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# Repeated reproduction: Back to Bartlett. A French replication of narrative and an extension to proverbs

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## Abstract

The objective of this article is to replicate, for the first time in the French language, an original experiment of F.C. Bartlett (1920, 1932/1997) with the same narrative he used: “The War of the Ghosts”. Work on proverbs describes it as a matter socially elaborate calling on a practical thought. Thereby, in addition, this article proposes to study proverbs from a psychosocial point of view by using the method of repeated reproduction. Even if the proverb and the story are similar in their characteristics, they differ in their lengths and when one uses more the implicit, the other uses more the metaphor. The third objective is the comparison between memory processes for the proverb and the story. Eighteen dyads met twice to reconstruct their memories of these materials. The results highlight the importance of the cultural dimension in reconstructing memory and confirm that the strangeness of the proverb and narrative complicates their understanding. They also reveal similarities and differences in the processes of reconstructing the narrative through the different replicas of the original experiment.

## Keywords

Bartlett, proverb, narrative, memory, culture, repeated reproduction

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## Introduction

### *The common sense thinking and memory processes*

Many authors in social sciences (Bartlett, 1932/1997; Brockmeier, 2012; Bruner, 2000, 2015; Gavillet, 2003; Guscelli, 2011; Jodelet, 2006, 2015; Mieder, 1982; Stalder, 2010; Veyne, 1992; Wertsch, 2002) highlight the fact that in society we shape and assign meanings to our experiences using existing cultural materials. The work of F.C. Bartlett have been invested by many studies interested in the cultural anchoring of psychological processes (Bangerter & Lehmann, 1997; Bruner, 2002; Edwards & Middleton, 1987; Johnston, 2001; Kalampalikis, 2002; Roediger III, Bergman, & Meade, 2003; Wertsch, 2002). The investigation of ordinary thinking culturally located is largely inspired by social representations approach (Haas & Jodelet, 2007; Jodelet, 2015; Jodelet & Haas, 2014; Kalampalikis, 2019; Moscovici, 2012, 2013). Links between this approach and Bartlett's work (see Kashima, 2000; Saito, 2003; Wagoner, 2017a, 2017b) show the close relationship between social memories and social representations. Moscovici expressed very clearly that there was a link between the theory of social representations and conventionalization "(...) his analysis of the conventionalization helped me to better understand the process of objectification" (Moscovici, 2013, p. 261). Social representations are "perception programs, constructs with the status of naive theory, serving as a guide for action and a grid for reading reality" (Jodelet, 2015, p. 38). The purpose of social representations is to familiarize oneself with the unknown. When we are confronted with a new object or phenomenon, we have an irrepensible need (if we feel concerned) to assign its meanings. On the one hand, we do this for our cognition, but also to be able to discuss this meaning with others because social representations are also formed in interaction (Jodelet, 2015). To understand this novelty, we will first select the information we are interested in according to cultural and normative criteria, that is to say that we only retain what is in agreement with the value system of our group (Moscovici, 2013). In a second step, we will link that information between them in order that it forms a coherent whole, a "figurative core" (Moscovici, 2013). Finally, a phenomenon of naturalization will occur and allow us to associate characteristics of reality to this novelty: these three stages constitute the objectification. To put meaning on this novelty, we will look in what we already know and thanks to this comparison, we will attribute to novelty a value, a quality, a name, a classification, and consequently a meaning: it is anchoring (Kalampalikis & Haas, 2008). This analogy is retroactive, the old and the new will be impacted by this new relationship. Themes of culture, social representations, and collective memory are intimately linked. Although social psychology (in a broad sense) has not been very touched by the questions surrounding the rapprochement between culture and psychology, this is not the case with the branch of social representations which is interested in "the foundations, the functioning and the psychological and social functions of common sense thinking" (Jodelet, 2002, p. 113, personal traduction). Interest is similar but it's different levels of analysis, "Culture,

then, can be taken as referring to a broader network of representations held together as an organized whole by community” (Duveen, 2007, p. 545). Culture has a structure, this structure has a functional role in the community that carries it, and this same community has an effect on this structure. Here, we consider culture as a dynamic object and as a place where its actors play an active role.<sup>1</sup> Bartlett’s work has shown these aspects since in these definitions of group and culture, he describes a dynamic vision “in which culture not only provides a stable image of the present and its relation to the past, but also projects the group into a future” (Duveen, 2007, p. 552). Thus, our culture and representations it contains are inscribed in various forms of temporality: past, present, and future.

In a famous series of experiments in 1920, Bartlett observed that Cambridge students transformed an American story, inspired by Franz Boas (1901), into a story closer to own their culture. Bartlett theorized a set of experimental results with two key concepts—social conventionalization and schema—and proposed two types of reproduction, one to investigate the reconstruction of memory in groups (*serial*) and the other to study it over time (*repeated*). Schemas are not just entities that make the organism work, but something that the organism can work with (Cole & Cole, 2003). Remembering is to make a link between the schema and “specific traces, and the latter are usually represented by images.” (Larsen & Berntsen, 2003, p. 92). The image selects pieces of schema (Bartlett, 1932/1997). We select the images through the concept of attitude it will guide and influence the process of remembering. As Larsen and Berntsen (2003) explain, the role of attitude in remembering has been somewhat sidelined, even though attitude seems to be there from the beginning to the end of those processes. Indeed, the attitude toward the performance of recall (hesitation, doubt, ...) and toward the material (disgust, fear, ...) affects the encoding and the recall of information (Larsen & Berntsen, 2003). Schema refers to an active process, for example, if we read a text, we will not accept it passively, but we will interpret it according to tendencies of our groups.

Social conventionalization is “a process by which cultural materials coming into a group from outside are gradually worked into a pattern of a relatively stable kind distinctive of that group” (Bartlett, 1932/1997, p. 280). This conventionalization, considered as a process of cultural change (Duveen, 2007), is composed of four stages: assimilation, simplification-elaboration, retention of details, and the social construct, knowing that they do not appear in a pre-established order. In the assimilation, only the material that already had an appropriate background in the culture of the receiving group is retained (Bartlett, 1932/1997). After this pre-selection, the receiving group will name the material and it will be classified in a schema. Through nomination (Kalampalikis, 2002, 2007; Saito, 2003), the material will obtain an identity, will receive even more meaning and will be more embodied by the receiving group. These new associations will result in an affective attitude toward meaning (not to the material as such). A detail will become central and the group will associate to it other details (persistent tendencies), it is in this way that the material is transformed into something more familiar: it is conventionalized.

Simplification aims to change the strangeness into something similar, but familiar (Bartlett, 1932/1997). What has been retained after the persistent tendencies will generate other details: those which will not allow to better understand the material will be reworked or forgotten (Saito, 2003). Elaboration has several forms: interpolation and concretization. Interpolation will make the material more coherent and logical through processes of inference or rationalization (Bartlett, 1932/1997). When it is possible, concretization makes things more concrete by taking, for example, a particular type of phrasing (Bartlett, 1932/1997). After these two steps, two more are added, retention of details and the social construct. The group will remember details, to all appearances unimportant. This detail could be, for example, a clear mark of the external cultural origin to the material for the group. In this way, while the rest is conventionalized, these details are kept in mind (Saito, 2003). These details, which resurface in memory as a central point of memory, can be in the form of images, words, or sentences (Bartlett, 1932/1997; Larsen & Berntsen, 2003). The second additional step is the social construct. The group will transform an element, and in return this element will change the social schema in which it is classified as well as the practices of the group in which this element was embodied. These different stages (assimilation, simplification-elaboration, retention of details, and social construct) do not occur in a chronological order, they are simultaneous (except the assimilation which tends to be at the beginning). Conventionalization is linked to memory and schema since they represent the influence of the past in the present. Conventionalization and schema formations make it possible to understand cultural transformations. If two groups are in contact, practices or materials will be conventionalized. This new form will come from the “shaping” of the new practice by the group based on persistent trends (Cole & Cole, 2003).

