourse genres.

Below, we report the results of such an experimental test, which was carried out in two unrelated languages (Dutch and Mandarin) that both possess a two-term demonstrative system. As "the two broadest [discourse] genres [are] narrative and expository texts" (Mar et al., 2021, p.732), we focused on these two genres in Dutch and Mandarin. While in Dutch the overall frequency of occurrence of proximal *versus* distal anaphoric demonstratives is about equal, Mandarin is known to have a substantially higher baseline preference for proximal (*vs* distal) anaphoric demonstratives (*e.g.*, Wu, 2004; Xu, 1987; J. Zhang, 2015; M. Zhang, 1991). As such, the current study will not only provide a first indication of whether writers across the globe, like speakers do, rely on similar cognitive principles when selecting a demonstrative (*cf.* Coventry et al., 2023), but also whether any potential effect of discourse genre on demonstrative use will be strong enough to surface when there is little room for demonstrative variation to occur, as in Mandarin.

2. Method

2.1. Participants

Ninety-nine native speakers of Dutch (61 female, 37 male, 1 non-binary; *M* age = 37.6; age range = 17–81 years old) took part in the Dutch experiment. One-hundred[1] native speakers of Mandarin (53 female, 47 male; *M* age = 26.2; age range = 19–40 years old[2]) took part in the Mandarin experiment. A subset of the Dutch participants were student member of a Tilburg University participant pool and received course credits in exchange for participation. All Chinese participants were invited via the online platform Wenjuan and received financial compensation for their time.

2.2. Stimuli and design

The Dutch and the Mandarin experiment had an identical 2 (scenario: tree *vs* traffic sign) x 2 (discourse genre: narrative *vs* expository) design. The stimuli used in each of the four conditions consisted of a short written description of a recent event, an image providing the visual environment in which the event was said to have taken place, and a table with information in which the main event details were summarized. The *tree scenario* described the event of a pine tree falling on a shed in the participant's backyard during a storm last weekend, damaging both the shed and a lawn mower inside of it. The shed was described as having been constructed by the participant together with their friend. This written scenario was accompanied by an image depicting the result of the storm. The *traffic sign scenario* described the event of the participant waking up in the middle of the night from noise in the street and seeing a stop-sign being stolen by a group of people that wore coats with the local football team's logo on it. The traffic sign was described to have been placed in the street following a request by the participant and their friend living next door. The morning following the theft the participant is described to have witnessed a cyclist almost being hit by a car in the absence of the traffic sign. This written scenario was accompanied by an image depicting a stop-sign in an urban street environment. Fig. 1 shows the exact information provided to the participants. We opted for those two scenarios as they would work for both languages and genres, contained events and referents that allowed for demonstrative use in a written report, and were not so personal that they would primarily elicit possessives (*e.g.*, 'my tree') rather than demonstratives (*e.g.*, 'this tree'). The full experiment (translated into English) can be found *via* the OSF-link below.

[1] Sample size was based on the earlier corpus study by Maes et al. (2022a) that used a statistical analysis that was identical to the analysis that was carried out in the current study but included three (rather than two) discourse genres. That earlier study analyzed an average of 670 demonstratives per discourse genre. Informal piloting of the current study suggested that having 100 participants per language group would result in about 400 demonstratives per genre per language to be analyzed, *i.e.*, about 2/3 of demonstratives for a study that has 2/3 of the number of genres included as the previous study.

[2] As our Dutch participants were substantially older than our Mandarin participants, Section 2 in the Supplementary Materials explores the impact of age on demonstrative use across genres by splitting the Dutch participants into a younger and an older sample (median split). The descriptive statistics suggest that the overall Dutch result pattern as reported below is mainly driven by the younger age group.

