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Perspective shift increases processing effort of pronouns: a comparison between direct and indirect speech

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This study investigates the processing of deictic pronouns in two types of speech reports, direct speech (*Elephant said: “I get the football”*) and indirect speech (*Elephant said that I get the football*). According to Hypothesis 1, pronoun processing in direct speech is more demanding because it requires a perspective shift from the actual to the original speaker. Hypothesis 2 suggests the opposite, based on a previous study that found a positive effect of direct speech on discourse comprehension. In a referent selection task, 116 native speakers of Dutch identified the referents of first-, second- and third-person pronouns in direct and indirect speech. We found higher error rates and longer decision times for pronoun interpretation in direct speech, confirming Hypothesis 1. Furthermore, accuracy depended on the pronoun (most mistakes for *he*). We discuss how our results can be reconciled with seemingly conflicting evidence that suggests a processing advantage for direct speech.

Keywords: direct speech; indirect speech; personal pronoun; perspective shift; deixis

An essential feature of language is that it allows us to talk about what others have said. For this specific purpose, many languages such as Dutch and English offer two distinct constructions: direct speech (1a, 1b) and indirect speech (2a, 2b).

- (1a) Anna zei: “Ik ben blij”. (Dutch)
- (1b) Anna said: “I am happy”. (English)
- (2a) Anna zei dat ze blij is. (Dutch)
- (2b) Anna said (that) she is happy. (English)

Semantically, direct and indirect speech can be distinguished in terms of perspective (Clark & Gerrig, 1990; Coulmas, 1986). In indirect speech, the reported utterance is paraphrased from the reporting speaker’s perspective, i.e., in *his* words. In particular, the reporter in (2) uses a third-person pronoun to refer to Anna from his own perspective. By contrast, in direct speech the reporting speaker purports to present a certain utterance verbatim and therefore shifts to the perspective of the original speaker. Consequently, the first-person pronoun in (1) refers not to the actual speaker himself but to Anna. In sum, interpreting direct speech requires a shift from the reporting to the reported speaker’s perspective, which surfaces linguistically as a shift in the interpretation of deictic elements, like the pronoun *I*. This perspective shift might make pronoun processing in direct speech more demanding than in indirect speech.

However, there is also evidence suggesting the contrary, i.e., that direct speech is the cognitively less

demanding report type. While most psycholinguistic and neurolinguistic studies focus on the vividness associated with direct speech (Yao, Belin, & Scheepers, 2011, 2012; Yao & Scheepers, 2011), Groenewold, Bastiaanse, Nickels, Wieling, and Huiskes (2014) investigated how the use of direct and indirect speech affects discourse comprehension. They found that Dutch speakers with and without aphasia understood stories better when they contained direct speech. They attribute the positive effect of direct over indirect speech to the greater liveliness and the syntactic simplicity of direct speech (namely, coordination rather than subordination, De Vries, 2008). The finding that cross-linguistically children seem to produce direct before indirect speech (Ely & McCabe, 1993; Köder, 2013; Nordqvist, 2001) provides additional support for the thesis that direct speech is less demanding.

In this paper, we focus on the interpretation of deictic pronouns in direct and indirect speech. Based on the above considerations, we put forward the following two hypotheses. The first hypothesis is that pronoun processing is harder in direct speech because it requires a cognitively demanding shift from the reporting to the reported speaker’s perspective. The second hypothesis points in the opposite direction: pronouns in direct speech are easier to interpret than in indirect speech. This second hypothesis is motivated by the positive effect of direct speech on story comprehension and children’s earlier acquisition of direct speech reports. To test these hypotheses, we created a referent selection task, in which we

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measure the relative processing costs of direct and indirect speech in terms of error rate and decision time for the interpretation of pronouns.

A second question that we investigate is whether the type of pronoun (first-, second-, or third-person) influences the interpretation process. The deictic singular pronouns refer to three different participant-roles in a communicative interaction: first-person *I* refers to the speaker, second-person *you* to the addressee, and third-person *he*, *she* and *it* to other people and things. Among deictic pronouns, third-person pronouns are claimed to be fundamentally different from first- and second-person pronouns (Lyons, 1977; Schlenker, 2003). While *I* and *you* refer directly to the primary participants of a speech situation, the meaning of deictic third-person pronouns is negatively defined as referring to neither the speaker nor the addressee. In Kaplan's (1989) framework, first- and second-person are pure indexicals, directly getting their reference from the context parameters, while third-person deictic *he* is a genuine demonstrative, requiring a pointing to be interpretable. This semantic distinction is supported by developmental studies showing that children's comprehension of third-person pronouns lags behind their comprehension of first- and second-person pronouns (Brener, 1983; Charney, 1980; Legendre & Smolensky, 2012). We examine whether this split between first- and second- versus third-person pronouns also holds in indirect and especially direct speech reports, where their interpretation requires a perspective shift.