After his experimentations, Bartlett found that the story was shortened, its style and its rhythm were very rarely faithfully reproduced, its details were quickly stereotyped and that the sentences and the events were modified in such a way that they appear more familiar to the social group to which the subject belongs. His work has influenced many studies including studies on rumor (Allport & Postman, 1947) and more recently on the reconstruction of popular symbols in the modern Egyptian society (Awad, 2016; see Wagoner, 2017a). More broadly, Bartlett has been studied from the angle of “narrative approach” (Bruner, 2015), the “socio-cultural approach”, the theory of social representations (Moscovici, 2012, 2013; Saito, 2003), and with the “anthropological psychology” (Rosa, 1996). However, no replication of his method of repeated reproduction has been published in the French language until now (for the adaptation of his method of serial reproduction in a French language, see Cerisier, Haas, & Kalampalikis, 2017).

### *The narrative and the proverb*

Bartlett used the tale: “The Story of Ghosts”.<sup>2</sup> He chose it because it allowed communication between people (Rosa, 1996) for the following reasons. This story was far removed from the subjects’ culture; the style of writing was unusual; it gave a

confused aspect to the story, as if the elements had no relation between them; the story had a dramatic and supernatural aspects. Bartlett thought it would engender more images and allow the subjects to shine a light on the suggestions into the text. His conclusions were that tales were transmitted more correctly than any other material, because we have got implicit story schemas (Mesoudi, 2007). Fiction creates possible worlds, but these worlds come from our real world (Bruner, 2002). Indeed, the stories are written, built, but we connect them to reality and to talk about our experience, we are based on these narrative models. When the law takes its legitimacy from the past (case law for example), the narrative takes it into the “possible” with the only limit the plausible. Culture shapes our expectations, but it also takes a malicious delight in showing us the “drifts” of its own standards with its myths and stories (Bruner, 2002). We take them into account in our lives and if they do not correspond to the current world, we adjust it; we are “handymen/women” (Lévi-Strauss, 1990, personal traduction). We will look in the stock of stories we have to explain what happens to us. Works of fictions are decisive in acculturation and knowledge; it is a tool that allows us to “know” our environment and to do so we use language (Bruner, 2000). Studying it makes it possible to understand how humans build their realities.

Stories can also have a moral purpose, especially the fable. We can find this form of generalization explicitly written at the end of a story, or, we can deduce it ourselves. These few words that can summarize a story are linked to the proverbs. The narrative is sometimes related to an unfolded proverb (Rey, 2015) and often shares most of the characteristics outlined above for the proverb (anonymity, truth, common construction, morality, and advice). The fable and the proverb have in common the will to establish or reinforce social and/or moral laws of the ordinary world. However, unlike the proverb, the narrative is not concise and thus involves a particular sequentiality (Bruner, 2015), which makes it possible to understand a story, to feel it as real, to “live” it, and to remember it.

The proverb appears in various literary genres, but it is only very slightly defined as such. We chose to insert the proverb as a short story in the world of longer stories (myths and tales). Although they are different in their forms, stories and proverbs share characteristics and that is why we decided to unite them, because one allows us to better understand the other and vice versa. We can affirm that the proverb is a singular utterance both in its content and in its form. What makes the proverb unique is the interweaving of the following particular characteristics: anonymity (Amey, 2002), experience (Ghattas-Soliman, 1981), truth (Anscombe, 1994), advice (Gergen, 1990), morality (Adam, 1999), metaphor (Kleiber, 2010; Penfield & Duru, 1988), common construction (Amey, 2002; Rey, 2015), conciseness (Zouogbo, 2008), and astonishing stability (Penfield & Duru, 1988; Rey, 2015). Peculiar to each culture because it “carries the weight of human experience in a condensed form” (Penfield & Duru, 1988, p. 120), the proverb is collectively constructed, has no author, and is part of ordinary everyday knowledge, in other words, our common sense (Moscovici, 2013). When we say a proverb, we refer to all the people who said this proverb before us. To all appearances,

the proverb could be considered proper to the profane utterance, yet it relies on an indisputable authority, the “ONE” which aims to “increase credibility by placing itself above diversity” (Grésillon & Maingueneau, 1984, p. 114). Amey (2002) speaks of “one-truth”, it is a common truth, collective and recognized (Amey, 2002). The proverb is a language expression highlighting our representations on social phenomena. Its brevity makes it a practical material for generalizing a situation, such as “a comrade that one is happy to find again” (Rey, 2015). The proverbial wisdom would be born in the horror: “It saw the light of the day in a society that was disproportionate in misfortune, violence with any restraint, cold and famine. A ruthless society where absolute stability seemed the only way to keep the people from disaster, epidemic, war, massacre, terror and death.” (Rey, 2015, personal translation). A more recent example could be related to the attacks of 13 November 2015, the Paris motto “*Fluctuat nec mergitur*” resurfaced. It symbolizes the crises, revolutions, and dangers that Paris has known, but that this city has managed to face and overcome by force and courage. Under this motto, Paris seems strong, able to overcome all the trials. These three words from Latin were the subject of mass communication, climbing the Eiffel Tower, having been “tagged” and having been the subject of many “post” on social networks. This motto seems to gather people together around the claim of a strong identity facing painful events. Moreover, proverbs seem to have other social functions. They can sometimes be distorted (Wosniak, 2009), a means to manipulate (Mieder, 1982), to reduce dissonance (Stalder, 2010), or to spread rumors (Gavillet, 2003).

The vocabulary associated with myths and proverbs sometimes demonstrates how they are perceived. Concerning proverbs, in the 17th century, a popular uprising broke out and proverbs were pointed out as the language of narrow-minded and ridiculous people (in *The Litigants of Racine*, 1669), or reduced to stupid “truisms” (in *L’Oublieux of Perrault*, 1691). It was not until the 19th century that proverbs experienced a resurrection through cinema, theater, and fairy tales. It has even been used by psychiatrists and psychologists to detect mental illnesses such as schizophrenia (Zouogbo, 2008). Indeed, according to Gorham (1956), a person diagnosed with schizophrenia cannot understand the metaphors present in the proverb. At the same time, proverbs do not give out under the weight of contradiction, the fact that something “deviates” from the rule in no way detracts from its “truth” (Anscombe, 1994). In the use of proverbs, this duality does not put ourselves in a difficult position. “Every cloud has a silver lining/it never rains but it pours, one swallow does not a summer make/where there is smoke there is fire” are examples, these proverbs are complementary, but not contradictory. It is thus a matter particularly resistant and which makes admit the faculty of the mind to be contradicted. If Moscovici and Marková (2000) speak of cognitive polyphasia, which represents “various and often opposite modes of thought” (p. 245), here these are opposing thoughts. Another commonality with common sense thinking is the use of metaphor in proverbs. The proverb often uses the metaphor and this allows it to be connected to the whole field of the symbolic

discourse, thanks to the rich content of symbol (Pouilloux, *Encyclopaedia Universalis*). This metaphorical virtue is part of the social utility of the proverb because naming the unknown is a way to apprehend it, to become familiar with it. The structure of the proverb seems to be a crucial point to grasp the cultural issues unfolding around it. It would be enigmatic metaphors that would refer to the characteristic ambiguous of reality (Soriano, *Encyclopaedia Universalis*). This movement of the analogy between the old and the new guides us to the theory of social representations that describe these anchoring processes allowing familiarization with our social world.

