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Keeping Track of Speaker's Perspective: The Role of Social Identity

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A long and narrow piece of wood is “a bat,” “a stick,” “a club,” or “firewood.” In fact, anything can be described from multiple perspectives, each suggesting a different conceptualization. People keep track of how speakers conceptualize things and expect them to describe them similarly in the future. This article demonstrates that these expectations are partly based on the speaker's social identity. Participants watched speakers describe objects. In Experiment 1, people expected a female speaker to use another female's, rather than a male's, term. In Experiment 2, participants misattributed a term to a speaker more within a gender category than between genders, demonstrating that such expectations stem from source monitoring. Experiment 3 showed that source confusion is not due only to similarity among individuals, but also to their social category: Salient gender exacerbated gender-based misattributions. Together, these results show that people keep track of speakers' conceptualizations partly via their social identity.

What we call things makes a difference (Brown, 1958). A label could tell us what the thing is: A “headache” is more tolerable than a “migraine.” It could express an attitude toward something: “The bug” is more affectionate than “the car.” It could reflect the political convictions of the speaker: If you call people “anti-choice” or “pro-life” it reveals more about you than about them. Using an unconventional term could carry meaning well beyond simple naming: When a small cup of coffee is “tall” it suggests that nothing is small in that coffee house. What we call things makes a difference because it does more than

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provide a label to refer to things. It provides a way to think about things. It offers a conceptualization and a specific perspective through which the speaker illuminates the “thing.”

The perspective that a term offers seems to be important enough for people to notice and keep track of. In conversation, when two people converge on a particular term, they tend to stick with it (Brennan & Clark, 1996). For example, if they call a certain car a sports car to distinguish it from other cars, they would continue to call it a sports car even when it is the only car around. Each person keeps the same perspective and expects the other to keep it too. Indeed, listeners are confused when speakers switch perspectives. If a speaker repeatedly calls an object “the white cylinder” but then switches and calls it “the long tube,” speakers are surprised, even when “the long tube” is not an inherently surprising description (Barr & Keysar, 2002; Kronmüller & Barr, 2007; Metzger & Brennan, 2003; Shintel & Keysar, 2007).

The question we are focusing on is how do people keep track of the perspectives that speakers use to refer to things? What kind of cues do they use to keep a record of this information? A complete answer must include a variety of cues, strategies, and processes. Here we focus on one of the cues that people may be using to keep track of speakers’ perspective: the social identity of the speaker.

KEEPING TRACK OF WHO SAID WHAT VIA SOCIAL IDENTITY

Social categories play an important role in communication. For instance, people infer the knowledge that others are likely to have from their social category. People expect males to know what a carburetor is and females to know what to do with crochet hooks. In general, they expect males to be familiar with stereotypically masculine domains and females to be familiar with stereotypically feminine domains (Fussell & Krauss, 1992; Krauss & Fussell, 1991). People then use this category-based knowledge when they communicate. For instance, New Yorkers expect other New Yorkers to know the names of buildings. So, when talking about New York landmarks, they tend to use names with New Yorkers but descriptions with non-New Yorkers (Isaacs & Clark, 1987).

Social identity also plays a role in keeping track of who said what. When people read stories, they rely on social categories to keep track of the source of statements that characters make. Graesser, Bowers, Olde, and Pomeroy (1999) found that the relation between the gender of the author and that of a character affects memory for who said what. Readers remember a character’s statements better if the character’s gender is different from the author’s than if it is the same. After observing a conversation, people confuse statements by speakers of the same gender more than statements by speakers of a different gender

(Taylor & Falcone, 1982; Taylor, Fiske, Etcoff, & Ruderman, 1978). People also confuse the statements of speakers who are of the same race (Frable & Bem, 1985), the same academic status (Arcuri, 1982), the same university major, and the same birthplace (van Twuyver & van Knippenberg, 1995). People seem to rely on social identity not because of its predictability but because of its *perceived* predictability. People who strongly believe that males and females are different tend to confuse speakers' statements due to gender more than those who believe that males and females do not differ much (Blanz, 1999). Also, high-prejudiced individuals rely on race to assign statements to speakers more than low-prejudiced people (Stangor, Lynch, Duan, & Glass, 1992). People do not use just any category; for instance, they do not rely on the shirt color of speakers in remembering their statements (Stangor et al., 1992), presumably because it is not a meaningful category (Brewer, Weber, & Carini, 1995). In general, then, the social identity of a person is used in remembering what the person says.

KEEPING TRACK OF CONCEPTUALIZATION VIA SOCIAL IDENTITY

The goal of this article is to extend the research on memory for who said what in two ways. First, we ask if social identity is used to keep track of the way people conceptualize things—the perspective they offer when they refer to objects. Second, we ask if they use this information predictively to anticipate a speaker's future conceptualization in communication.

To test this, we focus on a central social category: gender. The reason we focus on gender is that a person's gender is intimately related to his or her social identity. Gender and race are the most chronically accessible social categories, in the sense that they are used across all contexts to categorize information about people (Stangor et al., 1992; van Twuyver & van Knippenberg, 1995). For example, priming gender or race in a specific context does not increase memory confusion, suggesting that their accessibility is at a ceiling (Stangor et al., 1992). In contrast, priming weakly accessible social categories, such as a university major or a hometown, increases social category-based memory confusion (van Twuyver & van Knippenberg, 1995). Gender, then, is a good proxy for social identity.

Consider how people may keep track of a speaker's conceptualization via gender and how they may use it predictively. Imagine that you are on a road trip with several people. During the trip, you notice that Mary calls the vehicle you are driving "the car" and that another friend calls it "the van." We suggest that, all else being equal, you would keep track of such conceptualizations partially through the gender of the speakers. If this is true, then if Mary then starts calling



it “the van,” you would be less surprised if the other friend who said “van” was Jane rather than John.