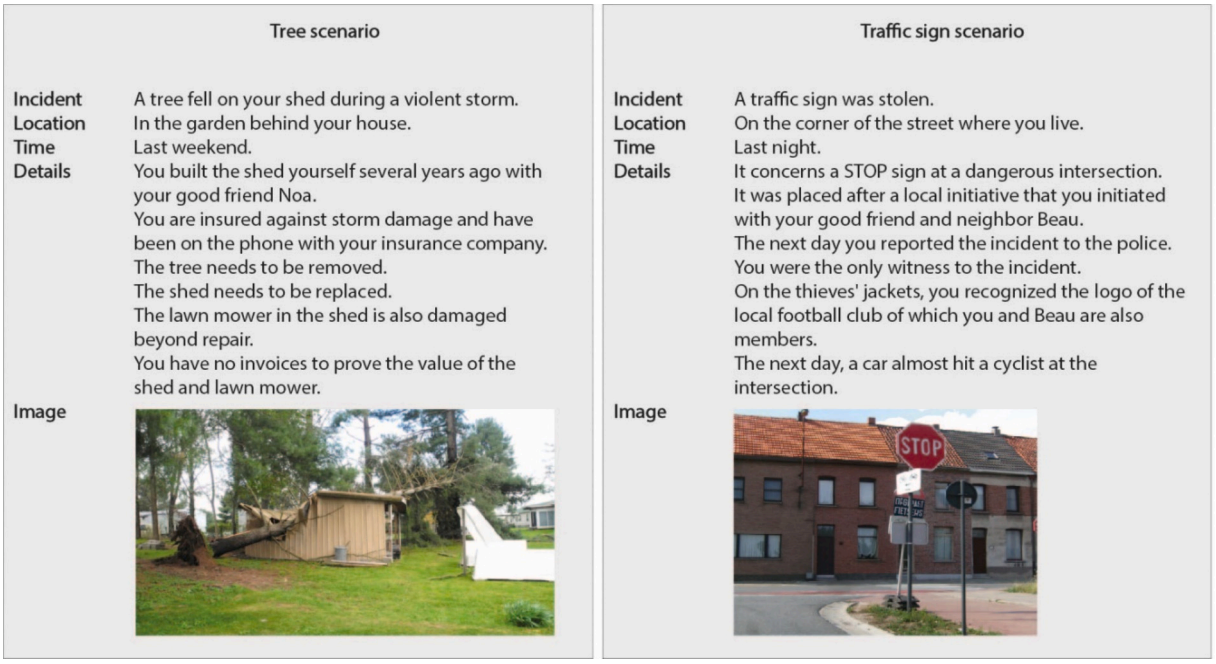

Fig. 1. Overview of the main information provided to the participants for each of the two scenarios, here translated into English. The image depicted here for the tree scenario was used in both the Dutch and the Mandarin experiment. The image depicted for the traffic sign scenario was used in the Dutch experiment and replaced by a similar image including a Chinese version of a STOP-sign for the Mandarin experiment.

2.3. Procedure

After providing informed consent and basic demographic information (age, educational background, native language, and gender), participants were informed that the experiment consisted of writing two separate texts on the basis of two different scenarios. The order of presentation of the two scenarios (tree *vs* traffic sign) was fully counterbalanced across participants within each language group. Each participant saw each scenario only once. For a given scenario, participants received the instruction to write an email of about 150–200 words explaining what happened, either to their friend (in the narrative condition, for both scenarios) or to the head of calamities of their insurance company in the tree scenario or the local head of police in the traffic sign scenario (in the expository condition). The name of the friend ('Noa' and 'Xiao Zhang' for the tree scenario, 'Beau' and 'Xiao Wang' for the traffic sign scenario, in Dutch and Mandarin respectively) was selected to be gender-neutral. Whether a scenario was part of the narrative or the expository condition for a given participant was counterbalanced across participants within each language group. As such, each participant saw two different scenarios and wrote one narrative and one expository email. Besides the addressee of the text, instructions in the narrative and the expository condition were identical except that, in the narrative condition, the aim of the text was described as 'to tell your friend what happened, from your personal perspective', while in the expository condition, the aim of the text was 'to describe in detail what happened, starting from the relevant facts and events'. The experiment was carried out online in a Qualtrics environment (Qualtrics, Provo, UT).

