

EXPOSURE TO BIASED LANGUAGE
**The role of linguistic abstraction in the transmission,
maintenance, and formation of beliefs**

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Abstract

Language plays an indispensable role in the transmission, maintenance, and formation of culturally shared beliefs. Yet beliefs about groups, in particular, are shared despite the existence of prohibitive norms that act to inhibit their expression. This apparent incongruity suggests that cultural beliefs become shared through linguistic means other than explicit expression. In support of this, the linguistic bias paradigm proposes that linguistic bias is the implicit and unintentional expression of beliefs through the differential use of linguistic abstraction (Franco & Maass, 1996; Maass, 1999; Maass, Salvi, Arcuri, & Semin, 1989), as defined by the Linguistic Category Model (Semin & Fiedler, 1988). According to this paradigm, linguistic bias not only reveals the speakers' privately held beliefs but also transmits these beliefs to recipients, leading to belief sharedness. The consequences of exposure to linguistic bias, however, have yet to be shown and this is the aim of the present research program. The first study focuses on belief transmission, by determining if there is a direct causal effect from linguistic abstraction to individual impression formation. Results show that biased language transmits information about individuals but the communication context, specifically whom the message is about, is also important. Given this, it is likely that the content of the message will also affect the reception of biased language. The second study thus focuses on belief maintenance, by considering the relative effects of different levels of linguistic abstraction on pre-existing beliefs. Results were inconclusive, but may have been affected by methodological limitations. The third study addresses these limitations while focusing on belief formation, by measuring the impact of biased language in the absence of pre-existing beliefs. Recipients, in general, formed beliefs that corresponded to the biased language to which they were exposed. Together, these studies suggest that linguistic bias plays a role in belief sharedness as a mechanism through which cultural beliefs are transmitted and formed. Linguistic bias, however, must be understood within the specific communication context, which also independently affects reception.

Résumé

Le langage est indispensable à la transmission, au maintien et à la formation de croyances partagées au sein d'une culture. Pourtant, les croyances au sujet de groupes sont partagées en dépit de l'existence de normes prohibitives qui inhibent leur expression. Cette incongruence apparente suggère que les croyances culturelles sont partagées par des moyens langagiers autres que leur expression explicite. À l'appui, le paradigme du biais linguistique propose que le biais linguistique soit l'expression implicite et non-intentionnelle de croyances par l'entremise de l'usage différentiel d'abstraction langagière (Franco & Maass, 1996; Maass, 1999; Maass, Salvi, Arcuri, & Semin, 1989), telle que définie par le *Linguistic Category Model* (Semin & Fiedler, 1988). Selon ce modèle, le biais linguistique révèle non seulement les croyances privées des locuteurs, mais transmet aussi ces croyances aux interlocuteurs, incitant le partage de croyances. Toutefois, les conséquences de l'exposition au biais linguistique n'ont pas encore été démontrées de façon empirique. C'est le but du présent programme de recherche. La première étude se centre sur la transmission des croyances, en déterminant s'il y a un effet causal direct de l'abstraction langagière à la formation d'impressions individuelles. Les résultats montrent que le langage biaisé transmet de l'information au sujet des individus, mais que le contexte communicationnel et en particulier le sujet du message, est aussi important. Ainsi, il est probable que le contenu du message affecte aussi la réception du langage biaisé. La seconde étude se penche donc sur le maintien des croyances, en tenant compte des effets relatifs de différents niveaux d'abstraction langagière sur les croyances préexistantes. Les résultats ne sont pas conclusifs, probablement à cause de limites méthodologiques. La troisième étude répond à ces limites tout en portant attention à la formation de croyances, en mesurant l'impact du langage biaisé en l'absence de croyances préexistantes. En général, les interlocuteurs forment des croyances qui correspondent au langage biaisé auquel ils ont été exposés. Ensemble, ces études suggèrent que le biais linguistique joue un rôle dans le partage de croyances et sert de mécanisme à travers lequel les croyances culturelles sont transmises et formées. Toutefois, le biais linguistique doit être compris à l'intérieur d'un contexte communicationnel spécifique, qui affecte indépendamment la réception du biais.

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GENERAL INTRODUCTION

The Role of Biased Language in Belief Sharedness

Humans are the products of the culture in which they live. Culture, by permeating every aspect of human life, influences what is said, done, and thought, to such a large degree that it cannot be escaped. Culture is the coalescence of information and norms that is shared by members of a community (Lehman, Chiu, & Schaller, 2004), who, by virtue of living together and organizing themselves into a functioning society, share knowledge, values, and beliefs about the world. Culture, then, is the amalgamation of those aspects of an individual's behaviour and cognition that are shared by members of a community (see also Wan, 2012; Mesoudi, 2009; Mesoudi & Whiten, 2008). Thus, the central and defining feature of culture is that it is *shared*. The purpose of this research program is to examine one case of the role of language in how cultural knowledge spreads throughout social networks.

Stereotypes are an example of cultural knowledge: Our beliefs about our own and other groups strongly influence how we view the world and how we think about and act towards members of different groups. Though operating at the individual level, stereotypes are only relevant and important in that they, and their behavioural and cognitive consequences, are common to a cultural group (Klein & Snyder, 2003; McGarty, Yzerbyt, & Spears, 2002). They are not simply individual beliefs, then, but shared representations of the social reality of a community and likely serve a purpose within it (Haslam, Turner, Oakes, Reynolds, & Doosje, 2002). They often act, for example, to justify the status quo or the nature and pattern of intergroup relations (e.g. the stereotype content model; Fiske, Cuddy, Glick, & Xu, 2002; Haslam et al., 2002). The potential impact of cultural knowledge, including stereotypes, is determined by its degree of sharedness (Tindale & Kameda, 2000).

Language must play an indispensable and fundamental role in sharedness, given that it is the primary means through which information can be communicated. Yet, the ubiquitous and pervasive nature of stereotypes is at odds with the existence of current cultural norms that discourage and denounce the expression of such bias. How then do stereotypes become widely accepted? This apparent contradiction has been explained by distinguishing between implicit and explicit forms of beliefs (Sinclair & Lun, 2010). It is argued that all people have ingrained implicit cultural beliefs, like stereotypes, that are enduring and resistant to change. The lack of explicit expression of these beliefs is merely a demonstration of the ability to manage or mask them. For example, the theory of symbolic racism proposes that the increase in prohibitive norms on the explicit expression of prejudice only serves to increase the prevalence of subtle, less obvious, forms of bias (Kinder & Sears, 1981). Consistent with this view, researchers argue that linguistic bias is the subtle yet systematic expression of implicitly held beliefs. In this paradigm, it is believed that the expression of linguistic bias reveals the speaker's true and private beliefs and, accordingly, it has been used as a measure of implicit prejudice (e.g. von Hippel, Sekaquaptewa, & Vargas, 1997).

It is argued that the widespread use of linguistic bias serves to transmit and maintain beliefs (Bourhis & Maass, 2005; Maass, Milesi, Zabbini, & Stahlberg, 1995) and is thus a means through which biased beliefs become shared. Yet research has not demonstrated that exposure to linguistic bias has the expected cognitive consequences for the recipient. The specific goal of this research program is, therefore, to investigate whether or not exposure to linguistic bias can lead to the transmission, maintenance, and formation of biased beliefs.

The Impact of Language on Cognition

Whether it is explicit or implicit expression, language is the means through which beliefs are communicated and it is undoubtedly linked to cognition. While it was once argued that language determined cognition to such an extent that there could not be thought without language (e.g. the Sapir-Whorf hypothesis), this extreme perspective has largely been abandoned. More moderate forms, however, cannot be ignored. Language is essentially a system in which arbitrary sounds come to have a commonly understood meaning, enabling senders to translate their cognition into communicable phrases in order to pass it to a recipient. Specific words, then, lead to a specifically understood meaning (language acts as a vessel; see Sutton, 2010; Collins & Clément, 2012).

Language has such a profound effect on cognition that, beyond the semantic implications of words, both its structural and peripheral features can also affect the content it is meant to convey (Collins & Clément, 2012; Sutton, 2010). Certain words, for example, change the way we think about objects (Yoshida & Smith, 2005), grammar and word placement can affect the way we think about people (Bruckmüller & Abele, 2010), and the order in which we write can even affect our perception of moving objects (Maass, Pagani, & Berta, 2007). Interestingly, this means that language with different features lead speakers to think about, and perceive, the world in distinct manners. This is true for structural differences, in that speakers of languages that mark the gender of objects tend to perceive those objects as having characteristics related to their grammatical gender (for a review see Boroditsky, Schmidt, Phillips, 2003), but also true for more subtle differences in language. For example, bilinguals express different implicit biases (Danziger & Ward, 2010; Ogunnaike, Dunham, & Banaji, 2010) and personality profiles (Ramírez-Esparza, Gosling, Benet-Martínez, Potter, & Pennebaker, 2006) depending on

the language in which they are tested, suggesting that language can prime cultural values and norms.

Language is also expansive and complex: there are several different ways to express the same sentiment or describe the same event. Subtle variations in word use, structure, and intonation, can lead to very different meanings. Despite this complexity, it is a very simple task for speakers to encode and decode messages. Linguistic bias, in fact, relies on the assumption that the use of language is so automatic and natural that speakers may use subtle variations unintentionally, to express and reveal their true beliefs.

Much research has, in fact, studied the meaning or cognitive implications of different word types. For example, action identification theory research categorizes descriptions of behaviour using levels of action identification (Vallacher & Wegner, 2012). Low levels of action identification focus on how the behaviour is performed while high levels focus on why it is performed. The levels are determined using the *by* criterion, in which a high level description can be understood as being done *by* a low level description. For example, one can “go to work” *by* “driving a car” but one cannot “drive a car” *by* “going to work”. Thus, “goes to work” is a high-level action identification while “drives a car” is a low-level action identification. Although the levels of action identification are considered hierarchical, the number and meaning of each level is undefined. Definitions are contextual in that a specific description is only considered high or low in relation to another description. It is therefore difficult to use this model to understand one specific phrase or description without reference to another.

Another attempt to categorize the cognitive implications of different word types comes from attribution research. In studying the causality implicit in verbs, a fundamental difference was discovered in what are called action and state verbs. Action verbs describe the physical action of the behavioural event, for example *Ben hugs Olive*,

while state verbs describe a mental state that could be occurring during, or account for, the behavioural event, for example *Ben loves Olive*. When presented with a behavioural description, it is inferred that the subject (*Ben*) is the cause of the event when an action verb is used and that the object (*Olive*) is the cause of the event when a state verb is used. The Linguistic Category Model (LCM; Semin, 2012) was built out of this research and was a successful attempt to organize word types into a general taxonomy that could be used across domains. It offers an objective classification system of words types and their cognitive implications and does not rely on a relative definition of levels (see also Coenen, Hedeboom, & Semin, 2006).

The LCM operationalizes linguistic abstraction, which is used to define linguistic bias. This model, first described by Semin and Fiedler (1988), classifies words into four linguistic categories that vary along a continuum from concrete to abstract: descriptive action verbs (DAVs), interpretive action verbs (IAVs), state verbs (SVs), and adjectives (ADJs). According to the LCM, any behavioural event can be accurately described using any one of the linguistic categories but each category has different cognitive implications. Thus, if person A hits person B, the event can be described as '*A hits B*' (DAV), '*A hurts B*' (IAV), '*A hates B*' (SV), or '*A is aggressive*' (ADJ). Each description is accurate but, in going from concrete (DAVs) to abstract (ADJs), the description loses information about the specific details of the event and gains information about the individual performing the behaviour. More specifically, low levels of linguistic abstraction maintain a strong link to the specific physical details of the behavioural event (e.g. *hits*) while high levels of linguistic abstraction give information about the person performing the behaviour (e.g. *aggressive*). The development of this formal model spurred research on linguistic biases and in other areas (for a review see Semin, 2012).

Linguistic bias can thus be defined as the differential use of linguistic abstraction to describe the same behaviour for members of different groups. There are two main linguistic biases (Wenneker & Wigboldus, 2008; Beukeboom, 2014). The linguistic expectancy bias (LEB; Maass et al., 1995; Wigboldus, Semin, & Spears, 2000; 2006) is the tendency to describe expectancy-consistent behaviours at higher levels of linguistic abstraction than expectancy-inconsistent behaviours. Expectancies are often derived from stereotypes, which, by ascribing traits to social groups, define what behaviours are expected for individual group members. A speaker who holds the implicit belief that Black people are more aggressive than White people, for example, may subtly communicate this belief by using abstract language to describe aggressive behaviours when they are performed by Black individuals but not when they are performed by White individuals. The linguistic intergroup bias (LIB; Maass, Salvi, Arcuri, & Semin, 1989; Maass, Ceccarelli, & Rudin, 1996) is the tendency to describe negative outgroup and positive ingroup behaviours at higher levels of linguistic abstraction than positive outgroup and negative ingroup behaviours. This bias implies that only socially undesirable (negative) behaviours are expected for outgroup members while only socially desirable (positive) behaviours are expected for ingroup members. Thus, in what we will refer to as the linguistic bias paradigm, linguistic bias is, essentially, the tendency to describe belief-consistent behaviours at higher levels of linguistic abstraction than belief-inconsistent behaviours.

The language used by speakers transmits and reinforces implicitly held beliefs. Linguistic biases are thus a reflection of the speaker's implicitly held beliefs, and linguistic abstraction is the mechanism through which these biased beliefs are expressed. It is argued that by describing belief-inconsistent behaviours with low levels of linguistic abstraction, the importance and impact of the behaviour is limited, discouraging

generalizations beyond the behaviour and thereby keeping the belief intact (Bourhis & Maass, 2005, p. 19; Maass et al., 1995). Linguistic bias, therefore, is believed to play a critical role in the transmission and maintenance of socially shared beliefs about groups.

Although the unconscious (Franco & Maass, 1996) and pervasive (see Beukeboom, 2014; Wenneker & Wigboldus, 2008; Maass et al., 1989; for reviews) use of linguistic bias has been established, it cannot be concluded that it is a mechanism through which beliefs are shared until the impact of exposure to implicitly expressed biased beliefs is understood. Research thus far has assumed that mere exposure to the implicit expression of biased beliefs leads recipients to hold the same beliefs. If linguistic bias plays a role in how beliefs become shared, then it must be able to (1) transmit beliefs to recipients, (2) maintain pre-existing shared beliefs, and (3) form new beliefs in those who do not already share them. These effects, however, have yet to be demonstrated.

Belief Transmission

As described above, Semin and Fiedler (1988) based their model on solid empirical evidence from the implicit causality literature in which certain verbs, when placed in the sentence "Subject *verb* object", led the perceived causality for the verb to be placed in either the subject or object of the sentence (Semin, 2012; Brown & Fish, 1983). Additionally, in their original study, participants were asked to verify the semantic implications of words from each of the four linguistic categories. They found, as expected, that ADJs were judged to be most informative about the person performing the behaviour and least informative about the situation. Maass and her colleagues (1989) in their first articulation of linguistic bias, replicated these findings and additionally found that behaviours described using abstract words were perceived as more likely to be repeated. By presenting participants with a multitude of sentences in the same form with only a single variation, all of these studies may have inadvertently made participants

aware and attentive to the specific verb used. Thus, the findings may be the result of a conscious and comparative judgment between verbs. Maass et al. (1989, Experiment 3) reduced the number of similar sentences but participants were still presented with each of the four levels of linguistic abstraction for a single scenario. Thus, undue emphasis on the different levels of linguistic abstraction could have drawn participants' attention.

The artificial nature of these studies was redressed but not eliminated by Wigboldus and his colleagues (2000; 2006) by exposing participants to real participant-generated linguistically biased texts. Although Wigboldus et al. (2000; 2006) were successful in demonstrating that linguistic bias is spontaneously produced within externally valid situations, they did not demonstrate that exposure has an effect as, in general, participants had pre-existing beliefs that could have accounted for the results. Thus, to date, no study has demonstrated, outside of these limitations, that there is a clear and simple effect of linguistic abstraction on recipients.

Belief Maintenance

The transmission of unexpected information plays an important role in belief sharedness, since it is new or unexpected information that has the potential to change impressions. Within the linguistic bias framework, it is assumed that the impact of unexpected information is limited by using concrete words. By extension, even repeated exposure to behavioural information should not form a part of a recipient's impression of the described individual or group if that information is described using concrete words. There is some research to support this argument. For example, Geschke, Sassenberg, Ruhrmann, and Sommer (2010) found that abstractly worded news articles led to larger estimates of criminal behaviour and stronger subtle (but not blatant) prejudice than concretely worded news articles. Further, Gorham (2006) found, as expected, that people who are heavy consumers of media use more abstract language for a Black target in a

crime story whereas light consumers do not, suggesting that recipients exposed to linguistic bias are more likely to use linguistic bias.

In contrast to the linguistic bias paradigm, there is compelling evidence that concrete messages have a greater impact on recipients than abstract language. This also makes intuitive sense - concretely worded information gives more details about the behavioural event and so has more evidentiary impact than abstractly worded information, since the details are more easily verified and less open to interpretation. In support of this, but in contrast with Gorham (2006), Ewell (2012) found that news stories did not change implicit attitudes and that the race of the subject of the article did not impact the recipient. Ter Doest, Semin, and Sherman (2002) found that concrete messages cue deeper processing which leads to more attention to, and recall of, concrete information as compared to abstract information. Finally, in a key study by Geschke, Sassenberg, Ruhrmann, and Sommer (2007), it was found that concrete messages have more impact on recipients when the content of the message is unexpected. These findings are in direct contrast to the predictions of the linguistic bias paradigm, where it is argued that describing belief-inconsistent or unexpected information in concrete terms limits the impact on recipients.

If linguistic bias is a mechanism through which stereotypes are maintained, then the relative effects of abstract and concrete descriptions of unexpected information must be clarified. The currently available evidence is inconclusive on whether is it concretely or abstractly described unexpected information that has a greater impact on recipients.

Belief Formation

Research on the effects of linguistic bias has generally focused on the interpersonal domain and, more specifically, the recipient's perception of the speaker. For example, it has been shown that recipients are able to infer the relationship between the

speaker and the described person as well as the speaker's motivations and attitudes (Douglas & Sutton, 2006), and perceive speakers as more likeable when they express a positively biased message (Douglas & Sutton, 2010). In the case of belief sharedness, however, it would be more relevant to demonstrate that recipients make inferences beyond the individual described in the linguistically biased message, to the social group to which the individual belongs. After all, it is beliefs about groups, and not individuals, that are generally shared among social groups. There are only two recent studies that examined group-level effects of linguistic bias. Geschke et al. (2010) found that abstract newspaper articles about an individual migrant worker influenced recipients' attitudes towards all migrant workers, and Assilaméhou, Lepastourel, and Testé (2013) found that recipients were more likely to generalize behaviours to the whole social group if they were described using abstract words. Both of these studies, however, examined groups for which recipients already had pre-existing beliefs.

A stronger test of the effects of linguistic bias exposure would be conducted outside the influence of pre-existing beliefs, given that belief sharedness requires a mechanism through which beliefs can be shared with those who do not already hold them. Since previous research has not examined the effects of linguistic bias outside the influence of pre-existing beliefs, it is not known whether the manipulation of linguistic abstraction can lead to the formation of new beliefs.

The Present Research Program

According to the linguistic bias paradigm, linguistic bias is a mechanism of belief maintenance: by describing belief-inconsistent information in low levels of linguistic abstraction, the significance and impact of this behaviour on recipients' beliefs is limited or discounted. The research on the impact of linguistic bias is, however, inconclusive and the purpose of this research program is to address this issue.

The first study offers a simple demonstration that linguistic abstraction has a direct impact on recipients' impression formation. In contrast to previous studies, linguistic abstraction will be systematically manipulated in order to show a clear and simple causal effect. Participants will be presented with 20 different behavioural descriptions that will be conveyed using a randomly determined level of linguistic abstraction, and asked to indicate their impressions of the person performing the behaviour. Essentially, a unique scenario will be used for each description and the exposure (or lack thereof) to each level of linguistic abstraction as well as the number of descriptions using any particular level will be completely random. Thus, any emphasis on slight differences between sentences will be reduced as will the likelihood of participants making a comparative judgment between the levels of linguistic abstraction.

The second study will focus on belief maintenance by attempting to reconcile the findings of Geschke et al. (2007) within the linguistic bias paradigm. In this study, participants were exposed to either a concrete or abstract text about a belief-inconsistent exemplar. It was found that the belief-inconsistent exemplar was perceived as more likely to engage in future athletic behaviours and more athletic when described using concrete levels of linguistic abstraction. That is, concrete descriptions had a *greater* impact on recipients in contrast to the expectations from the linguistic bias paradigm. From a communications perspective, however, information that is shared does not need to be communicated because it is already understood to be shared (Grice, 1975; Kashima, Klein, & Clark, 2007). When the researchers described the belief-inconsistent exemplar as "athletic", then, what participants might have understood is that the exemplar was "athletic for an elderly person". The concrete descriptions, in contrast, allowed the participants to compare the exemplar's behaviour to all of their previous experience with athletic people and athletic behaviours. Thus, the results may be due to concrete

information having more evidentiary value rather than the distinction between concrete and abstract levels of linguistic abstraction. In this modification then, participants will rate the athleticism of the exemplar compared to the general population and to other elderly people.

