How emotional content of memories changes in narrating

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The purpose of this study is to explore the link between autobiographical memories and personal narratives and to assess whether the emotions present in memories are maintained or transformed when memories are narrated. In a Memory Fluency Task a total of 72 Italian undergraduates (35 males and 37 females) were asked to recall memories from their last period of life (from adolescence to present), to select one of them and to choose the emotions connected to this memory from an eleven-item list. Then, they were requested to write this memory in detail and again to select the emotions connected to the narrative from the same list of emotions. The emotions were distinguished as simple positive, simple negative, simple neutral, and complex (positive and negative). The results showed, on the whole, that participants expressed more emotions and a greater number of complex emotions in narratives than in memories. The authors interpret these results using a Vygotskyan frame of reference and considering the narratives as a form of external speech that makes memories more explicit.

Keywords: autobiographical memories, personal narratives, emotions, language

Autobiographical memories and personal narratives are the central part of the individual’s sense of self (Ross, 1989). They provide a contribution to personal identity, give a sense of coherence to our lives (Conway, 1997; Conway & Holmes, 2004; McAdams, 2001, 2006; McAdams et al., 2006), and create the building blocks of a life story (Habermas & Bluck, 2000; McLean, Pasupathi, & Pals, 2007). Nevertheless, autobiographical memories and narratives are not the same. They are distinct concepts which refer to distinct processes having important reciprocal

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influences. As we will show, few studies have explored this topic and knowledge about it is still unclear. The aim of the present study is to assess how the emotional content associated with personal memories changes when these memories are narrated and become personal narratives. Since autobiographical memories are individually located, while narratives are by definition sustained by a communicative act, the first step is to show how autobiographical memories are socially interconnected and how they share common social roots with narratives.

The social common roots of autobiographical memories and personal narratives

Though autobiographical memories are individually located, they are socially constructed. If we consider the role played by cultures, we become aware of how cultures, among other things, define what is normative in each developmental period, such as infancy, childhood, adolescence, adulthood, and what is not. Individual life stories, with their personal meaning and coherence (Berntsen & Rubin, 2004; Rubin & Berntsen, 2003), therefore receive a normative structure from culture. But the social intertwining of memory and culture is particularly evident in social development. Many authors suggest that the development of autobiographical memories is socially determined (Conway & Holmes, 2004; Fivush & Baker-Ward, 2005; Fivush & Nelson, 2004; Fivush, 2011): the interactions and relationships with parents in childhood and with peers in adolescence (Peterson, Bonechi, Smorti & Tani, 2010) seem to promote changes in autobiographical memories. The development of autobiographical memories takes place in childhood through a process characterized by social cooperation among adults and children (Fivush & Nelson, 2004). Studies in this field are numerous and focused on conversations between parents and children in the first years of linguistic development. In their very first years of life, children develop memories about past events through the repetition of daily routines provided by their parents (Nelson & Fivush, 2004), who help their children to store these by attributing a specific time and location to events (Tulving, 2002).

Autobiographical memories start to develop at the age of three to four, when children start to put their memories in a verbal format, giving them a story structure based on Burke’s pentad of agent, action, scene, goal and instrument (Burke, 1945). It is through “cooperative discussions” with their parents that children internalize the narrative structure of shared conversations, using it to guide their own recollection of significant precedent experiences (Nelson & Fivush, 2004). These so-called “memory talks” between children and parents are considered crucial for the developmental process of autobiographical memories (Farrar, Fasig,
Studies in this domain, in fact, have pointed out that the different interactive and communicative styles of caregivers imply differences in the content of their children’s narratives (Nelson & Fivush, 2004; Sales, Fivush, & Peterson, 2003). Other studies have explored the development of autobiographical memories in later ages, highlighting the role of peers and school. When growing up, children or adolescents employ narrative schemas learned from their familiar environment in other important contexts such as school through their relationship with peers. In this case, too, feedback received from interlocutors during the narrative of own life events plays a decisive role in the construction of autobiographical memories, in their interpretation and in the process of sense giving (Pasupathi & Hoyt, 2010).