2.4. Data coding

For every demonstrative in the elicited texts, we first coded their variant (proximal *vs* distal), number (singular *vs* plural), word class (pronoun/determiner *vs* adverb), and type of use (text-based *vs* situation-based). These data were used for calculating descriptive statistics. As a basis for the statistical analysis, we then coded each demonstrative's position in the sentence (sentence-initial *vs* sentence non-initial), the grammatical role of the phrase that contained the demonstrative (subject *vs* other), and the position of the antecedent in relation to the demonstrative (same or directly preceding clause *vs* an earlier clause). In line with earlier work (Maes et al., 2022a), demonstratives were considered to be 'in subject position' also when they were the subject of a coordinated or subordinated sentence, and demonstratives were considered 'in sentence-initial position' also when they were part of the first syntactic element of a coordinated or subordinated sentence. Also when calculating the distance between demonstrative and antecedent, what we considered a clause or sentence was not based on capital letters and periods, but on grammatical roles (*i.e.*, the presence of a subject and a main verb). The full code book and information about the second coding procedure are available in the Supplementary Materials. The raw and coded datasets, as well as all elicited texts, are available on OSF (https://osf.io/r89m7/).

3. Results

3.1. Dutch

A total of 890 demonstratives were found in the overall Dutch dataset. We observed both situation-based and text-based demonstratives (Maes et al., 2022b). Situation-based demonstratives (*e.g.*, *I hope this email finds you well; this week was horrible*), which find their interpretation in the writing situation (*e.g.*, the container of the text, the time of writing) but outside the written text itself, do not pragmatically allow for variation in selecting either a proximal or distal term. Therefore, these instances (n = 172) were excluded from further analysis. Cataphoric (n = 6; *e.g.*, *But here comes the important part: we have* …) and first-mention (n = 67; *e.g.*, *Remember that traffic sign?*) demonstratives

Table 1
Number of proximal *vs* distal demonstratives observed across the two levels of each of the four categorical predictors in the Dutch data that entered the statistical analysis.

	Proximal	Distal	Total
Position Antecedent ('Distance')			
Close (same or directly preceding clause)	241	219	460
Remote (an earlier clause)	84	101	185
Grammatical Role			
Subject	113	104	217
Other	212	216	428
Sentence Position			
Sentence-initial	148	130	278
Sentence non-initial	177	190	367
Genre			
Expository	237	99	336
Narrative	88	221	309

were excluded as well, as they (by definition) have no antecedent and therefore did not allow for full coding. This resulted in a remaining dataset of 645 Dutch text-based anaphoric demonstratives that went into the analysis, which included 325 proximal and 320 distal demonstratives, while 456 (422 singular; 34 plural) were used as a determiner or pronoun (*cf.* English *this*, *that*, *these*, *those*) and 189 were used as an adverb (*cf.* English *here*, *there*). Table 1 shows the distribution of Dutch demonstratives as a function of the position of the antecedent in relation to the demonstrative (same/directly preceding *vs* an earlier clause), the grammatical role of the phrase that contained the demonstrative (subject or not), the position of the demonstrative in the sentence (sentence-initial or not), and the two text genres.

The descriptive statistics in Table 1 numerically confirm that writers preferred to use proximal demonstratives in expository texts and distal demonstratives in narrative texts. To test for the predictive power of genre in relation to local discourse-structural variables sensitive to the accessibility of referents (*i.e.*, distance, grammatical role, and sentence position), we carried out an overall binary logistic regression analysis. The binary dependent variable in this analysis was the use of a proximal (Dutch equivalents of *this*, *these*, *here*) or distal (Dutch equivalents of *that*, *those*, *there*) demonstrative. To test our theoretical predictions, we opted for a hierarchical regression approach to data analysis (forced entry), comparing a model (Model 1) that included the three categorical 'local' accessibility-based factors (distance, grammatical role, sentence position) to a model (Model 2) that additionally included genre (expository *vs* narrative) as a categorical predictor.

Table 2
Logistic model of predictors of anaphoric demonstrative variation in Dutch (95 % BCa bootstrap confidence intervals based on 1000 samples in brackets).