The third and final study will focus on belief formation while addressing three major limitations in previous research. First, no previous study has examined linguistic bias in the context of belief formation. The majority of research conducted to date used message content for which recipients already had pre-existing beliefs; it has not been demonstrated that linguistically biased messages can cultivate the corresponding beliefs in recipients who do not already hold the same pre-existing beliefs. Second, previous research has typically used single and isolated sentences as stimuli. If a more substantial text was used then these texts were spontaneously generated and not systematically controlled (e.g. Wigboldus et al., 2000; 2006) or only contained one type of information (either expected or unexpected information, e.g. Geschke et al., 2007; 2010). Third, it is only recently that researchers have begun to look at group-level consequences rather than just individual or interpersonal effects of exposure to biased language (Assilaméhou et al., 2013; Geschke et al., 2010). Linguistic bias involves the description of an individual's behaviour. Despite this, the theoretical import of this paradigm lies in the consequences for group-level beliefs since it is beliefs about groups, not individuals, which become widely shared. Thus, it must be demonstrated that recipients exposed to linguistic bias make inferences beyond the person described as performing the behaviour. Participants will thus be exposed to a strictly and systematically controlled biased text about a fictional group member, which contains a full crossing of variables and not any one particular isolated condition, then asked questions about the individual as well as the fictional group as a whole.

In sum, in order for linguistic bias to be a mechanism by which socially shared beliefs are transmitted, maintained, and formed, it must first be demonstrated that linguistic abstraction has a causal effect on recipients' impression formation within the current research context (Experiment 1), the impact of concrete language on recipients must be clarified (Experiment 2), and it must be shown that linguistic bias leads recipients to make inferences beyond the individual described (Experiment 3).

STUDY ONE

LINGUISTIC BIAS AND BELIEF TRANSMISSION*

The impact of linguistic abstraction on recipients

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As the primary means through which prejudice and stereotypes are communicated, language plays a primary role in belief transmission and maintenance (Bourhis & Maass, 2005). Previous research has established that there is pervasive and systematic use of linguistic bias, in which the unconscious choice of words implies subtle differences in meaning and reveals one's own beliefs (for a review see Maass, 1999). The ubiquity of linguistic bias is said to contribute to belief maintenance, including prejudices and stereotypes, because those receiving the biased communications accept the expectations that are implicit in the biased language, though there is relatively little evidence to support this assumption (e.g. Wigboldus, Semin, & Spears, 2000; 2006). The purpose of the present study then, is to provide a demonstration of the cognitive impact of linguistic abstraction on the recipient within a relatively peaceful and harmonious intergroup context. More specifically, it is to test whether varying the level of linguistic abstraction in descriptions of behaviours affect a recipient's perception of the performer of the behaviours.

1.1.1 The Consequences of Linguistic Bias

The central premise behind the production of linguistic bias is that the level of linguistic abstraction used to describe behaviour is determined by the degree to which the behaviour is expected from the person performing the behaviour. Linguistic abstraction is measured using the Linguistic Category Model (LCM), first described by Semin and Fiedler (1988), which suggests that a specific behaviour can be correctly described by any one of four types of words: descriptive action verbs (DAVs), interpretive action verbs (IAVs), state verbs (SVs), and adjectives (ADJs). For example, witnessing Paul hitting Pierre could be described in a number of ways. At the most concrete level of linguistic abstraction, are DAVs (*hits*) and IAVs (*hurts*) where the link between the description and specific behaviour is very clear. At the most abstract level of linguistic abstraction, are

SVs (*hates*) and ADJs (*aggressive*) where there is no longer a reference to the specific behaviour. More abstract words require more interpretation of the specific behaviour and are, therefore, less verifiable. Since abstract words describe an indefinite period of time or characteristics of the person performing the behaviour, they imply more temporal stability and generalizability across situations.

The judgment of whether the behaviour is expected or not can be based on characteristics of the person (e.g. personality traits; Wigboldus et al., 2006) or the group to which he or she belongs (e.g. stereotypes; Wigboldus et al., 2000; see also Karpinski & von Hippel, 1996). According to the linguistic intergroup bias (LIB) paradigm, there is a tendency to describe desirable behaviours by ingroup members and undesirable behaviours by outgroup members more abstractly than undesirable behaviours by ingroup members and desirable behaviours by outgroup members (Maass, Salvi, Arcuri, & Semin, 1989). Accordingly, (1) socially desirable behaviours by ingroup members are generalizable across time and situations while socially undesirable behaviours are limited to specific circumstances, and (2) socially undesirable behaviours by outgroup members are generalizable across time and situations while socially desirable behaviors are limited to specific circumstances. This indicates that those who express the LIB believe that socially desirable behaviours are expected from ingroup but not outgroup members and socially undesirable behaviours are expected from outgroup but not ingroup members. In support of this, stereotypes tend to be negatively distorted for outgroups (Howard & Rothbart, 1980), which leads to an expectation for socially undesirable but not socially desirable behaviours by outgroup members.

Linguistic bias, via linguistic abstraction, is thus assumed to play a role in belief maintenance: by describing belief-inconsistent behaviour in concrete terms, the significance and impact of the behaviour is limited, discouraging generalizations beyond

the behaviour and thereby keeping the belief intact (Bourhis & Maass, 2005, pp.19; Maass, Milesi, Zabbini & Stahlberg, 1995). Despite the numerous studies demonstrating a robust effect of biased language use (for a review see Maass, 1999), the role of linguistic bias in belief transmission remains questionable since it is still unclear whether receivers of biased messages implicitly accept the transmitted expectations. Problems with existing studies on the consequences of linguistic abstraction are that they (1) have limitations pertaining to their experimental design, and (2) do not consider context.

1.1.1.1 Limitations of experimental design

When Semin and Fiedler (1988) first proposed the LCM, they conducted a series of experiments to verify the semantic implications of each word type. In the first two experiments, participants were asked to infer information about each type of word category. ADJs were judged to be the most informative about the subject and the least informative about the behaviour itself. They were also judged to have the most enduring quality. SVs, then ADJs, were judged to be the least verifiable words and were, thus, perceived to be highly disputable. In the third and final experiment, it was found that DAVs are the most susceptible to changes in the situation and the person performing the behaviour. In sum, there was an increasing amount of information about the subject and a decreasing amount of information about the situation, in going from concrete to abstract words. More abstract words were perceived to generalize across situations and endure over time. Maass and her colleagues (1989) also included an investigation of participants' impressions of Semin and Fiedler's (1988) linguistic categories. In addition to replicating some of the findings from Semin and Fiedler (1988), it was found that, in going from concrete to abstract words, it is considered increasingly likely that behaviours will be repeated.

Taken together, these studies suggest that ADJs are perceived as more stable over time and across situations than any of the other word categories. Also, when ADJs are used to account for behaviour, it is judged as more likely to be repeated. This seems to suggest that belief-consistent behaviours are described in ways that imply that the behaviour is enduring, stable over time, and more informative about the person performing the behaviour as compared to the situation. The participants in these studies were, however, consciously judging the extent to which different word types were informative relative to each other. It is unknown whether participants, upon spontaneously hearing a single word category in the context of a communication, would implicitly infer the same information.

Wigboldus et al. (2000, 2006) addressed this problem in their demonstration of the cognitive impact of linguistic abstraction on recipients through a series of two-part studies. In the first part of these studies, participants spontaneously created stories that reflected linguistic bias. The stories, in general, described someone performing an expected or unexpected behaviour. In the second part, participants were asked to read the stories and make attributions for the behaviour. This resulted in non-artificial and spontaneous usage of linguistic abstraction, but also meant that linguistic abstraction was not directly manipulated.

A first problem, stemming from a lack of direct manipulation of linguistic abstraction, is a confounded experimental design. Since participants spontaneously created the stories, stereotype- or person- consistent (expected) information was always described at higher levels of linguistic abstraction while stereotype- or person- inconsistent (unexpected) information was always described at lower levels of linguistic abstraction. For example, in one study, participants were asked to write 4 behavioural descriptions of either a male or female friend: a (1) desirable stereotypically female

behaviour, (2) undesirable stereotypically female behaviour, (3) desirable stereotypically male behaviour, and (4) undesirable stereotypically male behaviour. As expected, participants described stereotype-consistent behaviours using higher levels of linguistic abstraction than stereotype-inconsistent behaviours. In the second half of the experiment, participants read the previously created messages then made dispositional inferences about the person performing each behaviour. Also as expected, participants who read descriptions with higher levels of linguistic abstraction made more dispositional attributions for the behaviour than participants who read descriptions with lower levels of linguistic abstraction. The researchers concluded that linguistic abstraction has an impact on a recipient's cognitive inferences.

As the researchers themselves point out, however, linguistic abstraction was confounded with stereotype-consistency: stereotype-consistent information was always communicated at higher levels of linguistic abstraction. In other words, participants could have made dispositional inferences based on their own stereotypic beliefs instead of on the level of linguistic abstraction. Another study (Wigboldus et al., 2000, Study 2) attempted to redress this methodological problem by using different participants in each part of the experiment. However, by continuing to use behaviours that are either expected or unexpected based on the gender of the subject, the experiment continued to use communicative content that accessed shared stereotypes - beliefs that are likely to be held and accessible by all participants even if they did not participate in the first part of the experiment. Thus the confounding between linguistic abstraction and stereotype-consistency was decreased but not eliminated.

A second problem, which occurred in a study that did directly manipulate linguistic abstraction (Wigboldus et al., 2000, Study 3), is an experimental design with ambiguous hypotheses. In this study, the researchers created 8 descriptions of

stereotypically male and female behaviours. Each of the descriptions were written using DAVs but half included an additional statement using an ADJ, resulting in either concrete (DAV only) or abstract (DAV+ADJ) descriptions. Each of the descriptions was re-written to depict either a female or male protagonist.

This design leads to contradicting hypotheses for the effect of stereotype content. First, the researchers suggest that the participants did not have prior knowledge about the protagonists, but it is arguable that they did on the basis of shared gender stereotypes. This suggests that stereotype-consistent information (a stereotypically female behaviour with a female protagonist, for example) should lead to more dispositional attributions because the recipient is aware of gender stereotypes. Second, the researchers tried to control for the effect of behavioural valence by using only socially desirable stereotypical traits of each gender. Given the nature of gender stereotypes and social norms for adhering to proper gender roles, it is likely that socially desirable stereotypical traits of one gender would be socially undesirable non-stereotypical traits of the other. For example, *emotional* was one of the socially desirable stereotypically female traits used in the study. The protagonists were depicted as watching a dramatic television show, reaching for a tissue, and wiping away a tear. This kind of sensitivity may be socially acceptable and desirable for females but it may be perceived as a socially undesirable behaviour if performed by a male (at least in the culture of the authors). Previous research shows that negative behaviour is perceived as more diagnostic than positive behaviour, thus leading to higher dispositional attributions (for a review, see Reeder, 1993; Rothbart & Park, 1986). This suggests that stereotype-inconsistent behaviours should lead to higher dispositional attributions. Given the nature of the experimental design, it is reasonable to suggest that any higher order interactions involving stereotype content may not have been revealed.

1.1.1.2 Context

The final problem with current research on the consequences of biased language exposure is the inattention to social context. The social identity approach, comprised of social identity theory and self-categorization theory (Abrams & Hogg, 1998; Hogg & Abrams, 1998; Tajfel, 1981; Turner & Reynolds, 2003), indicates that social context, through group membership, is an important determinant of behaviour. Elements in the social context, like intergroup hostility, determine which social identity is salient and whether individual behaviour is fully or partially determined by the salient social category to which the person belongs. The salient categorization further accentuates similarities between ingroup members and differences between ingroup and outgroup members (Hogg & Abrams, 1990; Turner, 1999). And, most importantly, people are motivated by a need for a positive self-concept to achieve positive differentiation from outgroups (Tajfel & Turner, 1979). To achieve positive differentiation, a variety of strategies can be used, including outgroup discrimination, depending on the perceived nature of the intergroup context. Elements in the social context, then, may make the expression of a LIB (a form of prejudice or outgroup discrimination) more or less likely (see Maass, Ceccarelli, & Rudin, 1996). One study (Shulman, Collins, & Clément, 2011) even suggests that social context, including the nature of power relations between interlocutors, can affect the formulation of, and even reverse, the LIB phenomenon.). Thus, it can be argued that the pattern and nature of intergroup relations could also affect the reception of linguistic bias.

Relatedly, complexity-extremity theory (Linville, 1982) proposes that the evaluation of behaviours by ingroup and outgroup members is affected by the perception of, and experience with, both groups. Given that linguistic bias is essentially the description of behaviour, it is likely that its reception will be similarly affected.

According to this theory, people have a rich and complex representation of the ingroup given the greater number of experiences and interactions with ingroup members.

Conversely, people have a simple and cursory cognitive representation of the outgroup given the fewer number of experiences and interactions with outgroup members. This difference in cognitive representations would be exaggerated if the outgroup was also a minority group, which, by definition, also limits the number possible interactions that a majority group member could have. The simplicity or complexity of a representation is directly related to the perception of behaviour of group members, in that simplified representations will lead to more extreme evaluations of behaviour. Extreme evaluation means that the same socially desirable and undesirable behaviour will be judged as more positive and more negative when performed by an outgroup rather than an ingroup member.

In sum, there is some evidence to suggest that the level of linguistic abstraction used in a message has cognitive consequences for the recipient. The Wigboldus et al. (2000, 2006) studies provide strong evidence for the use of biased language, which occurred despite vast differences in the content and style of messages, and successfully demonstrated that linguistic abstraction mediates the relationship between expectancy and the strength of dispositional attributions. To date, however, there is no demonstration of a causal link between linguistic abstraction and some form of cognitive consequence for the recipient.

1.1.2 The Present Study

The purpose of the present study is, therefore, to further understand the role of language in the transmission of beliefs by investigating the impact of linguistic abstraction. We intend to build on the designs of the Wigboldus et al. (2000, 2006) studies by (1) using an experimental design free from confounds and ambiguous

hypotheses that includes a direct and systematic manipulation of linguistic bias, and (2) considering the social context in which the research is taking place.

This research involves assessing the reaction of majority language group members to both their own and minority language group members. It takes place at the University of Ottawa in Canada. The university is located in the capital city of Ottawa, which lies on the Ontario side of the Ontario-Quebec border, and is separated by a river from Gatineau, which lies on the Quebec side of the Ontario-Quebec border. Ontario is a primarily English-speaking region while Quebec is a primarily French-speaking region. Although Francophones make up a majority in Quebec, they are a minority group within the larger Canadian context. The close proximity of the University of Ottawa to both Ontario and Quebec and its official bilingualism policy make it an ideal place of study for both Anglophones and Francophones and provides an excellent situation in which to study peaceful and positive intergroup relations.

1.1.2.1 Specific Hypotheses

- 1. Linguistic abstraction.** Increasing the level of linguistic abstraction will increase the extent to which the behaviour is perceived as expected, likely to be repeated, resistant to changes in circumstances, due to disposition rather than the situation, and will increase how confident the participant feels in making predictions for the performer's behaviour in other circumstances.
- 2. Communicative context.** Participants' impressions will be affected by the group membership of the performer described in each vignette and by the research context. Representations of the majority ingroup should be more complex than the minority outgroup. Therefore, we expect more extreme evaluations of behaviours by Francophones. That is, socially desirable behaviour by a Francophone will result in a more positive impression than the same behaviour by an Anglophone,

and socially undesirable behaviour by a Francophone will result in a more negative impression than the same behaviour by an Anglophone.

1.2 Method

1.2.1 Participants

Ninety Anglophone (36 males, 54 females) students completed the experiment in return for course credit. For this study, it was important that participants (1) have an understanding of the nature of the Francophone and Anglophone groups, and (2) belong to the Anglophone group. Therefore, only participants who were born in Canada and whose mother tongue was English were retained. Mother tongue was defined as the first learned and still most frequently used language. On the basis of these inclusion criteria, the final sample consisted of 71 (28 males, 43 females) Anglophones, with a mean age of 20.11, $SE = .350$.

1.2.2 Procedure

Participants were given access to a secure online study, which was completed at their convenience. Informed consent was obtained in accordance with the Research Ethics Board of the University of Ottawa (Appendix A). Participants were asked to read 20 different short descriptions of specific behaviours, like the following: *Imagine your good friend is telling you about another person, Target, that you have never met. Your friend saw Target punching a woman.* The name *Target* was replaced by male and female names that were given in random order for each participant. First names have been found to successfully prime group membership (e.g. Kenworthy & Tausch, 2008). Half of the participants, therefore, read descriptions for targets with English names and half of the participants read descriptions for targets with French names. The pool of 20 English and 20 French names were chosen based on equality of femininity, masculinity, and social desirability ratings from an online database (www.behindthename.com). Only non-unisex

names that had a French or English origin, and social desirability ratings around 75% positive were included.

Behaviour valence was a within-subject variable: 10 of the behaviours described were socially desirable (positive) behaviours, like helping someone cross a stream, and 10 were socially undesirable (negative) behaviours, like cheating on a test. These items were based on the task used by Shulman and Clément (2008) and can be found in Appendix B. Each description was written using one of the four different levels of linguistic abstraction: DAV, IAV, SV, and ADJ. The DAV descriptions were written using descriptive action verbs to describe the physical behaviour, like the example given above. For the remaining three levels of linguistic abstraction, the sentence fragment, “*Your friend mentions that Target*”, was added and finished with either the use of an interpretive action verb (*was hurting the woman*), a state verb (*was angry with the woman*), or an adjective (*is violent*) to describe the target. Each participant received only one version of each description, which were presented in random order. Thus the experiment was a 2 (target group membership: Anglophone or Francophone) x 2 (behaviour valence: socially desirable and socially undesirable) x 4 (linguistic abstraction: DAV, IAV, SV, and ADJ) mixed design, with behaviour valence and linguistic abstraction as within-subject factors. Participants then completed a demographics form (Appendix C) and were debriefed (Appendix D).

1.2.3 Measures

After each description, participants were asked a series of 6 questions which were given in random order (Appendix E). The questions were designed to assess the participants’ impression of the behaviour and target, as well as their attributions for the target’s behaviour. In the measures, included below, the name “Target” was replaced by

the name used in the description, with pronouns changed accordingly. All items were rated on a 7-point Likert scale anchored with appropriate labels at the scale extremes.

1. *To what extent is Target's behaviour expected or unexpected?*
2. *How likely is it that Target will repeat this behaviour in the future?*
3. *To what extent is Target's behaviour resistant to changes in circumstances?*
4. *How confident do you feel in making predictions for Target's behaviour in other situations?*
5. *To what extent is Target's behaviour due to the situation?*
6. *To what extent is Target's behaviour due to his/her own personality or characteristics?*

1.4 Results

1.4.1 Dimension reduction

To decrease the number of dependent variables, an exploratory principal components analysis was conducted. Average scores for each of the 6 questions were calculated for each participant, across conditions. A two-factor solution emerged: there were 2 eigenvalues with values greater than 1 (2.198 and 1.313) accounting for 59% of the variance. A principal components extraction with direct oblimin rotation was used to increase the clarity of initial component loadings. Table 1.1 shows the rotated component matrix.

Table 1.1

Rotated factor pattern matrix

Item	Factor Loadings	
	1	2
To what extent is Target's behaviour expected or unexpected?	.692	.474
How likely is it that Target will repeat this behaviour in the future?	.630	.022
To what extent is Target's behaviour resistant to changes in circumstances?	.757	.044
How confident do you feel in making predictions for Target's behaviour in other situations?	.682	-.280
To what extent is Target's behaviour due to the situation?	-.207	.724
To what extent is Target's behaviour due to his/her own personality or characteristics?	.231	.798

Note: Bold text indicates the predominant loadings for each extracted factor.

Looking at the predominant loadings, the first factor measures the stereotypicality of the impression and is comprised of 4 items. Loadings on this component indicate that the more a behaviour is perceived as expected, likely to be repeated, and resistant to changes in circumstances, the more confident the participant feels in making predictions for the target's behaviour in other situations. The second factor measures the extent to which both situational and dispositional attributions for the behaviour were made and is comprised of 2 items. Unexpectedly, loadings on this component indicated that attributions to both disposition and the situation were positively related to the factor.