The proverb has often been studied under different approaches (linguistics and paremia), which have been fundamental to understand this object, but little study is devoted to it as an object in social psychology. As we have seen, the inherent characteristics of this type of sentence make them useful and practical materials. They represent an interesting subject for the study of common sense thinking since they constitute popular truths, because they have been socially elaborated and because they involve a practical thought. As for the narrative, it allows us to understand the “normal” proceedings of events and the transformation of an individual experience into a collective one and it has been much more studied in social psychology. We decided to study the proverb and the story for features they had in common, especially their inclusion in the social thinking, but also because they collected enough differences to be compared. These studies have allowed us to integrate the proverb in the same way as the narrative as cultural material to study transmission. The theoretical framework has highlighted the inscription of proverbs and stories in the available knowledge content forming part of social thought. They are objects of a cultural transmission allowing the individual to interpret events. With the teaching of the theory of social representations, of popular and cultural psychology, we have chosen, following Bartlett’s model, to work these materials in a form culturally foreign to the group. In our case, we especially wanted to observe the recollection of the proverb over time, since it is transmitted from generation to generation. Thus, we opted for the method of repeated reproduction. This method has been reworked and extended by many authors but with different goals. Some of them wanted to understand if the transmission depended on the groups that remember. It seems that age (Northway, 1936), situation (Maxwell, 1938), or the culture in which we live (Nadel, 1937) change the way we remember. Gauld and Stephenson (1967) wondered which was the instructions that Bartlett had proposed during these experiments. Gradually, following Bartlett’s warnings about the opposition between the cognition and the social, several research studies are emerging with more mixed approaches. It is with this in mind that Wagoner and Gillespie (2014) opted for a cognitive, social, and cultural approach, nourished by studies conducted until then, to refine and extend the method and the analysis. They decided to carry out the experiment with dyads, just as Bergman and Roediger (1999). According to Wagoner and Gillespie (2014), be in pairs to “remember” facilitates natural conversation and gives an overview of the “black box” between input and output. Following the warnings of

Edwards and Potter (1992) about the inadequacy of an analysis based only on a correct or incorrect recall classification, they decided to analyze data through sociocultural mediators (which we will define later).

So, this article has three main objectives. The first one is to replicate, for the first time in French, an original experiment of F.C. Bartlett (1920, 1932/1997) with the same narrative he used: “The War of the Ghosts” and to compare our results with Wagoner and Gillespie’s (2014). The second objective is to propose to study proverbs from a psychosocial point of view by using the method of repeated reproduction. Even if the proverb and the story are similar in their characteristics, they differ in their lengths and when one uses more the implicit, the other uses more the metaphor. Thereby, the third objective is the comparison between memory processes for the proverb and the story.

## Methodology

We chose to support and compare our results (only for the narrative) with Wagoner and Gillespie’s study for the qualitative analysis of interactions between participants. Thereby, intermediate instructions, dyads based on a pre-existing friendship, profile of our population (students between 18 and 32 years old), as well as the methods of analysis were based on Wagoner and Gillespie’s study (2014).

### Materials

*The story.* Originally used by Bartlett (1920, 1932/1997), the tale “The War of the Ghosts” allowed us to study narratives. Thereby, we translated this tale into French (cf. appendix). This is the first material we used.

*The proverb.* To preserve the unfamiliarity of the material (Bartlett, 1932/1997), the chosen proverb came from a different culture, in this case from Ivory Coast: “If you do not accept that the sun hits your back, the moon will not hit your stomach”. It was ambiguous enough since it could be understood in many ways, but the underlying meaning was: if we cannot agree to experience an unpleasant moment (sun on the back), we will not be able to reach a state of well-being and satisfaction (moon on the stomach).

### Participants

Eighteen student dyads<sup>3</sup> (22 women, 14 men, average age 22 years) in three major French cities who already knew each other volunteered to participate. We asked people who were at the library and surrounding area if they volunteered to participate. The study was presented to them as an experiment which started with a 45-minute session on reading and games followed by a second 30-minute meeting one week later.

## Proceedings

All participants had to come to both sessions. All instructions were both oral and written, and all responses were written (by hand) by the participants. The study consisted of eight stages: six were conducted during the first week and two in the second week (see Table 1). The first three stages were interchanged with the three following stages in order to neutralize any order effect. The 18 dyads had to read the story “The War of the Ghosts” and the proverb “If you do not accept that the sun hits your back, the moon will not hit your stomach”. Nevertheless, since the sounds of the proverb appear to be central to it, 10 dyads have read it silently (part 1), as for the story, and eight dyads have read it silently and then aloud (part 2).

**Table 1.** The eight stages of the procedure.

Week	Stage	Title of the task	Content—instructions
First week	1	Reading the proverb	Double reading of the proverb for a part of the dyads (part 1) at a normal reading rate. For the other part, after reading the proverb, one of participants had to pronounce it aloud and the dyad partner listened twice (phase 2). This step was individual when it came to reading, but collective (with a partner) when it came to listening/pronouncing (only for part 2).
	2	The socio-demographic form	A socio-demographic form was proposed individually to the subjects as a distraction task.
	3	Reproduction of the proverb	Participants had to discuss and write together the proverb as they remembered it.
	4	Reading the narrative “The war of the Ghosts”	Reading the tale twice individually at a normal reading rate
	5	Distraction task—game (time’s up) <sup>a</sup>	15-minute playful game to avoid recency and primacy effects.
	6	Reproduction of the narrative “The war of the Ghosts”	Participants had to discuss and write collectively the narrative as they remembered it.
Second week	7	Reproduction of the proverb	New reproduction of the proverb by the same participants (identical to task 3)
	8	Reproduction of the narrative	New reproduction of the narrative by the same participants (identical to task 3)

<sup>a</sup>We chose to integrate a game as a distraction task (Time’s up). This game had rules that were not adapted to the situation, so they were modified. The choice to use a game rather than simple mathematical exercises is justified by several points. A game had the benefit of being more fun for the participants, it had the advantage of breaking the stressful aspect of the experiment and since it was a speed game, participant’s concentration was intense and the task proved to be very distracting.

### *Data collection*

We took into account both the written and oral productions (stages 3, 6, 7, and 8). Following the indications of Mandler and Johnson (1977), Bergman and Roediger (1999), and Wagoner and Gillespie (2014), in their own replication of Bartlett's experiment, we divided the translated story into 42 proposals (or units of ideas), which perfectly matches with the English version. The proverb was also divided into two proposals. Each of these was treated as either "accurate" or "distorted" (see Wagoner & Gillespie, 2014). Oral productions were faithfully transposed and it is on this basis that we looked for the sociocultural mediators.