	B	Sig. (2-tailed)	Lower 95 % CI	Odds Ratio	Upper 95 % CI
Model 2					
Constant	1.07 [0.73, 1.47]	0.001			
Distance	−0.19 [−0.61, 0.20]	0.354	0.56	0.83	1.24
Grammatical Role	−0.29 [−0.71, 0.11]	0.149	0.48	0.75	1.15
Sentence Position	0.10 [−0.34, 0.51]	0.637	0.73	1.11	1.68
Genre	−1.87 [−2.26, −1.53]	**0.001**	0.11	0.16	0.22

It was observed that Model 1 did not explain significantly more variance in the data compared to a baseline, null model, χ^2 (3) = 3.50, p = .320, R^2 = 0.005 (Cox-Snell), 0.007 (Nagelkerke). None of the three individual 'local' predictors significantly explained variance in the data (all individual p's > 0.17). Model 2, in which genre was added as an additional predictor, explained significantly more variance in the data compared to Model 1, χ^2 (4) = 120.26, p < .001, R^2 = 0.17 (Cox-Snell), 0.23 (Nagelkerke). As such, adding genre to the model led to about 17 % (Cox-Snell) to 23 % (Nagelkerke) of variance in the writers' choice of demonstrative type (proximal *vs* distal) being explained by the model. Table 2 confirms that genre was the single predictor that significantly explained variance in the data.

3.2. Mandarin

A total of 752 demonstratives were found in the overall Mandarin dataset. As for the Dutch dataset, situation-based (n = 51), cataphoric (n = 13), and first-mention (n = 85) demonstratives were excluded from further analysis. This resulted in a remaining dataset of 603 Mandarin text-based anaphoric demonstratives that went into the analysis, which included 488 proximal and 115 distal demonstratives, while 535 (437 singular; 98 plural) were used as a determiner or pronoun (*cf.* English *this*, *that*, *these*, *those*) and 68 were used adverbially[3] (*cf.* English *here*, *there*). Table 3 shows the distribution of Mandarin demonstratives across the variables of interest.

The descriptive statistics in Table 3 confirm that proximal demonstratives in Mandarin were more commonly used than distal demonstratives. Nevertheless, a relative increase in distal demonstratives was observed for narrative compared to expository texts (see also Fig. 2). To test for the predictive power of genre in relation to local discourse-structural variables sensitive to the accessibility of referents (*i.e.*, distance, grammatical role, and sentence position), we carried out an overall binary logistic regression analysis that was identical to the Dutch analysis.

It was observed that Model 1 did not explain significantly more variance in the data compared to a baseline, null model, χ^2 (3) = 8.01, p = .330, R^2 = 0.006 (Cox-Snell), 0.009 (Nagelkerke). None of the three

Table 3
Number of proximal *vs* distal demonstratives observed across the two levels of each of the four categorical predictors in the Mandarin data that entered the statistical analysis.

	Proximal	Distal	Total
Position Antecedent ('Distance')			
Close (same or directly preceding clause)	281	58	339
Remote (an earlier clause)	207	57	264
Grammatical Role			
Subject	206	56	262
Other	282	59	341
Sentence Position			
Sentence-initial	220	47	267
Sentence non-initial	268	68	336
Genre			
Expository	278	39	317
Narrative	210	76	286

[3] There is some controversy in the literature on Mandarin on whether the Mandarin terms that translate into English' 'here' and 'there' are truly adverbs. For our purposes this discussion was deemed irrelevant, as the terms are clearly demonstratives.