In sum, the present study investigates adults' interpretation of pronouns in speech reports. In particular, we examine the difference between two report types (direct speech, indirect speech) and three pronoun types (first-, second-, third-person).

Method

Participants

Participants of the study were 116 native speakers of Dutch (74 women, $M_{\text{age}} = 23.0$ years, age range: 18–61 years). Of these participants, 85 took part in an online version of the experiment running in a web browser, and 31 were tested by an experimenter on a touchscreen tablet. The test items for both groups were identical. The only difference was whether the instructions were prerecorded or presented by an experimenter. All participants were recruited by the digital learning environment and mailing lists from the University of Groningen.

Stimuli and procedure

The experiment is designed as an animated game called 'Which animal gets which object?'. The test phase consists of a 'no report' condition followed by a 'speech report' condition. The order of the test items was randomised for each participant within these two blocks.

In the 15 'no report' items, one animal walks towards a second animal and tells him who gets a certain object by using a simple non-embedded statement like (3) with one of three pronouns, *ik* 'I', *jij* 'you' or *hij* 'he' (Figure 1a).

- (3) No report: *Hij krijgt het boek.*
 'He gets the book'.

After the auditory presentation of the test sentence, participants had to select the recipient of the object, i.e., the referent of the pronoun (Figure 1b). The software records the accuracy of pronoun interpretation and the decision time in milliseconds from the offset of the sentence. Note that decision time in our experiment is not a measure of online processing, but an indication of the time participants need to make a decision after the whole sentence has been presented.

In the 'speech report' condition, the scenes include an additional step. Now one animal whispers – unintelligibly for the participants – into another animal's ear which of the three animals gets the object (Figure 2a). The original addressee transmits this information to the third animal (Figure 2b), using either a direct or indirect speech report. Again a selection phase follows (Figure 2c).

Figure 1. Example of a 'no report' item. (a) Uttering of a 'no report' sentence (e.g., *He gets the book.*) (b) Selection phase.

Figure 2. Example of a ‘speech report’ item. (a) Unintelligible whispering (original/ reported speech context). (b) Uttering of a speech report (e.g., *Elephant said that I get the football*) (actual/ reporting speech context). (c) Selection phase.

We crossed report type (direct, indirect) with pronoun type (first-, second-, third-person) and presented 5 items for each combination (30 speech reports in total). Example (4) shows a direct *you* item and example (5) an indirect *I* item.

- (4) Direct speech: Olifant zei: “Jij krijgt de voetbal”.
‘Elephant said: “You get the football”’.

- (5) Indirect speech: Olifant zei dat ik de voetbal krijg.
‘Elephant said that I get the football’.
(lit.: that I the football get)

Note that the indirect *he* items (*Monkey said that he gets the plane*) are special in that the pronoun is not used deictically, but anaphorically, i.e., to refer back to the subject of the matrix clause (Halliday & Hasan, 1976). This means that the comparisons with indirect *he* are confounded by the deictic–anaphoric distinction.

We conducted the study in Dutch because in this language direct and indirect speech are distinguished more clearly than in English. In particular, while direct speech complements have verb-second word order, indirect speech complements are verb-final and contain the obligatory complementizer *dat* ‘that’. To further mark the direct–indirect distinction, our direct speech items have a pause of 800 ms between reporting clause and quotation and include a slight change of pitch in the quotation (cf. Jansen, Gregory, & Brenier, 2001).

The ‘speech report’ condition involves two different speech contexts: the original or reported speech context in which the whispering takes place (Figure 2a) and the actual or reporting speech context where the utterance is reported (Figure 2b). In each speech context, the protagonists assume different participant roles (speaker, addressee, other). Cues for identifying the speaker in the animated scenes are mouth movement and the characteristic voice of each animal. The addressee can be identified by his proximity to the speaker, and the ‘other’ person is spatially separated and faces away from speaker and addressee.