### *Data analysis*

*Written production coding.* As we said, the entire of story propositions was set in relation to the material written by the participants. For a given proposition, it was coded as "forgotten", "accurate", or "distorted" (see Bergman & Roediger, 1999). The "distorted" proposals were separated into two types: minor distortion (changes in the surface structure of the propositions, reformulation which generates a noticeable change, but while remaining correct) and major distortion (change in the meaning of the sentence). These major distortions are achieved either by normalization (something is replaced by another) or by inference (added information not provided in the story) or by import (a new element appears without a direct link or with unknown origin). Making a distinction between different distortions allows us to get into position on the change of meaning. This method makes it possible to compare the data between the previous studies and to have a first idea of the reproduced material, but as Edwards and Potter (1992) have pointed out, an analysis exclusively based on this classification is not sufficient. It is on this point that a qualitative analysis of material via sociocultural mediators takes on its full meaning.

*Oral production coding.* Wagoner and Gillespie (2014) highlighted several mediators<sup>4</sup> in order to understanding memories "in the making", and this is why we chose to take this study as an element of comparison. "Imagery" refers to expressions that characterize the pictorial aspect of memory (e.g. "I have it on the tip of the tongue"). "Narrative coherence" is the moment when participants consider that something "must" have been said in the text. "Deduction", which has similarities with narrative coherence, is based more on common sense and logic and less on the coherence of the emerging text. "Repetition" is a word or utterance that comes back twice or more, it shows a key point in the reasoning of those who remember. "Rhythmic gesture" is a mediator that must be taken into account and observed, although it is difficult to note the frequencies. The sixth indicator is "questioning", questions can be directed at the other or self. They will be taken into account as a result of dialogic thought and as a means of remembering (Wagoner & Gillespie, 2014). The last indicator is the "deferring to the other". These are the concessions made in the relationship between two people to determine which memories of

which person they will rely on in case of “memory dispute” (Wagoner & Gillespie, 2014). By using transcripts of participants’ speeches, they were counted up.

## Results

### *Written productions*

*The story.* In Tables 2 and 3, we note that in both replications (Wagoner & Gillespie’s one in 2014, and ours in 2017), the mean proportion of proposition “accurate”, of proposition “distorted”, and the proportion of errors follow the same trend and have similar values. Between the two recalls, the percentage of “accurate” proposition decreases (−5% in 2014 and −8% in 2017), the percentage of errors increase symmetrically (+7% in 2014 and +10% in 2017), and the percentage of “accurate” propositions is lower than “distorted” proposals. The percentage of distorted propositions is lower than that of errors, which means that in both studies, a large number of propositions were omitted. Concerning the proportion of errors, we notice that in 2014, the final material produced had more omissions, but fewer deformations. However, in 2017, the final material proposed by participants presented both more forgetfulness and distortions. During the second recall session, the rate of “correct” proposals dropped again (−8%), whereas “distorted” proposals increased again (+8%). The proportion of errors increased by 10%, which means that there are fewer proposals recalled, whether correctly or not. This reflects a loss of material, the subjects do not remember as many proposals as they did during the first recall, and those which they remember are more transformed.

*Story–proverb comparison.* Even though the proverb and the story share characteristics, they are different enough that we supposed distinct processes of remembrance. Figure 1 (see below) schematizes the temporal evolution of the proportion of error. It shows differences and similarities between proverbs (phase 1 and 2) and the narrative.

Unlike the narrative, no proverb proposals are forgotten, most probably because it is shorter ( $n = 2$ ) and consequently that is easier to remember that it

**Table 2.** Data collection.

	
<p>Written production coding :</p> <ol style="list-style-type: none"> <li>1) Correct/distorted (Wagoner &amp; Gillespie, 2014)</li> <li>2) Minor/major (Bergman &amp; Roediger, 1999)</li> </ol>	<p>Oral production coding via socio-cultural mediators (Wagoner &amp; Gillespie, 2014)</p>

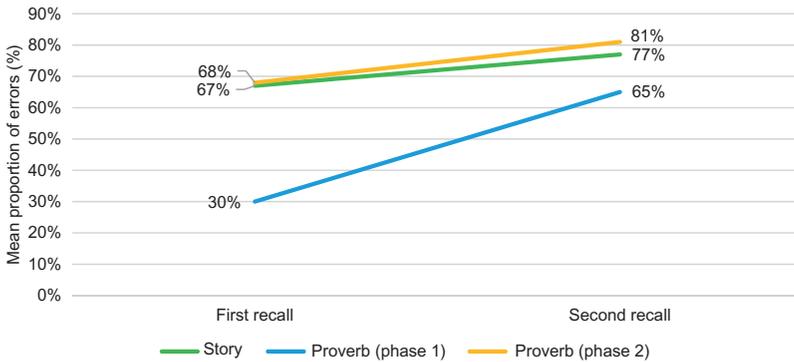
**Table 3.** Comparison of our results of the story remembering with Wagoner and Gillespie’s (2014) ones.

	Wagoner and Gillespie (2014) First recall (15 min)	Current replication (2017)	Wagoner and Gillespie (2014) Second recall (1 week)	Current replication (2017)
Mean proportion of accurate proposition <sup>a</sup>	15%	20%	10%	12%
Mean proportion of distorted proposition <sup>b</sup>	41%	41%	41%	49%
Mean proportion of errors <sup>c</sup>	75%	67%	82%	77%

<sup>a</sup>“Mean proportion of accurate proposition” is the percentage of accurate propositions out the total number of propositions in which the story was divided (i.e. 42).

<sup>b</sup>“Mean proportion of distorted proposition” is the percentage of distorted propositions out the total number of propositions in which the story was divided (i.e. 42).

<sup>c</sup>“Mean proportion of errors” is the percentage of distorted propositions, but not including forgotten propositions. On the final material produced by the participants, if 20 propositions have been recalled, the proportion of error is the number of distorted proposition on these 20, and not on the 42 propositions of the story. We discuss of a proportion of errors and not “mistakes” as such.



**Figure 1.** Mean proportion of errors for narrative and proverb (phase 1 and 2).  
 Note: Part 1: proverb read silently/Part 2: proverb read aloud.

contains two propositions. After one week (second recall), the proportion of errors increased. On the final material produced by the participants, for the story, there was 77% of “distorted” propositions, for the proverb which was read silently, there was 65% of “distorted” propositions, and for the proverb which was read aloud, the final material contains until 81% of “distorted” propositions. When the proverb was read aloud, it seems to follow the same temporal evolution of the story, which means that both of them were quantitatively the most transformed materials over time. Nevertheless, it is when participants were read the proverb silently that

**Table 4.** Types of deformation of materials.

	First recall	Second recall
Minor distortion		
Story	56%	65%
Proverb (part 1)	20%	25%
Proverb (part 2)	31%	31%
Major distortion		
Story	10%	11%
Proverb (part 1)	10%	40%
Proverb (part 2)	37%	50%

Note: The values shown in this table represent the average percentage of propositions which have new minor or major transformations on the total number of proposition recalled by the participants, without taking into account the forgotten proposals.