Based on this analysis, two composite scores were computed. First, stereotypicality was created by taking the mean of the 4 variables loading onto component 1. Second, dispositional attributions were created by taking the difference score (item 6 minus item 5) of the 2 variables loading onto component 2. A difference score was used since we were interested only in the amount of dispositional attributions relative to situational attributions. Higher numbers on the composite variables indicate (1) a more stereotypical impression in that the participant perceives the behaviour to be temporally stable (likely to be repeated and expected) and generalizable across situations (resistant to changes in circumstances, and the participant would feel confident in making predictions for target's

behaviour in other situations), and (2) stronger attributions to disposition than to the situation.

1.4.2 Target gender

Each participant received both male and female target names despite the absence of any specific hypothesis concerning this variable. We conducted an overall 5-way multivariate analysis of variance (MANOVA) on both of the dependent variables (stereotypicality and dispositional attribution) with target group (Anglophone or Francophone) as the between-subject variable and behaviour valence (socially desirable and socially undesirable), target gender (male and female), and linguistic abstraction (DAV, IAV, SV, and ADJ) as the within-subject variables. There was no significant effect involving target gender. Thus the dependent variables were collapsed across target gender for the remaining analyses.

1.4.3 Main analyses

A separate 2 (target group membership: Anglophone or Francophone) x 2 (behaviour valence: socially desirable and socially undesirable) x 4 (linguistic abstraction: DAV, IAV, SV, and ADJ) analysis of variance (ANOVA), with behaviour valence and linguistic abstraction as within-subject factors, was conducted on each of the two dependent variables. The alpha level was set at .05 for all omnibus tests and .01 for all post hoc tests to adjust for multiple comparisons.

1.4.3.1 Linguistic abstraction. There was a significant main effect of linguistic abstraction on stereotypicality ($F(3, 177) = 4.971, p = 0.002, \eta_p^2 = .078$). Examination of means and standard errors (Table 1.2) indicates that higher levels of linguistic abstraction generally lead to more stereotypical impressions. In support of this, polynomial contrasts revealed a significant linear trend for linguistic abstraction ($F(1, 59) = 9.318, p = 0.003, \eta_p^2 = .136$).

Table 1.2

Means and standard errors for linguistic abstraction

Level of linguistic abstraction	Stereotypicality		Attribution	
	Mean	SE	Mean	SE
DAV	4.253	.092	.138	.122
IAV	4.415	.085	.540	.169
SV	4.448	.099	.384	.135
ADJ	4.438	.093	.867	.144

Note. Levels of increasing linguistic abstraction are: descriptive action verbs (DAVs), interpretive action verbs (IAVs), state verbs (SVs), and adjectives (ADJs).

There was also a significant main effect of linguistic abstraction on attribution ($F(3, 168) = 10.279, p < 0.001, \eta_p^2 = .155$). Examination of means and standard errors (Table 1.2) indicates that higher levels of linguistic abstraction generally lead to more dispositional attributions. Polynomial contrasts again revealed a significant linear trend for linguistic abstraction ($F(1, 56) = 28.374, p < 0.001, \eta_p^2 = .336$) but this was qualified by a significant cubic trend ($F(1, 56) = 8.513, p = 0.005, \eta_p^2 = .132$), reflecting the unexpectedly lower ratings for SVs.

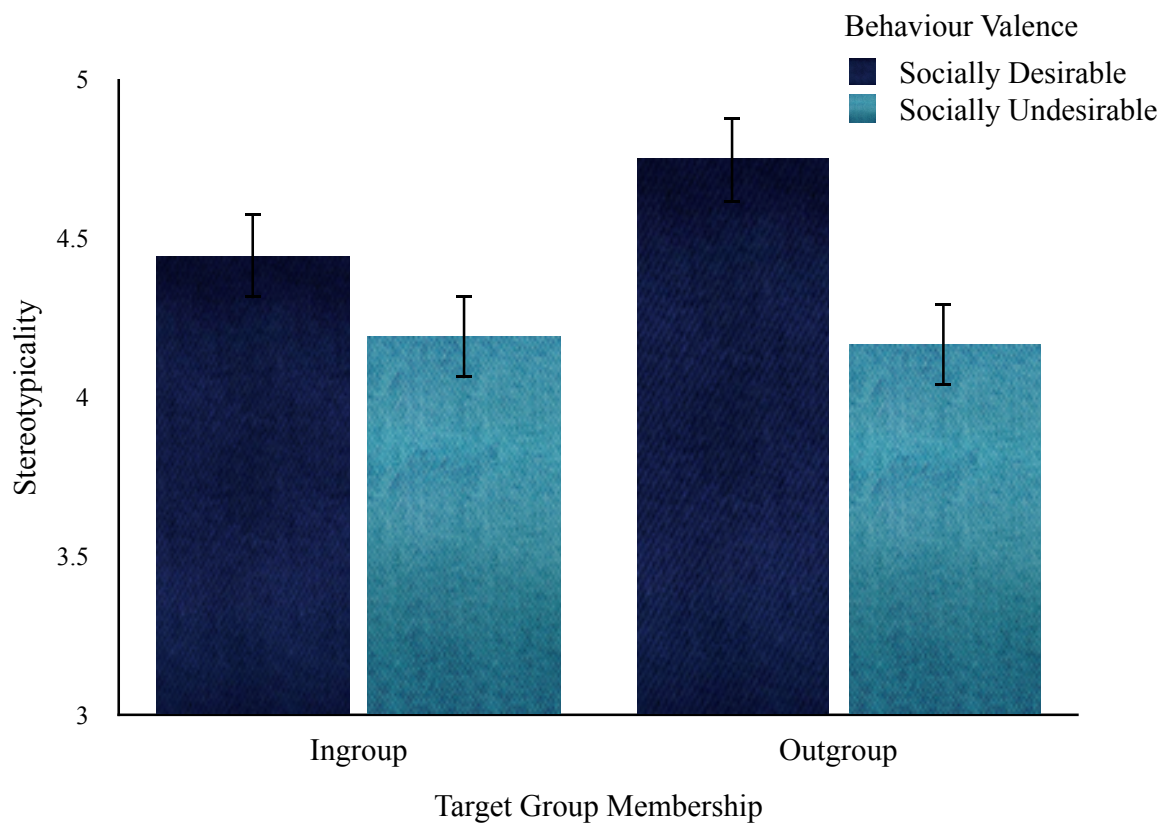
1.4.3.2 Communicative context. There was a significant main effect of behaviour valence on dispositional attributions ($F(1, 78) = 5.814, p = 0.019, \eta_p^2 = .094$) such that socially undesirable behaviours led to stronger dispositional attributions ($M = .654, SE = .166$) than socially desirable behaviours ($M = .311, SE = .101$).

There was also a significant main effect of behaviour valence on stereotypicality ($F(1, 59) = 28.912, p < 0.001, \eta_p^2 = .329$) but this was subsumed under a significant higher order interaction between behaviour valence and target group membership ($F(1, 59) = 4.432, p = 0.04, \eta_p^2 = .070$; see Figure 1.1). An investigation of simple main effects for behaviour valence revealed significant differences in stereotypicality between socially desirable and socially undesirable behaviour for outgroup targets ($F(1, 59) = 27.541, p < .001, \eta_p^2 = .318$) but not for ingroup targets ($F(1, 59) = 5.441, p = .023, \eta_p^2 = .084$). This

interaction suggests that for ingroup members, there is no difference in stereotypicality of the impression for socially desirable and socially undesirable behaviour. For outgroup members, however, socially desirable behaviour leads to a more stereotypical impression whereas socially undesirable behaviour leads to a less stereotypical impression.

Figure 1.1

Target group membership x behaviour valence interaction



1.4 Discussion

This study builds upon the work of Wigboldus et al. (2000; 2006) to provide a demonstration that linguistic abstraction has cognitive consequences for recipients free of the limitations of previous studies. We systematically manipulated all four levels of linguistic abstraction and comprehensively evaluated participants' impressions. In support of our main hypothesis, increasing levels of linguistic abstraction increased the strength of dispositional attributions and resulted in a more stereotypical impression of

the person performing the behaviour. The linear trend was significant in both cases, but there was also a significant cubic trend for linguistic abstraction on dispositional attributions. The unexpectedly lower dispositional attributions for SVs may have resulted from the nature of SVs themselves. State verbs tend to be perceived as caused by the object of the sentence rather than the individual performing the behaviour (Coenen, Hedeboom, & Semin, 2006; De Poot & Semin, 1995; Semin & Marsman, 1994). To illustrate, consider the following two questions: (1) *why does Delage help Erin?* and (2) *why does Delage like Erin?* In these questions, Delage is the person performing the behaviour and Erin is the object of the sentence. The first question, formulated with an IAV, is more likely to elicit responses that focus on why Delage likes to help, e.g. *Delage is a good person*. The second question, formulated with a SV, is more likely to elicit responses that focus on why Erin is likeable, e.g. *Erin is a good person*. Thus, the nature of SVs themselves may have led the participant to make attributions for the object of the sentence rather than the target.

There were also main effects of behaviour valence on stereotypicality and attribution such that socially desirable behaviour led to more stereotypical impressions but weaker dispositional attributions than socially undesirable behaviour. This suggests that socially undesirable behaviour is more likely to be attributed to the person but less likely to be incorporated into a generalized impression. This appears to be incongruous, but it could be that participants were less willing to appear to generalize socially undesirable behaviour across time and situations, or at least report that they had.

Most notably, it was found that the group membership of the participant and target affected impression formation, regardless of the level of linguistic abstraction. In other words, linguistic abstraction cannot fully account for the stereotypicality of the impression - one must also consider elements in the communicative context. Post hoc

analyses revealed that, over and above the main effect of linguistic abstraction, socially desirable and socially undesirable behaviour result in more extreme evaluations in intergroup situations (Anglophone participants with Francophone targets) than in non-intergroup situations (Anglophone participants with Anglophone targets).

It is well known that biased messages are spontaneously produced without conscious intent (Franco & Maass, 1996; 1999) in all types of situations (e.g. Schmid, Fiedler, Englich, Ehrenberger & Semin, 1996). It has been argued that linguistic bias contributes to belief transmission and maintenance since the beliefs inherent in linguistic bias are transferred consistently and unconsciously to message recipients through linguistic abstraction. However, until now, the evidence demonstrating that recipients accept the beliefs transferred to them has been suggestive but not conclusive. In this study, participants accepted the implied meaning of the different levels of linguistic abstraction and used this information to form impressions of the target. This indicates that linguistic abstraction does have very real effects and, in doing so, it provides strong evidence for the argument that linguistic bias constitutes belief transmission.

In summary, this study demonstrates a simple causal link between the reception of linguistic abstraction and person impression formation. It also shows that linguistic abstraction alone cannot account for impression formation: factors in the communication context affect the perception of behaviour itself such that intergroup contexts result in more extreme evaluations of socially desirable and undesirable behaviour. Thus, linguistic bias and the communication context contribute to the transmission of stereotypes and prejudice, but it is not clear from this study alone whether exposure to linguistic bias can maintain or transform the pre-existing beliefs of recipients.

Linguistic abstraction undoubtedly contributes to person impression formation, but the role of the communicative context cannot be ignored. The interpretation of

behaviour is different for intragroup and intergroup contexts, regardless of the level of linguistic abstraction. Behaviour valence, for example, only influences impression formation in intergroup contexts, where simplified representations of the outgroup may have led to extreme evaluations of outgroup members. Further, the nature of the intergroup context (peaceful or hostile) may determine the appropriateness of impressions of outgroup members, thus affecting the type of bias (positive or negative) that is expressed (Shulman et al., 2011) or received (current study). This study, therefore, provides support for the theoretical argument that linguistic bias contributes to the ubiquity of stereotypes and prejudice. It also confirms that linguistic bias plays a transmission role, while being moderated by factors in the specific communication context.

STUDY TWO

LINGUISTIC BIAS AND BELIEF MAINTENANCE

**Comparing the effect of concrete and abstract descriptions of
belief-inconsistent information**

Katherine Anne Collins

Richard Clément

It has long been accepted that beliefs shape language use both intentionally and unintentionally, resulting in biased language (Krauss & Chiu, 1998; Sutton, 2010). The unintentional expression of biased beliefs has been found within many different contexts (Maass, Ceccarelli, & Rudin, 1996; Shulman, Collins, & Clément, 2011) and previous research has demonstrated that it occurs spontaneously (e.g. Wigboldus, Semin, & Spears, 2000; Schmid & Fiedler, 1996) and without awareness (Franco & Maass, 1996; von Hippel, Sekaquaptewa, & Vargas, 1997). It can take different forms, such as the negation bias (Beukeboom, Finkenauer, & Wigboldus, 2010) and the irony bias (Burgers & Beukeboom, 2014), but most of the research is on the linguistic intergroup bias (LIB; Maass, Salvi, Arcuri, & Semin, 1989) and the linguistic expectancy bias (LEB; Maass, Milesi, Zabbini, & Stahlberg, 1995), both of which describe the differential use of linguistic abstraction for members of different groups. According to this paradigm, not only do speakers reveal their true beliefs by expressing linguistic bias but these beliefs are also transferred to recipients. Previous research has, however, been inconclusive on whether abstract or concrete words have a stronger impact on recipients for belief-inconsistent information. Thus, the focus of the current study is to investigate the effect of linguistic abstraction when communicating belief-inconsistent information.

Linguistic abstraction is usually operationalized through the Linguistic Category Model (LCM; Semin & Fiedler, 1988), which was built out of attribution research on implicit verb causality (e.g. Brown & Fish, 1983; Semin, 2012). The central premise behind the LCM is that different word categories (verbs, adjectives, etc.) have different cognitive implications. The model thus distinguishes between four word categories that vary in the amount of abstraction required to describe behaviour in such terms. The four categories, from concrete to abstract, are descriptive action verbs (DAVs), interpretive action verbs (IAVs), state verbs (SVs), and adjectives (ADJs). As an example, imagine that

you have witnessed the following behaviour: *John hugs Dawn*. This could be described as it is now with a DAV (*hugs*), or with an IAV (*John comforts Dawn*), SV (*John loves Dawn*), or ADJ (*John is affectionate*). Any of these descriptions are correct, but as linguistic abstraction increases there is a greater degree of interpretation and less specific information about the physical aspects of the behaviour.

DAVs typically refer to one physically invariant aspect of the behaviour (hugging always involves wrapping arms around somebody) and are a basically a description of the behaviour itself. IAVs describe a class of behaviours: *comforts*, for example, can describe several DAVs since there are many ways to offer comfort. SVs refer to the mental state of the person performing the behaviour, an aspect that is not directly observable or verifiable. And ADJs, the most abstract word category, refer to a trait of the person performing the behaviour. By referring to a trait, ADJs go beyond the specific details of the behaviour and generalize across time and situations: Someone who is affectionate will likely hug other people in the future and will also likely engage in other affectionate behaviours even outside the context of offering comfort. Thus, the different levels of linguistic abstraction differ in the amount of interpretation and generalizing that occurs from the behaviour.

The LIB is the tendency to use concrete words to describe negative ingroup and positive outgroup behaviours, while using abstract words to describe positive ingroup and negative outgroup behaviours. Concrete words will limit the impact of the behaviour to the specific circumstances in which it took place, while abstract words will generalize the impact of the behaviour across time and situations. Use of this bias thus implies that the speaker expects socially undesirable (negative), but not socially desirable (positive), behaviour from outgroups and socially desirable, but not socially undesirable, behaviour from the ingroup. It is for this reason that researchers within this paradigm have argued

that linguistic bias is a mechanism for transmitting biased beliefs to, and maintaining biased beliefs of, recipients (Bourhis & Maass, 2005; Karpinski & von Hippel, 1996).

This argument remains only an assumption, however, until research on the consequences of linguistic bias can demonstrate that exposure has the expected effects.

Though many authors have noted the dearth of research on the consequences of biased language exposure (Collins & Clément, 2012; Sutton, 2010; Holtgraves & Kashima, 2008), only recently have they started to address it. These studies have shown that exposure to biased language affects recipients' impression of the described individual (Collins & Clément, *in press*; Wigboldus, Semin, & Spears, 2000; 2006), attitude towards the social group to which the described individual belongs (Assilaméhou, Lepastourel, & Testé, 2013; Geschke, Sassenberg, Ruhrmann, & Sommer, 2010), perception of the speaker (Assilaméhou & Testé, 2013a; 2013b; Douglas & Sutton, 2010; 2006), and perception of the interpersonal distance between the recipient and speaker (Reitsma-van Rooijen, Semin, & van Leeuwen, 2007). The effect of linguistic bias is fundamentally due to the impact of low and high levels of linguistic abstraction.

In a previous study (Collins & Clément, *in press*), we systematically manipulated linguistic abstraction to demonstrate a causal effect on person impression formation. Higher levels of linguistic abstraction increased the stereotypicality of the impression and the strength of dispositional attributions. Notably, the nature of the communicative context influenced the reception of linguistic abstraction in that socially desirable and undesirable behaviours resulted in more extreme evaluations in intergroup situations than in intragroup situations. This study provided support for the theoretical argument that linguistic bias plays a role in belief transmission, with the caveat that reception is also a function of the communicative context. This previous study did not, however, consider typicality - that some traits or behaviours might be considered more typical of some

groups versus others. Behaviours were either socially desirable or undesirable and not more typical of either the ingroup or outgroup members that were described. Yet, if linguistic bias plays a role in belief maintenance, then the typicality of behaviours and its congruency with pre-existing beliefs is important.

Belief-inconsistent behaviours, in particular, play an essential role since they must be discounted or explained in order for beliefs to be maintained. Within the linguistic bias paradigm, concrete descriptions are generally used to communicate belief-inconsistent information and it is assumed, according to the LCM, that abstract information has a greater impact on recipients than concrete information. By extension, even repeated exposure to information described at concrete levels of linguistic abstraction should not have an impact on the perception or beliefs of recipients. There is some research to support this idea. Research on person perception, for example, has found that more abstract descriptions do have a stronger impact on recipients (e.g. Wigboldus et al., 2006). Geschke et al. (2010) also found that abstractly worded news articles led to a larger estimate of criminal behaviour and stronger subtle (but not blatant) prejudice than concretely worded news articles. Further, Gorham (2006) found, as expected, that people who are heavy consumers of media use more abstract language for a Black target in a crime story whereas light consumers do not, suggesting that recipients exposed to linguistic bias are more likely to use linguistic bias. This is, however, generally within the context of belief-consistent information.

In the context of belief-inconsistent information, and in contrast with the linguistic bias framework, there is compelling evidence that concrete messages actually have a greater impact on recipients than abstract messages. This makes intuitive sense because concrete descriptions give more details about the behavioural event, are more easily verified, and less open to interpretation. Thus concrete descriptions could have

more evidentiary value than abstract descriptions, which involve fewer specific details about the behaviour and more interpretation. In support of this, researchers in cognitive processing have found evidence for what is termed a concreteness effect. Ter Doest, Semin, and Sherman (2002), for example, found that concrete messages cue deeper processing which leads to more attention to, and recall of, concrete information as compared to abstract information. This study suggests that concretely described information has a greater impact than abstractly described information. Further, Ewell (2012), in contrast to Gorham (2006), found that news stories did not change implicit attitudes and that the race of the subject of the article did not impact the recipient.

Thus, the currently available evidence is inconclusive on whether it is concretely or abstractly described belief-inconsistent information that has a greater impact on recipients. The linguistic bias paradigm argues that abstract descriptions have a greater impact while some studies show that concrete descriptions have a greater impact. Recall that linguistic bias is, essentially, the description of belief-inconsistent information in concrete terms. The relative impact of concrete and abstract descriptions of belief-inconsistent information is, therefore, important to determining the effects of the prevalent use of linguistic bias. It has the potential for one of two roles in the communication of belief-inconsistent information. First, it can maintain beliefs by limiting the impact of such behaviours, as expected by the linguistic bias paradigm. Or, second, it can change beliefs by increasing the impact of such behaviours, as suggested by ter Doest et al. (2002). The goal of the current study is to clarify the relative impact of abstract and concrete described belief-inconsistent information.

Closest to this goal is a key study by Geschke, Sassenberg, Ruhrmann, and Sommer (2007) that was conducted with the specific objective of clarifying what impact concrete information has on recipients. In this study, participants read about a belief-

inconsistent exemplar then answered questions about their impressions. The authors were also interested in varying communication source but only the relevant portion of the study will be outlined here. The text described the athleticism of a 74-year old female, named Bruni, who participated in an amateur triathlon. There were two versions of the text, in which the behaviours were either described at a concrete (*she works out regularly*) or abstract (*she is athletic*) level. After a distractor task to avoid word for word recall, participants were asked to estimate the likelihood of a variety of future athletic behaviours (e.g. participating in a bicycle race), rate the athleticism of the exemplar (e.g. *in my opinion, Bruni is fit*), and indicate their endorsement of the belief that the elderly are unathletic. It was found that when the target was described using concrete levels of linguistic abstraction, the belief-inconsistent exemplar was perceived as more athletic and more likely to engage in future athletic behaviours. Thus, this study suggests that concrete messages have more impact on recipients than abstract messages for the communication of belief-inconsistent information.