We conducted three experiments to evaluate our proposal. If people use speakers’ social identity to keep track of perspective, then they should be more likely to expect a female speaker to use the conceptualization offered by another female than one offered by a male. Experiment 1 tested this in the context of comprehension. Experiment 2 evaluated whether such gender-based expectations result from memory for the source of the information. Experiment 3 demonstrated that gender *per se* is used to keep track of a speaker’s conceptualization by showing that gender-based attributions are a function of the salience of the speaker’s gender.

EXPERIMENT 1

In this experiment, people observed speakers name unusual pictures. They then tried to identify each target picture from a set of three pictures. For example, the top left picture in Figure 1 was one of these targets. During the experiment, this picture was named by two different speakers. One speaker (e.g., Jane) named it “the flying ghost,” and the second speaker called it “the sitting man.” These are two different ways to conceptualize this picture. Now suppose that Jane attempts to single-out a picture from the three depicted by Figure 1, and she says “the sitting man.” According to the principle of contrast (E. Clark, 1987), had Jane wanted to refer to the leftmost picture, she would have said “the flying ghost” again. Because Jane is using a different term than she used before, she is probably talking about a different picture—maybe the rightmost one. However, if we are correct, then such contrast-driven inference will depend on the gender of the second speaker—the one who called the top left picture “the sitting man.” If the second speaker was female, then participants would be more likely to confuse her with Jane. If they do, then they should be less likely to perceive a contrast; they would keep track of the gender of the speaker who originally said “the sitting man,” and given that Jane and the second speaker are both females, they would be less surprised if Jane calls it “the sitting man.” In contrast, if the second speaker was male, then participants would be less likely to confuse what he said with what Jane said; and so, when Jane says “the sitting man,” they would be more likely to apply the principle of contrast and identify a different picture as the target. In general, the impact of the principle of contrast should be attenuated if the second speaker is of the same gender rather than of a different gender. We, therefore, predict that people would be more likely to conclude that Jane is reusing a term that another female used for a particular referent than a term that a male speaker used for that referent. The first study is modeled after this example.

The study phase

Picture	Description	Speaker	Different gender condition	Same gender condition
	The flying ghost	Test speaker	Female	Female
	The sitting man	Second speaker	Male	Female
	The capital L	Third speaker	Female	Female
	The car seat	Fourth speaker	Male	Female

The test phase


The choice set	Test speaker says	Condition
	The flying ghost	Keep
	The sitting man	Change

FIGURE 1 The basic structure of the study phase of Experiments 1, 2, and 3 and of the test phase in Experiment 1.

Method

Participants. Sixty-four native speakers of American English (32 females) participated in the experiment as addressees in return for payment. The average age of participants was 22, ranging from 19 to 40 years of age. Forty-five of the participants were Caucasians, 13 were Asian Americans, 3 were African Americans, and 3 identified as “other.” Three participants were replaced because their data were not appropriately recorded.

Procedure

The practice phase and cover story. We explained to participants that every participant plays two roles. They first record messages for future participants, and then play a game to identify pictures that previous speakers described. To “understand” the role of the speaker, participants then saw a video clip that demonstrated the task of the speaker. In the clip, the experimenter instructed a female participant about the role of a speaker. He handed the participant in the video a piece of paper with a picture, and asked her to describe it so that

a future addressee would be able to select it from a set of three pictures. After watching the clip, the participant practiced the role of an addressee by attempting to follow the instructions of that speaker. The computer screen was divided in two. A video clip with the speaker appeared on the top half of the screen, and a set of three pictures appeared on the bottom. Figure 1 presents an example of a target picture in the study phase and its corresponding three-picture set in the test phase. For each trial, the participant listened to the description and then clicked to select a picture. If the participant chose the correct picture, the speaker's next videotaped instruction was presented. If the participant chose an incorrect picture, that picture was removed, and the computer replayed the video clip description. The practice included five such trials.

To ensure that participants believe that the confederate speakers were naïve participants, participants then performed the role of a speaker and described some pictures, supposedly for future participants. They sat in front of a table while the experimenter set up the video camera. Participants could see themselves on the computer screen to convince them that they were being recorded. The experimenter picked up a sheet of paper as if checking to see which set of pictures the participant would describe and said, "Oh you are lucky! You do not have to describe a lot of pictures."¹ After the participant described five different pictures, the experimenter left the room, and the participant performed the actual experiment, starting with the study phase.

The study phase. In this phase, the participants received instructions from four different speakers. First, the participants saw the experimenter reading the instructions to a speaker on the computer screen. Then, the speaker described the first target picture, and the participants tried to identify it among a set of three pictures. This was done for 12 target pictures. To further strengthen the participant's memory for referring terms, the speaker described the same 12 pictures again. Given that speakers tend to use fewer words when they refer to the same object repeatedly (H. H. Clark & Wilkes-Gibbs, 1986), the confederate speakers shortened their referring expressions in the second round. After the participants finished identifying the pictures twice, they followed the same procedure with three more speakers. One half of the participants received instructions from four female speakers, and the other half of the participants received instructions from two female and two male speakers.² The order of speakers was randomized across participants, and the presentation order of pictures was randomized for each participant.

¹Because the participants were going to describe only five pictures, like the practice trial speaker and differently from the study speakers who would describe 12, they were led to believe that their role as a practice trial speaker was assigned to them randomly.

²The four-female condition was motivated by an anticipation of the design of Experiment 3.

The test phase. Between the study phase and the test phase participants performed a 10-min, irrelevant filler task that involved solving some algebra problems and answering general questions like, “Who was the 17th president of USA?”³ The goal of this task was to avoid recency effects of referring terms. In the test phase, only one of the speakers described pictures. This “test speaker” was female and was kept the same across all conditions. She described the same 12 pictures from the study phase, and the participant attempted to identify them. The test speaker used the same terms she used in the study phase to refer to one half of the pictures, but she used the terms that one of the other speakers used to refer to the other half of the pictures. Which terms she borrowed from the other speaker were counterbalanced across conditions. The entire study took about 45 min.

