Addressee Backchannels Can Bias Third-Party Memory and Judgment

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Abstract

Information about audiences influence how speakers produce messages, biasing speakers' own later recall (Higgins & Rholes, 1978), contingent on the creation of a shared reality between interlocutors (Echterhoff, Higgins, & Rholes, 2005). We tested for a similar effect within third party dialogue comprehension, in which overheard addressees displayed evaluative backchannel responses. Participants observed an interaction containing valence-ambiguous personal information, and were later asked to recall the information and make related judgments. Addressees either responded positively or negatively to the speaker's description. Across three experiments, we found that addressee responses biased recall when the responses were cues to a shared perspective, either due to the collaborative construction of the talk or prior shared knowledge between speaker and addressee. Addressee responses as cues to the addressee's stance alone did not bias overhearer recall. These findings support the argument that perception of a shared reality is a central component of dialogue comprehension.

Keywords: Dialogue; Comprehension; Backchannels; Overhearers; Audience Tuning; Memory

Introduction

Picture being an audience member at a political debate. The candidates present arguments in favor of particular positions while deriding their opponents' positions in a strict, turn-by-turn fashion with a set amount of time to speak. When not speaking, however, the other candidates are not simply passive or invisible, but instead may act as addressees, actively responding to the current speaker's talk. They would likely display their own stance, either positive responses such as smiles and nods, or negative responses such as frowns, side-to-side head shaking, and grabbing podiums in shock. The audience of the debate not only hears the candidates' arguments but also takes on the role of overhearers of a dialogue, taking in both the current speaker's talk and any *backchannel responses* by the other active participants present in the interaction.

A variety of research within the *collaborative* paradigm, in which meanings are achieved through joint negotiation (Brennan, Galati, & Kuhlen, 2010; Clark & Wilkes-Gibbs, 1986), has shown that addressee backchannels are critical in the production and development of dialogue. Numerous studies have demonstrated how speakers adjust their talk in relation to the informational and evaluative stance of their audience (Bell, 1984; Clark & Murphy, 1982; Clark & Schaefer, 1989). In spontaneously produced dialogue, speakers systematically incorporate backchannels into their talk (Norrick, 2010; Tolins & Fox Tree, 2014). Addressees use backchannels to actively ground the joint activity of the dialogue, and the degree to which the addressee displays understanding and acceptance influences how the speaker's subsequent talk is produced (Bangerter & Clark, 2003; Bavelas, Coates, & Johnson, 2000; Beukeboom, 2009; Tolins & Fox Tree, 2014).

Speakers' talk is also influenced by other factors, such as knowledge of addressees' attitudes. When told to describe someone to an addressee who feels favorable or unfavorable towards the descriptee, speakers will adjust their talk depending on what they believe their audiences' attitudes are. This adjustment affects speakers' later recall such that they are more likely to recall addressee-congruent information, but only when they've actually produced their description rather than merely possessed knowledge of their addressee's stance (hence the phenomenon's label, the *saying-is-believing effect*; Higgins & Rholes, 1978). The memory effect is also only present when there is a *shared reality* between the speaker and audience (Higgins, 1992) When the audience is a member of an out-group, or when speakers are lead to distrust their audience's perspectives, speakers still produce messages tuned to their addressees, but they do not display later memory biases in the direction of their previously produced messages (Echterhoff, Higgins, & Groll, 2005).

The importance of shared reality has been demonstrated with written messages that were intended as messages between a speaker and an addressee. Is shared reality also important for people listening in on an interaction between others? Does the existence of a shared reality between interlocutors influence the recall of people watching the two people interact, and if so, to what degree is this driven by addressee backchannels?

Backchannels and Third-Party Comprehension

In addition to their role in the co-construction of conversation, backchannels may also affect third-party comprehension. We will refer to people listening in on or watching others' interactions without actively participating in the interaction *overhearers*. Earlier studies have shown that overhearers have some access to the common ground created between interlocutors. Overhearers comprehend talk better when they begin listening earlier in the development of the conversation rather than later, when the entrained expressions have already been established (Schober & Clark, 1989). Similarly, speakers produce talk directed towards former overhearers differently depending on their prior participation status, suggesting that interlocutors are also sensitive to overhearers' ability to understand the

development of common ground in the observed interaction (Wilkes-Gibbs & Clark, 1992).