Results

Accuracy

Figure 3 shows the percentage of correct pronoun interpretation in non-reportative sentences and in direct and indirect speech reports. In the ‘no report’ condition,

Figure 3. Percentage of correct pronoun interpretation. Error bars indicate 95% confidence intervals.

participants interpreted 100% of first- and second-person pronouns correctly, but only 63% of third-person pronouns. To focus on the direct–indirect distinction, our statistical analysis is restricted to the ‘speech report’ condition.¹

We used mixed-effects logistic regression modelling with the software R (version 3.1.1) to analyse the accuracy of pronoun interpretation in direct and indirect speech. The random-effects structure of our model includes random intercepts for subjects and items and by-subject random slopes per REPORT TYPE. Step by step, we tested whether the following fixed-effect factors improve the goodness of fit of the accuracy model: REPORT TYPE (direct speech, indirect speech), PRONOUN TYPE (*I*, *you*, *he*), TEST CONDITION (online, tablet), SPEAKER (Dog, Monkey, Elephant), AGE and GENDER of the participants, EXPERIENCE (1–5) and TRIAL NUMBER (1–30). The factors EXPERIENCE and TRIAL NUMBER both indicate the progress in the experiment. TRIAL NUMBER provides information about the order in which a participant saw the ‘speech report’ items, EXPERIENCE indicates how often a participant has encountered a certain type of test item (e.g., direct *I*) before.

Table 1 shows that the goodness of fit of the accuracy model improves significantly by adding REPORT TYPE and PRONOUN TYPE as fixed-effect factors as well as their interaction. EXPERIENCE is also a significant predictor and has a positive effect on accuracy, $\beta = 0.49$, $z = 7.70$, $p < .001$. All other factors did not contribute to the model fit.

We compared the mean accuracy of different combinations of report type and pronoun type using multiple comparisons from the “multcomp” package (Hothorn, Bretz, & Westfall, 2008). The results are presented in Table 2. The general tendency is that participants made significantly more mistakes when the same pronoun occurred in direct as compared to indirect speech (for *you*: $p < .05$, for *he*: $p < .001$). The first-person pronoun was an exception with similar accuracy rates in direct and indirect speech. In indirect speech, there were no significant differences between pronouns. In direct speech, the

Table 2. Multiple comparisons of means for accuracy of pronoun interpretation in speech reports (Tukey contrasts).

Linear hypotheses	Estimate	SE	z value	p value
Indirect <i>I</i> – Direct <i>I</i> = 0	3.58	1.37	2.62	0.064
Indirect <i>You</i> – Direct <i>You</i> = 0	3.87	1.32	2.92	0.027
Indirect <i>He</i> – Direct <i>He</i> = 0	5.49	1.30	4.24	<0.001
Indirect <i>I</i> – Indirect <i>You</i> = 0	0.81	0.39	2.07	0.237
Indirect <i>I</i> – Indirect <i>He</i> = 0	0.93	0.39	2.40	0.112
Indirect <i>You</i> – Indirect <i>He</i> = 0	0.13	0.36	0.36	0.999
Direct <i>I</i> – Direct <i>You</i> = 0	1.09	0.29	3.82	0.001
Direct <i>I</i> – Direct <i>He</i> = 0	2.85	0.29	9.66	<0.001
Direct <i>You</i> – Direct <i>He</i> = 0	1.75	0.24	7.22	<0.001

accuracy of *I* was significantly higher than that of *you* ($p < .01$) and *he* ($p < .001$). In turn, participants were more accurate in interpreting direct *you* than direct *he* ($p < .001$).

A closer examination of the errors reveals an interesting pattern: in 94% of the mistakes in direct speech, participants selected the indirect speech referent. For instance, when Monkey whispers to Dog, and Dog then reports to Elephant *Monkey said: “You get the rose”*, some participants incorrectly chose Elephant as the referent of quoted *you* instead of Dog. This means that they evaluated pronouns in direct speech with respect to the reporting instead of the reported speech context, i.e., they did not perform the perspective shift necessary in direct speech. No such clear error pattern was found in indirect speech. In only 64% of the indirect speech mistakes (50% chance level) did participants wrongly select the direct speech referent.

Decision times

The decision times for different conditions and pronouns are presented in Figure 4. Our analysis focuses on comparing participants’ decision times for direct and indirect speech reports. We fitted a linear mixed-effects model to the log-transformed decision times. Using a procedure of model comparison, we added stepwise fixed-effects factors to the baseline model (with random intercepts for subjects and items, and by-subject random slopes per REPORT TYPE). Table 3 shows that the inclusion of REPORT TYPE and PRONOUN TYPE and their interaction improves the goodness of fit of the model significantly. Other significant predictors are EXPERIENCE and TEST CONDITION (online, tablet). The more experience participants had with a certain type of test item, the quicker they were in their response, $\beta = -0.08$; $t = -13.27$; $p < .001$. Participants with the online browser version had shorter decision times than those with the tablet version, $\beta = -0.40$; $t = -5.79$; $p < .001$.