Setup and Materials

The pictures were simple drawings of abstract shapes on a white square background (2.75" × 2.75"). To create the descriptions for these pictures, we asked naïve participants to describe a variety of such pictures. We chose 24 pictures from this pool, along with their two most-frequent descriptions. These descriptions were just as likely to have come from a male as from a female participant. The test speaker and the speaker from whom she later borrowed terms used different expressions to describe the same 12 pictures. We call these 12 pictures “the test pictures.” Each of the other two speakers referred to the remaining 12 pictures by using different descriptions; we call these 12 pictures “the competitors” because, in the test phase, they appeared as one of the foils that could be the referent of the test speaker’s description. The participant had to identify the target among a set of three pictures. In Figure 1, the picture on the left for the test phase is the target, and the one on the right is the competitor. The presentation order of the picture sets was randomized for each participant both in the study and in the test phase. Pictures were counterbalanced across conditions.

Design

We manipulated two main factors: “social identity” and “perspective.” Social identity was either the *same* when the test speaker borrowed a term from another female, or *different* when she borrowed a term from a male speaker. Perspective was either kept the same (*keep*) when the speaker used the same terms in the test as she used in the study phase, or it was changed (*change*) when she switched to another speaker’s term. We also crossed the participant’s

³All participants performed the same filler task.

gender with these factors because the gender of a speaker of the opposite gender from the participant's could be more salient (Frable & Bem, 1985; Levin, 2000). This yielded a mixed $2 \times 2 \times 2$ design: Social Identity (same vs. different) \times Perspective (keep vs. change) \times Participant Gender (female vs. male). Only perspective was a within-subjects variable.

Dependent Measures and Predictions

According to the Principle of Contrast, when the test speaker uses a term she did not use before, participants would be more likely to conclude that she is talking about an object she had not referred to before. To measure this, we look at the proportion of times the participants select an object other than the target. We call this "the switch rate." The lower the switch rate, the more participants are accepting the test speaker's term as referring to the target picture. The higher the switch rate, the more participants take the change of terms to indicate a change of referent. We hypothesized that participants would keep track of speaker's conceptualization partially via speaker's gender. Therefore, we predicted that when the test speaker switches perspective (*change* condition), compliance with the Principle of Contrast would be attenuated by social identity. We, therefore, predicted that when the test speaker changes description, the switch rate will be higher when the social identity of the speakers is different (different gender) than when it is the same (same gender). The *keep* condition provided a control for any tendency to select a competitor that is independent of social identity.

Results and Discussion

As Figure 2 shows, when the test speaker used the second speaker's term, participants' switch rate (i.e., selecting the competitor) increased to a greater extent when the second speaker's gender was the same as the test speaker than when it was different. There was no such effect when she used the same term as before.

Analysis with participants is labeled $F1$ and with items as $F2$. The switch rate was submitted to a three-way analysis of variance— 2 (Social Identity) \times 2 (Perspective) \times 2 (Participant Gender)—with social identity and participant gender as between-subject factors and perspective as the within-subjects factor. Overall, the switch rate was 20%, but it was higher in the different gender condition than in the same gender condition ($M_s = 23\%$ and 17% , respectively). This main effect of speaker gender was significant by participants and marginal by items: $F1(1, 60) = 5.5$, $MSE = 0.02218$, $p < .05$; $F2(1, 22) = 3.894$, $MSE = 0.0084$, $p = .061$.

As predicted, social identity had a different effect for the keep and the change conditions, yielding a significant interaction between perspective and social

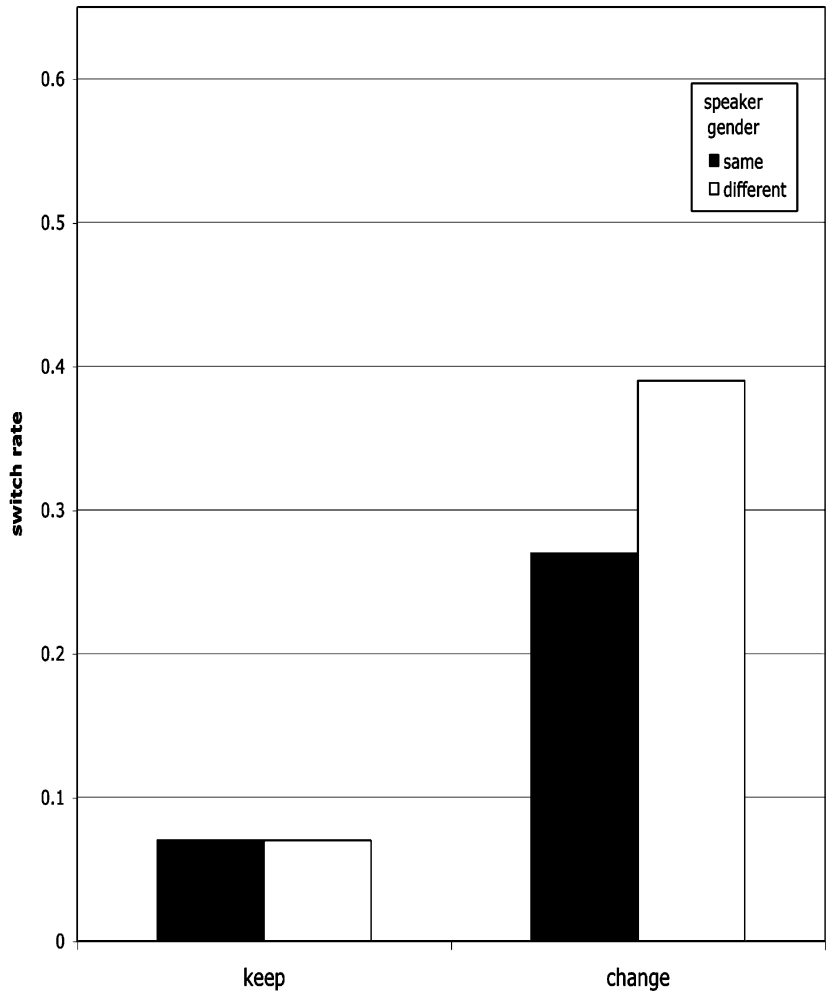


FIGURE 2 Switch rate in Experiment 1: The tendency to select a new picture as a function of whether the gender of the second speaker was the same as the gender of the first speaker or different, and whether the test speaker kept the same term or changed to the term of the second speaker.