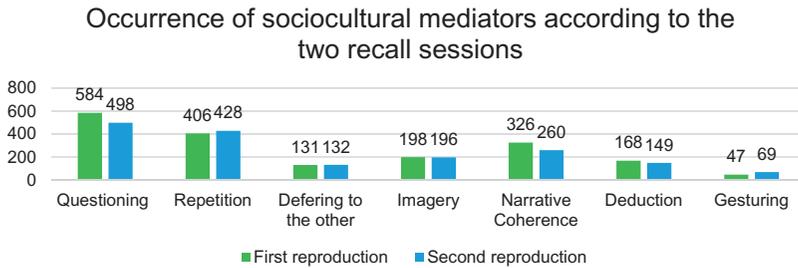
the fastest transformation appears between the first and the second session (+35%). But what about the type of deformations?

Table 4 shows the distribution of the two types of distortion in the participants written reproduction. We note that the distribution of the distortion for the narrative changes only for minor distortion (reformulation, for example, “*They hear screams, maybe of war*”<sup>5</sup>) from the first to the second recall session. For the narrative, there is a significant difference between the number of minor and major distortions that is to say that for both sessions, the story is mainly transformed by rewording and not by change of meaning.<sup>6</sup> For the proverb in part 1, even if the minor distortions vary little, the number of major distortion increases by 30%. This means that the recollection of the proverb occurs in the participants’ memory with a different meaning. Finally, for the proverb in part 2, the minor distortion is stable. However, the major distortion increased by 13%. The meaning of the proverb which has been read silently is changing faster (+30%) from one session to another than the proverb which has been pronounced (+13%).

What we can first conclude is that the narrative and the proverb when it was pronounced are more transformed than the proverb read silently. In light of the type of deformations, we notice that for the narrative, it is mainly reformulation (minor), whereas for the proverb (part 1 and 2) it is especially change of meaning (major).

### Oral productions

*The story.* Figure 2 shows, according to the first and second recall and for each socio-cultural mediators, the total number of occurrences in the story reconstruction. Questions, narrative coherence, and deduction decrease between the first and the second recall, certainly because the frame of the story and its meaning have already been thought. Imagery and reference to the other remain quite stable between the two sessions. Finally, we note that repetitions and gestures increase between both sessions. We can venture the hypothesis that the gesture, and especially the imitation, could



**Figure 2.** Sociocultural mediators and their occurrences in the story reconstruction.

reveal the incorporation of the text a week later. Concerning the repetition, participants were repeating more sentences to see if it looked like their first reproduction. However, to understand the role that these mediators play in discourse and in memory reconstruction in greater detail, it is necessary to use retranscription of participants' written and oral output and to perform a qualitative analysis of this data. As Wagoner and Gillespie (2014), and in order to put the speech of the participants in context, we propose extracts highlighting some socio-cultural mediators.

*Excerpt—From the first reproduction.* In the following excerpt, the participants try to find proposals No. 15, 16, and 17 by using several mediators: Deferring to the other's proposal, questioning, gesture, and imitation.

*Original:*

*"I will not go along. I might be killed. My relatives do not know where I have gone."*

*Written reproduction:*

*One of the two children renounces.*

*Participants' speech:*

*Interviewed 2 (Ied 2): he tells him "there are some in the canoe", or one of the men, I don't know, who? And the other, he says he has to go home to see his mother*

*Interviewed 1 (Ied 1): His family*

*Ied 2: ehm... his family*

*Ied 1: No no no no! In fact, he says "I have people who count on me", you see? Basically, in fact, that's it, you see?*

*Ied 2: (laughs), but we do not know that!*

*Ied 1: no, but he says something like "I can't fight, I have a family (imitation)", you see, it is in this sense that he says*

*Ied 2: ah yeah?*

*Ied 1: ah if I was devastated (laughs)*

*Ied 2: ah maybe yeah*

When it came to understanding why the character of the young man in the story did not go to war, a deductive element emerged, and frequently the story took on a

more dramatic tone. Thus, some participants concluded that this young man has people “*who count*” on him, unlike his friend who seems to have no family, according to participants. Other conclusions emerged as to the personality of the young man who does not go to war (often called “*coward*”), he “*grasses on his pal*” by saying “*you can die* (laughs)”. The participants used another mediator 116 times in all: the imitation of the characters in the text, as if it were a movie voiceover. Participants took on the voice of someone else, they embodied the story, and words came alive. This often gave the impression that they themselves had lived this story by proxy. This imitation often went hand in hand with a specific gesture.<sup>7</sup> Some mediators, absent from the proposed extract, allowed the participants to reconstruct the story. For example, a large number of participants decided to recall the story in its totality before writing it. They first sought the structure, the sequence of events, then, in writing, looked for details. In these moments of discourse, narrative coherence and deduction appeared, although there is prevalence of narrative coherence on deduction, “what they must have meant” was more often discussed.

In the second session, these two mediators (deduction and imitation) appeared to be lower in number than in the first reproduction, certainly because the structure of the story had already been thought upon and established. Frequently, participants agreed that the text explained that the Indian is touched and then they cogitated, in the light of the images they had in their heads. It is only by putting into words what participants imagined that they bring new elements. These images were very useful for understanding and recalling the text. But it must be said that images, come from elsewhere, often “interfered” with the memory of the text and were difficult to superimpose with the emerging text.

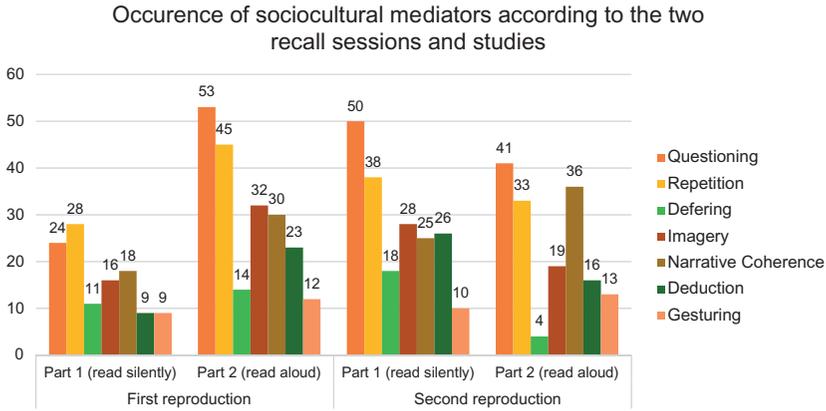
*The proverb.* Figure 3 shows, according to the first and second recall and for each sociocultural mediators, the total number of occurrences in the proverb reconstruction (part 1 and 2). It should be noted again that this figure compares the results of 10 dyads (part 1) with the results of eight dyads (part 2). Occurrences of sociocultural mediators in their current form should not be compared. Nevertheless, unexpectedly, we notice that all sociocultural mediators are present in a greater quantity in part 2 even if fewer dyads are included ( $n = 8$ ). In addition, it is interesting to note that for the proverb of the part 1, all the sociocultural mediators decrease during the second session and that is the opposite for the study 2, they increase. We will try to understand the reasons in the discussion, but this figure shows already that pronunciation of the proverb changes its memory reconstruction.