Previous work on third party dialogue comprehension has demonstrated that overhearers do have expectations about how speakers will continue after different types of addressee responses (Tolins & Fox Tree, 2014). Overhearers were asked to read dialogue transcripts up to either a context generic backchannel, such as *mhm* or *uh huh,* or a context specific backchannel, such as *oh* or *really*. After specific backchannels, overhearers, or *overreaders* in this paradigm, were more likely to contribute a discourse elaboration, providing additional information about the same event, in their next speaker turn. After generic backchannels they were more likely to contribute discourse continuations, moving on to some next event. Importantly, sensitivity to this predictive relation across interlocutor contributions was visible not only when overhearers took on the role of speaker and suggested what would likely be said next (production; Tolins & Fox Tree, 2014), but also when overhearers listened to narratives (comprehension; Tolins & Fox Tree, in press). These findings support a view of dialogue comprehension as a task involving the comprehension of the interaction as a coordinated whole, capitalizing on predictive relations across interlocutors.

In the current studies, we investigated how assessment backchannels affect judgments and recall of a descriptee's behavior and personality. Assessment backchannels display the producer's evaluative stance towards the content of the talk. To return to the opening example, the audience of a political debate can be seen as engaged in the task of dialogue comprehension (albeit highly institutionalized) while taking into account both the current speaker as well as any responses, positive or negative, from the other candidates acting as active addressees. The audience members may be influenced by the other candidates' concurrent responses, changing how they interpret the current speaker's political stance.

The Current Investigation

Given that the expression of memories in dialogic activity influences subsequent memory for both listeners and speakers (Cuc, Koppel, & Hirst, 2007; Pasupathi et al., 1998, Hirst & Echterhoff, 2008; 2012), and that interlocutors actively steer narrative retellings in systematic directions through audience tuning (on the part of speakers) and the production of backchannels and expressive behavior (on the part of listeners; Bavelas et al., 2001; Beukeboom, 2009; Higgins & Rholes, 1978; Tolins & Fox Tree, 2014), the current study explores the role addressee responses play in shaping overhearers' memory and judgment of talk produced in dialogue. Do addressee backchannel displays influence overhearers' later memory for the content of the dialogue?

We propose two possible hypotheses, with two differing outcomes. The *simple cueing* hypothesis is that backchannels are cues that bias overhearer comprehension in the direction of their affective content. Positive backchannels encourage overhearers to recall positive information, and negative backchannels encourage overhearers to recall negative information. The *contextualized cueing* hypothesis is that backchannels bias overhearer comprehension in the direction of affective content, but only when a contextualized picture can be constructed of a shared reality between speakers and addressees. As in earlier studies where the saying-is-believing effect is only present when there is a shared reality, and where biased memory only occurs when there is a shared reality, we predict that overhearers' biased memory will only manifest when the addressee backchannels are indicative of a shared reality.

To distinguish these hypotheses, we manipulated video recordings of a dialogue in order to present the same speaker talk with distinct addressee behaviors. The addressee behaviors were backchannels displaying either positive or negative assessments. Across experiments, we varied the degree to which the two overheard interlocutors were viewed as establishing a shared perspective, either through active collaboration or previously developed common knowledge. In Experiment 1 addressee responses included both nonverbal and verbal responses, which were responded to with simple speaker uptake (next turn initial *yeah*s). As such, the overheard conversation involved active collaboration in the creation of a shared perspective. Experiment 2 removed the active coordination of stance across speakers. Only nonverbal backchannels were displayed and the observed interaction was designed such that no speaker uptake was possible. Instead, participants were told that the addressee had prior knowledge of the topic of the speaker's talk. Experiment 3 replicated the non-interactive format of Experiment 2, with the epistemic status of the addressee reduced to that of an unknowledgeable stranger. Across experiments, participants were sensitive to the stance displayed by the addressee responses. These responses only influenced later memory of the talk when they were taken to be indicative of a shared perspective, (Experiments 1 and 2), but did not bias later memory when they were taken to display just the addressee's stance (Experiment 3). Together, these studies demonstrate both that addressees influence third party comprehension and that when listening to talk spoken in a dialogic context, overhearers integrate information across the active participants.