Table 1. Goodness of fit of the fixed-effect factors of the accuracy model for speech reports. An Akaike Information Criterion (AIC) decrease of more than two indicates that the goodness of fit of the model improves significantly (Akaike, 1974).

	AIC decrease
Random-effect factors (random intercepts for subjects and items, by-subject random slopes per REPORT TYPE)	
+ REPORT TYPE	12.2
+ PRONOUN TYPE	28.5
+ REPORT TYPE * PRONOUN TYPE	13.6
+ EXPERIENCE	64.5

Figure 4. Boxplots of decision times (excluding outliers).

Table 3. Goodness of fit of the fixed-effect factors of the model fitted to log-transformed decision times of speech reports. An Akaike Information Criterion (AIC) decrease of more than 2 indicates that the goodness of fit of the model improves significantly (Akaike, 1974).

	AIC decrease
Random-effect factors (random intercepts for subjects and items, by-subject random slopes per report type)	
+ REPORT TYPE	14.4
+ PRONOUN TYPE	3.3
+ REPORT TYPE * PRONOUN TYPE	8.8
+ EXPERIENCE	169.4
+ TEST CONDITION	26.4

Table 4. Multiple comparisons of means for decision times of speech reports (Tukey contrasts).

Linear hypotheses	Estimate	SE	z value	p value
Indirect <i>I</i> – Direct <i>I</i> = 0	–0.01	0.05	–0.32	1.000
Indirect <i>You</i> – Direct <i>You</i> = 0	–0.17	0.05	–3.55	0.005
Indirect <i>He</i> – Direct <i>He</i> = 0	–0.27	0.05	–5.80	<0.001
Indirect <i>I</i> – Indirect <i>You</i> = 0	–0.00	0.04	–0.06	1.000
Indirect <i>I</i> – Indirect <i>He</i> = 0	0.02	0.04	0.37	0.999
Indirect <i>You</i> – Indirect <i>He</i> = 0	0.02	0.04	0.43	0.998
Direct <i>I</i> – Direct <i>You</i> = 0	–0.16	0.04	–3.53	0.006
Direct <i>I</i> – Direct <i>He</i> = 0	–0.24	0.04	–5.51	<0.001
Direct <i>You</i> – Direct <i>He</i> = 0	–0.09	0.04	–1.98	0.351

Table 4 shows the results of a multiple comparison analysis that compares the decision times for different items. It took participants significantly longer to interpret the pronouns *you* and *he* in direct speech as compared to

indirect speech (for *you*: $p < .01$, for *he*: $p < .001$). The decision times for *I* did not differ with report type. While all pronouns were interpreted equally fast in indirect speech, participants needed more time to select the referents of *you* ($p < .01$) and *he* ($p < .001$) as compared to *I* in direct speech.

Discussion

In a referent selection task, we examined the interpretation of pronouns in direct and indirect speech in Dutch. We found that participants made significantly more mistakes and had longer decision times when interpreting the pronouns *you* and *he* in direct speech as compared to indirect speech.

This finding supports our first hypothesis, that the perspective shift in direct speech increases the processing effort of pronouns. To further explain why perspective shifting would be so cognitively demanding, we follow a suggestion from the Theory of Mind literature, where perspective shifting difficulties in false belief tasks are explained in terms of the cost of inhibiting one's own current perspective (Carlson & Moses, 2001; Saxe, 2009; Wellman, Cross, & Watson, 2001). Thus, we suggest that a proper interpretation of direct speech requires the listener to inhibit his representation of the actual reporting speaker's perspective. Since, at the time of the report, this primary perspective is more salient than the reported speaker's secondary perspective, inhibiting it is costly and error-prone. This explanation is supported by the fact that in 94% of the errors in direct speech, pronouns were evaluated with respect to the reporting speaker as deictic centre, meaning that this primary perspective was not properly inhibited.

Participants performed surprisingly well on the first-person pronoun *I* in direct speech, which approximates the accuracy rates and decision times of indirect speech. A possible explanation for the apparent ease of direct *I* is that its referent is explicitly mentioned in the reporting clause and hence a much more salient candidate. This explanation may be tested by checking whether performance on the second-person pronoun improves when we explicitly add the original addressee to the reporting clause, as in *Elephant said to me: "You get the football"*.

