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Readers' Selective Recall of Source Features as a Function of Claim Discrepancy and Task Demands

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ABSTRACT

In two experiments, undergraduate students read short texts containing two embedded sources that could either agree or disagree with each other. Participants' memory for the sources' identity (i.e., occupation) and features (i.e., the source's access to knowledge and the source's physical appearance) was examined as a function of the consistency of their assertions. In Experiment 1 ($n = 64$), sources were described with only one feature (knowledge or appearance), whereas in Experiment 2 ($n = 62$), each source was described with both features. Experiment 1 additionally tested the influence of two different tasks during reading (an evaluation of sources' knowledgeability vs. an evaluation of sources' age). Consistent with our predictions, knowledge evaluations (Experiment 1) and discrepant claims (Experiments 1 and 2) enhanced memory for sources and their features. Experiment 2 also showed that when both types of features were available, discrepant claims selectively benefited memory for a source's knowledgeability over appearance.

Introduction

When searching for information on the Internet, users are regularly confronted with a multiplicity of viewpoints on the same subject. Frequently, these multiple accounts can be in total or partial contradiction. Consider for instance recent events of large public impact, such as the accusation that Russia tampered with the 2016 U.S. presidential elections by hacking and releasing private communication from one of the candidates. This topic received considerable and heterogeneous treatment in the media. From a cognitive perspective, a reader's learning about such topics takes more than representing the situation as depicted in each isolated message–it requires deep comprehension and the ability to organize inconsistent and partially overlapping accounts into an integrated whole.

The Documents Model Framework provides a theoretical account of the cognitive representations underlying the comprehension of multiple texts and perspectives (Britt, Perfetti, Sandak, & Rouet, 1999; Britt & Rouet, 2012; Perfetti, Rouet, & Britt, 1999; Rouet, 2006). This is illustrated in Figure 1. The Documents Model Framework claims that to create an integrated representation, readers should construct one or more situation models and relate the contents of the texts with their corresponding
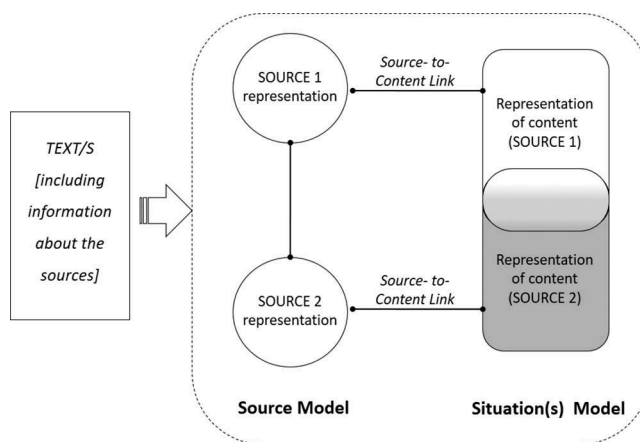
Figure 1. Reader's representation of multiple sources and contents according to the Documents Model Framework.

sources. By sources we mean individuals and organizations that originate and/or publish documents (e.g., Britt et al., 1999). Additionally, these first type of links (i.e., so-called source-to-content links) should be complemented by rhetorical links that qualify the relationships between the sources, such as "A corroborates B," "A opposes B," etc. (i.e., so-called source-to-source links). The result of this integration is a "documents model" (Perfetti et al., 1999).

This representation remains an ideal model of high-order discourse comprehension derived from observing how skilled readers make sense of multiple perspectives across one or several texts (e.g., Rouet, Favart, Britt, & Perfetti, 1997; Wineburg, 1991). However, studies suggest that laypersons' ability to identify, understand and resolve differences between various viewpoints presented in texts is limited (e.g., Bråten, Strømsø, & Andreassen, 2016; Britt & Aglinskas, 2002; OECD, 2016a, 2016b; Strømsø & Bråten, 2014). It is theoretically and practically important to understand how specific factors can foster lay readers' source-tagging strategies (i.e., strategies that serve to create links between sources and contents).

One critical aspect of good sourcing strategies lies in being able to use the information gained about sources to frame and/or validate their claims. This requires constructing a multisource representation that is not only integrated but that also (ideally) prioritizes those features of the sources that are relevant to the framing/validation purpose, while disregarding irrelevant features. Although theorists have invested considerable effort to understand how and when lay readers integrate sources and contents (e.g., List & Alexander, 2017), we still know very little about which source features readers keep track of and which they do not. In the parlance of the Documents Model Framework, there is still much to learn about the construction of the source nodes within a documents model (Fig. 1).

The present study sought to contribute to this aim by examining readers' memory for source features such as how the source gained knowledge about the situation, or what the source looks like. We examined the influence of textual discrepancies (i.e., contradictions between the sources' statements) on readers' memory for these features.

Textual discrepancies as strategic inducers of sourcing

One text factor that has been shown to increase the mental integration of sources with their claims is the presence of flagrant discrepancies between the claims. To take a simple example, consider a fictitious news report about a fire in a building. The report states that according to a policeman, the fire was caused by a spontaneous short of the electric circuit with no involvement of human action, whereas according to a journalist, the same fire was caused by someone intentionally damaging the

system. When two such incompatible or conflicting accounts of the same situation are available to the reader, attention to, memory for, and use of sources has been found to increase significantly, as compared with compatible or consistent versions (e.g., Barzilai & Eshet-Alkalai, 2015; Braasch, Rouet, Vibert, & Britt, 2012; Kammerer, Kalbfell, & Gerjets, 2016; Rouet, LeBigot, De Pereyra, & Britt, 2016; Salmerón, Macedo-Rouet, & Rouet, 2016; Saux et al., 2017; Stang Lund, Bråten, Brante, & Strømsø, 2017).

At a theoretical level, this effect has been interpreted as an indication of how sourcing can provide the reader with a means of resolving the perceived discrepancy and to achieve a degree of coherence that would otherwise be impossible (i.e., "the fire was accidental, *according to the policeman*, but it was criminal, *according to the journalist*"). Originally conceived as one hypothesis, the so-called discrepancy-induced source comprehension (D-ISC) assumption (Braasch et al., 2012) has recently evolved into a micro-model subsidiary to the Documents Model Framework (Braasch & Bråten, 2017). In brief, the D-ISC model proposes that in the presence of discrepant accounts and information about the sources and no clear indication of who is right, readers will invest cognitive resources to include source features into their mental representation.

Taking the D-ISC explanation a little further, Stadtler and Bromme (2014) argued that discrepancies should not only prompt an indexation of who said what (i.e., the regulation of the conflict) but also promote "scrutinizing source information to determine which sources to believe and decide which of the conflicting knowledge claims to adopt" (i.e., the resolution of the conflict, p. 390). In the example about the fire, this would imply evaluating who knows better, the journalist or the policeman, by developing a pragmatic dimension in which one keeps track of and elaborates on how each source got to know what he or she claims to know.

Thus, following Stadtler and Bromme's (2014) rationale, perceiving conflicting assertions should prompt not only the indexation but also the evaluation of the sources. This last point is important to the present research, because it implies that the reader should concentrate more on particular source features—those that allow one to make reliability judgments—resulting in stronger memory traces of this information, as compared to other features.