Memory narrative relationships change according to individual characteristics. Studies on gender differences illustrate clearly the deep interconnection that memories and narrative have with social living. For example, women’s event memories, in comparison with men’s ones, are longer and richer in detail (Pohl, Bender, & Lachmann, 2005), and are more likely to include emotional and interpersonal information (Bauer, Stennes, & Haight, 2003; Fivush, Berlin, Sales, Mennuti-Washburn & Cassidy, 2003). To explain these gender differences in autobiographical memories, a number of researchers have emphasized the role of socialization differences between genders. For example, parents are more elaborate when engaged in autobiographical memory-sharing with daughters than sons; they are also more likely to embed remembered events within an emotional and interpersonal context (Adams, Kuebli, Boyle, & Fivush, 1995; Buckner & Fivush, 2000; Fivush et al., 2003). This can suggest that females, as they get older, learn to have more elaborate internal representations of their relationships and then develop better autobiographical memories of them.

Overall, then, it is apparent that autobiographical memories and personal narratives are deeply interconnected, and that they share a common social root and context of development. Autobiographical memories and personal narratives are not the same thing however. Since Bartlett’s seminal work on War of Ghosts (Bartlett, 1932) focusing on the act of retelling, telling memories has been considered a different matter from the simple reminiscing (Marsh, 2007).

### Autobiographical memories and personal narratives: Main differences

Personal narratives are smaller stories that may belong to a larger autobiography. Though these stories are similar to an Autobiography because are accounts of “one thinks one did in what settings in what ways for what reasons” (Bruner, 1991, p. 119), they are different under many aspects. If we follow Bruner’s definition (“an
account given by a narrator in here and now about a protagonist bearing his name who existed in the there and then, the story terminating in the present when the protagonist fuses with the narrator”, (ibidem, p. 120) an autobiography is rare because rarely we tell events in the past and we lead them up the present. More often we tell “smaller stories (of events, happenings, projects) each of which achieved its significance by virtue of being part of a larger scale “life” (ibidem, 120–121). These episodes are different from and Autobiography because “the narrative episodes that compose the life story are typically labovian in structure with strict adherence to sequence and to justification by exceptionality”... In contrast Autobiography “reveals a strong rhetorical strand as if justifying why it was necessary... that the life had gone a particular way”(ibidem, 121). In this paper we use the expression personal narrative to mean just those labovian episodes, without considering whether they are part of larger Autobiography.

Autobiographical memories are traditionally conceptualized as a type of episodic as well as semantic memory for specific personally experienced events related to the self (Pillemer, 1998; Conway & Pleydell-Pearce, 2000). Reminiscing about what occurred in the past is a natural phenomenon (Webster & McCall, 1999), is a rehearsal activity, a condition to reflect and to better understand events or experiences and, in turn, the self (Fivush & Baker-Ward, 2005; Fivush & Nelson, 2004).

Narrating a memory is one of the most important activities of rehearsal, but in a very particular way. Sharing past events with others, is a natural way to recall memories that develops intimacy as well as enacting, negotiating and interpreting processes of the recounted memories (Alea & Bluck, 2003; Pasupathi, 2001). Both recalling and recounting past events are considered forms of rehearsal that affect autobiographical memories (Smorti & Fioretti, 2015). According to Skowronski and Walker (2004), rehearsal influences recall and social rehearsal (retelling) is one of the most powerful type of rehearsal; retelling personal stories often involves elaborative rehearsal of a memory, and builds — shapes the memory of a particular event (Tulving & Craik, 2000). Nelson & Fivush (2000) sustain that narrative processes substantially influence autobiographical memories because narrating is an elaborative social activity that works as a verbal reinstatement. In this way it serves as an underlying process through which episodic memories come to be established as semi-permanent part of long-term autobiographical memory and as a component of the self history (ibidem, p. 290–291). Also Pasupathi and Hoyt argue that telling other a story through narrating past events alter and shape memories (Pasupathi & Hoyt, 2010) and Bruner (1986; 1990; 1991; 2004) claims that the autobiographical memories assume a narrative organization because the Self is shaped by the stories it tells others.