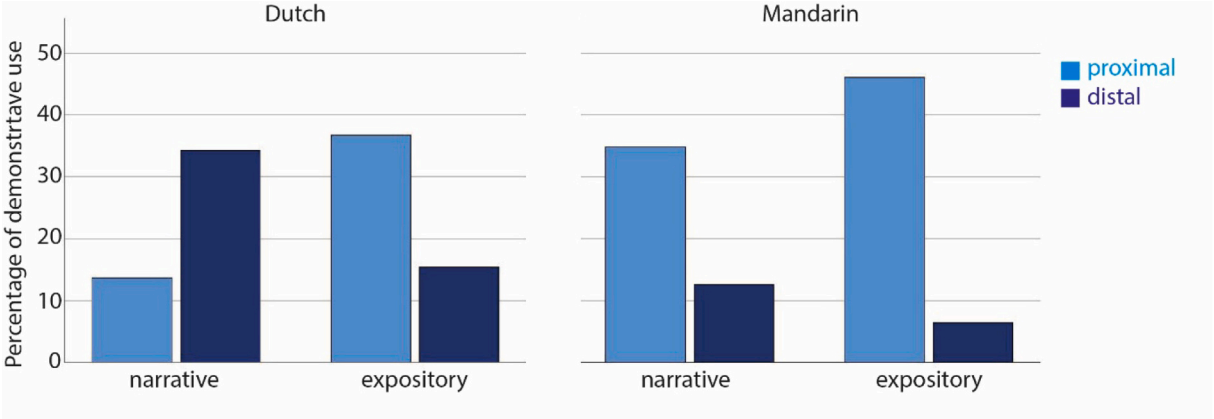

Fig. 2. For both Dutch (left panel) and Mandarin (right panel), the percentage of proximal *vs* distal demonstratives used across the two discourse genres. Per language, the percentage of proximal (light blue) and distal (dark blue) demonstratives used is shown split by genre (narrative *vs* expository), with 100 % in both the left panel (Dutch) and the right panel (Mandarin) corresponding to all text-based anaphoric demonstratives used within that language. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

Table 4
Logistic model of predictors of anaphoric demonstrative variation in Mandarin (95 % BCa bootstrap confidence intervals based on 1000 samples in brackets).

	B	Sig. (2-tailed)	Lower 95 % CI	Odds Ratio	Upper 95 % CI
Model 2					
Constant	−1.01 [−1.41, −0.64]	0.001			
Distance	0.26 [−0.16, 0.71]	0.245	0.85	1.29	1.97
Grammatical Role	−0.16 [−1.00, 0.51]	0.641	0.43	0.85	1.69
Sentence Position	−0.10 [−0.80, 0.77]	0.787	0.45	0.90	1.82
Genre	−0.94 [−1.38, −0.56]	**0.001**	0.26	0.39	0.60

individual 'local' predictors significantly explained any variance in the data (all individual p's > 0.19). Model 2, in which genre was added as an additional predictor, explained significantly more variance in the data compared to Model 1, χ^2 (4) = 22.83, $p < .001$, $R^2 = 0.04$ (Cox-Snell), 0.06 (Nagelkerke). As such, adding genre to the model led to about 4 % (Cox-Snell) to 6 % (Nagelkerke) of variance in the writers' choice of demonstrative type (proximal *vs* distal) being explained by the model. Table 4 confirms that genre was the single predictor that significantly explained variance in the data.

4. Discussion

What makes writers decide to use either a proximal (*this, these, here*) or a distal (*that, those, there*) demonstrative in their text? Here we experimentally show, for both Dutch and Mandarin, that whether a text is expository or narrative in nature significantly impacts which demonstrative a writer will use. Specific markers of the presumed accessibility or givenness of a referent in the mind of the reader and writer, such as the textual distance between demonstrative and antecedent, do not convincingly influence writers' demonstrative choice.

Our findings are in line with a 'global' theoretical view on demonstrative use, which indeed proposes that discourse genre is the main predictor of whether a writer predominantly uses proximal or distal demonstratives in their text (Peeters et al., 2021). In a nutshell, the idea is that expository texts make the writer mentally position referents in close proximity to the knowledgeable self, while narrative texts reach out to the reader by psychologically placing the same referents close to the addressee of the text[4] (Maes et al., 2022a). This theoretical view can be seen as the endophoric counterpart of exophoric theories of demonstrative reference that assume that physical referents are considered to be mentally located inside or outside the shared psychological space that speaker and listener jointly construe (Peeters & Özyürek, 2016). The present results are directly in line with an earlier corpus study that analyzed the occurrence of proximal *versus* distal demonstratives in a corpus of English texts that differed in discourse genre (Maes et al., 2022a). In addition, the present study finds the effect of discourse genre to be so strong that it even surfaces in a language like Mandarin in which ~80 % of all demonstrative use is proximal in nature, making it harder for an effect of genre to appear. An additional direct cross-linguistic comparison included in the Supplementary Materials confirms that the Mandarin participants used a significantly higher proportion of proximal demonstratives than the Dutch participants did, and that the effect of discourse genre was larger in Dutch than in Mandarin.