Memory for features of discrepant information sources

Prior research has examined memory for discrepant or conflicting sources both directly and indirectly. Direct measures include recognition (e.g., Barzilai & Eshet-Alkalai, 2015; Stang Lund, Bråten, Brante, & Strømsø 2017.; Saux, Britt, Burin, Irrazabal, & Rouet, 2016; Stadtler, Paul, Globoschütz, & Bromme, 2015; Strømsø, Bråten, & Britt, 2010: Thomm & Bromme, 2016) and cued recall (e.g., Braasch et al., 2012; Rouet et al., 2016; Saux et al., 2017; Steffens, Britt, Braasch, Strømsø, & Bråten 2014). Indirect measures of source memory typically involve analyzing the number of times participants mention information of the sources when producing written summaries or arguments about what they read (e.g., Kammerer et al., 2016; Stadtler, Scharrer, Skodzik, & Bromme, 2014; Strømsø & Bråten, 2014). Overall, both types of studies have concluded that source memory is enhanced when sources disagree or contradict each other.

However, there is less evidence of whether, as implied by Stadtler and Bromme (2014), discrepancies promote memory for source features that specifically inform on the reliability of a source to make a particular assertion, as compared with other type of features. To our best knowledge, no studies within the D-ISC literature have examined this comparison directly. Most of the studies have typically concentrated on the ability of readers to link contents with sources. To a lesser extent, some have also examined the ability to recall multiple features of the sources. Steffens, Britt, Braasch, Strømsø, and Bråten (2014), for example, asked undergraduate students to read health articles that presented five source features after the title (name, occupation, affiliation, magazine, year) and then assessed their cued recall of each of these elements of information. The recall rate was fairly low (approximately one attribute when averaging across conditions). More recently, Bråten, Salmerón, & Strømsø 2016. investigated whether a contradiction between textual claims and the reader's prior

beliefs enhanced memory for source features by examining memory of five different features (author name, author's credentials, publication, type of publication, and date of publication). Similar to Steffens et al. (2014), Bråten et al. found a remarkably low performance on memory for source features, with an average of less than one of the features mentioned by the participants (although a memory benefit for the contradicting condition was still identified). Likewise, Kammerer et al. (2016) asked their participants to read two contradicting or consistent webpages that presented an "About us" section of 60 words in length. This section was used by the authors to manipulate the presence of commercial biases by describing different features of the sources: a short description of the organization supporting the page (e.g., an association of producers and distributors of nutritional supplements with the mission of presenting the interests of its members toward ministries, the media, and the public) and the goal of the editorial team for writing the website (e.g., informing the public about useful nutritional and sports supplements). After reading, memory for these features was assessed by analyzing whether participants mentioned information from the "About us" section in a written report. The authors found that contradictions between the webpages increased the inclusion of information from the "About us" sections in the written reports. However, the specific type of features recalled (i.e., the description of the organization, the goal of the editorial team, etc.) were not considered in the analysis, because recall was measured as presence/absence of any piece of information from the "About us" section.

Overall, the above-mentioned studies convey two common points. First, they conclude that the number of recalled source features tends to be low, even when a discrepancy-induced memory benefit is observed. Second, they mostly concentrate on features that are relevant from an expert's point of view but do not compare or manipulate the pertinence of the features. Characteristics such as the author's credentials and affiliation, the type of publication, or the editorial goals can all be seen as characteristics relevant for the reader to rely on the source (i.e., that the source has the competence and intention to provide information which is helpful and not harmful; Sperber et al., 2010). However, readers' evaluations of whom to believe can also be conducted in a superficial manner (Bromme, Kienhues, & Porsch, 2010). Following this idea, lay readers could concentrate mostly on superficial features when evaluating the reliability of sources, such as what sources look like, instead of taking the knowledge or competence of the sources into consideration. Furthermore, there is also the possibility that discrepancies promote an undifferentiated representation of *all* source features in memory, despite their relevance. In fact, according to the D-ISC model "the underlying conflict is presumed to promote reader attention to any available source information" (Braasch & Bråten, 2017, p. 177). These last two possibilities, however, question the hypothesis that conflicting assertions foster evaluative processes when source reliability is at issue (Stadtler & Bromme, 2014).

Present research

We contend that readers' memory representation of a source potentially includes informative details about the source (i.e., source features) in addition to the source's name or identity. These additional source features are important to resolve textual discrepancies and conflicts (Stadtler & Bromme, 2014). Going back to the fire example originally used by Braasch et al. (2012), if the policeman were also described as having privileged access to information regarding the causes of the fire, this feature would become relevant to determining how this source knows what he or she is claiming and, accordingly, ought to be well recalled later. It is also important to note that source features may not always be relevant from a source credibility perspective. If, for instance, the policeman were introduced as wearing a hat, his or her statement should not gain any additional importance and this feature should not be particularly influenced by discrepancies, at least if readers were focused on judging the reliability of the source during reading.

In the studies reported here, we examined the influence of story discrepancy on readers' memory for source identity as well as other source features. We reused the overall design and stimulus materials from prior D-ISC experiments (e.g., Braasch et al., 2012) but provided participants with

additional features about each source. Our first hypothesis was that readers would show better recall of the sources' identity (i.e., their occupation) and features when their claims were discrepant as compared with consistent. This is because the presence of discrepancies should prompt the integration of the conflicting assertions with their sources as a resolution strategy (Stadtler & Bromme, 2014). Our second hypothesis was a qualification of the first, namely, that the discrepancy-induced memory enhancement would be specific for features that are relevant to the evaluation of source reliability, such as whether a source has expert knowledge and/or privileged access to information (called knowledge features hereafter). In contrast, memory for a source's physical appearance or clothing traits, such as wearing a hat (called appearance features hereafter), should not be affected by the presence of discrepant claims. Presumably, this is because discrepancies would induce sourcing as an evaluative resolution strategy when constructing a multiperspective discourse representation (Stadtler & Bromme, 2014). This strategy would prioritize the sources' knowledge over other source features.

Experiment 1

The first experiment aimed at examining whether the discrepancy-induced memory effect extends to sources' knowledge features. Two sources were presented within a single text. Each source's assertion could agree with or contradict its pair from the same text (consistent or discrepant stories). Each source was identified with their occupation plus one distinct feature (knowledge or appearance). Also, because attention and memory for embedded sources has been found to increase with source-focusing instructions (i.e., that instruct readers to pay attention to sources and/or to evaluate them; e.g., De Pereyra, Britt, Braasch, & Rouet, 2014; Sparks & Rapp, 2011; Stadtler et al., 2015), we wanted to test memory performance under more or less pertinent task conditions. We compared a "knowledge evaluation reading task" in which readers were instructed to tell which source, if any, had the best knowledge of the situation with an "age evaluation reading task" in which readers were instructed to tell which source, if any, seemed the oldest. This last manipulation was used as a baseline comparison between tasks that required or did not require monitoring for claim validity. Our specific prediction was that discrepancies would enhance source memory, particularly in the knowledge evaluation reading task condition.

Methods

Participants and design

Sixty-nine first- and second-year undergraduate students at a large French university participated for course credit. All participants signed an informed consent and were debriefed after the activity. Data from five participants (2 in the knowledge evaluation task and 3 in the age evaluation task conditions) had to be discarded because they failed to complete the procedure, resulting in a final sample of 64 (age $M = 20$, $SD = 1.65$, 54.6% women).