Experiment 1

We tested overhearer recall and judgment of the content of a speaker's talk following the third party observation of a collaborative interaction.

Method

Participants. Sixty students from the University of California, Santa Cruz, participated in exchange for course credit.

Materials. The construction of the speaker's script was based on the *communication game* (Higgins & Rholes,

1978). The script consisted of a description of the speaker's friend, Katie, along eight distinct personality traits. These traits included dimensions such as stingy/thrifty, stubborn/persistent, and witty/sarcastic. Each trait description contained valence-ambiguous information; that is, each description could be interpreted either negatively or positively. The script as a whole and each individual trait description have been pretested in prior experiments to ensure that the descriptions evoke positive and negative impressions with approximately equal likelihood (Higgins & Rholes, 1978; Echterhoff et al., 2008; Sedikides, 1990; Todorov, 2002). In contrast to the typical format of the communication game paradigm, in which the description is presented as a written essay, for the present experiment a confederate speaker memorized the script and was then recorded reciting the script as though describing a friend in a naturalistic conversation. This recording was done alone so as to not impose any influence of addressee responses on the speaker during the creation of the stimulus. The speaker sat in front of a computer and wore headphones while reciting the description.

The addressee response videos were created through the use of a confederate who filmed himself responding the speaker's description in a similar format. This allowed for the same speaker talk to be used across both addressee response conditions. In the positive affective response condition, the confederate addressee provided positive nonverbal backchannel responses including smiles and nods in response to the descriptions. He similarly responded to the presentation of each individual trait with verbal responses. This included non-evaluative responses to the more negative portions of the descriptions, and evaluative backchannels such as *really* and *oh wow* with positively-valenced prosody to the positive portions. In the negative affective response condition, the addressee responded to the speaker's talk with frowns, furrowed brows, and eye rolls (see Beukeboom, 2009 for a similar contrast in confederate responses). The verbal backchannels were reversed from the positive condition, such that non-evaluative responses were provided to the positive portions of the description, and negative verbal assessments, this time with negatively-valenced prosody and words, were provided following the negative descriptions. Piloting of the study revealed that when told they were observing a spontaneously produced interaction, overhearers found the interaction highly unnatural in the absence of speaker uptake of the verbal backchannels, and so the speaker script was adjusted to include turn-initial uptake, in the form of *yeah* after both evaluative and non-evaluative backchannels.

These recordings were then combined in a split screen format with each video stream presented against a black background (Figure 1). This resulted in two videos in which the speaker was exactly the same while the addressee responses varied in the presentation of affective nonverbal responsive behaviors, as well as the presentation and location of verbal backchannels, including especially evaluative responses.

a.

b.

Figure 1: Screenshots demonstrating the format of the observed conversation. Screenshot *a.* illustrates a positive addressee response, while *b.* illustrates negative addressee response displays. The same speaker video was used across addressee conditions.

Procedure. Participants were told that they were participating in a study in how language is used to describe personality. They were informed they would be listening in to a conversation collected during a previous experiment run in the lab, in which prior participants were asked to describe friends to each other. After watching the interaction, participants were asked to rate their perception of how well-liked the target person being described is by both the speaker and hearer, as well as their own liking of the target, along 7-point Likert scales. After answering these questions, participants engaged in a unrelated, 10-15 minute filler task, before being asked to recall the overheard description of the target person. The recall prompt asked participants to be as accurate and detailed as possible in remembering the description of the target. After the free recall, the participants were asked to fill out an 8-question questionnaire, which provided each of the 8 traits in the description individually. Each trait was presented on a 7-point Likert scale with 1 representing the negative interpretation of the trait (e.g. stingy, sarcastic, or stubborn) and 7 the positive interpretation of the trait (e.g. thrifty, witty, or persistent). The scores from these eight questions were combined into a single, composite judgment score. Both memory bias and judgment bias were tested because previous work on audience tuning effects suggested that the two mechanisms may be dissociable, with judgment biases being more easily corrected when participants were made aware of the bias (Todorov, 2002). Results indicating an effect of addressee responses on both memory and judgment would suggest that overhearers do not vigilantly correct against addressee influence.