The present findings are not in line with a 'local' theoretical view on demonstrative use, which proposed that "proximal and distal markers serve to refer to entities over shorter and longer textual distances respectively" (Ariel, 1988, p.76). Both Dutch and Mandarin writers in our experiment did not vary their choice of anaphoric demonstrative as a function of the textual distance between demonstrative and antecedent. This local theoretical view can be seen as the endophoric counterpart of exophoric theories of demonstrative reference that assume that the relative physical distance of a real-world referent to a speaker determines whether a proximal or distal demonstrative is used in spoken language (Coventry et al., 2008; Diessel & Coventry, 2020). Also in the exophoric domain, evidence however accumulates indicating that a referent's presumed psychological proximity more clearly drives

[4] As outlined in the Method section, so-called 'first-mention demonstratives' (*e.g., Remember that traffic sign?*) were excluded from analysis as they by definition have no antecedent and therefore did not allow for coding distance between demonstrative and antecedent. We do note, however, that their pattern of use strongly confirms the idea that narrative texts (*vs* expository texts) lead to a notable increase in distal (*vs* proximal) demonstrative use. While the expository condition yielded a small number of first-mention demonstratives and did not show differences between proximal and distal demonstrative use (Dutch: 4 proximal *vs* 4 distal first-mention demonstratives; Mandarin: 9 proximal *vs* 10 distal first-mention demonstratives), the narrative condition showed a strong first-mention distal preference (Dutch: 5 proximal *vs* 54 distal first-mention demonstratives; Mandarin: 7 proximal *vs* 59 distal first-mention demonstratives).

speakers' demonstrative use than its spatial proximity does (Enfield, 2003; Jara-Ettinger & Rubio-Fernández, 2024; Rocca, Wallentin, et al., 2019; Skilton, 2024).

The observation that writers vary their use of demonstratives as a function of the discourse genre of their text can be considered an attempt to subtly tailor their message to their addressee. Written messages, such as when communicated via a letter or email, consist of scribbles on paper or graphemes on screen that are a (visible) linguistic translation of the writer's (invisible) mental model of a situation. A reader can be said to understand that written message when the mental model they decode from the written signal is similar to the writer's mental model at the time of writing (Dijkstra & Peeters, 2023). Demonstratives may be used to optimize the similarity between the writer's and the reader's mental model by implicitly conveying the psychological status of a referent in the mental model present in the writer's mind.

Prima facie, the present study is in line with earlier work showing that "the form of referring expressions, like such other aspects of language as word order and sentence intonation, depends on the assumed cognitive status of the referent" (Gundel et al., 1993, p. 275). That cognitive status, however, at least for anaphoric demonstratives in written texts seems primarily influenced by the discourse genre of the text at hand rather than by the presumed accessibility or givenness of the linguistically depicted referent. Future work may reveal to what extent the present results generalize across a wider variety of languages and to the anaphoric use of demonstratives in spoken language. It may include within-genre manipulations (*e.g.*, having a writer report an event to a knowledgeable *vs* a non-knowledgeable friend), disentangle the subcomponents (*e.g.*, degree of formality, appeal to shared knowledge, register) the broad notion of genre consists of as genres may overlap in some respects and differ in other, mix genres within the same text, and look at additional local variables (*e.g.*, verb tense; Zulaica Hernández, 2017).

CRediT authorship contribution statement

David Peeters: Writing – review & editing, Writing – original draft, Supervision, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Suzanne Schuurman:** Writing – review & editing, Methodology, Investigation, Data curation, Conceptualization. **Tianning Zhai:** Writing – review & editing, Methodology, Investigation, Data curation, Conceptualization. **Emiel Krahmer:** Writing – review & editing, Methodology, Conceptualization. **Yan Gu:** Writing – review & editing, Data curation. **Alfons Maes:** Writing – review & editing, Supervision, Methodology, Investigation, Data curation, Conceptualization.

Declaration of competing interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.cognition.2025.106285.

Data availability

All raw and coded data are published on OSF.