The findings reported by Geshke et al. (2007) do not fit with the data and theory of the linguistic bias paradigm, which argues that the prevalent use of linguistic bias leads to belief maintenance. According to the LCM, prevalent use would lead to belief maintenance since lower levels of linguistic abstraction limit the impact of a behaviour to the specific circumstances in which it took place. Concretely describing belief-inconsistent information, then, allows pre-existing beliefs to remain intact by signaling to recipients that the information can be discounted or ignored. The study by Geschke et al. (2007), in contrast, suggests that concrete descriptions of belief-inconsistent information actually have a greater effect than abstract descriptions. This would suggest a corresponding increase in the impact of belief-inconsistent information, potentially leading to a change in pre-existing beliefs. If so, then linguistic bias, and specifically the

tendency to concretely describe belief-inconsistent information, would not play a role in belief maintenance but in belief transformation.

How can the results of Geschke et al. (2007) be reconciled with the linguistic bias paradigm? From a communication perspective, information that is shared does not need to be communicated because it is already understood to be shared (Grice, 1975; Kashima, Klein, & Clark, 2007). In the abstract text of this experiment, when the belief-inconsistent exemplar was described as "athletic", what participants might have understood is that the exemplar was "*athletic for an elderly person*". The exemplar had already been established as being elderly and, given the lack of detail on what constituted athleticism, the participant may have understood the term "athletic" within this context. That is, there may have been an implicit understanding that the term "athletic" was in comparison to other elderly people. The concrete descriptions in the concrete text, in contrast, allowed the participants to compare the exemplar's behaviour to all of their previous experience with athletic people and athletic behaviours, and provided evidence that the exemplar was athletic in comparison to the general population - not just elderly people. That is, the abstract descriptions used in the experiment may be perceived as having less evidentiary value for athleticism (for the population in general) than the concrete descriptions. Thus, it cannot be concluded that concrete language and not evidentiary value was responsible for the results. Further, the researchers focused on the interpersonal level of analysis whereas the group level of analysis may be more relevant. It could be that concrete language has more of an effect at the interpersonal level (belief-inconsistent exemplar) but that abstract language has more of an effect at the group level (beliefs about the elderly as unathletic).

The present study will modify the design of Geschke et al. (2007) in order to understand the impact of linguistic abstraction, and in particular the concrete description

of unexpected behaviour, on the recipient. Similar to Geschke et al. (2007), participants will read about a belief-inconsistent exemplar that is described using at either a low (concrete) or high (abstract) level of abstraction then report their perception of the exemplar and the behaviour itself. Participants will then complete a modified version of the dependent measures used by Geschke et al. (2007) in which they will be asked to rate the athleticism of the exemplar compared to the general population and to other elderly people. This measure will make explicit any information that might have been implicitly understood by participants in the study by Geschke et al. (2007). Given that concrete descriptions have strong evidentiary value and the results of Geschke et al. (2007), we expect the impact of concrete descriptions on recipients' impression of the exemplar to be high regardless of how the comparison is drawn. We expect that abstract descriptions, on the other hand, will have a greater impact when the exemplar is compared to other older people, since that is what might be implicitly understood when no further details are given from a communications perspective.

Participants will also be asked to indicate their endorsement of the belief that the elderly are not athletic. Geschke et al. (2007) included this measure but did not analyze whether abstract or concrete information influenced the strength of endorsement. This measure will be analyzed to see if concrete or abstract language has a stronger effect on the perception of the group as a whole, not just at the interpersonal level. We expect that the abstract text will have a greater impact than the concrete text on this measure of group perception.

2.2 Method

2.2.1 Participants

Participants were 133 (98 females, 35 males) University of Ottawa students, who completed the experiment in return for course credit. There were no inclusion or exclusion criteria. The mean age of participants was 19.45 ($SD = 2.76$). While the majority of participants were born in Canada, they had a diverse range of cultural backgrounds and many spoke more than one language.

2.2.2 Procedure

This study was a modification of Geschke et al.'s (2007) design. Modifications included the pretext used for conducting the study, the inclusion of a control group, and changes to the measures that will be outlined later.

Participants signed up for a study in which they believed they would be evaluating supplementary material from textbooks, such as newspaper articles and links to online videos. They were given access to a secure website, where they could complete the study online and at their own convenience. Informed consent was obtained in accordance with the Research Ethics Board of the University of Ottawa (Appendix A).

Participants then read a text about a belief-inconsistent exemplar that was ostensibly a news article included in a Psychology textbook. Afterwards, they were asked to evaluate the text and author of the text, including some questions on educational value to make the ostensible purpose of the study more plausible. Participants also watched a short film (~11 minutes) that was portrayed as online supplementary material from a Psychology textbook. Participants then answered similar questions about the educational value of the video (Appendix F).

Finally, participants were informed that they would be asked more questions about either the text or video to assess their comprehension. They were asked to report

what they had learned and not to repeat what the text or video had expressed. These questions assessed the participants' impression of the elderly person described in the biased text and of elderly people in general. Participants also answered some demographic questions (Appendix C) and were debriefed at the end of the study (Appendix D).

2.2.3 The Text

The original German texts (abstract and concrete) from Geschke et al. (2007) were obtained (D. Geschke, personal communication, August 2, 2013). The texts were translated into English then back translated into German by two independent English-German bilingual speakers. The original and back-translated texts were then compared by a third English-German bilingual speaker, who made adjustments so that the meaning of the English translations was comparable to that of the German originals.

The text reported that a 74-year-old woman had participated in a sporting event (belief-inconsistent exemplar) then gave specific information about the event, such as who had organized it and for what purpose. There were actually three versions of the text (Appendix G). In the concrete and abstract versions of the text, more details about the belief-inconsistent exemplar were given. In the concrete version of the text, the exemplar's athletic behaviours were described using lower levels of linguistic abstraction (e.g. *she still often engages in sports*). In the abstract version of the text, the exemplar's athletic behaviours were described using higher levels of linguistic abstraction (e.g. *she is still very athletic*). In the control version of the text, which was not included in Geschke et al.'s (2007) design, no additional details about the counter-stereotypical exemplar were given.

2.2.4 Measures

2.2.4.1 Manipulation Check. Geschke et al. (2007) conducted a pretest to ensure that the exemplar was perceived as unexpected. In the same way, we assessed perception of the behaviour as unexpected. Instead of a single item, however, we used three items ($\alpha = .781$; Appendix H), measured on a 7-point Likert scale anchored at 1 (*Strongly Disagree*) and 7 (*Strongly Agree*). Participants had to indicate the extent to which they agreed that the behaviour in the text was unexpected. Items were: (1) *[the exemplar]'s athleticism is surprising*, (2) *I find it extraordinary that someone [the exemplar]'s age is so athletic*, and (3) *I would not expect someone like [the exemplar] to engage in sports regularly*. A higher number indicated that the behaviour was perceived as more unexpected.

2.2.4.2 Evidentiary Strength of the Behaviour. Given our expectation that the abstract and concrete texts might have different evidentiary strength, we measured perception of the behaviour as athletic with one item: *I consider the activities described in the text to be athletic* (Appendix H). This was not measured in Geschke et al. (2007). Participants indicated their agreement on a 7-point Likert scale anchored at 1 (*Strongly Disagree*) and 7 (*Strongly Agree*). A higher number indicated that the behaviour was perceived as more athletic.

2.2.4.3 Perceived Athleticism. As in Geschke et al. (2007), likelihood of future athletic behaviours had four items ($\alpha = .839$; Appendix H). The items asked how likely it was that individual in the text would engage in four different sporting events in the future (*half marathon, swimming competition, another triathlon, bicycle race*). In contrast to Geschke et al. (2007), these items were measured on a 7-point Likert scale anchored at 1 (*Not at all likely*) and 7 (*Extremely likely*). A higher number indicated a higher likelihood of participating in future athletic behaviours.

Similar to Geschke et al. (2007), we measured perceived athleticism of the exemplar with 4 items (Appendix H), but we modified the questions so that the comparison group was made explicit. Thus, perceived athleticism of the exemplar had eight items, measured on a 7-point Likert scale anchored at 1 (*Totally Disagree*) and 7 (*Totally Agree*). Each item followed the form of “*In my opinion, [the exemplar] is [adjective] in comparison to [group]*”. There were four adjectives (*athletic, fit, weak, and unathletic*) and two comparison groups (*the general population, other older people*). Cronbach’s alpha was based on four items each for the older comparison group ($\alpha = .890$) and general population comparison group ($\alpha = .874$). Items were reverse coded as necessary so that a higher number indicated more perceived athleticism.

2.2.4.5 Belief Endorsement. As in Geschke et al. (2007), we measured endorsement of the belief that the elderly are not athletic. Instead of a single item, however, we used four items ($\alpha = .636$; Appendix H), measured on a 7-point Likert scale anchored at 1 (*Strongly Disagree*) and 7 (*Strongly Agree*). Participants had to indicate the extent to which they agreed with different statements about the elderly: (1) *older people are not often athletic*, (2) *older people are often frail*, (3) *older people often complete in triathlons*, and (4) *older people usually compete in racing events*. Items were reverse coded as necessary such that a higher number indicated more endorsement of the belief that elderly people are not athletic.

2.3 Results

The alpha level was set at .05 for all omnibus tests and .01 for all post hoc tests to adjust for multiple comparisons.

2.3.1 Manipulation Check

It is possible that exposure to the abstract and concrete text could influence participants’ perception of the behaviour and belief endorsement so only the data from

participants who were exposed to the control text was analyzed. The mean perceived unexpectedness ($M = 4.77$, $SD = 1.046$) was significantly higher than the midpoint of the scale ($t(37) = 4.550$, $p < 0.001$, $d = .738$), indicating that the exemplar was indeed perceived as unexpected.

The mean belief endorsement ($M = 4.73$, $SD = .989$) was significantly higher than the midpoint of the scale ($t(37) = 4.395$, $p < 0.001$, $d = .739$), indicating that, in general, participants subscribed to the belief that the elderly are unathletic.

These two analyses provide evidence that the exemplar was perceived as belief-inconsistent.

2.3.2 Evidentiary Strength of Behaviour

The one-way between-subjects analysis of variance of Exposure (Concrete, Abstract, or Control text) on perception of the behaviour as athletic produced a marginally significant effect ($F(2, 129) = 2.642$, $p = 0.075$, $\eta_p^2 = .039$). Distributions of means and standard errors (Table 2.1) suggested that the difference was due to lower athletic ratings from participants in the Control condition. Thus, a contrast was conducted between Control versus the Concrete and Abstract conditions. The contrast was marginally significant ($F(1, 129) = 5.130$, $p = 0.025$, $\eta_p^2 = .038$).

Table 2.1

Means and Standard Errors for Perception of Behaviour as Unexpected and Athletic

Text	Athletic	
	Mean	SD
Control	5.24 _a	1.283
Concrete	5.72 _b	1.341
Abstract	5.84 _b	1.098

Note. Subscripts show contrast.

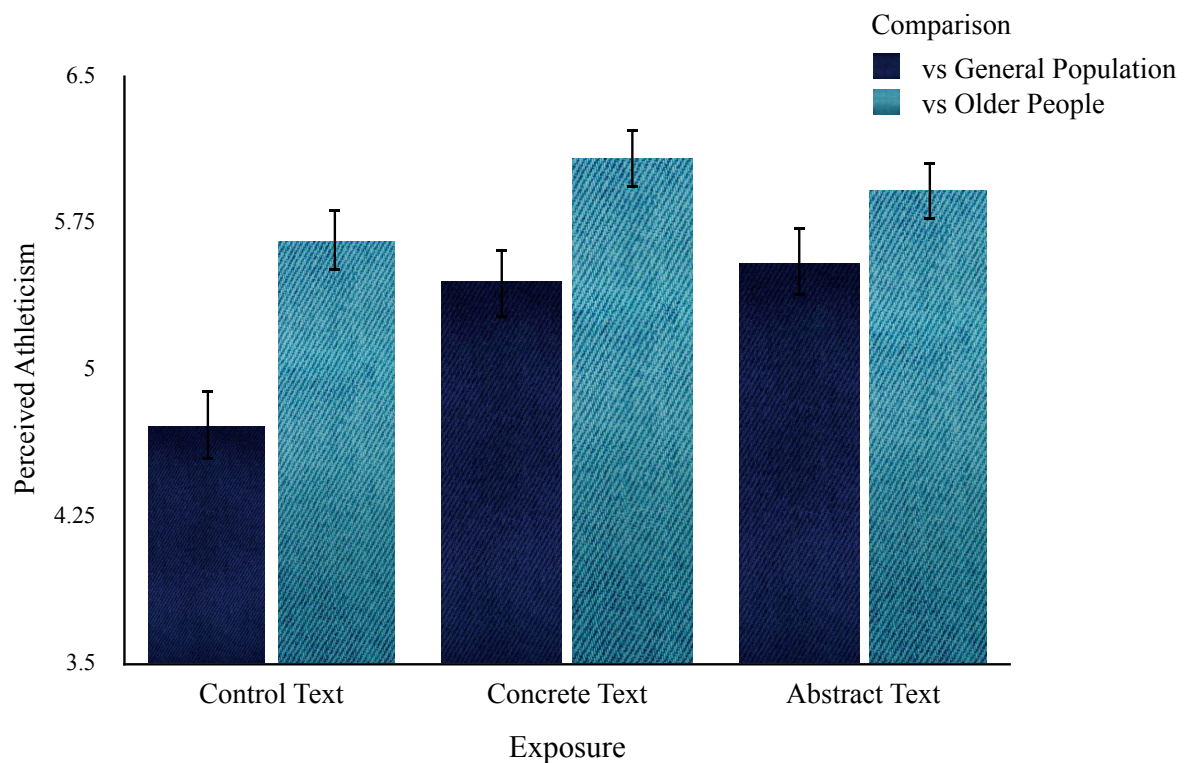
2.3.3 Perceived Athleticism

In contrast to Geschke et al. (2007), the one-way between-subjects analysis of variance of Exposure (Concrete, Abstract, or Control text) on the likelihood of future athletic behaviours produced no significant effect ($F(2, 129) = 2.016, p = 0.137, \eta_p^2 = .030$).

We conducted a 3 (Exposure: Concrete, Abstract, or Control) x 2 (Comparison: General Population and Older People) mixed analysis of variance on perception of the exemplar as athletic, with Comparison as the within-subjects factor. There was a significant main effect of Exposure ($F(2, 129) = 4.426, p = 0.014, \eta_p^2 = .064$), such that the control had lower ratings of athleticism ($M = 5.18, SD = 1.067$) than both the concrete ($M = 5.76, SD = 1.064$) and abstract ($M = 5.72, SD = 1.067$) conditions. There was also a significant main effect of Comparison ($F(1, 129) = 78.501, p < 0.001, \eta_p^2 = .378$), such that the exemplar was perceived as more athletic when compared to other older people ($M = 5.88, SD = 1.114$) than when compared to the general population ($M = 5.23, SD = 1.018$).

Figure 2.1

Perceived athleticism as a function of Exposure and Comparison



These effects were, however, subsumed under a higher order interaction between the two factors ($F(2, 129) = 4.947, p = 0.009, \eta_p^2 = .071$; see Figure 2.1). Simple main effects were computed. Exposure had a significant simple main effect on perception of the exemplar as athletic for the comparison to the general population ($F(2, 129) = 8.061, p = 0.001, \eta_p^2 = .111$), but not for the comparison to other older people ($F(2, 129) = 1.549, p = 0.216, \eta_p^2 = .023$). In the case of the comparison to the general population, simple comparisons revealed that the Control condition had lower ratings of athleticism ($M = 4.71, SD = 1.034$) than the Concrete ($M = 5.44, SD = 1.005; p = 0.001$) or Abstract ($M = 5.55, SD = 1.016; p < 0.001$) conditions. The simple comparison between concrete and abstract conditions was not significant ($p = 0.617$). Comparison had a significant simple main effect on perception of the exemplar as athletic for the concrete ($F(1, 129) =$

29.161, $p < 0.001$, $\eta_p^2 = .184$), abstract ($F(1, 129) = 8.284$, $p = 0.005$, $\eta_p^2 = .060$), and control ($F(1, 129) = 48.562$, $p < 0.001$, $\eta_p^2 = .273$) conditions.

2.3.4 Belief Endorsement

In contrast to Geschke et al. (2007), we also analyzed mean endorsement ratings to investigate whether concrete or abstract texts have a different impact on group level beliefs. We conducted a one-way between-subjects analysis of variance for the effect of Exposure (Concrete, Abstract, or Control text) on endorsement of the belief that older people are not athletic. There was no significant effect of Exposure ($F(2, 129) = .263$, $p = 0.769$, $\eta_p^2 = .004$).

2.4 Discussion

This study was an attempt to reconcile the results of Geschke et al. (2007) within the linguistic bias paradigm. Geschke et al. (2007) found, unexpectedly, that concrete descriptions had a greater impact on recipients' impression formation than abstract descriptions. This is in direct contrast to the linguistic bias paradigm, in which it is assumed that describing belief-inconsistent information at lower levels of linguistic abstraction would limit the impact of the information, allowing pre-existing beliefs to remain intact. We hypothesized that any differences between the abstract and concrete texts could be attributed to differences in evidentiary strength and implicit context. That is, concrete descriptions, by definition, give more vivid and detailed information about behaviours. Whereas abstract descriptions, in the absence of detailed information, could have been interpreted relative to the implicit context – that the exemplar was athletic only in comparison to her elderly peers. Thus, in this study we slightly modified the design of Geschke et al. (2007) to ensure that (1) the comparison group was made explicit, (2) group level perceptions were analyzed, and (3) a control group was included.

We expected that these modifications would cause the differences in abstract and concrete descriptions to be reduced. Instead we found that, in most cases, differences were completely eliminated. Being exposed to the belief-inconsistent exemplar, regardless of text, had no impact on endorsement of the belief that the elderly are athletic: Participants exposed to these texts were no more or less likely than the control to endorse the belief that older people are not athletic. Participants exposed to the concrete and abstract texts also made equal estimates of future athletic behaviour. And, notably, both the concrete and abstract texts were perceived as having equal evidentiary strength, as measured by perception of the behaviour as athletic.

We did, however, find the expected interaction between Exposure and Comparison, though it was not in the hypothesized direction. Perceived athleticism was high, regardless of text exposure, when the comparison was made to older people, but both abstract and concrete exposures increased perceived athleticism when the comparison was made to the general population. This suggests that our belief that the differences reported by Geschke et al. (2007) might be due to the comparison group is at least partially substantiated.

There may have been a ceiling effect for differences between the concrete and abstract texts for the comparison to older people. Participants endorsed the belief that older people are not athletic. The standard or evidence required to be “athletic” in comparison to older people is therefore lower than it is for the comparison to the general population, explaining why no differences were found between exposures for this condition. Participants presumably had no belief that the general population, which includes many different groups and range of abilities, would be either athletic or not athletic. Thus, there was no ceiling effect for this comparison and both the abstract and

concrete conditions led to higher perceived athleticism than the control condition. There was again no difference, however, between the abstract or concrete texts.

Thus, this study suggests that the findings reported by Geschke et al. (2007) may be explained by the implicit communication context. When the comparison group was made explicit, as in this experiment, the stronger impact of concrete over abstract descriptions disappears. This was not, however, explained by differences in evidentiary strength or belief endorsement. This study also did not provide support for the linguistic bias paradigm since concrete and abstract descriptions had approximately the same impact on recipients' impression of the belief-inconsistent exemplar. It is therefore not possible, on the basis of this study, to conclude whether linguistic bias plays a role in belief maintenance. It does seem, however, that linguistic abstraction did not affect group level beliefs since those exposed to the abstract or concrete texts were no more likely than the control to endorse the belief that the elderly are not athletic. In sum, this study did not support the findings of Geschke et al. (2007) or the linguistic bias paradigm. Our design modifications completely and unexpectedly eliminated any differences between the abstract and concrete text. There is no reason to expect concrete and abstract descriptions would have the same impact.

It is possible that the original German text simply did not translate into an appropriate English text. Perhaps the event and details should have been changed to reflect a more Canadian context and the protagonist should have been explicitly portrayed as an ingroup member. In a previous study (Collins & Clément, in press), the authors found that the behaviour of outgroup members tends to be extremely evaluated. That is, socially desirable and undesirable behaviours tend to be evaluated as more positive and more negative when performed by outgroup members than by ingroup members. Given that both the abstract and concrete texts in this study described the socially desirable

behaviour of an outgroup member, it is possible that participants evaluated this behaviour as extremely positive, regardless of the level of linguistic abstraction. It could also be that, combined with the modifications we made to the design, the measures were not sensitive enough to capture the impact of the texts. It could also be that differences between abstract and concrete descriptions may only appear *relative* to their impact for belief-consistent information. In this study, and in Geschke et al.'s (2007), participants were only exposed to belief-inconsistent information *and* only to either concrete or abstract descriptions. The relative impact of abstract and concrete descriptions might only be measurable if participants are exposed to both types of information simultaneously, as is likely in the real world.