If personal narratives influence autobiographical memories how do they change them?
Language gives autobiographical memories a narrative organizational structure (Nelson & Fivush, 2000). Personal narratives transform autobiographical memories and organize them into a comprehensible, chronological and causal sequence of individual events (Bruner, 1991; Fivush, 2011). Bruner uses the word “narrativization” to indicate a particular transformation of an event (and therefore of a memory) into a narrative form that follows ten narrative characteristics, such as diachronicity, specificity, normativity and so on (Bruner, 1990). Individuals create narratives of specific events or experiences, and these events are linked together through time and serve to define the self (Habermas & Bluck, 2000; McAdams, 2001). This integration of past events into one’s life stories provides a sense of narrative continuity, through the connection between past events and present selves (McAdams, 2001). Specifically, narratives provide a coherent integration of the changes and developments occurring over the course of one’s life (Conway & Pleydell-Pearce, 2000; Conway, Singer, & Tagini, 2004). Hence, it follows that narrating memories, by way of linguistic devices, supports the narrator’s identity. Moreover, narratives are specifically appropriate devices to take into consideration problems, incongruences and violations of normality and to seek to solve them (Bruner, 1991). One of these incongruences is the violation of expectation, which can be expressed in the narratives by the sense of surprise for an unexpected event.

By narrating an autobiographical memory, people make a significant change by moving from the internal representation of life events (Conway, 2005) or, in other words, a transition from inner speech to external speech (Vygotsky 1986 En. Ed, pp.248–249). Through this process of externalization, the person has the opportunity to experience again the emotions felt at the moment of their codification (Rubin & Berntsen, 2003) or on the contrary to modify and interpret them into a tale according to the present point of view.

Emotions play a crucial role in autobiographical memories: in particular, experiences which are not lived with a significant emotional engagement generally do not activate an adequate level of specific attention. As a result, they are registered as “not important”, and thus are quite easily forgotten (Christianson, 1992). In contrast, events experienced with medium to high emotional involvement are registered as “important”, thus having a good probability of being remembered. Nevertheless, positive and negative emotions may lose their intensity through narrative (McLean et al., 2007): the opportunity to narrate an experience and to give it a meaning has, indeed, a “restoring” effect on its recollection (McAdams et al., 2006). Indeed, a number of studies have shown that while disclosure of negative events to others might have negative short-term effects, in the long term such disclosure generally reduces the negative feelings that typically accompany the recall of such events (Conway, 1997; Niederhoffer & Pennebaker, 2002). By narrating an event, and so producing a story, a person refines some details to the benefit
of others which become more significant; the need for coherence and continuity which characterizes the narrative of autobiographical memories helps to rebuild the missing parts and to repair the initial fragmentation (Conway, 1997). At this point, the event can be forgotten or obtain a different emotional tone: for example, the stress associated with emotions related to memories can wane or disappear (Pennebaker & Seagel, 1999). Other results, in contrast, highlight the impact of positive and negative emotions in narrating: in retelling an episode, positive emotions may become stronger while negative ones may tend to vanish (Pasupathi & Wainryb, 2010).

Some studies have suggested that by narrating a personal experience, Self-conception and the perception of narrated events radically change. In addition, this modification itself is influenced by the way in which narrators tell stories and interlocutors listen to them (McGregor & Holmes, 1999; McLean & Pratt, 2006; Pasupathi, Alderman, & Shaw, 2007; Thoman, Sansone, & Pasupathi, 2006; Pasupathi, 2001; Tversky & Marsh, 2000). Other scholars have studied how diversity in storytelling setting and goals may play an important role in the extent to which an individual recalls autobiographical memories (Skowronski & Walker, 2004). Telling autobiographical memories using a lifetime period (such as “when I was finishing high school”), or general event knowledge (such as “I went to the prom”), or event-specific knowledge (“I fell down while I was dancing with Mary”) provides the contextual background for the event-specific knowledge, placing a memory in a proper perspective (Conway, 1997).

Summing up: although specific studies on the influences of personal narratives on memories are few, there exists a considerable body of research suggesting how the act of narrating memories can change the content of memories substantially, both because narrating is a communicative act, and because of language (which is employed much less in personal memories, even though they are expressed through an internal language) works as a verbal reinstatement of the experience. Language appears to be a potent tool to organizing memories. Through language, memories for specific experiences take a more organized, coherent and therefore accessible form (Nelson & Fivush, 2004, p. 289).