References

Ahn, D. (2022). Indirectly direct: An account of demonstratives and pointing. *Linguistics and Philosophy, 45*(6), 1345–1393. https://doi.org/10.1007/s10988-022-09350-5

Ariel, M. (1988). Referring and accessibility. *Journal of Linguistics, 24*(1), 65–87. https://doi.org/10.1017/S0022226700011567

Ariel, M. (1990). *Accessing antecedents*. Routledge.

Bühler, K. (1934). *Sprachtheorie*. Fischer.

Castro Ferreira, T., Krahmer, E., & Wubben, S. (2016). Individual variation in the choice of referential form. In *Proceedings of the 2016 conference of the north American chapter of the Association for Computational Linguistics: Human language technologies* (pp. 423–427).

Chafe, W. L. (1976). Givenness, contrastiveness, definiteness, subjects, topics, and point of view. In C. N. Li (Ed.), *Subject and topic* (pp. 25–55). Academic Press.

Çokal, D., Sturt, P., & Ferreira, F. (2014). Deixis: *This* and *that* in written narrative discourse. *Discourse Processes, 51*(3), 201–229. https://doi.org/10.1080/0163853X.2013.866484

Cooperrider, K. (2016). The co-organization of demonstratives and pointing gestures. *Discourse Processes, 53*(8), 632–656. https://doi.org/10.1080/0163853X.2015.1094280

Coventry, K. R., Gudde, H. B., Diessel, H., Collier, J., Guijarro-Fuentes, P., Vulchanova, M., … Incel, O. D. (2023). Spatial communication systems across languages reflect universal action constraints. *Nature Human Behaviour, 7*(12), 2099–2110. https://doi.org/10.1038/s41562-023-01697-4

Coventry, K. R., Valdés, B., Castillo, A., & Guijarro-Fuentes, P. (2008). Language within your reach: near–far perceptual space and spatial demonstratives. *Cognition, 108*(3), 889–895. https://doi.org/10.1016/j.cognition.2008.06.010

Diessel, H. (1999). *Demonstratives: Form, function and grammaticalization*. John Benjamins Publishing.

Diessel, H. (2006). Demonstratives, joint attention, and the emergence of grammar. *Cognitive Linguistics, 17*(4), 463–489. https://doi.org/10.1515/COG.2006.015

Diessel, H., & Coventry, K. R. (2020). Demonstratives in spatial language and social interaction: An interdisciplinary review. *Frontiers in Psychology, 11*. https://doi.org/10.3389/fpsyg.2020.555265

Dijkstra, T., & Peeters, D. (2023). *The new psychology of language. From body to mental model and back*. Routledge. https://doi.org/10.4324/9781003326274

Enfield, N. J. (2003). Demonstratives in space and interaction: Data from Lao speakers and implications for semantic analysis. *Language, 79*(1), 82–117. https://doi.org/10.1353/lan.2003.0075

Gundel, J. K., Hedberg, N., & Zacharski, R. (1993). Cognitive status and the form of referring expressions in discourse. *Language, 69*(2), 274–307. https://doi.org/10.2307/416535

Jara-Ettinger, J., & Rubio-Fernández, P. (2024). Demonstratives as attention tools: Evidence of mentalistic representations within language. *Proceedings of the National Academy of Sciences, 121*(32), Article e2402068121. https://doi.org/10.1073/pnas.2402068121

Kaiser, E., & Trueswell, J. C. (2008). Interpreting pronouns and demonstratives in Finnish: Evidence for a form-specific approach to reference resolution. *Language & Cognitive Processes, 23*(5), 709–748. https://doi.org/10.1080/01690960701771220

Kirsner, R. S. (1979). Deixis in discourse: An exploratory quantitative study of the modern Dutch demonstrative adjectives. In *, 12. Discourse and Syntax* (pp. 355–375). https://doi.org/10.1163/9789004368897_016

Kruse, L., Rocca, R., & Wallentin, M. (2024). Inferring depression and its semantic underpinnings from simple lexical choices. *Depression and Anxiety, 2024*(1), Article 3010831. https://doi.org/10.1155/2024/3010831

Küntay, A. C., & Özyürek, A. (2006). Learning to use demonstratives in conversation: What do language specific strategies in Turkish reveal? *Journal of Child Language, 33*(2), 303–320. https://doi.org/10.1017/S0305000906007380

Levinson, S. C., Cutfield, S., Dunn, M., Enfield, N., Meira, S., & Wilkins, D. (Eds.). (2018). *Demonstratives in cross-linguistic perspective*. Cambridge University Press. https://doi.org/10.1017/9781108333818.