The results of our comprehension experiment seem to conflict with previous findings that indicate that direct speech is easier to understand in Dutch (Groenewold et al., 2014). This discrepancy can be dissolved if we differentiate between different discourse contexts in which reports occur. Narrative contexts, as used in Groenewold et al.'s (2014) study, are associated with a predominant use of direct speech, allowing for more vivid storytelling, while contexts like ours, in which reports are used to transmit propositional content, favour indirect speech (Vincent & Perrin, 1999). The increased processing effort associated

with the perspective shift in direct speech explains why, in the information-exchange context of our experiment, the use of direct speech is clearly dispreferred, and in the case of direct *he* even pragmatically awkward. However, note that the costs of a perspective shift in direct speech might be reduced in a narrative context, where the reported speaker's (i.e., the character's) perspective is generally more salient than the reporting speaker's (i.e., the narrator's) perspective.

Our second question concerned the difference between the interpretation of first-, second- and third-person pronouns. In the 'no report' condition as well as in direct speech, participants made most mistakes in the interpretation of *he*. This provides empirical support for the claim that there is a split between first- and second- versus third-person deictic pronouns (Lyons, 1977). The high number of mistakes with *he* in the 'no report' condition is due to the lack of an accompanying pointing gesture or eye gaze. As pointed out in the introduction, deictic *he* typically requires a pointing gesture to single out a unique referent (Diessel, 2012; Kaplan, 1989; Levinson, 2004). We decided against including pointing as it would trivialise the interpretation of *he* and break the uniformity of the test items across conditions and pronoun types. Note that this complication does not extend to the crucial 'speech report' condition because pointing gestures are not expected to be reported. This explains the higher accuracy rate of *he* in direct and indirect speech reports as compared to non-embedded statements. In indirect speech, accuracy and decision times did not differ between *he* and the other pronouns. However, as pointed out in the Method section, indirect *he* is used anaphorically rather than deictically.

A reviewer suggested that the deictic-anaphoric distinction could explain our findings without appealing to perspective shifting. We concede that, for *he*, the deictic-anaphoric distinction is a confounding factor. However, the difference between deixis and anaphora cannot account for the significantly lower performance (both in accuracy and decision time) with direct *you* as compared to indirect *you*. Additional evidence in favour of our perspective shifting hypothesis is the systematic error pattern pointed out above: almost all direct speech errors, across pronoun type, involve a failure to shift from the actual to the reported speaker's perspective.

In conclusion, our study provides evidence that the perspective shift in direct speech increases the processing effort of deictic pronouns in speech reports. Further studies are necessary to examine whether this effect can be replicated for other deictic expressions (e.g., spatial and temporal indexicals like *here* and *tomorrow*) and other discourse contexts (e.g., narratives).

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Note

1. Note that a direct comparison between the results of the 'no report' and the 'speech report' condition would be complicated by differences in the scenarios and the fact that the 'no report' condition always preceded the 'speech report' condition.

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Supplemental data and research materials

The underlying research materials for this article can be accessed at <http://tinyurl.com/o7bburc>

References

- Akaike, H. (1974). A new look at the statistical model identification. *IEEE Transactions on Automatic Control*, 19, 716–723.
- Brener, R. (1983). Learning the deictic meaning of third person pronouns. *Journal of Psycholinguistic Research*, 12, 235–262. doi:10.1007/BF01067669
- Carlson, S. M., & Moses, L. J. (2001). Individual differences in inhibitory control and children's theory of mind. *Child Development*, 72, 1032–1053. doi:10.1111/1467-8624.00333
- Charney, R. (1980). Speech roles and the development of personal pronouns. *Journal of Child Language*, 7, 509–528. doi:10.1017/S0305000900002816
- Clark, H. H., & Gerrig, R. J. (1990). Quotations as demonstrations. *Language*, 66, 764–805. doi:10.2307/414729
- Coulmas, F. (1986). Reported speech: Some general issues. In F. Coulmas (Ed.), *Direct and indirect speech* (pp. 1–28). Berlin, New York, NY, Amsterdam: Mouton de Gruyter.
- De Vries, M. (2008). The representation of language within language: A syntactico-pragmatic typology of direct speech. *Studia Linguistica*, 62(1), 39–77. doi:10.1111/j.1467-9582.2007.00142.x
- Diessel, H. (2012). Deixis and demonstratives. In C. Maienborn, K. von Stechow, & P. Portner (Eds.), *Semantics (HSK 33.3)* (Vol. III, pp. 1–25). Berlin, Boston, MA: De Gruyter.
- Ely, R., & McCabe, A. (1993). Remembered voices. *Journal of Child Language*, 20, 671–696. doi:10.1017/S0305000900008539