The interconnection between autobiographical memories and personal narratives shows that narratives are the language of memories (Tani, Smorti, & Peterson, 2015) and they transform memories, giving them more complexity and richness (Smorti & Fioretti, 2015). As far as we know, specific research focusing on the transformation of memories into narratives is scarce, and this is a key impetus for the present research and is the first aim of this work.
The current research

Given the scarcity of studies conducted so far on the topic we introduced in the previous paragraphs, the aim of this study is exploratory and we hope to deepen our understanding of the relationship between personal narratives and autobiographical memories by exploring the change in the emotional content of memories when they are narrated. Our claim is not that the simple act of narrating produces changes in autobiographical memory. When people narrate their memories, they have to begin to organise their memories in a narrative perspective. So, it is difficult to separate the influence of thinking or reminiscing memories in a narrative perspective from the act of narrating, and so putting materially in words one’s own thoughts and memories. We have studied emotion content by using emotion words and asking participants to use them to label memories before they are narrated and after they are transformed into narratives. Emotion words may play an important role in personal narratives (for a study of emotion words in narrative about friends, see Tani, Smorti, & Peterson, 2015). Emotion words capture the primary emotions experienced by narrated characters and they also define the narrative’s emotional tone as positive, negative or complex (see below in method section). A number of studies have shown that the emotion words used in narrative are indicators of the emotional tone with which a narrator recalls own experiences: for example, emotional experiences in romantic relationships (Slatcher & Pennebaker, 2006), mother-child experiences (Fivush, Sales, Goldberg, Bahrick, & Parker, 2004) and positive versus negative experiences (Bohanek, Fivush, & Walker, 2005). Thus, it is possible that the use of emotion words (and therefore what they express), may be influenced by the fact of using the language less (as in memories) or more (as in narratives). Moreover, since narratives are a specific device that serves to analyse incongruity in addition to other goals, the use of emotion words will be more complex when memories are transformed into narratives. Furthermore, assuming a narrative structure, memories acquire those proprieties which are related to the story, as for instance an awareness of incongruity between different parts of the event, such as a violation of expectation.

The purpose of the present study is twofold. The first is to verify the hypothesis (richness hypothesis) that, in comparison with memories, narratives of memories are richer in terms of attributed emotions (that is, a greater number and richer variety of emotions are used). Moreover, since narratives permit the examination of incongruence, problems and details of memories that are synthetically represented in the consciousness, a second goal was to see if a memory when is narrated become more complex. Specifically, through narration different type of emotions are put together in order to form complex emotional states (complexity hypothesis). Gender may also be a moderating variable.
Method

Participants

A convenience sample of 72 university students from the University of Florence (35 males and 37 females) were recruited for this study. Students were 18 to 25 years old ($M = 20.9$ years; $SD = 1.4$); the males’ mean age was 20.4 years ($SD = 1.45$), and females’ mean age was 19.4 years ($SD = .98$). The majority of these participants came from the centre of Italy (82.8%), with the remainder from southern (2.6%) or northern (8.67%) Italy. All the participants came from families of a middle or high socioeconomic level, with more than 65% of their parents having a high school diploma or university degree. As well, 54.5% of the participants had at least one sibling and 79% lived at home with their parents.

Instruments

Memory Fluency Task (MFT). The participants were engaged in a timed Memory Fluency Task, described in previous research (Peterson, Bonechi, Smorti, & Tani, 2010; Tani et al., 2010). This task requires individuals to provide as many memories about targeted events as they can in a limited amount of time, and it assesses how readily accessible the memories are. Methodologically we considered those memories that are most readily accessible important for the construction of a coherent sense of self and most likely to be integrated into a person’s life story (Bohanek, Marin, Fivush, & Duke, 2006). According to Conway and his colleagues (e.g., Conway & Holmes, 2004; Conway & Pleydell-Pearce, 2000), the memories that are readily accessible are those that are meaningful not only at the time of retrieval but also at the time the events occurred. They further argue that the most accessible memories from a particular period of one’s life are best measured by providing subjects with a limited amount of retrieval time. That is, it is the first few memories that are most significant, and an optimal way to elicit them is through a time-limited recall task. Thus, in the present study, we explored individuals’ memories through use of this type of task. Specifically, participants were asked to recall memories that involved experiences which occurred in high school or university. This age range was chosen because people tend to recall more personal and collective events from the period of late adolescence and early adulthood than from other periods of life (Conway, 1997).