Coding. Two judges, blind to experimental condition as well as the experimental paradigm in general, separately scored the participants' recall of the description of Katie on an eleven-point scale ranging from -5 (extremely negative description) to +5 (extremely positive description). The correlation between their scoring was lower than in prior

studies, $r = 0.59$, $p < .001$, and so the judges were asked to resolve differences in scores through discussion to jointly produce a final coding for each recalled description.

Results

Liking Ratings. Participants rated the addressee as liking the target more in the positive condition, $M = 4.45$, $SD = 1.29$, than in the negative condition, $M = 2.72$, $SD = 1.03$, $MDiff = 1.73$, $t(58) = 5.71$, $p < .001$, 95% CI [1.12, 2.33]. Participants also rated the speaker as liking the target more in the positive condition, $M = 5.10$, $SD = 1.45$, than in the negative condition, $M = 4.21$, $SD = 1.29$, $MDiff = .89$, $t(58) = 52.65$ $p = .02$, 95% CI [.18, 1.6]. The participants' own liking did not differ significantly across conditions, $p = .34$.

Judgment and Recall. Participants in the positive condition judged the target as having a more positive personality, as measured by the composite personality judgment score, $M = 33.0$, $SD = 6.4$, compared to participants in the negative condition, $M = 29.0$, $SD = 6.5$, $MDiff = 4.0$, $t(58) = 2.39$, $p = .02$, 95% CI [.66, 7.34].

Recalled descriptions were judged as being significantly more positive when the participants had observed the positive addressee response condition, $M = 1.16$, $SD = 2.04$, than the negative addressee response condition, $M = .10$, $SD = 2.04$, $MDiff = 1.06$, $t(58) = 2.29$, $p = .025$, 95% CI [.13, 1.98].

Discussion

The manipulation of addressee responses successfully lead overhearers to believe that the addressee liked the target being described less in the negative response condition than in the positive response condition, indicating that overhearers were aware of and sensitive to the addressee's verbal and nonverbal displays of stance throughout the speaker's talk. Addressee responses also influenced overhearers' ratings of the speaker's opinion about the friend she was describing, despite the same video being used across conditions. This suggests that backchannels were not simply cues for how to interpret a speaker's talk, but instead provided evidence of a shared perspective. The current stimuli included speaker uptake of addressee responses, in the form of turn initial *yeah*s, and so mimicked speaker uptake of addressee talk present in collaborative dialogue (Norrick, 2010; Tolins & Fox Tree, 2014).

Participants' later recall of the content of the talk produced in the observed dialogue was biased in the direction of the addressee responses – that is, biased in the direction of the perceived joint stance of the speaker and addressee. These effects are the first to demonstrate that addressee affective/evaluative backchannels in an overheard dialogue influence overhearer comprehension and memory of the content of the speaker's talk.

It is possible that overhearers were not making use of the addressee responses as cues to a shared perspective, but were rather interpreting the speaker uptake as indications of the speaker's stance, making the speaker's opinion of Katie less ambiguous than the words of the script suggested. The experimental stimuli also leave open the possibility that it is not necessarily a shared perspective that matters for overhearer bias but simply that both speaker and addressee were demonstrating a stance in the same direction towards the target being described. To address this, we ran an additional experiment in which speaker uptake was removed.

Experiment 2

In Experiment 1, participants attributed the positive or negative evaluation of the target to both the addressee and the speaker, despite the same speaker video being used across the two conditions. This suggests that overhearers view dialogue as an activity involving the coordination and alignment of perspective across participants. In order to further test the role of a shared perspective in dialogue comprehension, we conducted a second experiment in which the format of the dialogue prevented the speaker from perceiving or acknowledging the addressee responses. We maintained high epistemic status of the addressee by providing information suggesting that the speaker and the addressee both had prior knowledge of the target individual being described. If the bias effect on memory and judgment in the first experiment were driven by explicit interpretation of the speaker uptake as indicating stance, rather than on any mechanism involving the perception of a shared reality between the two interlocutors, then the bias should not be present when uptake is prevented. If it is indeed the shared perspective that drives the effect, then information about previously established shared knowledge between speaker and addressee should be enough to allow overhearers to perceive a shared reality, resulting in a similar bias as found previously.