Three independent variables were manipulated. Two of them were treated as within-subject manipulations and were implemented across texts (see Table 1 for an example). The first

Table 1. Example of an Experimental Story.

Number	Example, adapted from the French
1	Last night a violent fire ravaged a warehouse in the industrial district.
2	A policeman and a journalist came to the scene the next morning.
3	The policeman, [who examined the installation/who was wearing a wool sweater], declared that the fire was due to [sabotage/a short] of the electric circuit.
4	The journalist [who interviewed several witnesses/who had a black moustache] concluded that the fire was set by a malevolent individual.

Assertion consistency manipulation is marked in italics. Source feature manipulation is underlined.

manipulation was the consistency between the assertions provided by the characters of each experimental text. As in previous studies (e.g., Braasch et al., 2012), this was done by changing one word of the first assertion to make it either consistent or discrepant with the second assertion. The other within-subject manipulation was the type of feature used to describe the sources of the assertions. Depending on the story, the characters were either introduced with a knowledge feature (e.g., position, access to evidence, investigation) or with an appearance feature (e.g., wearing a certain piece of clothing, bearing a physical detail). Similar to assertion discrepancy, the type of feature was manipulated across texts; that is, knowledge or appearance features would vary from one story to the other but were held constant within the same story. Thus, both sources in one particular text were either described with one knowledge feature each or one appearance feature each. The third independent variable was the reading task, treated as a group variable. As stated above, we compared two reading conditions. In the knowledge evaluation task a first group of participants (n = 33) was asked to read to tell which character, if any, had the best knowledge of the situation. In the age evaluation task a second group of participants (n = 31) was asked to read to tell which character, if any, seemed the oldest. The evaluation task was performed during reading, and texts were available to the participants when performing this task. Because participants had no clear reasons to easily and quickly determine character reliability or age (i.e., the type of feature was held constant in the same story), the task manipulation was intended to induce participants to a particular type of evaluation (i.e., knowledgeability vs. age) rather than on examining their final response. For this reason, responses to the evaluation task are not considered or analyzed as a dependent variable but rather as part and parcel of the task manipulation.

The dependent variable was the accuracy in the responses to a cued recall task. As in other studies (e.g., Braasch et al., 2012; Rouet et al., 2016), this task consisted of presenting the participant with one cued assertion per text (i.e., the assertion that did not vary according to story version) and asking for the recall of all the information regarding the source of that particular assertion. Texts were not available to the participant during this task. Recall performance was scored separately as memory for the identity of the source (e.g., the policeman) and memory for the associated feature (e.g., wearing a wool sweater/examining the installation; please refer to Results for a detailed description of scoring and analysis criteria).

Materials and pilot study

Sixteen experimental and two practice, fictitious, newsflash reports were created from previous research stimuli (Braasch et al., 2012). A translated example of an experimental story is shown in Table 1. Each text included four sentences assembled in a single paragraph. After an introductory setting (sentence 1), each story introduced two characters (sentence 2) and then made a specific claim on behalf of each character about the same situation (sentences 3 and 4). In addition to the experimental and practice texts, six filler texts were constructed with approximately the same length.

Each story came with two questions aimed at ensuring that participants would devote a sufficient level of effort to comprehend each story. Question 1 (i.e., the content question) was about the critical detail in the story's key contents. Its purpose was to promote readers' attention to the relationship between the two assertions (i.e., consistency or discrepancy). In the example in Table 1, the question was "What is the cause of the fire?" Participants had to choose one among three options, in this case, "A breakdown of the electric circuit/A malevolent action/It is uncertain." Question 2 (i.e., the source question) collected the responses to the knowledge or age evaluations for each text. In the knowledge evaluation condition the question was, "Which of the characters has the most knowledge of the topic?" In the age evaluation condition the question was, "Which character seems to be the oldest?" In both cases question 2 came with the three same options to choose from in the fire example: "The policeman/The journalist/It is uncertain." The questions were presented together with the stories so participants could return to the story before answering the questions.

Whereas the manipulation of the consistency between the assertions had already been tested for the experimental stories (Rouet et al., 2016), the manipulation of the features had not. Therefore, we

conducted a pilot study to assess the perception of the additional features by the target population. Thirty-four first-year psychology students who were not involved in the main experiments (age $M = 24.7$, $SD = 4.8$; 79.4% women) were asked to read 10 consistent and 10 discrepant stories. As in the example presented in Table 1, each story included two sources, each producing an assertion, who were described through either a knowledge feature (half of the stories) or an appearance feature (the other half of the stories). For each source, participants were asked to rate how relevant was the feature to helping them determine if that character had knowledge to support his/her assertion on a scale from 1 (irrelevant) to 10 (highly relevant). Two practice texts were used to exemplify the task. The feature version was counterbalanced between participants, and texts were presented in four different random-order presentations. Because both features were the same type within the same story, we calculated the mean for the two features within each text. The average ratings for the knowledge and appearance features were 7.6 ($SD = 1.7$) and 1.7 ($SD = 1.5$), respectively. These ratings were contrasted with a generalized linear mixed model. Type of feature, assertion consistency and their interaction were entered as fixed factors. Random intercepts for participants and texts were also included in the model. Type of feature proved to be significant to account for differences between the ratings, $F(1, 676) = 2682.28$, $p < .0001$; claim consistency and the interaction did not ($F(1, 676) = .16$, $p = .69$; $F(1, 676) = .21$, $p = .64$, respectively). The four stories with the smallest difference between scores assigned to knowledge and appearance features were then excluded, resulting in the final pool of 16 stories.

Once the final pool of stories was put together, we created four versions of each story by combining claim consistency and source feature conditions. Four booklets were created by mixing different sets of story versions (four items per set) with the filler texts in a scrambled order. The two practice texts were presented on the first page of the booklets.

The materials also included a standardized reading fluency test ("La pipe et le rat," Lefavrais, 1986) and an ad-hoc inference comprehension task, which were used as intervening tasks. As a control analysis, a preliminary independent-samples t-test was conducted to compare the scores obtained in the fluency test (knowledge evaluation group: $M = 109.6$, $SD = 20.5$; age evaluation group: $M = 108.3$, $SD = 15.7$). No significant differences were found ($t(65) = .28$, $p = .78$), suggesting that participants in the experimental groups did not differ with respect to their reading fluency.

Finally, a cued recall booklet was prepared. Each page of the booklet presented as a cue the title of one of the critical stories and the assertion made by the second source in the story, together with a blank frame. The task invited participants to write down everything they could remember about the source of that assertion. In the example presented in Table 1, the cued recall item would be, "Who said that the fire was set by a malevolent individual?" The correct expected answer would be "a journalist who interviewed several witnesses/who had a black moustache" (depending on the feature manipulation) or any acceptable paraphrase.

Procedure

Students signed up for sessions of one hour involving a group of two to eight participants. Each group was randomly assigned to the knowledge or age evaluation task condition. Participants were placed at individual tables in a small meeting room. They were given a short, spoken welcome and description of the procedure and they signed an informed consent form. Then, the experimenter distributed the booklet containing the texts. A translation of the exact instructions is as follows:

> In this experiment, we ask you to imagine that you are an intern in a news agency. You will be assigned various tasks that require you to read and answer questions about short news texts (after the booklets were distributed). In this task you will read a series of short texts that deal with various types of news about science or social topics as well as everyday facts. Please read each text carefully and answer the two questions that are displayed below the text. The first question is factual, you have to answer as a function of what the text says. The second question calls upon your personal judgment, the response is not stated in the text. You can go back to the text when answering these questions.