During this session, participants were encouraged to recall as many memories as they could and write down only a sentence or two about each memory. They were given three minutes to do this task (timed by the researcher). Thus, this first condition aimed to collected a sort of memory label, expressed with a reduced use
of language. After the recollection, the participants were asked to specify the time and the context in which every event happened, in order to facilitate the recollection and accuracy of the tool (Tulving, 2002). Next, participants were requested to select the emotions connected to every recalled events from an eleven-item list: they could select one or more emotions for every memory, including those of a different emotional tone (positive or negative), that were appropriate to describe the recalled events. According to the main theories about emotions (Ekman, 1999) and on the basis of the spontaneous use of emotions shown in similar samples of participants in previous fluency test sessions (Peterson et al., 2010; Tani et al., 2010), we selected eleven fundamental emotions: one positive (happiness), two neutral (surprise and pride) and eight negative (anger, fear, envy, shame, sadness, disgust, guilt and jealousy). These were considered as participants’ attribution, in the present, of emotions to memories of past events.

**Autobiographical Narrative Task.** A narrative task was given next. After the emotion-labeling of the memories, participants were asked to select a memory from the Memory Fluency Task and to narrate in detail. A blank sheet of paper was provided to the participants in order to encourage them to freely narrate their memories on the event. Thus, this second condition aimed to collect a personal narrative of the selected memory, using language in a narrative structure. Once this task ended, they had to classify their narrative in terms of emotions. They were requested to think of the narrative, to reread it if necessary, and to select, from the eleven-item list, those emotions connected to what they had written. In this case they could again select one or more emotions, including those of a different emotional tone (positive or negative). They were given 15 minutes to do this narrative task (timed by the researcher).

These were considered as participants’ attribution, in the present, of emotions to narratives referring to past events.

**Procedure**

Participants were recruited while they were in class during university courses. They were told about the goals of this research project on autobiographical memory. Data collection was organized collectively during the class session. The aims of the study were explained in brief to the students. No academic credits have been given to the students for participating at the study: they could freely agree to take part or not participate and leave the classroom. A researcher conducted the collection while managing the time needed for the recall task and taking care that the participants had the privacy and quiet conditions to complete the task. Once participants understood the nature of the tasks, the Memory Fluency Task session took place followed by the narrative task. In total, data collection lasted
about 40 minutes. The research was conducted in accordance with the American Psychological Association guidelines for the ethical treatment of human participants. Prior permission was obtained from the University Dean and President as well as each course professor. The participants provided their individual consent and could withdraw at any time.

**Data coding**

The number of memories was tabulated. Given it was a time-limited task, the memories consisted of a brief sentence or two (e.g., “the day I went on a bicycle trip with my friends” or “when I was not invited to my best friend’s birthday party”).

To test the “richness hypothesis” we counted the number of emotions used by the participants to label their memory and their narrative. Moreover we considered whether one or more than one emotion was used to classify memories or narrative.

To test the complexity hypothesis emotions in memories as well as narratives were considered in two different ways. Firstly, using a molecular way of classification, the researchers considered every single emotion, selected by the participants to describe their memory and narrative, in terms of presence or absence of sadness, happiness, etc. In particular, the presence of the emotion “surprise”, that expresses a sense of violation of expectation, was considered. Secondly, using a molar way of classification, the researchers codified the emotional tone of the memory as simple positive, simple negative, simple neutral or complex. A simple positive emotional tone was attributed when participants used “happiness” alone or with neutral emotions such as surprise or pride to label their memories or narrative. A simple negative emotional tone was attributed when participants used one or more of these emotions to label their memories or narrative: “anger”, “fear”, “envy”, “shame”, “sadness”, “disgust”, “guilt”, or “jealousy”. A simple negative tone was also considered if participants used a negative emotion with a neutral one (surprise or proud). A simple neutral tone of emotion was considered if participants used surprise and/or pride without other emotions. A complex emotional tone was attributed when participants used one or more negative emotion together with happiness (neutral emotions might be included as well). All these categories were frequent except for that of a neutral tone. Surprise and pride only occurred alone in a few cases.