Method

Participants. Seventy students from UC, Santa Cruz participated in exchange for course credit.

Materials. The same valence-ambiguous script from Experiment 1 was used here, without the addition of the turn initial acknowledgment tokens. The confederate speaker and addressee were also the same as in Experiment 1. The addressee was filmed providing only nonverbal responses to the speaker's talk. In the positive condition this included smiles, nods, raised eyebrows, and an open body position. In the negative condition responses included frowns, head shakes, eye rolls, and crossed arms.

Design. The design was the same as Experiment 1.

Procedure. The same procedure as in Experiment 1 was used. In order to explain the lack of uptake from the speaker, participants were informed that the listener's microphone and camera had been disconnected to keep the listener from being able to influence the speaker's description. Participants believed they were participating in a study on how people describe the same person to friends or strangers, and that in the current conversation used for the stimuli in this experiment the speaker believed the other individual was a stranger, but the participants were made

aware that this listener actually knew the target being described.

Coding. Coding the bias of the recalled descriptions was conducted in the same manner as in Experiment 1. Coders' independent judgments, $r(70) = .59$, $p < .001$, were resolved jointly.

Results

Ratings. Participants believed that the addressee liked the target more in the positive addressee response condition, $M = 4.83$, $SD = 1.29$, than in the negative condition, $M = 2.89$, $SD = 1.55$, $MDiff = 1.94$, $t(68) = 5.70$, $p < .001$, 95% CI [1.26, 2.62]. The same pattern was found in the participants' judgment of the speaker's liking of the target, with participants rating the speaker as liking the target more in the positive addressee response condition, $M = 5.43$, $SD = 1.20$, than in the negative condition, $M = 4.80$, $SD = 1.26$, $MDiff = .63$, $t(68) = 2.15$, $p = .036$, 95% CI [.04, 1.21]. Participants' own rating was not quite more positive in the positive addressee response condition, $M = 4.46$, $SD = 1.40$, than in the negative condition, $M = 3.89$, $SD = .96$, $MDiff = .57$, $t(60.28) = 1.99$, $p = .051$ (df adjusted for non-equal variance, Levene's $F = 8.54$, $p = .005$).

Judgment and Recall. Participants in the positive condition judged the target as having a more positive personality, as measured by the composite personality judgment score, $M = 34.9$, $SD = 5.5$, compared to participants in the negative condition, $M = 30.1$, $SD = 6.6$, $MDiff = 4.8$, $t(68) = 3.27$, $p = .002$, 95% CI [1.9, 7.6].

Participants' recalled descriptions were judged as being more positive in the positive addressee response condition, $M = 1.08$, $SD = 1.8$, than in the negative addressee response condition, $M = .06$, $SD = 2.4$, $MDiff = 1.02$, $t(68) = 2.02$, $p = .047$, 95% CI [.01, 2.04].

Discussion

Participants' later memory of the content of the speaker's talk was biased in the direction of the addressee's nonverbal responses. Similarly, their judgment of the personality of the target was biased to align with the stance displayed by the addressee in the observed dialogue.

Addressee nonverbal backchannels alone, without the possibility of speaker uptake, were enough to perceive the addressee's particular stance towards the target description. As with Experiment 1, they also attributed differing stance to the speaker across condition, with the speaker in the negative addressee response condition viewed as having a less favorable view of the person she was describing. Thus, the current experiment replicated all of the effects of the first, despite the reduction of the interactivity. This suggests that the assumption of shared knowledge between addressee and speaker can serve as the basis for a perceived shared reality, and as such bias overhearer comprehension.