Participants then practiced with the two example texts to ensure they had understood the task. They were told that the response "uncertain" was totally acceptable when the story involved a contradiction or when they could not decide which source was the most knowledgeable (or the oldest). Once finished with the examples, participants were asked to continue reading the rest of the stories at their own pace. They were told that this task would take about 25 minutes to complete. They were also informed to pay attention when reading because they would later have to recall some information. Informal observations estimated the modal response time to be 15 to 20 minutes, and no participant needed more than 25 minutes to complete the task. Both questions 1 (regarding focusing attention on the assertions) and 2 (regarding evaluating the characters producing the assertions) were answered during reading, after finishing each text. The experimenter then removed the texts and assigned the two intervening tasks, which lasted for a total of about 15 minutes. Finally, the experimenter distributed the cued recall booklets and asked the participants to recall as much information as they could. The participants were asked to think about each item for a moment before moving to the next item. The participants were invited to write down any detail that came to mind even if they believed they were not sure or were just guessing. When all participants had completed the recall form they were thanked and debriefed.

Results

Manipulation check

Preliminary to our main analyses based on recall performance, we conducted a descriptive examination of participants' responses to questions 1 (content) and 2 (source) during reading. As expected the proportion of "uncertain" responses to the content question was much higher for the discrepant than for the consistent stories (76% vs. 12.1%, respectively), suggesting that participants were generally able to acknowledge the discrepancy. As regards the source question, the proportion of uncertain responses was also rather high (59.4%). There was more uncertainty when the question focused on the characters' age (69.9%) than when the question focused on the characters' knowledge (48.9%). This difference, although unexpected, may reflect the fact that our materials did not include any explicit cue regarding the characters' age. In any case, the high rate of uncertainty for discrepant stories (question 1) and source knowledge or age (question 2) suggests that our manipulation was effective.

Recall accuracy

Participants' responses during the cued recall task were scored for recall accuracy. We also scored recall attempts (i.e., when a tentative answer was provided) for descriptive purposes. Accuracy analysis was assessed using two measures: the identity of the source (e.g., the journalist) and the feature of the source (e.g., who interviewed several witnesses). Correct recall of the identity was counted when the critical source (e.g., the journalist) or any acceptable paraphrase (e.g., the reporter) was mentioned in the response. Correct recall of the feature was counted when the provided description (e.g., who had a black moustache/who interviewed several witnesses) or any acceptable paraphrase was mentioned. For both measures we assigned 1 when the answer was correct and 0 when it was not (including trials left blank), so each dimension was scored dichotomously as correct or incorrect. Because we were specifically interested in analyzing feature recall independently from the recall of the identity of the sources, the measures were not combined into a total score but analyzed separately. For example, a response would get a score of 1 in source identity but 0 in source feature if it would only mention the occupation of the source (e.g. "a journalist"), a score of 0 in source identity but 1 in source feature if it would only mention the feature (e.g., "someone who interviewed several witnesses"), and two scores of 1 when recalling both indexes. Fifteen recall protocols (representing 240 trials) were drawn randomly and scored for the correct recall of source identity and source feature by two independent raters after a short training session. The level of agreement (kappa coefficient) was high and above chance level for both indexes (Identity: $\kappa = .75$,

$p < .0001$; Feature: $\kappa = .87$, $p < .0001$). Disagreements were resolved *by a posteriori discussion*. The rest of the protocols were scored by one of the raters.

For the inferential analyses, mixed effect logistic regression analyses were conducted using IBM SPSS 22.0 software (IBM Corp, New York, NY). Assertion consistency (consistent, discrepant), source feature (knowledge, appearance), task (knowledge evaluation, age evaluation), and interactions between assertion consistency and source feature, task and source feature, and the three terms were entered as fixed factors. Consistent assertion, appearance feature, and age evaluation were chosen as reference levels. The random effects structure included intercepts to account for variability across participants and texts. The Satterthwaite approximation method was used to estimate the degrees of freedom due to different cluster sizes in the between and within-subjects factors (e.g., Li & Redden, 2015).

Recall of the identity of the sources

The rate of recall attempts of sources' identity was fairly high. Participants provided a tentative source identity in 89.1% of the trials, whereas on 10.9% of the cases they failed to provide an answer. Table 2 presents the descriptive statistics of recall accuracy for the identity of the critical source. The average of correct answers across conditions was 51.7%, with the highest accuracy observed in the knowledge evaluation task group for sources of discrepant assertions (68.2%) and the lowest accuracy in the age evaluation task group for sources of consistent assertions (35.5%). Please note that these last percentages are not directly presented in Table 2 but are obtained by collapsing across the knowledge/appearance features' distinction.

The logistic mixed analysis revealed a significant main effect of the consistency of the assertions (consistent, discrepant) on the recall of the identity of the source: Correct responses were more likely after reading discrepant than consistent assertions, $F(1, 1016) = 5.13$, $p = .024$, $OR = 1.48$, $CI_{.95} = .86$, 2.5. Recalling the identity of the source was more likely after performing the knowledge than the age evaluation task $F(1, 55) = 23.48$, $p < .0001$, $OR = 4.56$, $CI_{.95} = 2.27$, 9.16. Finally, a significant interaction between reading task and type of feature was also found, $F(1, 1016) = 3.98$, $p = .046$. A representation of the interaction can be seen in Figure 2. For the knowledge evaluation task group (but not for the age evaluation task group), it was less likely to recall the identity of the sources when the associated feature described the source's knowledge than when it described the source's appearance, $OR = .59$, $CI_{.95} = .27$, 1.28. No significant effects were found on the recall of the identity of the source for the feature manipulation ($F(1, 1016) = 3.14$, $p = .08$), the two-way interaction between assertion consistency and feature ($F(1, 1016) = .06$, $p = .8$), and the three-way interaction ($F(2, 1016) = .02$, $p = .98$).

Recall of the feature of the sources

The proportion of feature recall attempts was fairly low as compared with that observed for the identity of the source. Merging across conditions, participants provided a response involving a source feature only in 29.4% of the trials. This represents approximately one-third of the proportion of attempts to recall the identity. Table 3 presents the descriptive statistics of recall accuracy for the

Table 2. Descriptive Statistics (Frequencies, Means, and SD) for the Correct Recall of the Source's Identity as a Function of Reading Task, Assertion Consistency, and Type of Feature (Experiment 1).