**Results**

To label their memories participants used a total of 167 emotions (mean = 2.29, S.D. = 1.78). There was no difference between genders \( F(1,72) = 1.88, p = \text{N.S.} \). No differences among males and females emerged in their likelihood of using only
one emotion to label their memory (chi square = .34 \( p = \text{N.S.} \)). As to emotional
tone, males and females used simple positive, simple negative and complex tone
to the same extent (simple positive: males 48%, females 45%, Mann-Whitney’s
\( U = 658, \ p = \text{N.S.} \); simple negative: males 31%, females 37%, Mann-Whitney’s
\( U = 598.5, \ p = \text{N.S.} \); complex: males 20%, females 16%, Mann-Whitney’s \( U = 644.5, \ p = \text{N.S.} \)) Since no significant difference was found among males and females fur-
ther analysis will consider the whole sample without gender comparisons.

Table 1 shows the emotions attributed to memories (those memories chosen
to be narrated) and to narratives (the same memories once narrated).

**Table 1.** Emotions used by the participants to label memory chosen to narrate and narr-
ated memory

<table>
<thead>
<tr>
<th>EMOTIONS</th>
<th>Memory to narrate</th>
<th>Narrated memory</th>
<th>Wilcoxon’s</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( N )</td>
<td>%</td>
<td>( N )</td>
</tr>
<tr>
<td>Fear</td>
<td>21</td>
<td>0.28</td>
<td>23</td>
</tr>
<tr>
<td>Guilt</td>
<td>6</td>
<td>0.08</td>
<td>7</td>
</tr>
<tr>
<td>Anger</td>
<td>15</td>
<td>0.20</td>
<td>19</td>
</tr>
<tr>
<td>Disgust</td>
<td>8</td>
<td>0.10</td>
<td>9</td>
</tr>
<tr>
<td>Happiness</td>
<td>47</td>
<td>0.64</td>
<td>53</td>
</tr>
<tr>
<td>Envy</td>
<td>3</td>
<td>0.04</td>
<td>3</td>
</tr>
<tr>
<td>Jealousy</td>
<td>3</td>
<td>0.04</td>
<td>3</td>
</tr>
<tr>
<td>Shame</td>
<td>9</td>
<td>0.12</td>
<td>14</td>
</tr>
<tr>
<td>Sadness</td>
<td>15</td>
<td>0.20</td>
<td>17</td>
</tr>
<tr>
<td>Proud</td>
<td>17</td>
<td>0.23</td>
<td>20</td>
</tr>
<tr>
<td>Surprise</td>
<td>23</td>
<td>0.31</td>
<td>40</td>
</tr>
<tr>
<td>Tot Em</td>
<td>167</td>
<td>0.31</td>
<td>208</td>
</tr>
</tbody>
</table>

A non parametric Wilcoxon test for dependent samples was calculated to evaluate
the differences between the memories chosen and memories narrated. As can be
seen, participants did not use different emotions to label their narrative compared
to when they had labelled their memory. In the memory task they used mainly
happiness, surprise, fear, sadness and pride; in the narrative task they used mainly
happiness, surprise, pride and anger. However, two important features must be
noted in the table. The first is that in the number of emotions increased from
memory task to narrative task (167 emotions vs. 208). The second is that surprise
is the one emotion that increased significantly (Wilcoxon’s \( z = −3.54, \ p < .001 \)).
Twenty-three participants used it to label their memory; in comparison, when
they had to label their narrative, 40 participants used it. Surprise is associated with
negative emotion in the memory task in 2 cases (9%) out of 23, while in the narra-
tive task it is present 8 times (20%) out of 40. Thus, surprise was mainly associated
with happiness both in the memory and in the narrative tasks. Specifically, this
association between surprise and happiness increased from 23% in the memory
task to 42% in the narrative task (McNemar test: \( p < .01 \)).

The example of a 20-year-old male participant is illustrative: after the narra-
tive about the day when he started his most important relationship with a girl,
he added the emotion of surprise to that of happiness, the later emotion already
present when he provided memory labels for his chosen memory. In this case the
narrative structure of the story enabled the surprise to appear: “We spent a really
beautiful and fun day with some other friends, we made a human chain and she was
close to me, holding my hand. The way she held my hand, however, was so strange,
very warm. At the end of that day she kissed me without saying a word…”

Table 2 shows complexity and richness of emotions in memory and in narra-
tive tasks.