identity: $F1(1, 60) = 6.411$, $MSE = 0.01576$, $p < .05$; $F2(1, 22) = 4.366$, $MSE = 0.118$, $p = .060$. When the test speaker used the same expression as in the previous rounds (keep condition), participants rarely selected a different picture, and at exactly the same rate across the social identity conditions ($M_s =$

7%). In contrast, when the test speaker changed to the other speaker's term, participants were more likely to select a different picture in the different social identity than in the same social identity condition ($M_s = 39\%$ and 27% , respectively): $t_1(62) = 3.005$, $SE = 0.03924$, $p < .01$; $t_2(11) = 2.641$, $SE = 0.04291$, $p < .05$. So, when the test speaker used an expression from another speaker, participants were more likely to think she was talking about a different picture when she borrowed the term from a male than from another female speaker. When she did not borrow the terms but described the picture as she did in the study phase, social identity did not affect the tendency to select the target.

There was also a main effect of perspective, with a higher switch rate for change than for keep ($M_s = 33\%$ and 7% , respectively): $F_1(1, 60) = 136.97$, $MSE = 0.01576$, $p < .001$; $F_2(1, 22) = 13.055$, $MSE = 1.553$, $p < .01$. No other interaction or main effect was significant.

Our findings replicate past findings, and go beyond to demonstrate the role of social category. When the test speaker used a term she had not used before, participants thought that she must have been talking about a picture she had not talked about before. This conceptually replicates past findings, which show that listeners are surprised when speakers violate their own precedent (Barr & Keysar, 2002; Brennan & Clark, 1996; Keysar, Lim, & Barr, 2001; Kronmüller & Barr, 2007; Metzger & Brennan, 2003; Shintel & Keysar, 2007). Our findings further show that the expectations about who uses which perspective in communication are not based only on speakers' individual identity but also on their group identity. Listeners expect speakers of the same gender to use similar conceptualizations.

Experiment 1 showed that people keep track of speakers' conceptualizations partly through the gender identity of the speaker by showing that gender affects the interpretation of what the speaker says. Experiment 2 explores the underlying memory that gives rise to such interpretations. We suggest that memory for source (Johnson, Hashtroudi, & Lindsay, 1993) mediates the role of gender identity in keeping track of perspective. To test this, Experiment 2 investigates memory more directly.

EXPERIMENT 2

If source memory is responsible for the results of Experiment 1, then we should find source confusion in people's memories that parallel the interpretation results of Experiment 1. Consider the top left picture in Figure 1. Suppose that in the past a particular female speaker, Jane, called it "the flying ghost," and a second speaker called it "the sitting man." Now you are trying to recall what Jane called it. If gender plays a role in how you keep track of who said what, then the gender

of the *second* speaker should affect your ability to recall what Jane said. You should be more likely to be confused if the second speaker was also female than if that speaker were male. So, you should be more likely to mis-recall that Jane had called it “the sitting man” if the second speaker was female than male. Experiment 2 tested this prediction.

Method

Participants. Sixty native speakers of American English (30 females) participated in the experiment in return for payment. The median age of participants was 21, ranging from 19 to 33 years of age. Thirty-eight of the participants were Caucasians, 15 were Asian Americans, 5 were African Americans, and 2 identified as “other.”

Procedure

Experiment 2’s procedure was the same as that of Experiment 1 up to the test phase. In this experiment, after the irrelevant task, participants did not follow instructions of a “test” speaker. Instead, participants performed a surprise recall test. They received the pictures of the 12 target pictures from the study phase of Experiment 1, along with a photo of a speaker, and attempted to recall the terms the speaker used. Then they did the same for the other speaker who referred to those pictures. The order of speakers was randomized.

Design

As in Experiment 1, we manipulated social identity by varying the gender of the two speakers who referred to the test pictures in the study phase. In the same gender condition, they were both females; and in the different gender condition, one was a female and the other one was a male. We also crossed the participants’ gender with social identity. So, the design was 2 (Social Identity: Same vs. Different) \times 2 (Participant Gender: Male vs. Female)—all between-subject.

Results and Discussion

To evaluate our hypothesis, consider the tendency to mis-recall for one speaker the terms of the other speaker (see Table 1). Overall, participants were more likely to recall a term and misattribute it to a speaker when the speakers had the same gender than when they had a different gender.

Consider the female speaker who was the test speaker in Experiment 1. When participants attempted to recall what she called each picture, they mis-recalled

TABLE 1
Mean Recall Rate in Experiment 2: Rate of Terms Recalled and
Correctly or Incorrectly Attributed to Speakers as a
Function of the Gender of the Other Speaker

Gender	Correct Attribution		Speaker Confusion	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Same	0.60	0.17	0.20	0.14
Different	0.67	0.13	0.11	0.08
Total	0.63	0.15	0.16	0.12

what she said and attributed to her what the other speaker said about 14% of the time. However, these recall errors were almost twice as high when the other speaker was also female than when that speaker was male (M s = 18% and 10%, respectively). This difference was significant: $F(1, 56) = 4.755$, $MSE = 0.104$, $p < .05$; $F(1, 11) = 17.963$, $MSE = 0.078$, $p < .01$. Similarly, when participants attempted to recall what the second speaker named the pictures, they mis-recalled the terms of Experiment 1's test speaker more when that other speaker was female (same gender) than male (different gender; M s = 22% and 13%, respectively): $F(1, 56) = 6.244$, $MSE = 0.134$, $p < .05$; $F(1, 11) = 9.958$, $MSE = 0.101$, $p < .01$. There was no effect of participants' gender, and it did not interact with speaker gender.