*Excerpt—From the first reproduction.* In the following excerpt, the participants try to find proverb proposals by using imagery

*Original:*

*“If you do not accept that the sun hits your back”*

*Written reproduction:*



**Figure 3.** Sociocultural mediators and their occurrences in proverb reconstruction (part 1 and 2).

*If you do not want the sun go through your stomach*

*Participants' speech:*

*Interviewed 1 (Ied 1): Slice? Go through? At least, there was something of the aggression registry, I think ...*

*Interviewed 2 (Ied2): Hum, yes, it wasn't nice, I agree, but I don't know what it was. ...*

*Ied 1: If you "thing" your stomach, then do not turn your back to the moon or something like that*

*Ied 2: (laughs) yeah it was something like that*

*Ied 1: in any case ...*

*Ied 2: there was the back and the moon, that's it*

*Ied 1: in any case the guy was going west ...*

Participants attempted to retrieve the proverb by finding the hidden meaning of the sentence. In discussions, images that participants had in mind were not necessarily shared, and sometimes they bumped into each other. In the excerpt above, we find a vocabulary expressing a certain violence but also an allusion to a direction. This impression of direction is certainly related to the opposition in the sentence between sun and moon. For most dyads in both studies, the "violent" aspect of the verb hitting in the proverb was disconcerting and seemed to cause immediate misunderstanding. "Hitting" is hard to understand as something which brings a benefit or something positive.

The proverb seems to have been fragmented in the participants' minds and gathering words and propositions as a puzzle is too costly. Logic is very important since it allows later referral to an element. Nevertheless, something which differentiates the two phases on the proverb is repetition. As the participants repeated the proposal, they expected the puzzle to be reconstructed, in other words that sentences and meanings suddenly appeared. Repetition seems to lead to a

reduction of uncertainty. The high number of repetitions is certainly related to the fact that the proverb had already been read aloud and that participants were trying to recall the sound of the spoken words. Regarding gestures, it seems to be a good indicator, but since it is difficult to identify them in the audio data and to find all of them by observation, it represents an incomplete window on the psychological processes in progress. Nevertheless, in the corpus, different gestures have showed different intentions. For example, when a new idea was uttered and one of the participants did not remember it, he was stepping back and frowns, or just laughs. In a different way, to persuade the other that what he remembers is correct, many movements of the hands have been raised (pointing the sheet with the finger, make the big eyes as when a memory comes back, . . .). Although it is not a gesture strictly speaking, laughter is particularly present in the discussion between the dyads and permit to accept the misunderstanding of the meaning of the proverb.

## Discussion

Analysis of socio-cultural mediators provides a great deal of information about memory reconstruction in dyads. The subjects organized their memories around what they believed had been said, according to narrative models (narrative coherence) and reacted to their own statements in the same way as they react to each other's utterances (schema). It was very common to observe a persistence in the story shape, here as the reminiscence of the general framework of the story before remembering the details. There was a willingness to accept and become familiar with the story content and its writing style by making connections with elements outside the story. Nevertheless, this symbolic thought has not been mobilized all the time, and sometimes the stigmatic thought (Kalampalikis & Haas, 2008) has taken over. Sometimes, in the participants' conversations, the desire to maintain a certain amount of strangeness was expressed. After deducing that the story and the proverb did not come from the same culture as them, the participants became familiar with the idea that this story and proverb would not become familiar to them. So, sometimes, when things appeared to be too complicated, they tried to rewrite the text as it was originally written without seeking meanings.

Having made the story alive through imitation led the participants to laugh, and as Bartlett wrote (1932/1997, p. 89), comic situations make it easier to remember the story, as long as there is laughter. The socio-cultural aspect is represented by transformation of the narrative language into the group's own oral language,<sup>8</sup> and also as the way of living history with cinematographic references<sup>9</sup> seems to be peculiar to a culture anchored in the seventh art. This anchoring, in its dynamic vision (Kalampalikis & Haas, 2008), allows the story to be incorporated into the networks of knowledge already present for the group and in this reciprocal relationship of the known to the unknown. An important aspect is the time elapsed between the current replica and the originals. For over a century now, science fiction in artistic productions (cinema, literature, and comics) has developed considerably. The presence of ghosts in these productions has certainly made them

more familiar, and explanations such as “*it does not suffer because it is a ghost*” seem less strange and sufficient to understand why the character has continued to live after being shot. This new “narrative model” (Wertsch, 2002), according to which the protagonist is a ghost, organizes these elements and makes the story more coherent. Through the anchoring of novelty (i.e. this strange story) within more familiar knowledge, and through the reverse motion (i.e. familiar knowledge in novelty), participants could adapt the story to something closer and more understandable to their social group. This analogy will not be insignificant and without effect, the old and the new will be impacted by this new relationship.

We find other results similar to those of Bartlett (1932/1997, p. 79) such as the creation of a “sympathetic weather”: participants’ memories were organized around a pattern related to time.<sup>10</sup> The “persistent tendencies” seemed to have influenced memory reconstruction memory to make it more conventional and in keeping with the representations of the participants. Three senses of movements are mixed up, namely, sunrise/sunset, getting up/falling down, and getting up/going to bed. In this way, participants fight against what they have in mind because some elements collide with their cultural expectations and they only remember a “broad metaphor of orientation” (Wagoner & Gillespie, 2014, p. 13). The most frequent omissions identified by Bartlett (1932/1997, p. 81) are very similar to ours, namely, title, proper names, and specific numbers. Although most of the time there was an insistent look at what has been recalled in the written reproduction, correctly or distorted, the forgotten proposals were of great interest. A large number of proposals “disappeared”, on an average, 40% of the proposals were missing from both written reproductions. Some of the “forgotten” proposals create interference with the recalled proposals and sow seeds of doubt in the participants’ minds. Count propositions omission on written reproductions would not be enough to conclude that there is a real forgetfulness, if it is not written, it does not mean that it is not thought or discussed: “The communication of a message does not coincide exactly—or only—with its linguistic expression” (Kalampalikis & Moscovici, 2005, p. 16). The most forgotten proposals are located at two strategic points in the text: at the beginning<sup>11</sup> and at the end.<sup>12</sup> In “The War of the Ghosts”, weather is described as foggy and calm, which is one of the most frequently “forgotten” proposition. The association between weather and mood create an interference with participants’ expectations. The representation of weather during a tragedy is often stormy, but in “The War of the Ghosts”, time is described as foggy and calm. We note that some of the proposals which are missing from written reproduction are not necessarily forgotten by participants. It even seems that some of them cause the distortion of recalled proposals. The participants seem to turn around something they feel, see, or understand without being able to name these images and distort a proposition in order to integrate this feeling. It was during the discussion that participants very clearly expressed this “impression”,<sup>13</sup> these images that they had, without knowing why they were manifesting here and now. These images that the participants had, which were particularly persistent, refer to the “aesthetic and creative character of representations”

(Jodelet, 2015, p. 90), and this underlines the importance of the imaged aspect of common sense thinking. Here, “persistent tendencies” (Bartlett, 1932/1997) have influenced the memory reconstruction to make it more conventional and consistent with representations. These two proposals highlight the need to inscribe the memory in a specific framework (Halbwachs, 1925/1994, 1950/1997). As Moscovici (2012) explained, our culture is a house, a *domus* in which we feel comfortable and it “operates in our affectivity, our memories, our thoughts and our actions” (p. 69). Thus, it is not surprising that the results of Wagoner and Gillespie (2014) and ours are similar, since the English and French words indicate the same directions, and all leads to a difficulty of understanding. Knowing that the image precedes the conceptualization (Jodelet, 2015), without these references, everything seems to be confused in the minds of the participants.