Experiment 3

In Experiment 2, while participants were aware that the speaker could not see or hear the addressee, and so no shared stance could be created through the interaction, they were provided with information suggesting that both the speaker and the addressee had shared knowledge: each knew the target person being described. In Experiment 3, speakers and addressees shared nothing. The speaker and addressee could not establish a shared perspective through the interaction (Experiment 1), nor could they be thought to have shared prior knowledge (Experiment 2).

Method

Participants. 72 students from UC, Santa Cruz participated in exchange for course credit.

Materials. The same stimuli from Experiment 2 were used.

Design. The design was the same as for the prior experiments.

Procedure. The same procedure as in Experiment 2 was used. However, unlike Experiment 2, here participants were informed that the addressee was a stranger, and that the previous experiment from which the video stimuli were collected required that the addressee not be able to influence the speaker's talk, and so their microphone and camera were turned off.

Coding. Coding the bias of the recalled descriptions was conducted in the same manner as in Experiment 1. Coders' independent judgments, $r(72) = .57$, $p < .001$, were resolved jointly.

Results

Ratings. Participants believed that the addressee liked the target more in the positive addressee response condition, $M = 4.30$, $SD = 1.08$, than in the negative condition, $M = 2.09$, $SD = 1.20$, $MDiff = 2.12$, $t(70) = 8.25$, $p < .001$, 95% CI [1.68, 2.75]. Participants' judgment of the speaker's liking of the target did not significantly differ across the positive addressee response condition, $M = 5.38$, $SD = 1.28$, and the negative condition, $M = 5.0$, $SD = 1.43$, $MDiff = .38$, $t(70) = 1.18$, $p = .24$. Participants own rating did not significantly differ across the positive addressee response condition, $M = 3.94$, $SD = 1.53$, and the negative condition, $M = 4.16$, $SD = 1.38$, $MDiff = -.22$, $t(70) = -.64$, $p = .53$.

Judgment and Recall. Composite personality judgment scores for participants in the positive addressee response condition, $M = 30.8$, $SD = 7.1$, were similar to those in the negative addressee response condition, $M = 30.4$, $SD = 6.5$, $MDiff = .4$, $t(70) = .24$, $p = .81$.

Participants' recalled descriptions were judged as being slightly more positive in the positive addressee response condition, $M = .76$, $SD = 3.0$, than in the negative response condition, $M = .54$, $SD = 3.7$, but this difference was not statistically significant, $MDiff = .22$, $t(70) = .27$, $p = .79$.

Discussion

Participants perceived the addressee's nonverbal responses as demonstrating his stance towards the content of the speaker's talk. Despite perceiving the backchannels as indicative of the addressee's opinion of the person being described, there was no later bias in the recall and judgment measures.

In contrast to Experiments 1 and 2, participants did not rate the speaker as liking the friend she was describing differently across conditions. The status of the addressee in the present experiment is one of an unknowledgeable side-participant. The addressee in the observed dialogue was a stranger, and so did not did not have knowledge equivalent to that of the speaker, and the backchannel responses were not available to the speaker, and so did not play a role in the collaborative production of the talk.

General Discussion

We found evidence that listeners' specific backchannels affected how overhearers comprehended talk produced in dialogue. By constraining the interactivity and the shared knowledge between speaker and addressee, we showed that backchannels do not simply act as cues for overhearer comprehension. The pattern of findings suggests that third party dialogue comprehension involves the detection of a shared stance between the two overheard conversational partners, with the addressee backchannels' influencing later memory only when there was evidence of a shared stance.

Future studies will be needed to further test the theory of dialogue comprehension as listening to a shared perspective.

Other extensions would be an overhearing paradigm in which active collaboration is present, but in which the two interlocutors have contrasting perspectives and motivation to maintain them, as in the case of an argument or disagreement. In such a context, the backchannel responses of one interlocutor clearly would not be indicative of a shared perspective, and so would likely not influence how the speaker's talk is remembered. In addition, the effect may work differently when overhears have their own opinions about the topic under discussion. While the overhears in the current experiments have no reason to have an opinion about the speaker's friend Katie, they may have an opinion about the topic of a political debate and these opinions may affect the phenomenon.

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