The recall results from Experiment 2 suggest that source memory contributed to the results of Experiment 1. When participants followed instructions by the test speaker, who switched to the other speaker's term in Experiment 1, they may have misremembered the term as the original one used by the test speaker. Indeed, the recall error pattern in Experiment 2 shows that such misremembering is more likely to happen when the speakers have the same gender. So, if participants wrongly think that the speaker had used that term in the past to refer to the target picture, they would not think that she is changing terminology and, therefore, they would conclude that she is referring to the same picture she referred to in the past.

Indeed, the switch rate data from Experiment 1 correspond well with the mis-recall data from Experiment 2. When the speaker changed her description, the difference in switch rate between the same and different gender conditions was 12 percentage points, which is quite close to the corresponding difference of 9 percentage points of mis-recall. It is interesting to note that there was an overall difference across the experiments, as participants tended to switch more than they tended to make recall errors. This is consistent with the possibility that the procedure of Experiment 1 was more demanding than that of Experiment 2. In Experiment 1, participants were trying not only to recall what the speaker

said before but to consider what they said in the context of distracters. In Experiment 2, participants simply tried to recall what the speaker said. Given that people are less able to retrieve memories systematically when they are cognitively loaded (Dodson, Holland, & Shimamura, 1998; Klauer & Wegener, 1998), their memory for specific sources might have been worse in Experiment 1, resulting in an increased switch rate.

Our results demonstrate that people keep track of speaker's conceptualizations partly via the speaker's gender identity. Yet, there is an alternative explanation for our results. Consider the pattern of recall errors in Experiment 2. We found a higher tendency to mis-recall a term one speaker used and to attribute it to another speaker when the speakers had the same gender than when they had a different gender. It is possible that gender per se played no role here but, instead, that the similarity between speakers as individuals caused the results. People of the same gender may be more similar and, therefore, more confusable with each other as individuals. Specifically, our participants might have perceived the two female speakers as more similar as individuals, not because they are both females.

There is reason to believe that social category information per se can be used in accessing who said what, independently of information about speakers as individuals. Using a multinomial model, Klauer and Wegener (1998) showed that varying social categories affects only the social identity parameter of the model, and varying the similarity of the speakers affects only the individual identity parameter. In addition, Dodson et al. (1998) showed that people can remember the gender of speakers even if they cannot remember their individual identity. More generally, source monitoring studies show that the source of a memory can be monitored based on partial information (Bink, Marsh, & Hicks, 1999; Hicks, Marsh, & Ritschel, 2002; Johnson et al., 1993). So, one does not need to know the specific details of an event to correctly identify its source. Similarly, one might not need to know exactly which person used a certain expression to assign that expression to that speaker. The person's social category information might be sufficient.

Although research shows that social category could play a role in source memory, we still need to show that in our studies social category does play such a role. Females might very well be more alike as individuals than are a female and a male. Therefore, we do not argue that such individual similarity does not play a role; instead, we show in Experiment 3 that a social category per se makes a unique contribution to the way people keep track of speaker conceptualization.

EXPERIMENT 3

If people use social categories to keep track of speakers' use of perspective, then the salience of a social category should influence this process. Experiment 3

is modeled after Experiment 2, but varies the salience of the gender of the speaker while keeping constant the individual. If social category per se is used to keep track of who used which perspective, then gender-based confusions should increase with the salience of the speaker's gender.

We manipulated the salience of the gender category by varying its perceived category boundary. In general, category boundaries exacerbate perceived differences across categories. Tajfel and Wilkes (1963) asked participants to estimate the length of different lines. When the lines were categorized into two groups of longer and shorter lines, participants perceived lines from different categories as more different in length compared to when the lines were not categorized. This accentuation of category differences was much reduced for exemplars, which were not at the category boundary (Goldstone, 1994; Levin & Beale, 2000). Similarly, Huttenlocher, Hedges, and Duncan (1991) found that the estimate of the location of a dot is truncated near the boundaries of a spatial category, and this truncation decreases as the distance of the dot from the boundary increases. Experiment 3 incorporated such an effect of category boundary to manipulate the salience of the speakers' gender near a gender-category boundary.

Experiment 3 had the same study phase as before, but it used a recognition task in the test phase. We presented participants with a target picture and the way one of the speakers described it in the study phase. Participants' task was to select the photo of that speaker from the set of photos of all four speakers. In the case where we had two male and two female speakers (different gender condition), we grouped the photos by gender to induce a category boundary. We arranged the photos horizontally, with the two females on the left and the two males on the right (see Figure 3). This created a perceived category boundary between the middle two pictures. We expected this boundary to accentuate the salience of the gender category so that the salience of the gender of speakers closer to the middle would be higher than the salience of the gender of those away from it. If gender is used to keep track of what speakers say, then it should have a stronger effect on speakers who are closer to the category boundary than on speakers who are further away from it.

Method

Participants. Ninety-five native speakers of American English (48 females) participated in Experiment 3 in return for payment. The median age of participants was 21, ranging from 19 to 32 years of age. Eighty-one of the participants were Caucasians, 4 were Asian Americans, 6 were African Americans, and 4 identified as "other."

















		Spatial position			
Counterbalancing Versions	Speaker Gender	1	2	3	4
1	Different				
2					
1	Same				
2					

FIGURE 3 The test phase of Experiment 3: The spatial organization of the pictures of the speakers induced a gender category boundary in the different gender condition, and the gender of the female speakers was more salient in the second position than in the first (these avatars are reproduced with the permission of Yahoo!® Inc.).

Procedure

The study phase was identical to that of Experiments 1 and 2. After watching the movies of the speakers and performing the irrelevant task for 10 min, participants received a booklet containing pictures of object–description pairs. Each of the 12 pictures appeared three times: once paired with the terms one speaker used in the study phase, once with the terms the other speaker used, and once with

a new term that none of the speakers used in the study phase. The task was to indicate which speaker used the terms to refer to the picture in the study phase or to indicate that none of the speakers used that term. Participants indicated the speaker by selecting among pictures of the four speakers. Each page of the booklet contained three pairs of objects and descriptions, and presentation order was randomized.