The imitation of characters, associated with laughter, is very present. Imitation corresponds to that particular form of expression which participants used to make the story come alive. The participants dramatized and staged the story by making the characters or the story speak. By embodying the story and its characters, the participants bring their own knowledge. Making a linguistic transformation on what was written certainly allowed the participants to appropriate the content by making it “theirs”, thereby reducing unfamiliarity. By appropriation, we mean that the participants seem to have lived the story by proxy through the characters. Although the experience can be lived, it can also be shared by others. Human beings have the ability to read minds (Bruner, 2000, 2002) and have intersubjectivity to capture the emotional states of others. Nevertheless, it is only in the conversion of experience into a narrative that experience can be passed on in an understandable way to others (Bruner, 2002). Reading others’ minds no longer depends on this capacity for intersubjectivity, but on the existence of a common ground, of a common sense (Moscovici, 2013). It is certainly through this process that participants appropriated the emotions and states of mind of the protagonists of the present story.

We tried to approach the proverb from a psychosocial point of view, especially in studying its memory reconstruction when it was foreign to a group. To do so, we studied it parallel to the story, which allowed us to have an element of comparison. In the long story “The War of the Ghosts”, deduction led the participants to further “deform” or even invent propositions. Conversely, for the proverb, deduction led to a more faithful reconstruction. The dyads who deformed the proverb least are those who looked for the meaning of the proverb and the metaphors of which it is made up. When the images that a metaphor inspired are aligned with those of a specific culture, as knowledge content, it makes it possible to better remember abstract things. When this is not the case, it causes difficulties of comprehension and therefore retention. It is certainly for this reason that the participants took longer to find a proverb proposal than to find a proposal for the story. In the story, there are more elements which can be connected in order to grasp the meaning. As Bruner (1990) explained concerning children: “Logical propositions are most easily comprehended by the child when they are imbedded in an ongoing

story” (p. 80). Some dyads managed to correctly reconstruct the proverb when they anchored the culturally distant metaphor to one culturally closer to themselves. There are therefore several stages in the reconstruction. Participants who did not seek the meaning of the metaphor made major deformations<sup>14</sup> (change of meaning). Those who did seek the meaning of the metaphor made minor deformations<sup>15</sup> (reformulations), and finally those who sought to link the metaphor to another, more well-known metaphor reproduced the proverb “correctly”.<sup>16</sup> So, the metaphor seems to be a mode to better remember, if one manages to anchor it in a territory of known meanings. The main problem in the proverb reconstruction is the metaphor. If the metaphor is not understood, morality cannot be either, and the proverb is thus an enigma, even though the characteristic of the proverb is the quick comprehension. The metaphor must be contextualized much more than conceptualized, otherwise, all the riches of the metaphor is left behind. To understand the results, we need to fit into a developmental-global conception of metaphor (Christensen & Wagoner, 2015; Cornejo, 2007; Cornejo, Olivares, & Rojas, 2013). Cornejo (2007) explains that metaphor insinuates more than it literally explains. Here, it is taken in its context of use, its meaning is changing and it has a very important role in the development of the explanation of the real. This is something more related to the perception than a concept. One possible example is that of a “galloping cancer”, it is not a conceptual interaction between the field of horse riding and the field of the disease, but the perception of the bodily experience of something uncontrollable (Werner, 1927/1978, quoted by Christensen & Wagoner, 2015). When the metaphorical elements of the proverb were read (sun/hit/back; moon/not/hit/stomach), participants had to imagine what that meant. More to fill the gaps of the unknown, imagination is an expensive process in which the experience of a person is interrupted by something that is far from here and now (Zittoun & Gillespie, 2015). We can imagine that the metaphor has the power to take us toward frames of space and time, as Halbwachs (1925/1994) understands, and that once “inside” we find a universe of meaning. “From this perspective, imagination creates a new or developed meaning when returning to the concrete situation in which it occurs” (Christensen & Wagoner, 2015, p. 518). But in the event that once it has returned from the timeless journey, the metaphor does not inspire an already known image, and we will still try to put it in the known. And it was here that we thought that a failure of meaning would occur. It is not so much the metaphor that allows the understanding (and the retention) of the proverb, but it is the fact that the presented metaphor is in agreement with our culture and its images. Social representations serve as interpretive filters, so participants seek a different meaning than the one presented. The second proposition of the proverb infringes cultural expectations, abrupt representations, and questions schema. And that is what Bartlett (1932/1997) explains when he admits that every person is not trapped and dominated by the schema. Indeed, in this case, we cannot consider culture as a fixed “heritage” (Moscovici, 2012, p. 13) that governs individual identities. “Knowing how individuals develop, resist or dominate their culture is something that justifies a line of genetic investigation” (Moscovici, 2012,

p. 73; personal translation). Through these words, the links with Bartlett's studies seem particularly evident. When Bartlett chose to use material culturally foreign from the group, it was not only to understand how Anglo-Saxon culture would transform material into something more familiar, but to open windows on the genesis of culture and to study its dynamic through its transformation and its appropriation. Since the meaning of the proverb was not sought during the first reproduction, and since a week elapsed between the two sessions, the increase of the number of errors in the second reproduction might come from a recollection, perhaps too distant and non intractable. Although there is no superiority of the one over the other, the most successful proverb reproductions are those where the deduction is present, only the dyads who have not sought the meaning have made major deformations. But this result seems strange, since in the face of an unfamiliar material, if we liken it to something we already know, to the schemas already present (Bartlett, 1932/1997), we should make more modifications. Even though there are more distortion and more deduction in the second proverb reproduction, it does not seem possible to understand this result as if the deformation was a function of deduction. This is an interesting comparison between the long story and the short story. In the long story, the deduction led the participants to further distort or even invent the proposals. Conversely, concerning the proverb, the deduction resulted in a reconstruction more faithful to the original proverb. Nevertheless, when the proverb is pronounced orally, the search for meaning is secondary and is often overwhelmed by narrative coherence. We assume that in search of a sound similar to the pronounced proverb, the participants repeated the proverb on a loop until it "sounds good". The proverb is short, so it is easier to memorize than a longer material. Goody wrote in 1977 that intentional repetition "(...) is a way to focus its attention by eliminating other information, this is why we often close our eyes and plug our ears" (p. 38). Nevertheless, this is not quite what we observe, the participants were in pairs and this repetition was addressed as much to oneself as to the other, seeking to provoke a reaction. Bartlett (1932/1997) explained that when we remember, we seek to reproduce the story as it was written. These results are found largely in the proverb of part 2 (read aloud), whereas for the proverb of part 1 (read silently), these results are only partially highlighted. This is certainly why the oral proverb and the narrative vary in parallel, as we indicated in the results. Nevertheless, in the story, the participants cut themselves off, laughed, had a lot of gestures, while for the proverb read aloud, the discussions were rather split with a specific speaking time and they were talking in unison. The construction of the Baoulé proverb is familiar to us, but its meaning, induced by the metaphors, is not grasped. Thus, by pronouncing the proverb, participants seem to have focused on the importance of the form and caused a distancing of the meaning. This could be one of the reasons why it is less well remembered than the proverb which was only read silently. We thought that saying the proverb verbally would permit to better remember it, but if that allowed to less deform it through time, the first recall have anchored a much more transformed memory than when it was simply read silently. Conversations that emerge in the proverb

reproduction were particularly repetitive. We could analyze these repetitions as an irrepressible need to assign meaning to an event or an object. At first sight, conversations seemed to have been made of simple repetitions juxtaposed to each other, but this repetition cannot be there without having a specific meaning. We could suppose that this redundancy “expresses the collective, the social bond” (Kalampalikis & Moscovici, 2005, p. 24) and that it could allow by using “common lexical repertoires, accepted and socially elaborated formulas” (Kalampalikis & Moscovici, 2005, p. 22) that its form and sound become more familiar.