Assertion Consistency	Type of Feature	Knowledge Evaluation Task			Age Evaluation Task		
		n	%	Mean (SD)	*n*	%	Mean (SD)
Consistent assertions	Source's knowledge	73	55.3	2.2 (1.4)	44	35.5	1.4 (1.2)
	Source's appearance	89	67.4	2.7 (1)	44	35.5	1.4 (1.1)
Discrepant assertions	Source's knowledge	84	63.6	2.5 (1.3)	53	42.7	1.7 (1)
	Source's appearance	96	72.7	2.9 (.9)	51	41.1	1.6 (1.2)

N values represent the total of observations. Mean values represent the average within the set of texts presented in a particular combination of assertion consistency and type of feature (maximum score, 4).
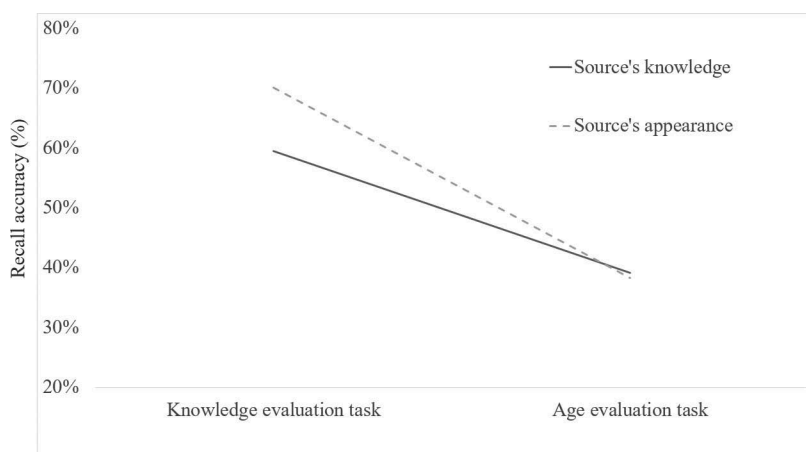
Figure 2. Distribution of accuracy (%) for the identity of the sources as a function of reading task and type of feature (assertion consistency was not included in the graph to provide a clearer picture of the task × feature interaction).

Table 3. Descriptive Statistics (Frequencies, Means, and SD) for the Correct Recall of the Source's Feature as a Function of Reading Task, Assertion Consistency, and Type of Feature (Experiment 1).

Assertion Consistency	Type of Feature	Knowledge Evaluation Task			Age Evaluation Task		
		n	%	Mean (SD)	n	%	Mean (SD)
Consistent assertions	Source's knowledge	33	25	1 (1.14)	15	12.1	.5 (.72)
	Source's appearance	30	22.7	.9 (.91)	21	16.9	.7 (.87)
Discrepant assertions	Source's knowledge	43	32.6	1.3 (1.28)	25	20.2	.8 (.98)
	Source's appearance	34	25.8	1 (1.15)	21	16.9	.7 (.87)

N values represent the total of observations. Mean values represent the average within the set of texts presented in a particular combination of assertion consistency and type of feature (maximum score, 4).

feature of the critical source. Regarding the overall tendency, the distribution of correct responses was similar to that observed in the recall of the source identity: The highest accuracy was registered in the knowledge evaluation task group for features presented in discrepant stories (29.2%), whereas the lowest was registered in the age evaluation task group for features presented in consistent stories (14.5%). Please note that these last percentages are not directly presented in Table 3 but are obtained by collapsing across the knowledge/appearance features' distinction.

Similar to the effects observed in the recall of the identity, the logistic mixed analysis revealed significant main effects of assertion consistency (consistent, discrepant) and the type of task (knowledge evaluation task, age evaluation task) on feature recall. Correct recall of the feature was more likely after reading discrepant than consistent assertions, $F(1, 1016) = 3.89$, $p = .049$, $OR = 1.55$, $CI._{95} = .87, 2.78$, and after performing the knowledge evaluation task than the age evaluation task, $F(1, 64) = 4.63$, $p = .035$, $OR = 1.72$, $CI._{95} = .77, 3.86$. No significant effects on feature recall were found for the source feature manipulation ($F(1, 1016) = .2, p = .65$), the two-way interaction between assertion consistency and source feature ($F(1, 1016) = 1.81, p = .18$), the two-way interaction between source feature and type of task ($F(1, 1016) = 1.15, p = .28$), and the three-way interaction ($F(2, 1016) = .18, p = .83$).

Discussion

Experiment 1 attempted to replicate the finding that discrepancy increases source memory while testing the additional hypothesis that discrepancy also enhances recall of source features, as a result

of the elaborations elicited by tagging discrepant claims to their sources. We consider the main findings one by one.

First, and in line with prior studies (Braasch et al., 2012; Rouet et al., 2016), we observed that the presence of discrepant statements enhanced memory for the identity of the source, as reflected in the significant effect of the consistency of the statements on memory for the sources' identity. This first part of the results is a replication of the D-ISC effect on memory for who says what (e.g., Barzilai & Eshet-Alkalai, 2015; Braasch et al., 2012; Kammerer et al., 2016; Rouet et al., 2016; Saux et al., 2017).

Second, although feature recall was overall lower than identity recall, we found that reading discrepant assertions also enhanced memory for the sources' features. In line with previous work (e.g., Kammerer et al., 2016), this additional finding extends the D-ISC memory effect to more elaborated descriptions of the sources, suggesting that readers incorporate detailed information about the source in their memory representation of the text, provided that the information is made available. To sum up, our results support an extension of the D-ISC claim regarding the amount of source-related information stored in memory, from memory for sources' identity (i.e., occupation) to memory for sources' features (i.e., appearance and knowledge), and are consistent with our first hypothesis that discrepancies would prompt the integration of the assertions with source-related information.

Third, we also hypothesized a qualification of this extension of the D-ISC hypothesis to source features. In particular, we predicted that the memory enhancement would be specific for features that are relevant to evaluate the reliability of the source, such as whether a source has expert knowledge and/or privileged access to information, as compared with other features, such as a source's physical appearance. However, this hypothesis was not supported by the data, because no significant effect of the source feature manipulation was found on the recall of sources' identity or feature. Interestingly, we observed an unexpected interaction of the source feature with the type of evaluation performed during reading: Recall for sources' identity (but not for their features) was higher when sources were described through their appearance in the knowledge evaluation task. The manipulation of the type of task was meant to test memory performance under more or less pertinent task conditions by comparing an evaluation of sources' knowledge with an evaluation of sources' age. As expected, knowledge evaluations increased readers' recall, as shown by the effect of the type of task on both recall indexes (identity and feature). However, this increase was unexpectedly greater when the sources were described through appearance features. One possibility is that the knowledge evaluation condition induced participants to judge the knowledgeability of the character, regardless of the type of feature he or she was described with. In other words, instructing participants to make a knowledge decision for every source (i.e., some described with pertinent but others with less pertinent features for that particular type of evaluation) may have created a strategy different to what we expected. As a result, participants could have maximized elaboration efforts to infer how a less pertinent feature should account for source reliability (e.g., How does having a black mustache explain if A knows better than B?), thus resulting in stronger memory traces. An alternative possible explanation is that appearance may have enabled a more concrete or imaginable representation of the characters that, in combination with the knowledge evaluations, facilitated the later retrieval of "who said what" (i.e., the sources' identity). In any of these two scenarios (enhanced inferential activity/greater concreteness-imageability of the appearance features), a reading task × type of feature interaction, similar to the one observed in the recall of the identity, should have been expected in the recall of the feature. However, no such interaction was found. Future research could address these two ad-hoc hypotheses by transferring the paradigm to an online presentation: One might predict longer reading times/judgment times for knowledge evaluations in the case where appearance features are provided, because additional processing effort to draw inferences between the features and the knowledgeability evaluation must be assumed.[1]

To sum up, Experiment 1 results extend the Documents Model Framework by suggesting that (1) document nodes can be elaborated to contain descriptive information about the source and (2) under specific task conditions some descriptive information is more likely to be recalled than other. However, Experiment 1 results do not provide sufficient evidence to support our second hypothesis, namely, that discrepancies favor the relative salience of the knowledge features over the appearance features. As explained above, we speculate that the task manipulation, originally planned as a baseline comparison, may have influenced participants' responses during the recall task in ways that seem hard to disentangle, making it difficult to draw clear conclusions regarding differences in recall for different types of features.