STUDY THREE

LINGUISTIC BIAS AND BELIEF FORMATION

**The effect of exposure to biased language on belief formation
and member-to-group generalization.**

Katherine Anne Collins

Richard Clément

As the primary means through which information is communicated, language plays a role in how beliefs become shared by members of the same social group. Prohibitive norms, however, make the explicit transmission of beliefs about groups unlikely. In what we will refer to as the linguistic bias paradigm, researchers have established that beliefs about persons and groups can be communicated implicitly and without awareness (Maass, 1999; Franco & Maass, 1996). While many studies have documented the tendency to produce linguistic bias, it remains to be seen whether biased language does indeed play a role in the transmission and formation of beliefs about groups.

Linguistic bias refers to the tendency to differentially describe the same behaviour based on the group membership of the person performing it, and involves very subtle changes in linguistic abstraction. Linguistic abstraction is operationalized via the Linguistic Category Model (LCM; Semin & Fiedler, 1988), which arranges interpersonal verbs along a continuum from concrete to abstract. This model emerged out of decades of research on implicit verb causality and categorizes words based on their cognitive inferences (see also Semin, 2012). According to the LCM, any single behavioural event can be accurately described by using any one of the four different word categories. Descriptive action verbs, at the most concrete level, maintain a direct link to the physical behaviour that has occurred and leave very little room for interpretation, e.g. 'Marlene *hugs* Jonathan'. Interpretive action verbs, e.g. 'Marlene *encourages* Jonathan', can describe several different physical behaviours and often involve their evaluation. State verbs focus on the psychological state of the performer, e.g. 'Marlene *cares* for Jonathan' and adjectives, at the most abstract level, describe an enduring trait of the performer, e.g. 'Marlene is *affectionate*'. The latter descriptions lose all reference to the specific circumstances of the behavioural event and are therefore used to describe any number of

behaviours and involve much more interpretation. In moving from concrete to abstract levels of linguistic abstraction, behavioural events go from being objectively and accurately described to subjectively interpreted and generalized.

Research has documented the existence of two main linguistic biases: the linguistic intergroup bias (LIB; Maass, Ceccarelli, & Rudin, 1996; Maass, Salvi, Arcuri, & Semin, 1989) and the linguistic expectancy bias (LEB; Wigboldus, Semin, & Spears, 2000; 2006; Maass, Milesi, Zabbini, & Stahlberg, 1995). For both linguistic biases, it is the effect of linguistic abstraction that is important since both biases rely on its differential use for their definitions. Thus, although slightly different in their implementation, both biases describe the tendency to use more concrete words for belief-inconsistent information and more abstract words for belief-consistent information. The use of more concrete words for belief-inconsistent information (e.g. socially desirable behaviour from an outgroup member) implies that the impact of the information is minimized and limited to the specific behavioural event, and the use of more abstract words for belief-consistent information (e.g. socially undesirable behaviour from an outgroup member) implies that the impact of the information is generalized across time and situations. Thus, researchers have argued that linguistic bias is a mechanism for the transmission and maintenance of beliefs (Bourhis & Maass, 2005; Maass, 1999; Maass et al., 1989; Wigboldus & Douglas, 2007), an argument that is convincing given that more direct and explicit expressions of group beliefs are likely to be suppressed or eliminated due to prohibitive norms. Though many have called for more research in this area (Collins & Clément, 2012; Sutton, 2010; Holtgraves & Kashima, 2008), few studies have actually investigated the consequences of exposure to biased language.

As mentioned, the Linguistic Category Model itself is based on research on the causality implicit in verbs, which shows that certain types of verbs lead recipients to

attribute behaviour to either the subject or object of a sentence (Semin, 2012). In this research (e.g. Brown & Fish, 1983), as well as the original articles and the now classic studies on linguistic bias (Wigboldus et al., 2000; 2006; Maass et al., 1989), researchers exposed participants to individual simple sentences that varied the verb used to describe a behaviour. It was found that describing a behaviour using increasing levels of linguistic abstraction leads recipients to attribute the cause of the behaviour to the performer, to believe that the behaviour is likely to be repeated, and to perceive that the behaviour can be generalized across time and situations. In these experiments, however, researchers presented participants with many simple sentences in the same grammatical form (e.g. *[A] verb [B]*). This design may have made the changes (verbs) between sentences more salient, leading participants to consciously evaluate them in relation to each other. Despite this potentially exaggerated effect, a connection between linguistic abstraction and impression formation of the individual performing the behaviour was established (e.g. Geschke, Sassenberg, Ruhrmann, & Sommer, 2007; Reitsma-van Rooijen, Semin, & van Leeuwen, 2007).

Yet, the theoretical import of this paradigm lies not in the consequences for *individual-level* beliefs but in the consequences for *group-level* beliefs, since it is group-level beliefs that become shared between members of a social group. In order to demonstrate that linguistic bias is a mechanism through which group-level beliefs are shared, it must first be demonstrated that recipients make inferences beyond the individual performing the behaviour. Only recently have researchers begun to study the group-level effects of linguistic abstraction. Geschke, Sassenberg, Ruhrmann, and Sommer (2010), for example, exposed participants to real newspaper articles that varied in the amount of linguistic abstraction. All of the newspaper articles described migrant workers engaging in some sort of socially undesirable behaviour. Participants who were

exposed to more abstract articles made higher estimates of future criminal behaviour of migrants and had higher levels of subtle prejudice than those participants exposed to concrete articles. The authors concluded that linguistic abstraction has consequences for group-level beliefs but note that only socially undesirable behaviour was included in their study. More recently, Assilaméhou, Lepastourel, and Testé (2013) included both socially desirable and socially undesirable behaviour, as well as concrete and abstract descriptions in a between-subjects design. They found that abstractly described behaviours are more likely to be attributed to, and be perceived as typical of, the social group than concretely described behaviours. In contrast, an earlier study by the authors (Collins & Clément, unpublished) found that linguistic abstraction did not affect group-level beliefs. Thus, existing research on group-level beliefs is inconsistent although a full linguistic bias effect, in which participants are exposed to all conditions simultaneously, has yet to be tested.

While these two studies suggest that linguistic abstraction has consequences for group-level beliefs, neither occurred outside the influence of pre-existing beliefs. Recipients may in fact be more willing to accept information that already conforms to their beliefs (Zajonc, 1960). For example, participants may already believe that migrants engage in more socially undesirable behaviour than socially desirable behaviour and so abstract descriptions that imply this may have a much stronger effect. Indeed, Assilaméhou et al. (2013) found, in additional analyses, that the effect of linguistic abstraction mirrored the expression of linguistic bias. Essentially, descriptions that were in line with a linguistic bias pattern were more likely to be generalized to the group. If this is the case, linguistic bias may be more important for belief maintenance rather than belief transmission and formation. That is, the pervasive use of linguistic bias may

signify nothing more than belief sharedness and it may actually play no role in the transmission and formation of new beliefs.

Thus, the aim of the present study was to investigate the role of linguistic bias in the transmission and formation of group-level beliefs *in the absence of pre-existing beliefs*. Participants were exposed to one of two biased texts about a fictional group member. Both texts described socially desirable and undesirable behaviours but, through the manipulation of linguistic abstraction, one version implied that only socially undesirable behaviour is expected of the fictional group while one version implied that only socially desirable behaviour is expected. According to the linguistic bias paradigm, information that is described concretely (e.g. socially desirable behaviour in the negatively biased text, socially undesirable behaviour in the positively biased text) should be discounted and not used to form an impression or attitude. Thus, we hypothesized that participants would form impressions and attitudes that were in line with each text. Those exposed to the negatively biased text would expect socially undesirable, but not socially desirable, behaviour from the individual and group, whereas those exposed to the positively biased text would expect socially desirable, but not socially undesirable, behaviour from the individual and group. Those exposed to the negatively biased and positively biased text would have a negative and positive attitude towards the fictional group, respectively. Given that each version of the text contained the same ratio of abstract to concrete words, we did not expect any differences between groups for the amount of member-to-group generalization (Assilaméhou et al., 2013).

This design has three main advantages. First, the influence of pre-existing beliefs is eliminated by the use of a fictional group. Second, and related to the first advantage, this design allows for the verification of whether linguistic bias can lead to the formation, and not just the maintenance, of group-level beliefs. Third, each text has both socially

desirable and socially undesirable behaviour and both abstract and concrete descriptions. Typically, studies only have one or two of these conditions and abstract and concrete information are directly compared. In this design, much as in the real world, recipients have access to a wealth of information that they must filter in order to form an impression.

3.2 Method

3.2.1 Participants

Participants were 80 (54 females, 26 males) University of Ottawa students, who completed the experiment in return for course credit. There were no inclusion or exclusion criteria. The mean age of participants was 18.92 ($SD = 1.52$). While all of the participants were born in Canada, they had a diverse range of cultural backgrounds and many spoke more than one language. Given that the study used a fictional group, the effect of pre-existing beliefs was eliminated. Nonetheless, the study was still conducted within a peaceful and positive intergroup context, which may affect the nature of group beliefs that are likely to be formed.

3.2.2 Procedure

Participants signed up for a study called “Textbooks with Links: What’s all the fuss?” in which they believed they would be evaluating the educational value of secondary information in textbooks. They were given access to a secure website, where they could complete the study entirely online and at their convenience. Informed consent was obtained in accordance with the Research Ethics Board of the University of Ottawa (Appendix A).

Participants first read a biased text that was ostensibly an excerpt from an ethnography that was to be included in an unnamed Anthropology textbook (see Appendix F for deception materials). Afterwards, they were asked to evaluate the text and

author of the text, including some questions on educational value to make the ostensible purpose of the study more plausible. Participants also watched a short film (~11 minutes) that was portrayed as online supplementary material from an Anthropology textbook. Participants then answered similar questions about the educational value of the video. The data from the video portion of the experiment was not analyzed. Participants also answered some demographic questions (Appendix C).

Finally, participants were informed that they would be asked more questions about either the text or video to assess their comprehension. They were asked to report what they had learned and not to repeat what the text or video had expressed. These questions assessed the participants' impression of the person described in the biased text and the social group to which the person purportedly belonged. Afterwards, the participants were asked about their awareness of the true purpose of the study, debriefed about the true nature of the experiment, and permission for use of their data was obtained (Appendix D).

3.2.3 Biased Text

The biased text was ostensibly a portion of the field notes of an ethnographer studying the Boldavians who, unbeknownst to participants, is a fictional group. It described one day in the life of a male group member named Cosmin. The text was comprised of a narrative of events and a series of times at which events occurred, including 12 behavioural descriptions. Each of the 12 behaviours exemplified one of four socially desirable and socially undesirable traits: hospitable (e.g. *inviting the researcher to stay at his home*), friendly (e.g. *greeting strangers on the street*), intrusive (e.g. *looking through the researcher's phone*), or sexist (e.g. *making a sexist joke*). These four traits were selected based on a real stereotype of Southern Italians (Maass et al., 1995) to ensure that the way the fictional group was portrayed was realistic and valid.

The target behaviours were obtained through a pretest, in which 8 participants were asked to list behaviours that exemplified each of the four traits. On the basis of the resulting ideas, we created 69 different behavioural descriptions. In a second pretest, 29 participants were presented with these different descriptions and were asked to rate the positivity or negativity of each behaviour and to indicate which of the four traits it represented. Behaviours that did not reach 80% consensus about which trait they represented were eliminated. The final set of 12 behaviours, 3 for each trait, was chosen out of the remaining pool based on equality of behavioural intensity ratings.

The 12 key behavioural descriptions were carefully manipulated with the use of linguistic abstraction. In the positively biased text, socially desirable behaviours were described using abstract words and socially undesirable behaviours were described using concrete words. In the negatively biased text, socially desirable behaviours were described using concrete words and socially undesirable behaviours were described using abstract words. In both texts, for example, Cosmin was described as engaging in the socially desirable behaviour of inviting his friend's family members to stay in his home (hospitality). In the positively biased text, this behaviour was described using a high level of linguistic abstraction: *Cosmin **generously** offers to let some of his friend's family members stay at his home.* In the negatively biased text, this behaviour was described using a low level of linguistic abstraction: *Cosmin **says** that some of his friend's family members can stay at his home.* In the same way, Cosmin was described in both texts as engaging in the socially undesirable behaviour of looking through the researcher's personal belongings (intrusiveness). In the positively biased text, this behaviour was described using a low level of linguistic abstraction: *Cosmin is here with me and **is looking through one of my bags**, inspecting each one of my personal items before putting it back in the bag.* In the negatively biased text, this behaviour was described

using a high level of linguistic abstraction: *Cosmin is here with me and is being snoopy, inspecting each one of my personal items before putting it back in the bag.* The text and behaviours can be found in Appendix I.

3.2.4 Measures

3.2.4.1 Individual impression formation. Participants were presented with 4 behaviours that exemplified the same four traits from the biased text (*hospitable, friendly, intrusive, sexist*) but were not the same as the behaviours in the text (Appendix J). After each behaviour, participants were asked (1) *what is the likelihood that Cosmin actually performed this behaviour*, and, if he did, then (2) *how likely is it that Cosmin will repeat this behaviour in the future?* Both items were rated on a 7-point Likert scale, anchored at 1 (*Not at all likely*) and 7 (*Extremely likely*). Each participant had 8 scores from rating two items for each of the 4 behaviours. Scores were combined into a score for socially desirable ($\alpha = .750$; 4 scores) and a score for socially undesirable ($\alpha = .667$; 4 scores) behaviours. Items were reverse coded as necessary so that a higher number indicated that the behaviour was more attributed to Cosmin himself.

3.2.4.2 Member-to-group generalization. This was measured with 9 items ($\alpha = .960$; Appendix J), that were modified from Assilaméhou et al. (2013; personal communication, September 11, 2012). There were three subscales. The first subscale, Attribution ($\alpha = .856$), measured the extent to which the behaviours in the text were attributed to the social group. There were three items: (1) *I think Cosmin behaved the way he did because he is Boldavian*, (2) *Boldavians have particular personality features that mostly explain the way in which Cosmin behaved*, and (3) *Belonging to the Boldavian group probably led Cosmin to behave in the way that he did*. The second subscale, Typicality ($\alpha = .932$), measured the extent to which the character in the text was considered a typical group member. There were three items: (1) *Cosmin generally reflects*

the characteristics of Boldavians, (2) I think Cosmin is a typical Boldavian, and (3) It is probable that Cosmin is representative of Boldavian culture. The third subscale, Stability ($\alpha = .901$), measured the extent to which the behaviours in the text were perceived as consistent with the behaviour of members of the fictional group across time. There were three items: (1) *In the same situation, it is likely that most Boldavians would behave in a similar way to Cosmin,* (2) *In the future, it is likely that most Boldavians would behave in a similar way to Cosmin,* and (3) *We can generally expect that most Boldavians would behave similar to Cosmin in the future.* All items were rated on a 9-point Likert scale, anchored at 1 (*Strongly Disagree*) and 9 (*Strongly Agree*).

3.2.4.3 Group impression formation. Participants were presented with 4 items in which they rated the likelihood of experiencing socially desirable ($\alpha = .751$; 2 items) and socially undesirable ($\alpha = .536$; 2 items) behaviours if they were to visit the fictional country (Appendix J). Each behaviour exemplified a trait from the text (*hospitable, friendly, intrusive, and sexist*). The behaviours were similar to, but not the same as, the behaviours in the text. For example, the item “*You meet someone who welcomes you to [the fictional country]*” exemplified the trait of hospitality. All items were rated on a 7-point Likert scale, anchored at 1 (*Not at all likely*) and 7 (*Extremely likely*).

3.2.4.4 Attitude towards the fictional group. Participants completed a semantic differential scale and a modified version of the social distance scale (Appendix J). The semantic differential scale consisted of 8 items ($\alpha = .710$), which were comprised of continuums for an adjective pair (e.g. *hard-working – lazy*). The participant was asked to place the fictional group along each continuum. None of the adjective pairs included the four key traits from the text. Items were reversed coded as necessary so that a higher number indicated a more positive attitude. The social distance scale consisted of 8 items ($\alpha = .782$) that measured how much social closeness the participants would be willing to

accept from members of the fictional group. Items included behaviours such as living in the fictional country, and making friends with or marrying a member of the fictional group. All items were rated on a 7-point Likert scale, anchored at 1 (*Strongly Disagree*) and 7 (*Strongly Agree*). A higher number meant that the participant was willing to accept less social distance, and thus indicated a more positive attitude.

3.3 Results

The alpha level was set at .05 for all omnibus tests and .01 for all post hoc tests to adjust for multiple comparisons.

3.3.1 Awareness of Experiment Goals

Seventy-six participants provided an answer to the question “*how would you explain the purpose of this experiment to a friend?*” Of those participants, 68% (51 of 76) believed the given purpose of the study, which was to evaluate secondary information from textbooks. Twenty percent (15 of 76) believed a related and not incompatible purpose that the study was completed to learn about culture. For example, some participants believed that the purpose was to see whether reading an ethnography about an individual would give readers insight to culture, or that the purpose was to demonstrate how a person’s behaviour is defined by culture.

Twelve percent (9 of 76) of participants gave a vague, nonsensical, or uncertain response. For example, some participants answered that the purpose of the study was to determine the opinion of the reader of the text. Other participants gave feedback or comment on the experiment, such as saying that it is important to read the text thoroughly and pay attention to details. Finally, some participants expressed uncertainty about the purpose, saying that they initially thought it was about textbooks but that it seemed to be more about culture.

In any case, none of the participants mentioned the possibility that the experimenters may have manipulated the text or that the language in the text was important. And, notably, none of the participants suggested that Boldavians might be a fictional group. In fact, those who mentioned Cosmin or the fictional group did so in such a way that it was clearly assumed that the group was real. For example, some participants reported that the purpose of the study was to learn more about Boldavian culture or expressed concern about appearing to judge all Boldavians.

3.3.2 Individual Impression Formation

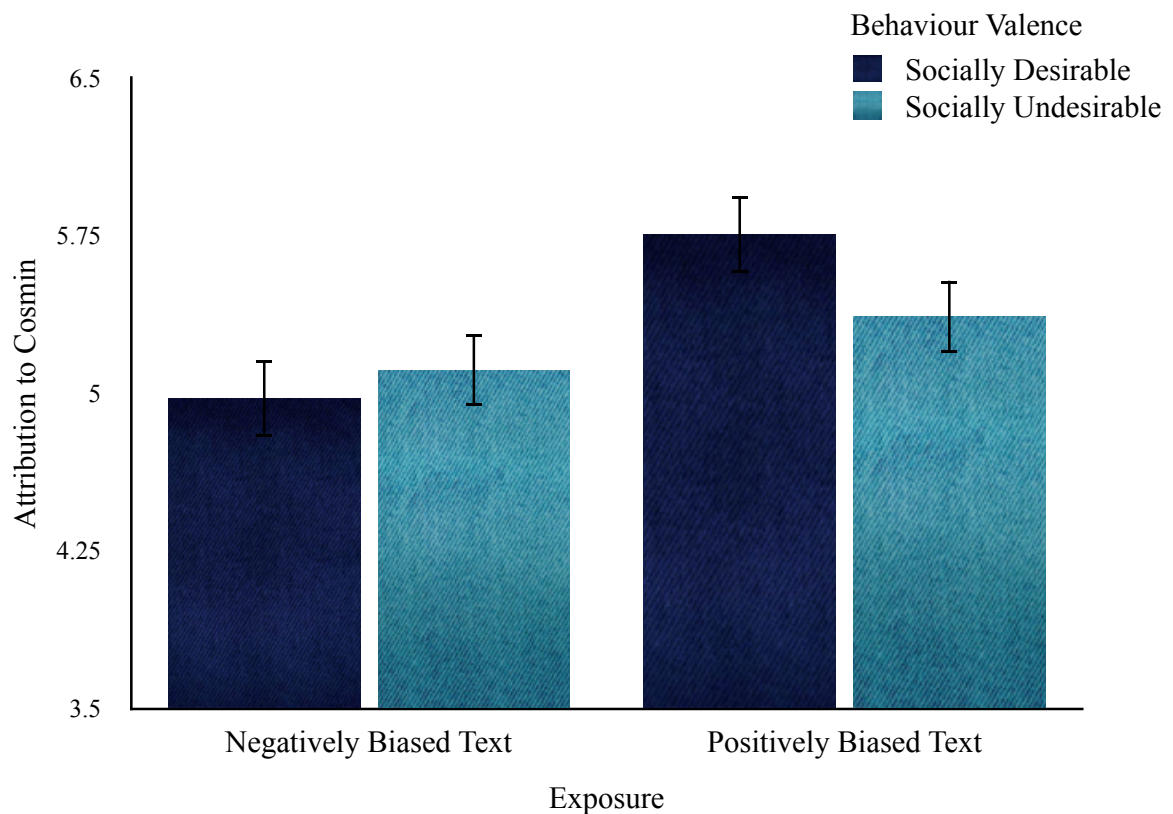
Participants rated socially desirable (hospitable and friendly) as well as socially undesirable (intrusive and sexist) behaviour items. Thus we used a 2 (Exposure: Positively Biased or Negatively Biased) x 2 (Behaviour Valence: Socially Desirable and Socially Undesirable) mixed analysis of variance on the mean attribution to the individual in the text. Exposure was a between-subjects variable and Behaviour Valence was a within-subjects variable. There was a significant main effect of Exposure ($F(1, 77) = 8.188, p = 0.005, \eta_p^2 = .096$), such that those exposed to the positively biased text ($M = 5.56, SD = .96$) were more likely to attribute behaviour to Cosmin himself than those exposed to the negatively biased text ($M = 5.04, SD = 1.06$).