- Groenewold, R., Bastiaanse, R., Nickels, L., Wieling, M., & Huiskes, M. (2014). The effects of direct and indirect speech on discourse comprehension in Dutch listeners with and without aphasia. *Aphasiology*, 28, 862–884. doi:[10.1080/02687038.2014.902916](https://doi.org/10.1080/02687038.2014.902916)
- Halliday, M. A. K., & Hasan, R. (1976). *Cohesion in English*. London: Longman.
- Hothorn, T., Bretz, F., & Westfall, P. (2008). Simultaneous inference in general parametric models. *Biometrical Journal*, 50, 346–363. doi:[10.1002/bimj.200810425](https://doi.org/10.1002/bimj.200810425)
- Jansen, W., Gregory, M. L., & Brenier, J. M. (2001). Prosodic correlates of directly reported speech: Evidence from conversational speech. In *Proceedings of the ISCA workshop on prosody in speech recognition and understanding* (pp. 77–80). Red Bank, NJ: ISCA.
- Kaplan, D. (1989). Demonstratives. In J. Almog, J. Perry, & H. Wettstein (Eds.), *Themes from Kaplan* (pp. 481–563). Oxford: Oxford University Press.
- Köder, F. (2013). How children acquire reported speech in German and Dutch: A corpus study. In B. Sonnenhauser, C. Trautmann, & P. Noel (Eds.), *“Perspektiven” Diskussionsforum Linguistik in Bayern* [Bavarian Working Papers in Linguistics 2] (pp. 15–28). München, Bamberg: University of Munich, University of Bamberg.
- Legendre, G., & Smolensky, P. (2012). On the asymmetrical difficulty of acquiring person reference in French: Production versus comprehension. *Journal of Logic, Language and Information*, 21(1), 7–30. doi:[10.1007/s10849-011-9150-0](https://doi.org/10.1007/s10849-011-9150-0)
- Levinson, S. C. (2004). Deixis. In L. R. Horn & G. Ward (Eds.), *The handbook of pragmatics* (pp. 97–121). Oxford: Blackwell.
- Lyons, J. (1977). *Semantics* (Vol. 2). Cambridge: Cambridge University Press. doi:[10.1017/CBO9780511620614](https://doi.org/10.1017/CBO9780511620614)
- Nordqvist, Å. (2001). The use of direct and indirect speech by 1½- to 4-year-olds. *Psychology of Language and Communication*, 5(1), 57–66.
- Saxe, R. (2009). Theory of mind (neural basis). In W. P. Banks (Ed.), *Encyclopedia of consciousness* (pp. 401–409). Oxford: Elsevier.
- Schlenker, P. (2003). A plea for monsters. *Linguistics and Philosophy*, 26, 29–120. doi:[10.1023/A:102225203544](https://doi.org/10.1023/A:102225203544)
- Vincent, D., & Perrin, L. (1999). On the narrative vs non-narrative functions of reported speech: A socio-pragmatic study. *Journal of Sociolinguistics*, 3, 291–313. doi:[10.1111/1467-9481.00080](https://doi.org/10.1111/1467-9481.00080)
- Wellman, H. M., Cross, D., & Watson, J. (2001). Meta-analysis of theory-of-mind development: The truth about false belief. *Child Development*, 72, 655–684. doi:[10.1111/1467-8624.00304](https://doi.org/10.1111/1467-8624.00304)
- Yao, B., Belin, P., & Scheepers, C. (2011). Silent reading of direct versus indirect speech activates voice-selective areas in the auditory cortex. *Journal of Cognitive Neuroscience*, 23, 3146–3152. doi:[10.1162/jocn_a_00022](https://doi.org/10.1162/jocn_a_00022)
- Yao, B., Belin, P., & Scheepers, C. (2012). Brain “talks over” boring quotes: Top-down activation of voice-selective areas while listening to monotonous direct speech quotations. *NeuroImage*, 60, 1832–1842. doi:[10.1016/j.neuroimage.2012.01.111](https://doi.org/10.1016/j.neuroimage.2012.01.111)
- Yao, B., & Scheepers, C. (2011). Contextual modulation of reading rate for direct versus indirect speech quotations. *Cognition*, 121, 447–453. doi:[10.1016/j.cognition.2011.08.007](https://doi.org/10.1016/j.cognition.2011.08.007)