This work includes the collection and analysis of 18 dyads (32 people) on two meetings spaced in time. It includes the reproduction of Bartlett’s study and methodology, with major support by the study by Wagoner and Gillespie (2014). Thus, since never reproduced in France, a work was intended for the translation of the protocol and materials. Our results seem to allow a validation of the story in a French language. Another part of this study focused on the proverb. We wanted to observe how the memories evolved according to whether the proverb was just read silently or if it was read aloud. Since the proverb is a material that plays on the sounds, we made the hypothesis that it would be better retained if it had been read aloud. This hypothesis has not been validated, and even the opposite may happen. Through this study, we tried to show that the story and the proverb were culturally inscribed and that it was difficult to understand them if they came from a culture different from ours. Matter is lost, added, and invented over time by processes of conventionalization, anchoring, and the influence of social surroundings. We can also conclude that the proverb, through this deeply social and cultural characteristics, is an interesting object, even an occasion, to understand how we reach to socially represent things. This collective reconstruction of memory is done using strategies including the use of sociocultural mediators. More generally, repeated reproduction seems to be relevant for studying cultural transmission over time or social sharing of materials. Our results suggest that proverbs from another culture are more transformed over time, while orally remembering them stabilizes this transformation. It helps us to understand the processes implemented in order to represent, and remember what surrounds us, and the means used to do so. In art, science, or in the media, it is a vision of reality that is offered to us, shaped and sometimes staged, these common and cultural materials also form an important part of our social world (Moscovici, 2012).

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## Notes

1. This active role could be exemplified through nomination. A group can show its desire for a cultural representational change by giving a new name to something (see Philogène, 2001).
2. He also used “The son who tried to outfit his father” (Roediger III, Bergman, & Meade, 2003).
3. Scientific areas: social sciences (44.4%), science and technology, sports (16.6%), law, administration, political science (16.6%), arts, communication, culture (11.1%), management, economy (5.5%), and health care (5.5%).
4. Imagery, narrative coherence, deduction, repetition, question, rhythmic gesture, and deferring to the other.
5. See proposal no. 3, appendix.
6. When the distortions were major (7%), in 32% of cases, this due of a normalization (e.g. “*they are hiding in nature*”) and of an inference in 41% of cases (e.g. “*Arrived at the village, the hostilities are launched, the inhabitants are all around, the fights surround the group*”).
7. “Then there’s the canoe coming in and they say oh it’s warriors (imitation)”, for example, in this excerpt, the participant does not only take a voice different from their own, but opens their eyes wide, turning their head to imitate the surprise presumed to be experienced by the two young men of history.
8. “*yeah ! and you can snuff it, you don’t have a family!*”
9. “*Interviewed 1: I don’t remember ... oh, wait! I’ve got something like ... blood ... were killed ... there was a lot of stuff ... no, but wait, I think that I combine with films with women and children ... | Interviewed 2: no no no it’s not Game of Thrones*”.
10. The two most distorted proposals in the first and second reproductions are the ones that open and close the story temporally. 1 explains that it is night, 38 is based on the rising sun. We can assume that night and day are associated with particular events. The night would be tragedy or drama and the day a happy end, but in this tale, the opposite happens.
11. One night, two young men from Egulac went down to the river to hunt seals.
12. When the sun rose, he fell down.
13. “*I have a sense of direction. . . to the west*”
14. If you do not want the sun to stab your stomach, then do not turn your back on the moon. Example of major distortion by inference (from study 2).
15. If you do not want the sun hits your back, the moon will not hit you. Example of minor distortion (from study 2).
16. If you do not accept that the sun hits your back, the moon will not hit your stomach. Example of a proverb “correctly” recalled (from study 1).

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**Nikos Kalampalakis** is full professor of Social Psychology at the University Lumière Lyon 2 (France) and member of the lab GRePS (EA 4163). His actual work on social representations deals with symbolic practices of kinship and gift. He edited two books with Serge Moscovici (*Reason and Cultures*, 2012; *The Scandal of Social*

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## Appendix I

*“The War of the Ghosts” French translation and division in 42 proposals*

1. Une nuit, deux jeunes hommes originaires d'Egulac descendirent à la rivière pour chasser le phoque
2. Une fois sur place, le temps devint brumeux et calme.
3. Ils entendirent alors des cris de guerre
4. et pensèrent: “Ce doit être une expédition guerrière”.
5. Ils regagnèrent le rivage
6. et se cachèrent derrière une souche.
7. Des canoës arrivèrent.
8. Ils entendirent le bruit des pagaies
9. et virent l'un des canoës remonter à leur niveau.
10. Il y avait cinq hommes à l'intérieur
11. qui leur dirent: “Nous aimerions vous emmener. Qu'en dites-vous?”
12. Nous remontons la rivière pour faire la guerre au peuple”.
13. L'un des jeunes hommes dit: “Je n'ai pas de flèche”.
14. “Les flèches sont dans le canoë”, répondirent-ils.
15. “Je ne vais pas vous suivre.
16. Je pourrais être tué.
17. Ma famille ne sait pas où je suis allé.
18. Mais toi, dit-il en se tournant vers l'autre, tu peux te joindre à eux.”
19. Ainsi, l'un des jeunes hommes partit
20. tandis que l'autre rentra chez lui.
21. Les guerriers continuèrent à remonter la rivière jusqu'à une ville située de l'autre côté de Kalama.
22. Les gens descendirent à la rivière
23. et commencèrent à se battre;
24. beaucoup furent tués.
25. A un moment donné, le jeune homme entendit l'un des guerriers dire: “Vite, retournons chez nous: cet Indien a été touché”.
26. À cet instant, il pensa: “Oh, ce sont des fantômes”.
27. Il ne se sentait pas mal,

28. mais ils disaient qu'il avait été touché.
29. Ainsi, les canoës retournèrent à Egulac
30. et le jeune homme rejoignit la côte et fit un feu à son domicile.
31. Il raconta à tout le monde: "Regardez, j'ai accompagné les fantômes et nous sommes allés combattre.
32. Beaucoup de nos compagnons ont été tués,
33. et beaucoup de ceux qui nous ont attaqués ont été tués.
34. Ils ont dit que j'avais été touché
35. mais je ne me sentais pas malade".
36. Il raconta tout cela
37. puis se tut.
38. Au lever du soleil, il s'effondra.
39. Quelque chose de noir s'échappa de sa bouche.
40. Son visage se crispa.
41. Les gens sursautèrent et poussèrent des cris.
42. Il était mort.