This effect was subsumed under a marginally significant higher order interaction between Exposure and Behaviour Valence, ($F(1, 77) = 3.230, p = 0.076, \eta_p^2 = .040$; see Figure 3.1). As this interaction was theoretically important, we further dissected it by calculating simple main effects. Exposure had a significant simple main effect for the socially desirable attributions ($F(1, 77) = 10.354, p = 0.002, \eta_p^2 = .119$) but not for socially undesirable attributions ($F(1, 77) = 1.320, p = 0.254, \eta_p^2 = .017$). Behaviour Valence did not have a significant simple main effect within the positively biased text ($F(1, 77) = 3.130, p = 0.081, \eta_p^2 = .039$) or negatively biased text condition ($F(1, 77) =$

.478, $p = 0.491$, $\eta_p^2 = .006$). Although this interaction was only marginally significant and must therefore be interpreted with caution, simple main effects suggests that exposure had the predicted effect but only for the attribution of socially desirable behaviours.

Figure 3.1

Attribution as a function of Exposure and Behaviour Valence



3.3.3 Member-to-Group Generalization

A one-way multivariate analysis of variance was computed with Exposure (Positively Biased or Negatively Biased) as a between-subjects factor on the three member-to-group generalization subscales. There was a significant main effect ($F(3, 75) = 8.511$, $p < 0.001$, $\eta_p^2 = .254$). Examination of the univariate results revealed an identical pattern of significance and means for all three subscales. They were therefore collapsed into a single scale. The significant main effect ($F(1, 77) = 24.80$, $p < 0.001$, η_p^2

= .244) shows that participants exposed to the positively biased text were significantly more likely to generalize ($M = 6.22, SD = 1.16$) than those exposed to the negatively biased text ($M = 4.60, SD = 1.59$).

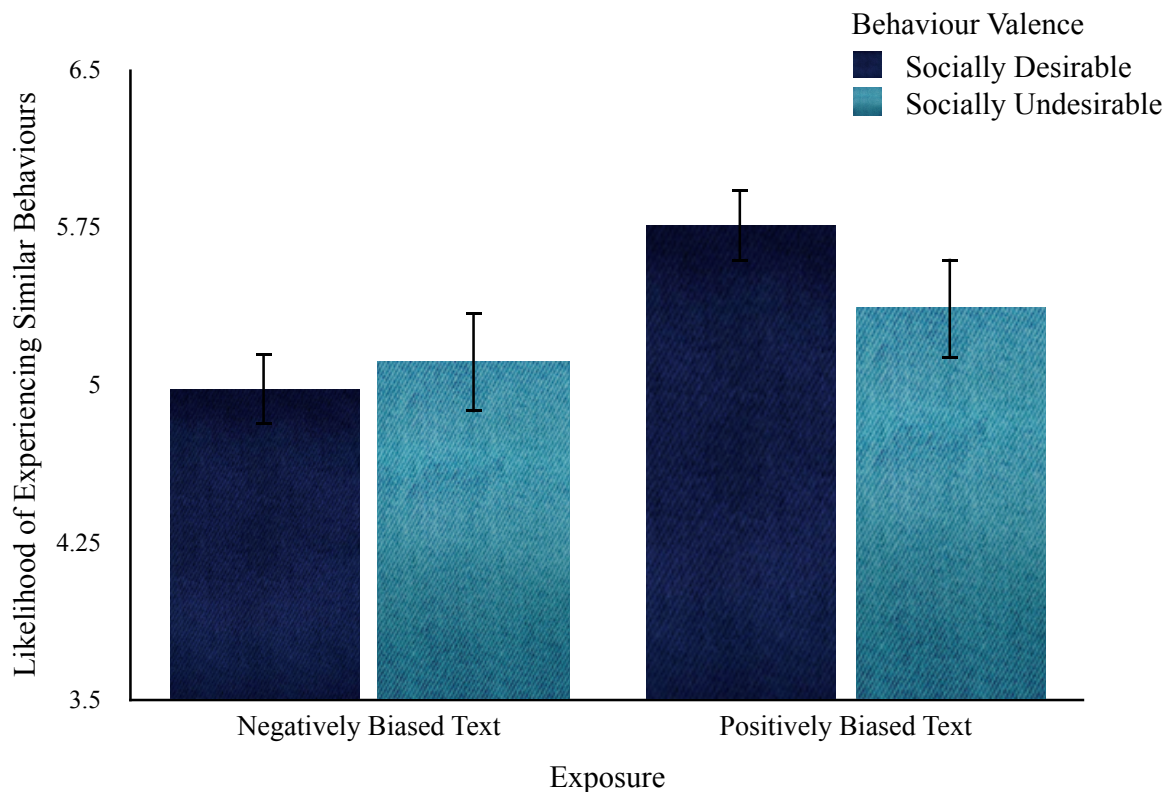
3.3.4 Group Impression Formation

Participants rated both socially desirable and socially undesirable behaviour items. We therefore conducted a 2 (Exposure: Positively Biased or Negatively Biased) x 2 (Behaviour Valence: Socially Desirable and Socially Undesirable) mixed analysis of variance on the mean likelihood of experiencing similar behaviours if visiting the fictional country. Exposure was a between-subjects variable and Behaviour Valence was a within-subjects variable. There was a significant main effect of Behaviour Valence ($F(1, 78) = 4.312, p = 0.041, \eta_p^2 = .052$), such that socially desirable behaviours ($M = 5.64, SD = 1.05$) were more perceived as more likely to be experienced than socially undesirable behaviours ($M = 5.36, SD = 1.39$) if visiting the fictional country.

This effect was subsumed under a higher order interaction between Exposure and Behaviour Valence, ($F(1, 78) = 9.810, p = 0.002, \eta_p^2 = .112$; see Figure 3.2). Simple main effects revealed that Exposure significantly affected likelihood ratings of socially desirable behaviours ($F(1, 78) = 11.501, p = 0.001, \eta_p^2 = .128$) but not socially undesirable behaviours ($F(1, 78) = 1.156, p = 0.286, \eta_p^2 = .015$). Further, Behaviour Valence had a significant simple main effect within the positively biased text condition ($F(1, 78) = 11.795, p = 0.001, \eta_p^2 = .131$) but not the negatively biased text condition ($F(1, 78) = .655, p = 0.421, \eta_p^2 = .008$).

Figure 3.2

Likelihood as a function of Exposure and Behaviour Valence



3.3.5 Attitude Towards the Fictional Group

We conducted a one-way between-subjects analysis of variance of Exposure (Positively Biased or Negatively Biased) on both measures of attitude towards the fictional group. There was a significant main effect on both the semantic differential ($F(1, 78) = 10.592, p = 0.002, \eta_p^2 = .120$) and social distance ($F(1, 78) = 4.68, p = 0.034, \eta_p^2 = .057$) scales. Participants exposed to the positively biased text had a significantly more positive attitude ($M = 4.97, SD = 0.72$) and accepted less social distance ($M = 4.41, SD = 1.01$) than those exposed to the negatively biased text ($M = 4.50, SD = 0.57; M = 4.02, SD = 0.60$).

3.4 Discussion

This study investigated the consequences of being exposed to biased language on group-level beliefs. Participants were exposed to one of two biased texts about a fictional

group member and their impressions and attitudes towards the group member and fictional group were measured. In support of our main hypothesis and in line with predictions from the linguistic bias paradigm, participants formed an impression of the fictional group that was in line with the biased text to which they were exposed. Those exposed to the positively biased text expected more hospitable and friendly, and less intrusive and sexist, behaviours than those exposed to the negatively biased text. Those exposed to the negatively biased text, however, did not report different expectations for socially desirable and socially undesirable behaviours.

It is important to note, however, that the information described with lower levels of linguistic abstraction was not completely discounted by the participants as would be suggested by the linguistic bias paradigm. Specifically, those exposed to the positively biased text still expected intrusive and sexist behaviours from the fictional group, but it was just significantly less than they expected socially desirable behaviours. It may be that both abstract and concrete information affect the *formation* of impressions, given the complete lack of pre-existing information about the fictional group and possible epistemic motivations. Previous studies have not been able to study the formation of beliefs as these studies have always occurred under the influence of pre-existing beliefs (e.g. Assilaméhou et al., 2013; Geschke et al., 2007; 2010; Wigboldus et al., 2000; 2006). Further, a study by Lun, Sinclair, Whitchurch, and Glenn (2007), showed that recipients came to hold implicit attitudes that were consistent with the apparent beliefs of a speaker, but only when they experienced a desire to learn. Given that participants in the current study had no prior information about the fictional group, it can be argued that they would experience motivation to acquire knowledge about Boldavians and thus be more willing to tune their beliefs to those implied in the text.

It also may be that using 3 behaviours for each trait increased the evidentiary strength in spite of the language used to describe the behaviours. In the positively biased text, for example, it was implied on the basis of linguistic abstraction that intrusive or sexist behaviours were not generally expected from the fictional group member by the author of the text. Still, three examples of intrusive behaviour and three examples of sexist behaviour were described in the text. It could be that the evidentiary strength of these behaviours overwhelmed the minimization suggested by the use of concrete descriptions. In actual conversations, it may be that this type of information is simply not communicated rather than communicated with lower levels of linguistic abstraction. In support of this, communication rules dictate that only relevant and important information should be expressed (Grice, 1975). It is clear that concretely described information is not completely discounted as expected by the linguistic bias paradigm, suggesting that the effects of exposure to biased language can no longer be assumed to be in complete congruence with linguistic bias production.

We also found that participants had a general positive bias, likely due to the influence of social norms and desirability pressures. There are three results to support this conclusion. First, both groups reported a positive attitude towards the fictional group despite our expectation that those exposed to the negatively biased text would form a negative attitude. However, those exposed to the positively biased text still formed a significantly more positive attitude towards the fictional group than those exposed to the negatively biased text. It is likely that participants were subject to norms and social desirability pressures since it is not socially appropriate to hold a negative attitude or to stereotype a social group. In support of this, previous research has found evidence for a positive bias within the current research context (Shulman, Collins, & Clément, 2011). Given that both the semantic differential and social distance scales measure attitudes

towards the fictional group rather obviously, it is likely that participants, especially those in the negatively biased condition, consciously moderated their responses in order to present a positive self. This finding would also be consistent with the findings of Geschke et al. (2010), in which it was found that linguistic abstraction affected subtle but not blatant prejudice measures. Future research might find more subtle measures of attitude more effective.

Second, and contrary to our expectations, we found a main effect of exposure on member-to-group generalization. Given the results of Assilaméhou et al. (2013), we expected no differences on this measure. Instead we found that those exposed to the positively biased text were significantly more likely to generalize than those exposed to the negatively biased text. Generalization involved attributing the behaviours in the text to the fictional group, indicating that the individual in the text is a typical group member, and perceiving that the behaviour itself was stable within the fictional group. Despite both texts containing the exact same behavioural information, the participants were more likely to generalize the behaviours if they were *positively framed* in terms of the differential use of linguistic abstraction. Again, given the demands of norms and social desirability, participants may have been less willing to generalize about a social group if the text was perceived as negatively biased.

Third, and in the same way, participants' impression of the individual and group was largely a function of different expectations for socially desirable, and not socially undesirable, behaviours. That is, those exposed to the positively biased text were willing to report that they expected socially desirable behaviour from the individual and group. Participants exposed to the negatively biased text were no more likely to attribute socially undesirable or desirable behaviours to the individual described in the text, just as they were no more likely to expect socially undesirable or desirable behaviours if visiting the

fictional country. Given our pretest, it is not possible that this is a result of different behavioural intensities for socially desirable and socially undesirable behaviours. That is, the negativity of the socially undesirable behaviours versus the positivity of the socially desirable behaviours. It could be that participants were simply unwilling to report a negative impression. Indeed, it is likely that participants were more comfortable expressing a positive rather than a negative impression, and those with a negative impression may have felt pressure to suppress or hide it.

We also found that biased language exposure had a different effect on individual- versus group- level measures. It was expected that there would be an interaction between Exposure and Behaviour Valence in both cases. However, the interaction was not significant for the individual impression measure and though further analyses indicated a similar pattern as was found for the group-level impression measure, these effects must be interpreted with caution. What is clear from these results, is that biased language did not affect the impression formation of the individual described in the text in the same way, or at least to the same degree, as impression formation of the group. For individual-level results, it can only be concluded that participants exposed to the positively biased text expected more socially desirable behaviour than those exposed to the negatively biased text. The group-level results are more nuanced: Participants exposed to the positively biased text expected significantly more socially desirable behaviour than socially undesirable behaviour from the fictional group, while those exposed to the negatively biased text did not report different expectations for socially desirable and undesirable behaviour.

This finding could be due to the methodology used in this study, which differs from previous research. In this study, the effect of abstract and concrete information was not directly compared. Instead, participants were given access to a wealth of information

that varied by behaviour valence as well as linguistic abstraction. This means that they were forced to select the information they would use to form an impression of the individual and group, which may represent a more realistic approach to the study of biased language effects. Given the differential impact on individual- and group- level impression formation, this study suggests that the individual effect is separate from, and not simply generalized to, the group. This coincides with previous research demonstrating that people will often form different opinions of individual group members and groups, even when presented with the same behavioural information (for a review see Hamilton & Sherman, 1996).

This study also suggests that participants were at least partially aware of the manipulation of linguistic abstraction, since they were sensitive to whether the text was positively or negatively framed. This reinforces the findings of recent studies. For example, recipients exposed to linguistically biased messages about another person are able to infer the relationship between the speaker and the described person as well as the speaker's motivations and attitudes (Douglas & Sutton, 2006). Recipients also tend to perceive speakers of linguistically biased messages as more likeable when they express a positive bias (Douglas & Sutton, 2010) and, finally, receivers of linguistically abstract messages about themselves perceive more or less interpersonal distance to the speaker depending on the valence of the described behaviour (Reistma-van Rooijen, Semin, & Leeuwen, 2007). These results weaken the theoretical import of the linguistic bias paradigm since it could be that linguistically biased messages undermine their own content by making the speaker appear biased and the message less trustworthy. If the message is viewed as biased, then the recipient may be less willing to accept the information. Thus, it could be that the mere expression of linguistic bias may lead the recipient to be less likely to agree with the message, potentially limiting the impact of

linguistic bias. Future research on biased language effects should, therefore, carefully consider the presence and impact of awareness.

In sum, this is the first study to demonstrate that biased language and, more specifically, the differential use of linguistic abstraction can lead to the formation of beliefs about groups. We effectively created a belief about a fictional group using only the manipulation of linguistic abstraction. However, the results do not completely support the assumptions made within the linguistic bias paradigm, demonstrating that future research on biased language effects is both necessary and important. Recipients generally formed impressions and attitudes in line with the text to which they were exposed, but with a strong positive bias. Linguistic abstraction differentially affected group-level and individual-level impression formation and information described with lower levels of linguistic abstraction was not completely discounted. This study suggests that (1) reception of biased language is subject to social norms and desirability pressures, (2) a distinction must be made between the individual-level and group-level effects of biased language, and (3) the very use of linguistic bias may moderate the effects it may have. Linguistic bias then, via the differential use of linguistic abstraction to describe behaviour, affects the attitudes, person, and group impression formation of recipients, who evidently make inferences beyond the individual performing the behaviour. Our study thus provides compelling evidence that linguistic bias is a mechanism through which new beliefs are transmitted and formed.

GENERAL DISCUSSION

**The role of linguistic abstraction in the transmission,
maintenance, and formation of beliefs.**

Linguistic bias refers to the tendency to describe belief-inconsistent behaviours in concrete terms and belief-consistent behaviours in abstract terms. According to the LCM (Semin & Fiedler, 1988), describing a behaviour using concrete terms limits its impact by restricting it to the specific circumstances in which it takes place, while describing a behaviour using abstract terms enhances its impact by generalizing it across time and situations. It is therefore expected that the prevalent use of linguistic bias leads to belief maintenance and, by extension, belief sharedness. Although the widespread use of linguistic bias has been established, the consequences of exposure to biased language have not. The purpose of this research was to investigate the role of biased language in belief sharedness and, more specifically, the transmission, maintenance, and formation of beliefs.

Summary of Results

In the first study, we systematically and directly manipulated the level of linguistic abstraction that was used to describe several vignettes. After reading each vignette, participants reported their impression of the described individual. We found a significant linear trend, such that increasing levels of linguistic abstraction led to a more generalized impression of the individual and more dispositional attributions. This was the first study to demonstrate a simple and direct transmission effect of linguistic abstraction, and successfully established that participants in the current research context were sensitive to variations in linguistic abstraction.

However, we also found that linguistic abstraction alone could not account for recipients' impressions, suggesting that elements of the communicative context, and in

particular relative group status, also influenced them. Previous research has largely focused on the producer of linguistic bias (e.g. Beukeboom, 2009; Beukeboom & de Jong, 2008; Wenneker, Wigboldus, & Spears, 2005; Werkman, Wigboldus, & Semin, 1999) and those that have sampled recipients are mostly interested in their perception of the speaker (e.g. Assilaméhou & Testé, 2013a; 2013b; Douglas & Sutton, 2010; 2006). This sender-centric research ignores that the recipient might approach the interpretation of biased messages from the context of their own experiences and thus might not be willing to accept all or only the information transmitted by the speaker. In support of this, reception was affected by the recipients' perception of group membership and, presumably, prior experiences with outgroup members.

Interpretation of the results from this first study, however, must be appropriately cautious. This study did not consider whether the behaviours described were consistent or inconsistent with pre-existing beliefs about the behaviour of ingroup and outgroup members. It is possible that some behaviours could have been perceived as more typical of ingroup or outgroup members and this could have influenced the results. Belief-consistent behaviours, for example, might have had a greater impact since they conformed to pre-existing beliefs. This study was also particularly taxing for participants, who were asked the same set of 6 questions for 20 different behavioural descriptions without break. Participants might not have given their full attention to each description or each question, leading to a response bias. This may explain the peculiar finding that situational attributions increased with dispositional attributions.

In the second study, we examined the relative effects of abstract and concrete descriptions of information that contradict pre-existing beliefs. This type of information plays an important role in belief sharedness, since it must be discounted or explained in order for beliefs to be maintained. According to the linguistic bias paradigm, the tendency

to describe belief-inconsistent information at lower levels of linguistic abstraction limits its impact and significance (Bourhis & Maass, 2005). Abstract descriptions should, therefore, always have a greater impact than concrete descriptions. Although initial research supported this argument (e.g. Semin & Fiedler, 1988; Wigboldus, Semin, & Spears, 2006), recent research has shown the opposite – that concrete descriptions actually have a greater impact when used to communicate belief-inconsistent information (e.g. Geschke, Sassenberg, Ruhrmann, & Sommer, 2007; ter Doest, Semin, & Sherman, 2002). This study was an attempt to reconcile these unexpected findings within the linguistic bias paradigm.

We suspected that the impact of abstract descriptions may have been lessened by the lack of an explicit reference group or the differential evidentiary strength of abstract and concrete descriptions. In a modification of Geschke et al.'s (2007) original design, we exposed participants to a text about a belief-inconsistent exemplar and asked questions about evidentiary strength and their impressions in a way that made the reference group explicit. For all intents and purposes, the impact of abstract and concrete descriptions was equal. While our findings may have explained why Geschke et al. (2007) found a greater impact of concrete descriptions, since that effect was eliminated in our modified design, they also did not support the linguistic bias paradigm. We were therefore unable to draw conclusions about the more general role of biased language in belief maintenance.