Taking these concerns into consideration, we conducted a second experiment, with the goal of focusing on our second hypothesis (i.e., better memory for knowledge features in the discrepant condition) with a simplified design and additional controls. Our strategy was to give readers a chance to choose the feature of the sources they could attend to. This represents an important difference as compared with Experiment 1, in which each source was presented with one single feature.

Experiment 2

The purpose of the second experiment was to further explore some of the results obtained in Experiment 1. A main concern with our first experiment was that the knowledge evaluation task condition may have prompted processing of appearance features by fostering inferential activity, because participants were forced to evaluate sources based on the only available feature. Our goal in the second experiment was to test the claim that when sources are described through multiple features, memory for features that are relevant to assign knowledge or competence, but not for features that are irrelevant to that goal, should be enhanced by the type of strategic reading prompted by text discrepancies. In contrast to Experiment 1, all participants in the second experiment received the same instructions. These encouraged participants to focus their attention on the characters producing the assertions and to take their reliability into consideration but without being as directive as the knowledge evaluation task condition from Experiment 1. Another difference with Experiment 1 was that, as explained above, each source was described with two different features: a knowledge description and an appearance description. This aimed at promoting a more selective strategy in terms of which information to elaborate on. All participants were then tested for memory of the same information during the cued recall task. As in Experiment 1, we examined whether contradictory assertions would promote better recall of the sources' identity plus their two features. Our hypothesis was that when being able to choose between knowledge features over other type of features, readers of discrepant assertion would focus on knowledge features, such as how a source accessed the information he or she is claiming to know, as compared with appearance features, such as a physical or clothing characteristic. This is because the elaboration of the discrepant assertions would direct comprehension to information related to sources' knowledge or competence rather than to additional, less related information.

Methods

Participants and design
Sixty-two first-year undergraduate students at a large South American university participated for course credit. All participants signed an informed consent and were debriefed after the activity (age $M = 20$, $SD = 1.9$, 61% women).

The only manipulation was assertion consistency between sources (consistent, discrepant). All sources were described with two features (a knowledge feature and an appearance feature). Thus, in the text about the fire, the policeman was presented as someone "who examined the installation and

was wearing a wool sweater" and the journalist as someone "who interviewed several witnesses and had a black moustache."

The dependent variable was accuracy in a cued recall task, identical to Experiment 1. Also as in Experiment 1 memory for the source identity, knowledge feature, and appearance feature were scored separately. The only difference is that in this case we scored three indexes per response (i.e., source identity, knowledge feature, and appearance feature) instead of two. Texts were not available to the participant during this task.

Materials

The same stories from Experiment 1 were used except for three modifications. First, because the second experiment included only a two-level within-subject variable (i.e., assertion consistency), the number of critical texts was reduced from 16 to 12, allowing for six repeated measures per condition; one practice text and six fillers from the first experiment were also used. The selection of the critical texts for the second experiment was done randomly. Second, because the second experiment was in a language different than the first, texts were translated, adapted to the local context, and pretested (Saux et al. 2017). Third, because the texts would introduce two features per source (instead of one), we cont rolled for a potential primacy memory effect during recall by counterbalancing the order of the features across texts in the following way: four text presentation versions were assembled. Each presentation version contained a set of six stories with consistent assertions and a set of six stories with discrepant assertions. Within each set, three stories introduced first the knowledge feature of the sources and then the appearance feature, whereas the other three did it in the inverse order (order presentation was the same for the two sources within the same story). Stories were rotated across the four presentation versions using a Latin square matrix, so that each participant would read all stories but in a particular combination of assertion consistency and feature order. As a final additional control of potential influences from the reading phase into the recall task, we created a duplicated version of the four presentation versions but we inversed the order of the sources within the stories. As a result, the critical source during recall was one of the characters for half of the sample and the other character for the other half of the sample. The four presentation versions of the materials were printed into four booklets, which presented each story in one page. Critical texts and fillers were assembled randomly within each booklet.

As in Experiment 1, materials also included a series of intervening activities. We used the digit-symbol and the symbol search attentional subtests from the Wechsler Adult Intelligence Scale-III (Wechsler, 2002) and a brief sociodemographic questionnaire. The Kolmogorov-Smirnov test indicated that the sample presented normal distributions in the scores obtained in both attentional tests (digit-symbol task [$M = 54$, $SD = 7.5$, $D(58) = .084$, $p = .2$]; symbol search task [$M = 26.7$, $SD = 5.3$, $D(58) = .09$, $p = .2$]). Finally, the cued recall booklets were prepared with the same criteria as in the first experiment.

Procedure

Task instructions were the same for all participants and proposed a backstory to frame the activity (i.e., to imagine they were interns at a news agency). As part of this backstory, participants were encouraged to pay attention to the characters producing the assertions and to consider their reliability (but without being as directive as in the knowledge evaluation task from Experiment 1). A translation of the exact instructions is as follows:

> Imagine you're doing an internship in a news agency that publishes brief news reports on the Web. Your boss gives you some stories to read with the following indications: We may publish some of these stories. Read them carefully because later you will have to remember what you read. This agency is known for its credibility, so it is especially important that you pay attention to the opinions provided in each text but also to the people providing these opinions and how they are described.

Unlike Experiment 1 we did not include the two questions at the end of each text. To promote attentive reading, we asked participants to think of and write down an alternative title for each story when finishing with each text, which has been used in previous comprehension research (e.g., Saux et al., 2017).

Students signed up for sessions of 1 hour involving groups of one to six participants. Participants were placed at a common large table in a meeting room. They were given a short, spoken welcome and description of the procedure and they signed an informed consent form. Then, the experimenter distributed the booklet containing the texts and explained the first part of the activity (i.e., reading and title production) using the example. Then, participants completed the first part of the experiment at their own pace. They were told that this part of the experiment would take approximately 20 minutes. The experimenter then assigned the three intervening tasks, which lasted for a total of about 15 minutes. Finally, the experimenter distributed the cued recall forms and asked participants to recall as much information as they could. Texts were not available to the participant during this task. Recall instructions were the same as in Experiment 1. The practice text was used to exemplify the task. The experimenter explained that recall attempts should focus on every single piece of information, "not only on how the character looked, but also on whether he or she knew something in particular." Once this task was completed, participants were thanked and debriefed.