Design

Figure 3 illustrates how we manipulated gender salience. The avatars in Figure 3 more or less represent our speakers' basic features and clothing, although we used actual photos in the experiment. The photos of the four speakers were arranged horizontally in equal spacing. In the different gender condition, the two pictures on the right were of one gender, and the two pictures on the left were of the other gender. Whether males appeared on the right or on the left was counterbalanced across participants. The two middle speakers were closer to the gender category boundary than the other two. We, therefore, expected the gender of the speaker to be more salient when the speaker was in a middle position than when that speaker was not. In contrast, in the same gender condition, all speakers were females, so there was no category boundary. This condition, then, controlled for any differences other than category salience that result from change of position.

The design was 2 (Gender Salience: High vs. Low) \times 2 (Social Identity: Same vs. Different) \times 2 (Participant Gender). Only gender salience was a within-subjects factor. Speakers were closer to the category boundary in one version and removed from it in another (see Figure 3). The gender of those closer to the boundary was of high salience, and of those further away from it of lower salience. Proximity to the boundary was counterbalanced so as not to confound speaker identity with the salience of gender.

Manipulation Check

Given that the main manipulation in this experiment involved the salience of the gender category, we pretested our assumption that when speakers are closer to the category boundary, their gender is more salient. Although Levin and Beale (2000) and Huttenlocher et al. (1991) showed that the perception of stimuli closer to a category boundary is indeed more category-based than the stimuli farther from it, there is no demonstration of such an effect with social categories. Therefore, we tested whether the particular category boundary we used in our experiment induces differential salience of gender. If proximity to category boundary increases gender salience, then females should be perceived as more feminine at that position. Crucially, if proximity to category boundary affects only the salience of the gender but not of individual characteristics, then

the manipulation should not affect the perception of speakers' characteristics that are not related to gender.

Pretest method. Forty-one native speakers of American English (26 females) participated in the pretest in return for payment. The median age of participants was 22, ranging from 19 to 33 years of age. Thirty-eight of the participants were Caucasians, and 3 were African Americans. They completed the same study phase in the different gender condition, except that they watched only six descriptions of each speaker. Then, without doing the interim task, participants received a questionnaire and were told to evaluate a certain characteristic of the female speakers. They rated each speaker's characteristics using a 7-point scale. One group of participants rated each female speaker on each characteristic when Jane, the test speaker in Experiment 1, was in the middle, and a second group of participants rated them when she was not in the middle.

The questionnaire included 38 characteristics based on Bem's (1974) Sex-Role Inventory: 20 feminine personality characteristics (e.g., affectionate, cheerful, and compassionate) that were found to be desirable for females in American society and 18 gender-neutral characteristics that were no more desirable for one gender than the other (e.g., adaptable, conceited, and conventional). "Helpful" and "sincere," which were used as gender-neutral characteristics in the original inventory, were not included because they were used as feminine characteristics in Spence, Helmreich, and Stapp's (1974) Personal Attributes Questionnaire and in Heilbrun's (1976) Adjective Checklist. Participants were asked to evaluate how much a certain speaker possesses a certain characteristic on a 7-point scale ranging from 1 (*not at all*) to 7 (*very much*). The questionnaire had 76 items in total: 38 for the first speaker and 38 for the second speaker.

As we expected, the feminine characteristics were assigned to a female speaker more frequently when she was near a category boundary than away from it ($M_s = 4.9$ vs. 4.6, respectively), but proximity to the boundary did not affect the neutral characteristics ($M_s = 4.2$). This interaction between characteristic type and proximity to category boundary was significant: $F(1, 39) = 4.564$, $MSE = 1.398$, $p < .04$; $F(1, 36) = 5.525$, $MSE = 0.690$, $p < .03$. This pattern shows that, although the manipulation of speaker picture position does not affect the perception of gender-neutral characteristics, it induces differential salience of the gender category, with the gender of speakers being perceived as more salient when they are close to the category boundary than when they are away from it. With the manipulation validated, we now present the predictions and the results for the main experiment (see Table 2).

Measures and Predictions

Our prediction concerns the tendency to misattribute a term within a gender category compared to between gender categories. Therefore, as a dependent

TABLE 2
Manipulation Check for Experiment 3: Mean Rating of
Feminine and Gender-Neutral Characteristics of Speakers as
a Function of Proximity to Category Boundary

Characteristic	Proximity to Category Boundary			
	Near		Far	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Feminine	4.85	0.88	4.61	1.15
Neutral	4.20	0.49	4.20	0.60

measure we used the difference between two types of possible errors: a within- and a between-category error. A within-category error is the assignment of a speaker's term to someone who is of the same gender. A between-category error is the assignment of a speaker's term to a speaker of a different gender. In the same gender condition, we calculated this difference score by using the two female speakers that correspond to the two male speakers in the different gender condition.

Because participants had twice as many opportunities to commit a between-category error than a within-category error, the misattributions to the two between-category speakers were averaged⁴ in line with common practice (Arcuri, 1982; Blanz, 1999; Frable & Bem, 1985; Stangor et al., 1992; Taylor & Falcone, 1982; Taylor et al., 1978; van Twuyver & van Knippenberg, 1995). We refer to the difference between the within-category errors and the corrected between-category errors as the category difference score.

If gender per se is used to keep track of a speaker's use of perspective, then the category difference score should be higher when the speaker's gender is salient compared to when the speaker's gender is less salient. This should not happen, however, in the same gender condition because that condition involved no category boundary—hence, no differential salience.

Results and Discussion

Figure 4 demonstrates that our hypothesis was confirmed, as the category difference score was higher for same gender compared to different gender speakers, especially when those speakers' genders were salient.

As we predicted, social category and gender salience interacted: $F(1, 91) = 4.678$, $MSE = 0.185$, $p < .05$; $F(2, 23) = 8.002$, $MSE = 0.307$, $p < .01$.

⁴The pattern of results for the two speakers was the same.