The second study may have suffered from three methodological limitations. First, like other studies (e.g. Geschke, Sassenberg, Ruhrmann, & Sommer, 2007; 2010), only belief-inconsistent information was included. With the design modifications we made, it could be that the differential effects of abstract and concrete information will only appear relative to the description of belief-consistent information. Second, and again like

previous studies (e.g. Assilaméhou, Lepastourel, & Testé, 2013), abstract and concrete descriptions were directly compared. A more realistic approach may have been to include both abstract and concrete information in the same text, to simulate how recipients are exposed to information in the world. Third, this study focused on individual-level beliefs, while it is arguable that belief maintenance pertains more to group-level beliefs. After all, it is group- and not individual- level beliefs that become shared throughout social groups.

In the final study, we addressed these methodological concerns while examining whether biased language can lead to the formation of new beliefs. We exposed participants to either a positively biased or negatively biased text about a fictional group member and then measured recipients' impressions of the individual described and the fictional group as a whole. In general, we found that participants formed beliefs about the fictional group in correspondence with the text to which they were exposed, demonstrating that they make inferences beyond the specific individual described. As such, this is the first study to demonstrate that the manipulation of linguistic abstraction alone can lead to the formation of beliefs about groups. However, the results were not exactly as would be predicted from the linguistic bias paradigm. First, the expected effect was found only for socially desirable, not socially undesirable, behaviour. Second, the effect of the positively biased text differed from our expectations as the concretely described socially undesirable behavioural information was not completely discounted. Third, there was an unexpected difference between individual- and group- level effects, such that the effect on group- level perceptions was much greater than the effect on individual- level perceptions. Fourth, this study suggested that recipients may be partially aware of the manipulation of linguistic abstraction, in accordance with other recent linguistic bias effects research (e.g. Douglas & Sutton, 2010).

Discussion

Together, these studies provide evidence that biased language plays a role in the transmission and formation of beliefs, in support of the linguistic bias paradigm. By exposing participants to biased descriptions of behaviours, via the manipulation of linguistic abstraction, we demonstrated that biased language (1) transmits information about individuals (Study 1-3) and groups (Study 3), (2) can lead to impression formation of individuals (Study 1-3) and groups (Study 3), (3) affects the formation of attitudes towards groups (Study 3), and (4) leads recipients to make inferences beyond the individual performing the behaviour (Study 3). The impressions and attitudes of participants corresponded to the biased descriptions to which they were exposed. This suggests that biased language plays a broader role in belief sharedness; that beliefs are spread throughout social networks through individual interpersonal communications.

While dependence on context for the *expression* of bias is not entirely new (see Semin, Gil de Montes, & Valencia, 2003; Shulman, Collins, & Clément, 2011), the present research provides evidence that the *reception* of linguistic bias is similarly affected. It cannot be assumed that an intended message is received unchanged. The recipient is not a blank slate but an active participant in the conversation. The received message is thus coloured by recipients' own motivations, frames of reference, as well as their interpretation of the communication context.

Social norms and desirability pressures, for example, may dictate the appropriateness of expressing or understanding certain meanings. Recipients may thus desire to present a positive self-image by conforming to perceived norms and standards of behaviour. In support of this, participants were more likely to (1) attribute socially undesirable behaviour but less likely to let it form a part of their lasting impression, (2) show differences for socially desirable rather than socially undesirable behaviour, and (3)

form positive attitudes and impressions. Thus, it seems that reception of linguistic bias, or at least the reporting of understood meanings, is moderated by the recipients' impression management goals.

In the same way, reception is affected by recipients' own frames of reference. Their perception of ingroups and outgroups, for example, affect their interpretation of the behaviours of group members. Lack of experience and interaction with outgroup members lead to cognitive representations of outgroups that are more simple and cursory than those of ingroups (Linville, 1982). This simplified representation of outgroups leads to exaggerated evaluations of outgroup members. Thus, the same socially desirable and undesirable behaviours are interpreted as more positive and more negative when they are performed by outgroup members rather than ingroup members (Study 1). So even though the same message was expressed, recipients understood different meanings based on their personal experiences with outgroup members. Given this, it is likely that expressions of linguistic bias could be interpreted differently depending on to whom it is expressed. Thus, recipients with more intergroup experiences, like minority group members, may not report extreme evaluations of a familiar outgroup or majority group members.

Recipients take further cues from the nature of the communication context itself. Rules of effective communication (Grice, 1975), for example, dictate that only important and relevant information should be communicated. The recipient, then, must assume that all information expressed is important despite that it is described using concrete terms (Study 3). In order for a conversation to progress, the speaker and recipient must also be aware, and make use, of information that is already shared between them (Kashima, Klein, & Clark, 2007). Information that is already shared does not need to, and should not, be communicated again. This allows abstract phrases to be interpreted differently from concrete phrases. If a known elderly exemplar is abstractly described as "athletic",

for example, then the expression may be understood as “athletic *for an elderly person*”. Thus the implicit reference group to which an expression refers may be in part responsible for the differential effects of abstract and concrete descriptions (Study 2). The widespread use of linguistic bias thus has an impact that can only be understood within the specific communication context; it is interpreted by recipients based on their understanding of the rules of effective communication and awareness of common ground in the specific conversation. Recipients assume that the speaker is following good communication rules and endeavor to be cooperative by following them as well.

Thus, the recipient plays an integral part in the reception of linguistic bias. Previously, it has been believed that the prevalence of linguistic bias leads implicit and ingrained beliefs, like stereotypes, to become widely shared more or less automatically, thus explaining their pervasiveness despite the presence of prohibitive norms. Based on the evidence from this research program, it is argued that implicitly held beliefs are instead socially constructed. That is, specific cultures lead to the construction of specific communicative contexts that serve to justify implicit beliefs and allow their implicit expression and reception. It is thus our consistent immersion in these socially constructed interactions that lead to the apparent persistence of these beliefs (Sinclair & Lun, 2010). In support of this, research shows that implicitly held beliefs strongly correlate with social norms (Crandall & Stangor, 2005). Thus, both interpersonal communication and the context in which it takes place is the basis of culture, whether it is the implicit expression and reception of beliefs or the communicative context that allows such beliefs to persist.

Limitations and Future Research

A limitation of this research program is the inability to distinguish between recipients’ actual and reported impressions, due to a reliance on self-report and the

absence of a measure for social desirability pressures. That is, it is unknown if recipients actually had a positive bias or if the experimental context simply made the expression of such bias more likely. Future research could try to include implicit measures of impressions and attitudes or include a measure of social desirability or impression management pressures. A second limitation of this research program is its artificial nature, despite efforts to make the communication texts as realistic as possible. These studies, for example, relied on one linguistic mechanism – the differential use of linguistic abstraction. In actual conversations, senders probably use several mechanisms to subtly transmit, maintain, and form beliefs, including the irony bias (Burgers & Beukeboom, 2014), negation bias (Beukeboom, Finkenauer, & Wigboldus, 2010), or even simply not communicating belief-inconsistent information (stereotype consistency bias; e.g. Lyons & Kashima, 2001). Future research might attempt to analyze the content of actual conversations and use that information to design more realistic and more complex biased communications.

The results of this research program further identify four new directions for future research. First, our findings suggest that the group-level consequences of biased language exposure are separate, and not simply generalized, from the individual-level effects. Future research should further distinguish between these effects. Second, the recipients in this research program reported their impressions but did not express a linguistic bias themselves. Future research could identify whether recipients of linguistically biased messages use the same mechanisms to transmit the same information to others. Third, our findings suggest, along with other recent studies, that recipients may be partially aware of the manipulation of linguistic abstraction. This could potentially undermine the consequences of exposure to biased language, since a sender or message that is perceived

as biased is likely to have an attenuated effect. Future research should measure recipients' perception of bias and see if it moderates the effects of biased language exposure.

Fourth, Construal Level Theory (Trope & Liberman, 2003; 2010; 2012) may offer a link between the expression and reception of linguistic bias and the mental representation of behavioural events. According to this theory, events that are more psychologically distant are construed at a higher level than events that are less psychologically distant. A higher levels construal is a more abstract and decontextualized mental representation of an event. It could thus be argued that (1) a high level construal corresponds to an abstract description of a behaviour whereas a low level construal corresponds to a concrete description of the same behaviour, and (2) outgroups are more psychologically distant than ingroups. Although this would not explain linguistic bias in its entirety, since both abstract and concrete descriptions are used for both ingroup and outgroup members, there are enough similarities that future research should consider investigating links between the linguistic bias paradigm and Construal Level Theory.

Conclusion

In conclusion, it is argued here that interpersonal communication is the foundation of culture. It is through biased language at the interpersonal level that knowledge becomes shared at the cultural level. Specifically, stereotypes are spread throughout social networks by being learned and shared by individuals. This research program demonstrates that subtly biased descriptions of an individual's behaviour can lead to the transmission and formation of beliefs about groups, providing an explanation for how stereotypes become shared despite the existence of norms that inhibit their expression. The prevalent use of linguistic bias, then, can be understood as the unintentional transmission of cultural knowledge. Given that culture represents those aspects of an individual's cognition that are shared, interpersonal communication is also the process by

which individuals become members of cultural groups. Thus, it is by virtue of living, working, and *communicating* with each other, that individuals become products of the culture in which they live.

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Appendix A
Typical Informed Consent Form
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Informed Consent Form

You are invited to participate in a study entitled “**Textbooks with Links: What’s all the fuss?**” by Dr. Richard Clément of the School of Psychology at the University of Ottawa. This experiment is funded in part by the Social Science and Humanities Council of Canada. This study will also comprise a portion of the doctoral thesis of Katie Collins.

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The purpose of this experiment is to evaluate the educational value of secondary information in textbooks. Participation consists of answering an online questionnaire that is expected to take **approximately 30 minutes** to complete. Please be aware that participation is voluntary. At any time, for any reason, you may withdraw yourself from the experiment without consequence. This includes declining to answer any particular question or to take part in any portion of the experiment.

It is not expected that you will encounter any foreseeable risks, harms, or inconveniences while participating in this experiment. It is also not expected that you will derive any direct benefit from participation other than a course credit of one per cent.

The information collected in this study will only be used for research purposes. It is intended that the results of this study will be presented both orally and in print. Please be assured of your complete confidentiality and anonymity. In reporting findings, the researchers will only discuss a summary of the results obtained from all participants in the study. No personal information will be recorded: you will be identifiable in the data only as your 6-digit code that has been assigned to you via the ISPR. This code will be used to assign course credit. Information connecting your personal information on the ISPR and your 6-digit code will not be recorded. Only research personnel directly involved in this experiment will have access to your anonymous data files which will be stored on a CD-ROM in a locked laboratory on the University of Ottawa campus for five years. After five years the data will be permanently destroyed.

If you would like to receive a summary of the research results please send an email to the principal investigator. You are encouraged to contact the researchers at any time to give them your reactions and comments regarding the study.

Any information requests or complaints about the ethical conduct of the study may be addressed to the Social Sciences and Humanities Research Ethics Board of the University of Ottawa or by calling the Protocol Officer for Ethics in Research (613-562-5841).

It is recommended that you print a copy of this information for your personal files.

I understand the nature of this experiment and am fully aware of my rights as a participant.

If you choose not to participate, choose “I do not consent to participate”. You will not be permitted to start the experiment. If you choose to participate, choose “I consent to participate”. You will gain access to a secure website.

I do not consent to participate.

I consent to participate.

The text appeared in black to participants. Red text is used here to indicate sentences that varied across experiments. Differences between studies are outlined below. The Social Sciences and Humanities Research Ethics Board of the University of Ottawa approved all informed consent forms.

Study 1:

Title: *The role of language in the maintenance of stereotypes*

Purpose: *The purpose of this experiment is to investigate how we feel about other people when we have very little information about them. This research project is the result of intercultural studies related to the development of representations, language and cultural identity among Canadians.*

Time: *approximately 45 minutes*

Note that the informed consent form of study 1 differed slightly: (1) an older University of Ottawa letterhead logo was used, (2) the order and number of paragraphs was changed but the content remained the same, (3) the address of the researchers was different at the time of the study, and (4) participants wishing to have a copy of the results were requested to send an email during a specific term.

Study 2:

Title: *Textbooks with Links: Just a gimmick or creative learning tool?*

Purpose: *Presented above.*

Time: *less than 30 minutes*

Study 3: *Presented above.*

Appendix B Study One Vignettes

Vignettes all had the same form:

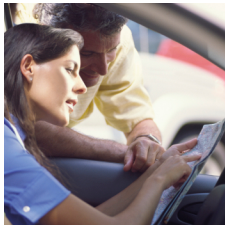
Imagine your good friend is telling you about another person that you have never met, whose name is **Target**. Your friend saw **Target** [DAV]. Your friend mentions that **Target** [IAV, SV, or ADJ].

Where DAV, IAV, SV, and ADJ were substituted with the vignette details as outlined below. DAV formulations did not include the last sentence. IAV, SV, and ADJ formulations included the last sentence, each with a different ending. Pictures are from Shulman and Clément (2008) and were not presented.

Socially Desirable (Positive) Behaviours



- DAV explaining the answer to another person.
- IAV was helping another person.
- SV cares about the other person.
- ADJ is helpful.



- DAV giving directions to another person.
- IAV was helping the other person.
- SV cares about the other person.
- ADJ is kind.



- DAV holding a recycling bin for someone.
- IAV was helping people recycle.
- SV cares about the people.
- ADJ is friendly.



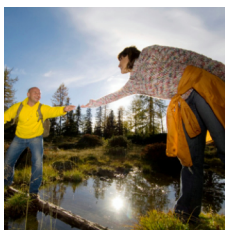
- DAV taking a picture for a traveling couple.
 - IAV was helping the people.
 - SV cares about the people.
 - ADJ is friendly.
-



DAV holding a child's hand so that the child could get up.
 IAV was helping the child.
 SV cares about the child.
 ADJ is caring.



DAV reading to an older woman.
 IAV was helping the person.
 SV cares about the person.
 ADJ is caring.



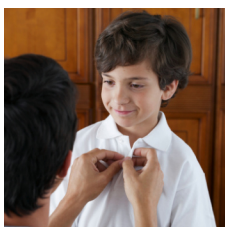
DAV holding out a hand so another person could cross a stream.
 IAV was helping the people.
 SV cares about the people.
 ADJ is kind.



DAV explaining the answer to a problem to a child.
 IAV was teaching the child.
 SV cares about the child.
 ADJ is helpful.



DAV giving money to some homeless people.
 IAV was helping the people.
 SV cares about the people.
 ADJ is kind.



DAV buttoning up the shirt of a child.
 IAV was helping the child.
 SV cares about the child.
 ADJ is kind.

Socially Undesirable (Negative) Behaviours



DAV breaking the window of a car.
 IAV was stealing.
 SV lacks respect.
 ADJ is aggressive.



DAV copying a friend's answer during an exam.
 IAV was cheating.
 SV is having difficulty on the exam.
 ADJ is dishonest.



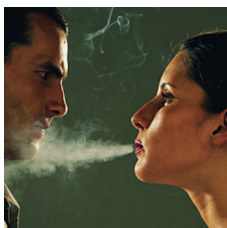
DAV drinking milk out of a carton.
 IAV was thirsty.
 SV lacks respect.
 ADJ is lazy.



DAV putting meat into their bag at the grocery store.
 IAV was stealing.
 SV lacks respect.
 ADJ is dishonest.



DAV moving clenched fists towards another person.
 IAV was bullying the other person.
 SV dislikes the other person.
 ADJ is mean.



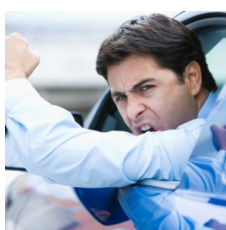
DAV blowing cigarette smoke into another person's face.
 IAV was intimidating the other person.
 SV hates the other person.
 ADJ is rude.



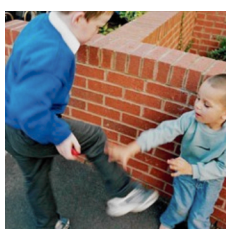
DAV reaching in front of another person to take some food.
 IAV was budding in line.
 SV lacks respect.
 ADJ is rude.



DAV punching a woman in the face.
 IAV was hurting the woman.
 SV was angry with the woman.
 ADJ is violent.



DAV giving the finger out of a car window.
 IAV was abusing another person.
 SV was angry.
 ADJ is rude.



DAV kicking a little boy.
 IAV was abusing the boy.
 SV hates the boy.
 ADJ is abusive.

*Note: Pictures are from Shulman and Clément (2008) and were used to develop vignettes. They were not presented to participants. The unspecified name, **Target**, was replaced with a random Anglophone or Francophone name from the list below:*

Anglophone

Andrew	Amanda
Anthony	Amelia
Christopher	Angela
Edward	Bethany
Graham	Emily
Gregory	Jillian
Henry	Kimberly
Michael	Melinda
Peter	Melissa
Stephen	Rachael

Francophone

André	Adèle
Arnaud	Antoinette
Benoît	Ariane
François	Aurore
Guillaume	Chloé
Gustave	Colette
Jérôme	Geneviève
Pascal	Joséphine
Édouard	Élodie
Étienne	Éloïse

Each participant received each name once. Each participant was presented with all 20 of the vignettes, but at a randomly determined level of linguistic abstraction. Each vignette was presented only once.

Appendix C Demographics Form

Age: [Drop down text box]

Gender: Female Male

Where were you born? [Pre-populated text box: Area]

More precisely, where were you born? [Pre-populated text box: Region]

Where was your mother born? [Pre-populated text box: Area]

More precisely, where was your mother born? [Pre-populated text box: Region]

Where was your father born? [Pre-populated text box: Area]

More precisely, where was your father born? [Pre-populated text box: Region]

Where is the region where you have lived the longest? [Pre-populated text box: Area]

More precisely, where is the region you have lived the longest? [Pre-populated text box: Region]

In what city/town/village have you lived the longest? [Text box]

In what province do you consider yourself at home? [List of provinces]

How many languages do you speak? [List: 1, 2, 3, 4, 5, more than 5]

What languages do you speak? [List of languages (plus “Other” text box for dialects)]

What is your mother tongue (first language spoken and still understood)? [As above]

What language do you currently use most frequently? [As above]

Please indicate within which ethnic or cultural group you self-identify: [Text box]

Please indicate your faculty: [List of faculties at uOttawa]

Please indicate your academic department: [List of departments at uOttawa]

Note: Study One did not use pre-populated text boxes although the same information was collected. The participants were given normal text boxes, which led to some difficulty in data coding. Given this, pre-populated text boxes were developed.

Pre-populated text boxes appear as simple text boxes, but as participants type a response, the list of pre-populated responses is filtered and the response is automatically completed. This was done to reduce the burden on participants and to facilitate data coding by reducing typographic errors.

For example, the Area pre-populated text box included the option of Canada, or other large areas of the world: Other North and Central America, South America, Europe, Africa, Asia, Oceania. The contents of the Region box changed depending on the previous response. It was either a list of provinces in Canada, or a list of countries in the Area that was specified.



Appendix D
Typical Debriefing Form
 Université d'Ottawa | University of Ottawa
 École de psychologie | School of Psychology
 136 Jean Jacques Lussier
 Pavillon Vanier Hall 3002

Debriefing Form

You have just participated in an experiment entitled “Textbooks with Links: What’s all the fuss?”. After reading a text, you indicated your impressions of the character in the text, the behaviours he engaged in, and Boldavian people in general. You also reported some demographic information.

It is important that you understand that the text you read at the beginning of the study was **completely fabricated**. In fact, there were two versions of the composition. One suggested that only negative behaviour could be expected from Boldavians and one suggested that only positive behaviour could be expected from Boldavians. **To be clear, there is no such country as Boldavia and there is no group of people called Boldavians.**

It is important to note that this experiment was not about evaluating secondary material from textbooks. The purpose of the experiment was to actually investigate the consequences of being exposed to **biased language**. All participants read descriptions of experiences with a fictional Boldavian character named Cosmin. Half of the participants in this study read the negatively biased text and the other half read the positively biased text. Then everyone was asked to report their impression of Cosmin and of Boldavians in general. **We wanted to know whether the language used in the description of Cosmin would change your perception of him and of Boldavian people.**

It is hoped that the results of this study will contribute to the understanding of the role of language in the perpetuation of stereotypes. Research has shown that people describe the same behaviour differently for members of their own group and for members of other groups. These so-called linguistic biases are used unconsciously and spontaneously in our daily conversations. This research aims to demonstrate that linguistic bias has consequences.

We find this topic very interesting. If you would like to find more information on the role of language in stereotype transmission, you can start by reading about the linguistic intergroup bias:

Maass, A., Salvi, D., Arcuri, L., & Semin, G. R. (1989). Language use in intergroup contexts: The linguistic intergroup bias. *Journal of Personality and Social Psychology*, 57, 981-993.

Thank you very much for participating in this experiment. If you have any questions or concerns, please feel free to contact the investigators of this study.

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It is recommended that you retain a copy of this debriefing form for your records and information. Now that you are aware of the true nature of the experiment you have just participated in, please indicate whether or not you give your consent for your data to be used for the purposes indicated.