Maes, A. (1996). *Nominal anaphors, Markedness and coherence of discourse*. Leuven: Peeters.

Maes, A., Krahmer, E., & Peeters, D. (2022a). Explaining variance in writers' use of demonstratives: A corpus study demonstrating the importance of discourse genre. *Glossa: A Journal of General Linguistics, 7*(1). https://doi.org/10.16995/glossa.5826. Article 1.

Maes, A., Krahmer, E., & Peeters, D. (2022b). Understanding demonstrative reference in text: A new taxonomy based on a new corpus. *Language and Cognition, 14*(2), 185–207. https://doi.org/10.1017/langcog.2021.28

Mar, R. A., Li, J., Nguyen, A. T., & Ta, C. P. (2021). Memory and comprehension of narrative versus expository texts: A meta-analysis. *Psychonomic Bulletin & Review, 28*, 732–749. https://doi.org/10.3758/s13423-020-01853-1

Peeters, D., Krahmer, E., & Maes, A. (2021). A conceptual framework for the study of demonstrative reference. *Psychonomic Bulletin & Review, 28*(2), 409–433. https://doi.org/10.3758/s13423-020-01822-8

Peeters, D., & Özyürek, A. (2016). This and that revisited: A social and multimodal approach to spatial demonstratives. *Frontiers in Psychology, 7*. https://doi.org/10.3389/fpsyg.2016.00222

Rocca, R., Tylén, K., & Wallentin, M. (2019). *This* shoe, *that* tiger: Semantic properties reflecting manual affordances of the referent modulate demonstrative use. *PLoS One, 14*(1), Article e0210333. https://doi.org/10.1371/journal.pone.0210333

Rocca, R., Wallentin, M., Vesper, C., & Tylén, K. (2019). This is for you: Social modulations of proximal vs. distal space in collaborative interaction. *Scientific Reports, 9*(1), 14967. https://doi.org/10.1038/s41598-019-51134-8

Rubio-Fernández, P. (2022). Demonstrative systems: From linguistic typology to social cognition. *Cognitive Psychology, 139*, Article 101519. https://doi.org/10.1016/j.cogpsych.2022.101519

Rubio-Fernández, P. (2024). Cultural evolutionary pragmatics: An empirical approach to the relation between language and social cognition. In B. Geurts, & R. Moore (Eds.), *The Oxford handbook of evolutionary pragmatics*. Oxford University Press.

Skilton, A. (2024). The deictic content of demonstratives. *Lang & Ling Compass, 18*(4), Article e12519. https://doi.org/10.1111/lnc3.12519

Tomasello, M. (2008). *Origins of human communication*. MIT Press.

Weaver, C. A., & Kintsch, W. (1991). Expository text. In R. Barr, M. L. Kamil, P. Mosenthal, & P. D. Pearson (Eds.), *2. Handbook of Reading research* (pp. 230–245). Lawrence Erlbaum.

Wu, Y. (2004). *Spatial demonstratives in English and Chinese: Text and cognition*. John Benjamins Publishing. https://doi.org/10.1075/pbns.126

Xu, Y. (1987). A study of referential functions of demonstratives in Chinese discourse. *Journal of Chinese Linguistics, 15*(1), 132–151.

Zhang, J. (2015). An analysis of the use of demonstratives in argumentative discourse by Chinese EFL learners. *Journal of Language Teaching and Research, 6*(2), 460–465. https://doi.org/10.17507/jltr.0602.29

Zhang, M. (1991). *A contrastive study of demonstratives in English and Chinese*. Unpublished doctoral dissertation. USA: Ball State University.

Zulaica Hernández, I. (2017). On the discourse anaphoric properties of Spanish pre-and post-nominal demonstratives: A comparative analysis. *Linguistics, 55*(3), 553–588. https://doi.org/10.1515/ling-2017-0006