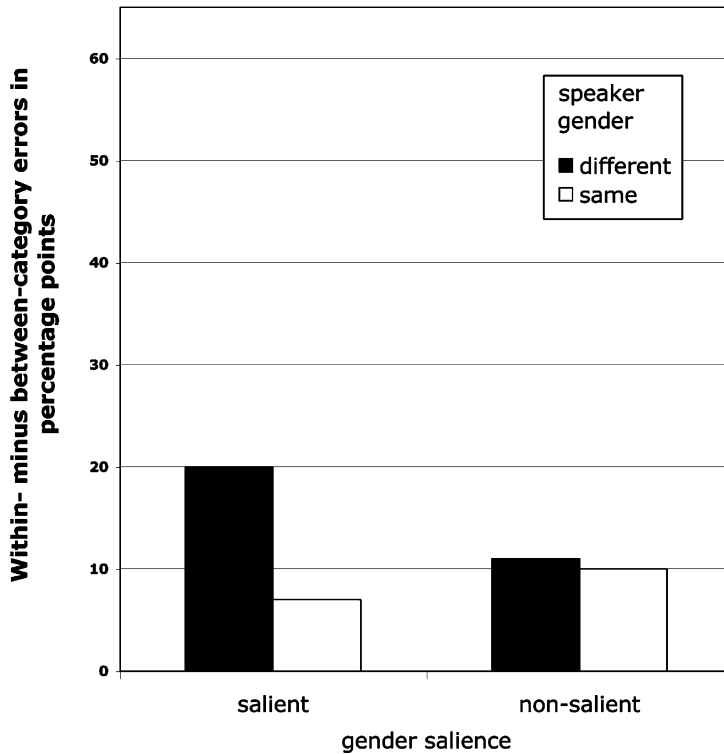


FIGURE 4 The difference between the within- and between-category errors in Experiment 3 as a function of speaker gender and salience of gender.

In the different gender condition, the difference score was higher for the salient speakers than the less salient ones ($M_s = 20$ and 11 percentage points, respectively): planned contrasts, $t_1(93) = 3.459$, $SE = 0.03789$, $p < .001$; $t_2(23) = 4.909$, $SE = 0.07816$, $p < .001$. In contrast, the corresponding speakers in the same gender condition did not differ ($M_s = 7$ and 10 percentage points, respectively): $t_1(93) = 0.164$, $MSE = 0.03807$, ns ; $t_2(23) = 0.291$, $SE = 0.05074$, ns . There was a main effect of speaker gender ($M_s = 9$ and 16 percentage points in the same and different gender conditions, respectively): $F_1(1, 91) = 7.698$, $MSE = 0.222$, $p < .01$; $F_2(1, 23) = 6.738$, $MSE = 0.443$, $p < .05$; and participant gender did not interact with any other factor.

Correct attributions also show a tendency to favor the speaker with the salient gender. There was a significant interaction between social category and gender salience: $F_1(1, 91) = 4.558$, $MSE = 0.196$, $p < .05$; $F_2(1, 23) = 9.258$, $MSE = 0.149$, $p < .01$. The correct assignments to the salient gender speaker

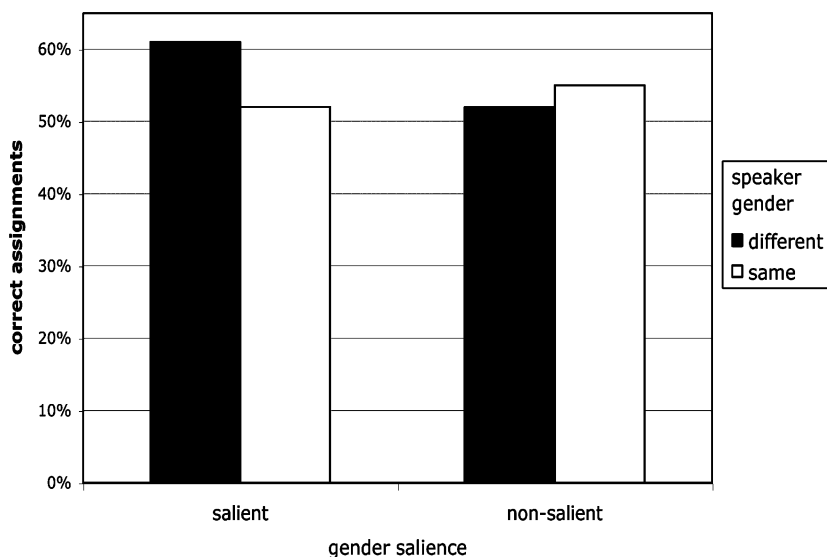


FIGURE 5 Correct assignment of speakers in Experiment 3 as a function of speaker gender and salience of gender.

were higher in the different gender condition compared to the same gender condition ($M_s = 61\%$ and 52% , respectively): planned contrasts, $t_1(48) = 2.131$, $SE = 0.04$, $p < .05$; $t_2(23) = 2.692$, $SE = 0.03$, $p < .05$. In contrast, they were slightly lower for the non-salient gender speaker ($M_s = 52\%$ and 55%). Participants' gender did not interact with other factors (see Figure 5).

Just like Experiment 2, Experiment 3 showed that participants are more likely to misattribute a referring term to a same gender speaker than to a different gender speaker. Experiment 3 goes further and shows that the gender information per se is used in keeping track of what speakers say. In Experiment 3, the salience of the speakers' gender affected how referring terms were assigned to speakers. When gender salience varied, participants misattributed terms more to the speakers whose gender was salient. This effect of social identity salience shows that people keep track of speakers' perspectives through group-identity information.