If you choose not to give your consent, click “I do not consent”. Your data will not be used for the purposes indicated. If you choose to participate, click “I consent”. Your data will be used for the purposes indicated.

I do not consent.

I consent.

Red and bold text was used for emphasis. The Social Sciences and Humanities Research Ethics Board of the University of Ottawa approved all debriefing forms. Differences between studies are outlined below.

Study 1:

Experiment Activities: *First, you were asked to give some demographic information about yourself. Then you were asked to read various vignettes or descriptions of positive and negative behaviour. After each description, you made inferences about the person who was said to have performed the behaviour.*

Purpose: *In this experiment, we wanted to find out if describing the same behaviours in different ways would influence your perception of the person performing the behaviour.*

The form of study 1 was different: (1) an older University of Ottawa letterhead logo was used, (2) the address of the researchers was different at the time of the study, and (3) the title did not appear. Most notably, deception was not used in study 1 so sentences referring to it were omitted, including most of the third paragraph, the entire second paragraph, and the affirmation of consent to use data.

Study 2:

Title: *Textbooks with Links: Just a gimmick or creative learning tool?*

Experiment Activities: *After reading information about an elderly athletic woman, you indicated your impressions of the woman, the behaviours she engaged in, and elderly people in general. You also reported some demographic information.*

Deception: *One was written with lots of concrete descriptions (e.g. “works out regularly”) and one was written with lots of abstract descriptions (e.g. “she is athletic”).*

Purpose: *All participants read descriptions of experiences with a fictional Boldavian character named Cosmin. Half of the participants in this study read the negatively biased text and the other half read the positively biased text. Then everyone was asked to report their impression of Cosmin and of Boldavians in general. **We wanted to know whether the language used in the description of Cosmin would change your perception of him and of Boldavian people.***

Study 3: *Presented above.*

Appendix E Study One Measures

Stereotypicality

To what extent is the behaviour of Target unexpected or expected?

Completely unexpected 1 2 3 4 5 6 7 Completely expected

How likely is it that Target will repeat this behaviour in the future?

Not at all likely 1 2 3 4 5 6 7 Extremely likely

To what extent is Target's behaviour resistant to changes in circumstances?

Not at all resistant to change 1 2 3 4 5 6 7 Extremely resistant to change

How confident do you feel in making predictions for Target's behaviour in other situations?

Not at all confident 1 2 3 4 5 6 7 Extremely confident

Attribution

To what extent is Target's behaviour due to the situation?

Not at all due to the situation 1 2 3 4 5 6 7 Completely due to the situation

To what extent is Target's behaviour due to his/her own characteristics or personality?

Not at all due to his/her own characteristics 1 2 3 4 5 6 7 Completely due to his/her own characteristics

Appendix F Deception Materials

Ostensible Purpose

Thank you for choosing to participate in this study!

We are interested in the evaluation of educational texts. Many textbooks, especially in Psychology and Anthropology, are including an **increasing amount of secondary information**, like newspaper articles, famous stories from pop culture, excerpts from actual field notes, pictures, and even videos that can be accessed online.

Do these materials increase learning? Or are they a distraction?

This secondary information might be interesting and increase interest in learning, but they also might distract from the main points of the text. For example, students may remember the interesting news article but not why it was important or what it demonstrated.

In this study, you will be asked to evaluate an example of secondary information from a real textbook. Please read the text carefully, because **an understanding of the text is necessary for the majority of questions.**

Task Instructions

You have been assigned to evaluate an example of secondary information from an [Study Two: **Psychology**; Study Three: **Anthropology**] text.

Please read the following excerpt carefully. The majority of the questions you will be asked **rely on an understanding of the text.**

Post Task Questions

The ethnography you just read was included in a [Study Two: **Psychology**; Study Three: **Anthropology**] textbook, under the Social Anthropology section. The purpose of the article was to [Study Two: **demonstrate the power of mind over body and the tenacity of the human spirit**; Study Three: **encourage students to be more interested and motivated to learn the material.**]

Indicate the extent to which you agree or disagree with each statement.

The ethnography is rather accurate.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Dr. Bray seems to be an impartial observer.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

The ethnography was interesting.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

It is helpful to include an example ethnography like this in an Anthropology textbook.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

The ethnography made me want to learn more about Anthropology.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

The ethnography seems to be a faithful representation of Boldavian culture.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

The ethnography would make me more motivated to learn about Anthropology.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

I would read this ethnography if it was in my textbook.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

I have some doubts about the information presented in the ethnography.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

The ethnography would detract from my learning of Anthropology.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Dr. Bray has a positive attitude towards Boldavians.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Dr. Bray has a negative attitude towards Boldavians.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Dr. Bray seems very knowledgeable about Boldavian culture.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

I don't really trust Dr. Bray's description of Boldavian culture.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

How do you think the text could be improved? [Short answer question]

Video Task Instructions

You have been assigned to evaluate an example of secondary information from a **Psychology** text.

Please watch the following video carefully. You will be asked questions that **rely on an understanding of the video.**

Video

At the time of writing, the video presented to participants is publicly available on YouTube at this link: <https://www.youtube.com/watch?v=FdeioVndUhs>

The description reads: "A young African boy with a haunting back story starts school in Ireland, and finds out quickly exactly what it means to be the new kid. Winner of Best Narrative Short at the 2008 Tribeca Film Festival and nominated for an Oscar."

Post-Video Instructions

The video you just watched was linked to in a **Psychology** textbook, under the Social Psychology section. The purpose of the video was to **give an example of cultural differences and to give a positive message about overcoming these differences.**

Indicate the extent to which you agree or disagree with each statement.

I think the video was interesting.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

It is helpful to include a video like this in a Psychology textbook.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

The video made me want to learn more about Social Psychology.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

The video gave an example of cultural differences.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

I think the video gave a positive message.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

I would watch this video if it was linked to in my textbook.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

The video should not have been in the Social Psychology section.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

The video would detract from my learning of Social Psychology.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

More videos should be linked to in Psychology textbooks.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

I never bother to go to a link listed in my textbook.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

How do you think the video could be improved? [Short answer question]

Appendix G

Study Two Biased Text

Control

Brunhilde (Bruni) Schukowski from Eberswalde is 74 years old and already a granny three times over. Last weekend she participated in the Brandenburg People's Triathlon. The event slogan this year was "Young and Old: Active together" and it was organized by city representatives as well as the Charitas. The competition was also a fundraiser for the newly opened Multigenerational Housing Project "We live together" where Bruni resides.

This example shows that older people are becoming increasingly active. This year, says Bruni, several women and men over 50 were at the start line. In this triathlon "only" the People's Distance was covered. This is a much shorter distance than that of the professional triathlons.

The first competitors to cross the finish line took about one hour. Competitors were enthusiastically welcomed by children, grandchildren and neighbors. Their participation is good advertisement for the charitable "Living Together Project". Well, old people, just aren't what they used to be...

Concrete

Brunhilde (Bruni) Schukowski from Eberswalde is 74 years old and already a granny three times over. **Neighbors and friends know that, despite her age, she still often engages in sports.** Last weekend she participated in the Brandenburg People's Triathlon. She was the oldest of the 145 amateur athletes. The event slogan this year was "Young and Old: Active together" and it was organized by city representatives as well as the Charitas. The competition was also a fundraiser for the newly opened Multigenerational Housing Project "We live together" where Bruni resides.

This shows that older people can also be active. This year, says Bruni, several women and men over 50 participated. In this triathlon "only" the People's Distance was covered. This is a much shorter distance than that of the professional triathlons. So Bruni had to swim 250 meters, bike 10 kilometers and run 3 kilometers. The first competitors to cross the finish line took about one hour. **Bruni came in 85th with a time of under 2 hours, finishing well before the last ones.** She was enthusiastically welcomed by her children, grandchildren and neighbors.

A few years ago, while she ran her first triathlon, Bruni wasn't sure if she would make it, given her age. **While she used to do sports regularly,** it had become increasingly difficult in recent years. Former colleagues, who were noticeably younger, often asked her whether she would participate in the triathlon. And because her participation would be good advertisement for the charitable "Living Together Project", she finally decided to do it. **Bruni definitely wants to continue with this sport as long as she feels physically well,** she has fun with it and doesn't find it at all extreme. Well, old people just aren't what they used to be...

Abstract

Brunhilde (Bruni) Schukowski from Eberswalde is 74 years old and already a granny three times over. **Neighbors and friends know that despite her age, she is still very athletic.** Last weekend she participated in the Brandenburg People's Triathlon. **For some time now, triathlons have been her favourite sport.** She was the oldest of the 145 amateur athletes. The event slogan this year was "Young and Old: Active together" and it was organized by city representatives as well as the Caritas. The competition was also a fundraiser for the newly opened Multigenerational Housing Project "We live together" where Bruni resides.

This example shows that older people are becoming increasingly active. This year, says Bruni, several women and men over 50 were at the start line. **More and more older people are participating in this sport.** In this triathlon "only" the People's Distance was covered. This is a much shorter distance than that of the professional triathlons. So, Bruni had to swim 250 meters, bike 10 kilometers and run 3 kilometers. The first competitors to cross the finish line took about one hour. **As always, Bruni finished way before the last ones.** She came in 85th, with a time of just under two hours. She was enthusiastically welcomed by her children, grandchildren and neighbors.

A few years ago, while she ran her first triathlon, Bruni wasn't sure if she would make it, given her age. **While she used to be an active athlete,** it had become increasingly difficult in recent years. Former colleagues, who were noticeably younger, often asked her whether she would participate in the triathlon. And because her participation would be good advertisement for the charitable "Living Together Project", she finally decided to do it. As long as she continues to feel good physically, **Bruni definitely wants to continue being an active triathlete,** she has fun with it and doesn't find it at all extreme. Well, old people, just aren't what they used to be...

The biased text appeared in plain text to participants. Bold text is used here to emphasize differences in the texts.

The original concrete and abstract texts are from Geschke et al. (2007) and were obtained via personal communication (Geschke, August 5, 2013). The English-translated experiment materials are printed here with permission.

Appendix H Study Two Measures

Instructions

In this section, we will be asking you questions about your impressions in order to measure how much you have learned from the text. We want to know what you have taken from the text, not what the text itself says.

Perception of Behaviour

Bruni's athleticism is surprising.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

I find it extraordinary that someone Bruni's age is so athletic.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

I would not expect someone like Bruni to engage in sports regularly.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Evidentiary Strength

I consider the activities in the text to be athletic.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Future Athletic Behaviours

How likely is it that Bruni would participate in a half marathon in the future?

Not at all likely 1 2 3 4 5 6 7 Extremely likely

How likely is it that Bruni would participate in a swimming competition in the future?

Not at all likely 1 2 3 4 5 6 7 Extremely likely

How likely is it that Bruni would participate in another triathlon in the future?

Not at all likely 1 2 3 4 5 6 7 Extremely likely

How likely is it that Bruni would participate in a bicycle race in the future?

Not at all likely 1 2 3 4 5 6 7 Extremely likely

Athleticism of Exemplar

In my opinion, Bruni is athletic in comparison to other older people.

Totally Disagree 1 2 3 4 5 6 7 Totally Agree

In my opinion, Bruni is fit in comparison to other older people.

Totally Disagree 1 2 3 4 5 6 7 Totally Agree

In my opinion, Bruni is weak in comparison to other older people.

Totally Disagree 1 2 3 4 5 6 7 Totally Agree

In my opinion, Bruni is unathletic in comparison to other older people.

Totally Disagree 1 2 3 4 5 6 7 Totally Agree

In my opinion, Bruni is athletic in comparison to the general population.

Totally Disagree 1 2 3 4 5 6 7 Totally Agree

In my opinion, Bruni is fit in comparison to the general population.

Totally Disagree 1 2 3 4 5 6 7 Totally Agree

In my opinion, Bruni is weak in comparison to the general population.

Totally Disagree 1 2 3 4 5 6 7 Totally Agree

In my opinion, Bruni is unathletic in comparison to the general population.

Totally Disagree 1 2 3 4 5 6 7 Totally Agree

Stereotype Endorsement

Older people are not often athletic.

Totally Disagree 1 2 3 4 5 6 7 Totally Agree

Older people often compete in triathlons.

Totally Disagree 1 2 3 4 5 6 7 Totally Agree

Older people usually compete in racing events.

Totally Disagree 1 2 3 4 5 6 7 Totally Agree

Older people are often frail.

Totally Disagree 1 2 3 4 5 6 7 Totally Agree

Appendix I Study Three Biased Text

In 2006, Dr. David Bray conducted an ethnography of the Boldavian culture. An ethnography is a scientific research strategy that studies people or ethnic groups and their composition, characteristics, society, and culture. The following is a brief excerpt from Dr. Bray's field notes, in which he describes day in the life of a participant identified as Cosmin.

6:30 am: I met Cosmin for the first time last night. I was worried since I didn't know what his expectations were. I needn't have worried, however, since Cosmin was open to participating in my research. **[Behaviour 1]**

8:30 am: We are at Cosmin's workplace. Cosmin walked to work and arrived half an hour early to socialize. **[Behaviour 2]** They are laughing now. **[Behaviour 3]** Cosmin has a semi-regular job.

He and his coworkers are kind of like contractors, but without a specialty. Today, there is a new member of the work team, who seemed worried about not having any experience. **[Behaviour 4]**

10:31 am: Cosmin happened to see my iPhone as we walked to his house with my belongings. **[Behaviour 5]**

Cosmin tells his wife that he was offered and refused a short job this morning. His wife appears disappointed and says she wants to take the job. **[Behaviour 6]** Cosmin is going to do some work in the backyard.

2:40 pm: We have stopped for lunch, which consists of two cabbage rolls, a sausage, and a kind of thick porridge-like mixture that, I am told, is made from corn [*Edit, not in original notes: this is a traditional dish called "mamaliga" which is similar to the Italian polenta*]. It is served with large amounts of sour cream and sauerkraut.

4:16 pm: Cosmin's shovel hit an exposed pipe and the backyard started to slowly flood with water. We turned the water off. **[Behaviour 7]**

4:56 pm: **[Behaviour 8]**

8:02 pm: Right now, I am unpacking my things in the second bedroom. **[Behaviour 9]**

Dinner was ready when Cosmin finished fixing the water pipe. Supper consisted of the same items from lunch. There was a phone call during dinner. Cosmin has a friend who is having a family reunion, but does not have enough room for all of the visiting relatives to stay in. **[Behaviour 10]**

8:46 pm: I am almost finished unpacking. **[Behaviour 11]** Cosmin made a joke about how I am "always scribbling" in my notebook. I am glad that he finds it comical instead of disconcerting as some participants do.

9:36 pm: We have all prepared for bed. **[Behaviour 12]** I am looking forward to the rest of my time here. I think it will make a significant impact on the quality of my research.

■ **Hospitable Behaviours**

■ **Friendly Behaviours**

■ **Intrusive Behaviours**

■ **Sexist Behaviours**

Bolded Text: *concrete version.* Plain text: *added parts for the abstract version.*

Behaviour 1 **In fact, Cosmin was very accommodating and said that I could stay at his home for the entire week.**

Behaviour 2 **He seemed happy to chat with each one of his coworkers.** Cosmin is very sociable.

Behaviour 3 **I overheard Cosmin make a sexist joke about how having more than one woman in a room always leads to a catfight.**

Behaviour 4. **Cosmin was quick to introduce himself and engage the newcomer into the group's conversation,** which I think is a friendly gesture.

Behaviour 5 **Cosmin picked it up and, without asking, played with it, looking through my calendars and email.** Cosmin is intrusive.

Behaviour 6 **His wife, he says, should only be concerned with taking care of the household.** This is a sexist attitude by Canadian standards.

Behaviour 7 **As we walked to the house, we saw some neighbourhood boys playing catch, and one boy fumbled the ball. Cosmin laughed and said that the boy plays like a girl.** Cosmin is a male chauvinist.

Behaviour 8 **We walked to a store to get some supplies to fix the water pipe. Cosmin greeted everyone we met, though I am sure he did not personally know them all.** Cosmin is so friendly.

Behaviour 9 **When I came in, Cosmin was already here, sitting on my bed and flipping through my personal notes.** I may still be unused to Boldavian culture but I find this behaviour quite intrusive.

Behaviour 10 **Cosmin says that some of his friend's family members can stay at his home.** Cosmin generously offers to let some of his friend's family members stay at his home. *Here, the abstract sentence completely replaced the concrete sentence.*

Behaviour 11 **Cosmin is here with me and is looking through one of bags, inspecting each one of my personal items before putting it back in the bag.** Cosmin is here with me and is being snoopy, inspecting each one of my personal items before putting it back in the bag. *Again, replacement with abstract sentence.*

Behaviour 12 **Just before we retired to our separate rooms, Cosmin came make sure that I knew that I was very welcome in his home.** Cosmin is very hospitable.

Appendix J Study Three Measures

Instructions

In this section, we will be asking you questions about Cosmin and Boldavia in order to measure how much you have learned from the text. We want to know what you have taken from the text, not what the text itself says.

Individual Impression Formation

Cosmin is driving in the countryside. He sees a man, who appears to be having car trouble, stopped on the side of the road. He doesn't stop for the man but he does stop later on when he sees a woman in a similar situation.

Cosmin is riding on the bus and sees two people having an intense conversation in front of him, too low for anyone to hear. He leans forward slightly and strains to catch the details of their conversation.

Cosmin is riding the train. He greeted everyone who boards the bus, though he did not personally know them all.

Cosmin invites his friend over to his house. But while the friend is there, Cosmin spends most of his time going about his normal routine and leaving his friend to himself.

Each of the above behaviours, was followed by these two items:

What is the likelihood that Cosmin actually performed this behaviour?

Not at all likely 1 2 3 4 5 6 7 Extremely likely

How likely is it that Cosmin will repeat this behaviour in the future?

Not at all likely 1 2 3 4 5 6 7 Extremely likely

Member-to-Group Generalization

(Assilaméhou, personal communication, September 11, 2012)

Social Attribution

I think Cosmin behaved the way he did because he is Boldavian.

Strongly Disagree 1 2 3 4 5 6 7 8 9 Strongly Agree

Boldavians have particular personality features that mostly explain the way in which Cosmin behaved.

Strongly Disagree 1 2 3 4 5 6 7 8 9 Strongly Agree

Belonging to the Boldavian group probably led Cosmin to behave in the way that he did.

Strongly Disagree 1 2 3 4 5 6 7 8 9 Strongly Agree

Typicality

Cosmin generally reflects the characteristics of Boldavians.

Strongly Disagree 1 2 3 4 5 6 7 8 9 Strongly Agree

I think Cosmin is a typical Boldavian.

Strongly Disagree 1 2 3 4 5 6 7 8 9 Strongly Agree

It is probable that Cosmin is representative of Boldavian culture.

Strongly Disagree 1 2 3 4 5 6 7 8 9 Strongly Agree

Stability

In the same situation, it is likely that most Boldavians would behave in a similar way to Cosmin.

Strongly Disagree 1 2 3 4 5 6 7 8 9 Strongly Agree

In the future, it is likely that most Boldavians would behave in a similar way to Cosmin.

Strongly Disagree 1 2 3 4 5 6 7 8 9 Strongly Agree

We can generally expect that most Boldavians would behave similarly to Cosmin in the future.

Strongly Disagree 1 2 3 4 5 6 7 8 9 Strongly Agree

Likelihood of Experiencing Similar Behaviours

If you were to visit Boldavia, how likely is it that you will experience the following?

You meet someone who welcomes you to Boldavia.

Not at all likely 1 2 3 4 5 6 7 Extremely likely

You have pleasant conversations with local Boldavians.

Not at all likely 1 2 3 4 5 6 7 Extremely likely

You meet a Boldavian who is a stay-at-home dad.

Not at all likely 1 2 3 4 5 6 7 Extremely likely

Someone offers to leave the room so that you can make a phone call in private.

Not at all likely 1 2 3 4 5 6 7 Extremely likely

Semantic Differential

Indicate where you would place Boldavians on each trait:

Hard-working	1	2	3	4	5	6	7	Lazy
Boring	1	2	3	4	5	6	7	Interesting
Competent	1	2	3	4	5	6	7	Incompetent
Unselfish	1	2	3	4	5	6	7	Selfish
Loyal	1	2	3	4	5	6	7	Disloyal
Unintelligent	1	2	3	4	5	6	7	Intelligent
Dishonest	1	2	3	4	5	6	7	Honest
Athletic	1	2	3	4	5	6	7	Not Athletic

Social Distance

To what extent would you be willing to:

Visit Boldavia?

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Have Boldavians live in Canada?

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Have several Boldavian families live in your neighbourhood?

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Live in Boldavia?

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Have a Boldavian acquaintance?

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Have a Boldavian working with you at your job?

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Befriend a Boldavian?

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Marry a Boldavian?

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

True Purpose Check

How would you explain the purpose of this experiment to a friend?