Results

As in Experiment 1, participants' responses during the cued recall task were analyzed in terms of recall accuracy. Attempts to recall were also scored for descriptive purposes. Recall accuracy was assessed using three measures: the identity of the source (e.g., the journalist), the knowledge feature of the source (e.g., interviewed several witnesses), and the appearance feature of the source (e.g., had a black moustache). As in Experiment 1, the three measures were coded as dichotomous variables (1 for yes, 0 for no). Two scorers reviewed the categories after a short training session, in which they examined two randomly chosen cases. After the training session, they scored all the remaining recall protocols independently (representing 720 trials). All three indexes presented a high level of agreement (kappa) (identity: $\kappa = .84$, $p < .0001$; knowledge feature: $\kappa = .81$, $p < .0001$; appearance feature; $\kappa = .85$, $p < .0001$). Disagreements were resolved by discussion.

Similar to Experiment 1, logistic mixed models were conducted for the inferential analyses, using IBM SPSS 22.0 software. Assertion consistency (consistent, discrepant) was entered as the fixed factor, the consistent assertion level was chosen as reference. Experiment 2 did not manipulate the type of feature (i.e., each source was described with both features in all stories). Therefore, and different from Experiment 1, type of feature was not treated as a factor in the analyses. The random effects structure included intercepts to account for variability across participants and texts.

Recall of the identity of the sources

As in Experiment 1, the proportion of attempts to recall sources' identity was fairly high. Merging across conditions, participants provided a tentative source identity in 83.2% of the trials, whereas on 16.8% of the cases they failed to provide an answer. Table 4 presents the descriptive statistics for the correct recall of the identity of the critical sources. The mean percentage of correct answers across conditions was 32.9%, with the highest accuracy observed in the discrepant assertions condition (38.4%) and the lowest accuracy in the consistent assertions condition (27.4%).

The logistic mixed analysis revealed a significant main effect of assertion consistency (consistent, discrepant) on the recall of the identity of the source (correct, error), $F(1, 742) = 11.35$, $p = .001$. As in Experiment 1, correct responses were more likely after reading discrepant than consistent assertions, $OR = 1.78$, $CI._{95} = 1.27, 2.5$.

Table 4. Descriptive Statistics (Frequencies, Means, and SD) for the Recall of the Identity and Features of the Sources as a Function of Assertion Consistency (Experiment 2).

	Source Identity			Source's Knowledge Feature			Source's Appearance Feature		
	n	%	Mean (SD)	n	%	Mean (SD)	n	%	Mean (SD)
Consistent assertions	102	27.4	1.65 (1.49)	59	15.9	.95 (1.04)	39	10.5	.63 (0.99)
Discrepant assertions	142	38.4	2.3 (1.54)	90	24.2	1.45 (1.21)	42	11.3	.68 (1.05)

N values represent the total of observations. Mean values represent the average within the set of texts presented in a particular combination of assertion consistency (maximum score, 6).

Recall of sources' features

Similar to the pattern observed in Experiment 1, the proportion of feature recall attempts was lower than that observed for the identity of the source. Merging across conditions, participants provided a response involving a source feature in only 21.5% of the trials, with correct responses representing 15.5% of the observations. Table 4 presents the descriptive statistics for recall accuracy concerning the two features of the critical source. The highest accuracy was registered in the discrepant assertions condition for knowledge features (24.2%), whereas the lowest accuracy in the consistent assertions condition for appearance features (10.5%).

The logistic mixed analyses revealed a significant main effect of the consistency of the assertions (consistent, discrepant) on the recall of knowledge features, which were more likely to be recalled in the discrepant than in the consistent condition, $F(1,742) = 8.19$, $p = .004$, $OR = 1.7$, $CI._{95} = 1.17, 2.47$. Assertion consistency did not affect recall of appearance features, $F(1,742) = 0.13$, $p = .71$.

Discussion

Results from the second experiment replicated the effect of discrepancies on source memory (Braasch et al., 2012). Similar to Experiment 1, we found that discrepant assertions increased the recall of the identity of the sources, as compared with consistent assertions. Interestingly, however, a comparison of the percentages in Tables 2 and 4 indicated that the overall correct recall of sources' identity decreased from Experiment 1 (51.7% in average) to Experiment 2 (32.9% in average). This difference may be very likely attributed to the task manipulation, which was not present in Experiment 2. This manipulation may have lead participants to read each text more times to answer the questions presented upon reading, as compared with participants in Experiment 2. Furthermore, the evaluation task in Experiment 1 was designed to specifically induce increased attention to the sections of the texts mentioning the sources. However, other possible explanations should also be considered. For example, it is possible that the additional number of source descriptors in Experiment 2 (i.e., two features plus the identity) contributed to a greater memory load than in Experiment 1 (in which each source was described through her/his identity plus a single feature), thus reducing overall performance. Also, random differences across the samples cannot be ruled out as a possible cause for the difference observed in the proportion of correct identity recall when comparing Experiments 1 and 2. Future research should examine this possibilities in more detail.

Results from Experiment 2 also supported our second hypothesis, regarding feature recall: Discrepant claims enhanced the recall of knowledge features but did not affect the recall of appearance features. Of note is that in the discrepant condition the recall of knowledge features was fairly low (1.45/6 trials). This finding converges with prior research indicating that memory tends to remain low for source information, particularly when multiple pieces of information (i.e., multiple attributes or features) are presented to participants (e.g., Bråten, Salmerón, et al., 2016; Steffens et al., 2014). Nevertheless, even with this low recall in the discrepant condition, there was still a significant D-ISC effect. This pattern was different, however, from that observed in the first experiment in which recall proportions did not differ substantially across feature types (1.05/4 trials for the knowledge feature in discrepant stories and 0.8 for the appearance feature in consistent

stories). This may have been because in the second experiment readers had two features to evaluate each source and they may have been more selective in terms of which information to elaborate on.

Nevertheless, as predicted, participants recalled knowledge features better than appearance features in the discrepant condition. This last interpretation has important implications, because it shows that in general readers are capable of weeding out the less pertinent source features from their memory representation provided that (1) instructions indicate to attend to the sources, (2) source-assertion integration is being prompted by discrepancies, and (3) they have simultaneous access to relevant and irrelevant features of the sources (Experiment 2) but perhaps not with only one, relevant or irrelevant, feature (Experiment 1).

Put together, the results from our second experiment offer evidence consistent with our second hypothesis and suggest that the D-ISC effect on source memory extends to features that are relevant to a distinction of the knowledge or competence of the sources rather than to other type of features (i.e., sources' appearance), as long as certain reading and task requirements are fulfilled.