GENERAL DISCUSSION

Choosing to call a long wooden thing a stick or a bat conveys very different perspectives. Our findings demonstrate that to keep track of speakers' perspec-

tives, people partially rely on the speakers' social identity. The first experiment demonstrated that this affects referential interpretation. When a female kept using the same term, participants inferred that she was talking about the same object. However, when she switched to a term she never used before, they were more likely to infer that she was talking about a different object. However, this tendency was reduced if she switched to a term that was previously used by another female. Experiment 2 investigated the nature of the memory mechanism that underlies this effect. It demonstrated that the social identity of speakers plays a role in attributing terms to speakers. Experiment 3 showed that such attribution can be based on category information independently of individuating information. Participants made gender-based misattributions more often when the speaker's gender was salient than when it was less salient. As a whole, these results show that the social identity of speakers is used together with speakers' individual identity to keep track of speakers' conceptualizations, and to predict their referring behavior.

When people keep track of who said what, they do use the individual identity of speakers so that they can anticipate what speakers would say in the future (Barr & Keysar, 2002; Brennan & Clark, 1996; Keysar et al., 2001; Metzger & Brennan, 2003; Shintel & Keysar, 2007). Here we showed that the speakers' social category can contribute to the process of keeping track of speakers' conceptualizations; this could lead to group-based expectations for what speakers would say. This suggests that people may occasionally map terms onto a referent because they remember that a group member used the term to refer to the object without remembering who.

We used a particular category—gender—to evaluate our hypothesis. There is reason to believe that, although our results may generalize to other social categories, they may not generalize to non-social categories. Lorenzi-Cioldi (1993) showed that when photographs are paired with geometric figures, the categories of geometric shapes are used to remember the photograph. However, this effect is stronger when male and female silhouettes, instead of geometric shapes, are paired with photographs. Brewer et al. (1995) also found that speakers' shirt color could be used to categorize and access what they said. However, when the color had a meaning (e.g., it supposedly signified whether a person was an over-estimator or an under-estimator), the effect was stronger. In addition, Stangor et al. (1992) showed that, in the presence of social categories, non-social categories did not have an effect. It seems, then, that social categories are used to access information about people because they are meaningful ways to explain people's behaviors. Other categories could do the same but only if they become meaningful enough.

Social identities can also be used in source monitoring due to a stereotypical connection between the content of referring terms and social identities. People attributed a statement that was likely to be spoken by a doctor to a doctor rather

than to a lawyer (Hicks & Cockman, 2003), and they attributed a statement such as, "I think welfare creates a cycle of dependency," to a republican rather than to a democrat (Mather, Johnson, & De Leonardis, 1999). Klauer and Wegener (1998) also showed that the stereotypical content of statements is used to assign those statements to speakers just like the social identity encoded with the statements. In general, people infer what speakers believe or know from their group membership (Fussell & Krauss, 1992; Krauss & Fussell, 1991). In our experiments, we used descriptions that were just as likely to be provided by a male or a female. This allowed us to show that even when stereotypes can play no role, social identity is still used to keep track of speakers' conceptualization.

The literature has other examples of the role that categories could play in memory and communication. Horton and Gerrig (2005), for instance, asked speakers to describe pictures to two different addressees. In one condition, the speakers described categorically different pictures to the two addressees: frog pictures to one, and bird pictures to the other. In the other condition, they described both frog and bird pictures to both addressees. When the addressees were associated with a distinct category, speakers were better able to tailor the descriptions for the particular addressee, shortening them as they repeatedly referred to the same picture—that is, it was easier for speakers to associate pictures with addressees based on category information. These results show that the category of the material in focus that is associated with an addressee can affect the way speakers keep track of what addressees know. Here we showed that addressees use the social category of the speaker to keep track of who said what.

If people keep track of who said what via the speaker's social identity, then it is possible that they also rely on the social identity of agents in a story to keep track of their perspective. This might also depend on the salience of the gender identity in the context of the story. In addition, inferences about which characters have access to what speakers said could be a function of social category. Just like in Graesser, Bowers, Bayen, and Hu's (2000) study in which readers judged a friend of a speaker to be more knowledgeable about what the speaker said than a non-friend, they might also judge an agent to be more knowledgeable about a speaker's statement if they belong to the same social groups.

Participants in our study did not interact with the speakers, and this may limit the generalizability of the results. It is possible that had participants interacted with the speakers, they may not have developed group-based expectations. Although actual interaction might lead participants to have better source-specific memory for what an individual speaker says, there is evidence that the ability to interact does not diminish source confusion. Sani, Bennett, and Soutar (2005) had people interact and indicate their choices about which places they would like to visit and which foods they enjoy. When asked later to remember others' preferences, they based their memory partly on the others' group identity. It is

reasonable to assume, then, that people develop group-based expectations in both interactive and non-interactive settings. It would be interesting to investigate if interaction increases or decreases the reliance on social identity to keep track of conversation.

It might be important to explore the boundary conditions for group-based expectations such as the one we documented. We suspect that a major element would be the relative prominence of individuating as opposed to group aspects of speakers in different contexts. Under some circumstances, people focus on stereotypes-consistent information, but when goals change, they focus more on individuating information that is stereotype-inconsistent (Ruscher, Hammer, & Hammer, 1996). Just as people are more likely to make category-based attributions when the social category is salient, it is possible that people would abandon a category focus and use individuating aspects of the speaker when the speaker is salient as an individual. When trying to remember what the eccentric basketball player Dennis Rodman said about a certain game, we might rely less on his social identity than on his peculiar individual identity. Similarly, we may rely less on social identity when thinking about our friends than about strangers. Indeed, when people attempt to remember others' preferences, they rely on the group identity of a stranger but not on that of a friend (Sani, et al., 2005). Thus, over time, people may acquire specific knowledge about others and use it instead of relying on social identity.

In general, when people keep track of who said what, they may fluctuate between focusing on speakers' individuating elements and their social category. Using a controlled experiment, we show that a central social category, such as gender, does play a role in this process. The impact of social category may even be larger outside the laboratory because, different from our participants, as people go about their normal affairs, they are not trying hard to remember who said what. Under normal circumstances, then, they may naturally rely even more on category information. We show that people use the social category by demonstrating that sometimes the category confuses them. But, what we really show is not that people are confused by the category; instead, the category information facilitates communication by allowing listeners to partly predict and comprehend speakers choice of referring expressions.

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