General discussion

This study aimed at extending previous research on the Documents Model Framework and the D-ISC assumption (Braasch et al., 2012) by examining the extent to which elaborated source descriptions influenced the encoding of source-content links in readers' memory (as measured by the presence of accurate source features in a cued recall task). The main goal of the two experiments was to test the hypothesis that readers show better memory for sources' knowledge and competence features (i.e., how a character issuing some information knows what they claim to know) when the story involves two sources of information making discrepant claims about a situation. In line with this goal, both of our experiments provided evidence that flagrant contradictions between two text assertions enhanced memory for the identity of the sources as well of sources' features. In fact, a second part of our hypothesis was that the memory benefit for the descriptions of the sources would take place particularly when the provided features were relevant to assign knowledge or competence to the source but not when they presented irrelevant information for that specific purpose (i.e., a description of sources' appearance). Based on the results from the second experiment, discrepant assertions increased memory for knowledge features but did not influence the recall of appearance features. This finding represents an extension of the D-ISC claim in two ways, as depicted in Figure 3. First, it indicates that memory enhancement (which would be the result of a deeper
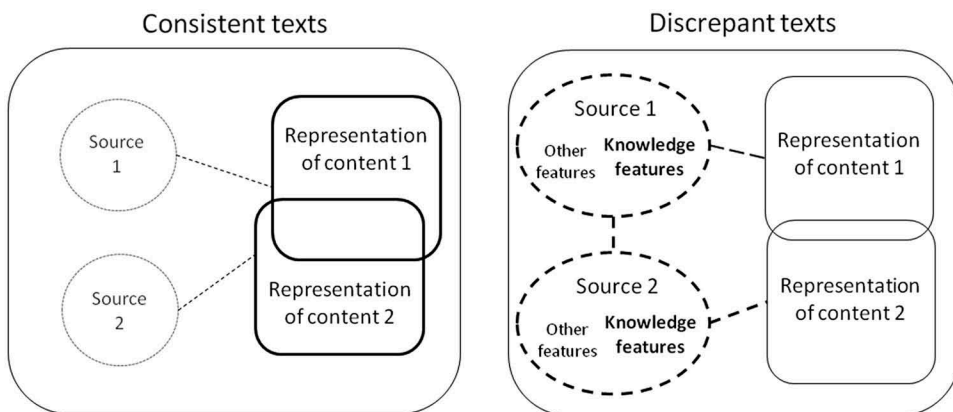

Figure 3. A revised representation of the Documents model. When texts are consistent, contents overlap; sources are seldom represented and seldom connected to specific assertions. When texts are discrepant, contents overlap to a lesser extent (although some overlapping must be assumed to detect the discrepancy), sources are better represented especially regarding their knowledge-related features, and the link with specific assertions is stronger.

integration of source-related information with the content assertions) can spread out to source descriptions other than the identity or designation of the source. Second, it suggests that the memory effect induced by discrepant claims may be associated with a very specific attempt to elaborate on the reliability of the sources, rather than on other aspects. Whether this would also be reflected in online measures (i.e., readers paying less attention to discrepant sources' appearance if provided with knowledge features simultaneously) is a question for future research. Also, an alternative interpretation to the remarkably low recall proportion of appearance features could be that the participants did not find it worth mentioning them when performing the memory task. Of note, however, is that in both of our studies participants were explicitly instructed to write down everything they recalled, even if they were not completely sure about it. Furthermore, in Experiment 2, instructions specifically pointed participants to write down the two types of features provided (i.e., "what the characters looked like and whether they knew something in particular"). This lends indirect support for the idea that, indeed, participants had difficulties in retrieving this particular piece of information.

An interesting consideration of these conclusions is whether the enhanced recall of knowledge features might be limited to the cases in which readers had simultaneous access to both knowledge and appearance descriptions of the sources, as in our second experiment. In fact, Experiment 1 results did not support the claim of a selective memory effect for knowledge features, but this may have been caused by the participants over-elaborating sources' appearance features as a consequence of the particular reading instructions, as proposed in the discussion section of Experiment 1.

To sum up, one part of our results suggest that discrepant assertions are one factor that elicits resolution or coherence building processes and that it is in these cases that the integration of source nodes into the mental representation becomes not only a more frequent strategy, as previously reported (e.g., Braasch et al., 2012), but also a more fine-grained strategy, because participants seem to weigh information differently on the basis of its relevance to the reliability of the sources. This last claim aligns well with the theoretical need of enriching the research on the D-ISC assumption by considering readers' representations of the processes used by the sources to produce their claims (e.g., Chinn & Rinehart, 2016).

In addition, because attention to sources has been found to vary according to the task context (e.g., De Pereyra et al., 2014), a subsidiary goal of this research was to test whether the effect would hold under different task conditions. Thus, in our first experiment we also compared the influence of evaluating during reading which of two sources was more knowledgeable about the issue being described to evaluating which of two sources appeared to be older. We expected that the knowledge evaluation would promote source memory to a greater extent than the age evaluation. In line with this claim, the results from Experiment 1 suggest that when reading goals included evaluating which source had the most knowledge of the situation (knowledge evaluation task), memory for source characters and their features was enhanced, as opposed to the age evaluations. It is important to note that the age evaluation task also required paying attention to the characters producing the assertions and judging them with respect to a certain dimension, but not in terms of how these characters had come to know what they asserted. An important implication of this result, both theoretical and applied, is that good sourcing strategies are not just about paying attention to sources or about instructing readers to evaluate them. As Chinn and Rinehart (2016) have pointed out, the strategy of teaching students to attend to source features when evaluating the trustworthiness of the information becomes more reliable when it comes together with knowledge of the underlying processes that were used by the source to know something. We believe the data regarding the differences observed between the knowledge and age evaluation tasks of the first experiment are in line with this claim and highlight the importance of representing in the source model the reasons and/or procedures by which sources produced a certain claim.

There are some limitations to our conclusions. First, Experiments 1 and 2 were implemented in two different languages (i.e., French and Spanish). Although these languages can be considered similar and the materials were adapted to prevent cultural biases, we cannot fully disregard language as a potential limitation. Some antecedents in the D-ISC literature, however, support the existence of

the effect in multiple languages (e.g., Rouet et al., 2016). A D-ISC effect on source memory has been reported with adapted versions of the same pool of materials in English (e.g, Rouet et al., 2016), French (e.g., Braasch et al., 2012), and Spanish (Saux et al. 2017), and with different materials in German (e.g., Kammerer et al., 2016) and Hebrew (Barzilai & Eshet-Alkalai, 2015). Second, it should also be acknowledged that the term "source" was used in our research exclusively to refer to a character/speaker embedded in the text. Therefore, generalizations of our results to other type of sources (e.g., documentary sources) should be made with caution. Previous studies have shown a memory enhancement for institutional sources (e.g. Rouet et al., 2016), even when they are not text-embedded (Kammerer et al., 2016), thus leading to speculation that our extension of the D-ISC assumption to knowledge source features should apply as well with other source types. However, the appearance features used as contrast comparison in both of our studies seem hard to translate into institutional sources. Future research should address this specific limitation by assessing the impact of specific types of control features (e.g., features regarding the age of the participants) or using nonhuman sources such as institutions or documents. Finally, a third limitation of our results is that all participants were prompted to pay attention to sources. Thus, no conclusions can be drawn about what would have happened if they were not prompted.

Although focused on a theoretical question (i.e., the contents and organization of readers' source memory representation), our findings also point to a few practical implications. Secondary and higher education students are increasingly asked to study independently based on their acquisition of documents from the Web (Livingstone, 2015). More generally, laypersons increasingly use the Web to inform important decisions regarding, for example, health, career, or civic participation (OECD, 2016b; Perrin & Duggan, 2015). People's ability to attend to source features is key to their acquisition of accurate and trustworthy information. Our study found that undergraduate students are able to encode potentially helpful source features but that they need to be prompted with adequate task settings. Further research should study the impact of training on students' ability to detect situations in which the quality of information matters and to include attention to source features as part of their strategies for selecting documents. In doing so, students should learn to actively search and locate relevant source features, because these details are not always presented in a prominent position. Students also need to distinguish the features that support reliable attributions regarding a source from those that do not. Instructional intervention studies are needed to tell how these skills can be effectively communicated to the student population and to the general public.

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