Table 2. Emotions’ complexity and richness used by the participants to label the memory
chosen and narrated memory

<table>
<thead>
<tr>
<th></th>
<th>Memory to narrate</th>
<th>Narrated memory</th>
<th>Wilcoxon</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( N )</td>
<td>%</td>
<td>( N )</td>
</tr>
<tr>
<td><strong>COMPLEXITY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simple positive</td>
<td>34</td>
<td>0.47</td>
<td>31</td>
</tr>
<tr>
<td>Simple negative</td>
<td>26</td>
<td>0.36</td>
<td>18</td>
</tr>
<tr>
<td>Complex</td>
<td>13</td>
<td>0.18</td>
<td>23</td>
</tr>
<tr>
<td><strong>RICHNESS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One emotion</td>
<td>37</td>
<td>0.50</td>
<td>14</td>
</tr>
<tr>
<td>Number of emotions mean</td>
<td>2.29 (1.78)</td>
<td>2.88 (1.69)</td>
<td>−2.78*</td>
</tr>
</tbody>
</table>

*paired t test

In memories, the tone of emotions was more frequently classified as simple posi-
tive and simple negative rather than complex. Once memories were narrated, the
tone of emotions was again more frequently positive. However, a significant differ-
ence emerged upon comparing the tone of emotions from memories to narratives.
The category of simple positive tone and negative tone of emotions decreased,
while the complex tone of emotions increased significantly (simple positive tone
in memory vs. simple positive in narrative \( z = −0.57, p = N.S. \); simple negative tone
in memory vs. simple negative in narrative: \( z = -1.5, p = \text{NS} \); complex tone in memory vs. complex tone in narrative \( z = -2.35, p = .01 \). Overall, the frequency of the category of complex tone of emotions went from 13 to 23 cases.

There are a lot of examples of an increase in complex emotional tone after the narrative task. One boy, for example, selected the “trip to Berlin” memory for narration. Before the narrative it was a positive memory: only the emotion of happiness had been allocated to it. After the narrative, the student selected happiness as well, but also the negative emotion anger, changing the memory into an emotionally complex one. This is due to the topic of the narrative that emerged during the tale: when it had been written as a narrative, the happy trip to Berlin also included negative experiences such as, for example, the bad condition of the hotel and the journey: “We travelled by bus and it was a really long way, almost 15 hours! We stopped one night in Munich but the hotel wasn’t very comfortable; the city was beautiful but the welcome less so!” As another example, a girl who participated in the study wrote about a dangerous accident that happened to a friend during the second year of high school, allocating the emotions of sadness and fear to the memory, while after the narrative the emotion of happiness appeared. Indeed, as in a happy ending story genre the girl wrote that “the ambulance got there quickly and they took him to hospital where, fortunately, they looked after him. After a month with a plaster cast everything went back to normal.” In this example, the typical narrative structure of a story (McAdams, 2001) helps the participant to understand the event in terms of new complex emotions, adding happiness for the good ending of the story to the negative emotions due to the bad accident.

As for the richness hypothesis, one-emotion responses decreased significantly when participants labelled a narrative, in comparison to when they had labelled a memory \( z = -4.1 p < .001 \). Indeed, only one emotion was used by 51% of the participants in the memory task and only by 19% of them in the narrative task. A t test was used to assess changes in the number of emotions. Narrated memories were labelled with a greater number of emotions than memories (mean = 2.88, S.D. = 1.69 and mean = 2.29, S.D. = 1.78, respectively).

**Discussion**

This paper aimed to compare two different steps in memory retrieval: 1) when memories are retrieved in a Memory Fluency Task and then classified in terms of emotions connected to the remembered event and, 2) when they are narrated and then classified — as “already narrativized” memories — in terms of emotions. Therefore, the basic aim of this study was to analyse memories’ changes, comparing the emotions connected to the memories before and after the narration.
An important tradition of research on memory and narrative has suggested that memories, when they are narrated, do not maintain the same characteristics as when they are simply retrieved without any other language aid because acquire new linguistic proprieties typical of narratives (Mc Adams et. al., 2006; Nelson & Fivush, 2000). So the main hypothesis was that narrated memories were expected to be richer than the not-yet-narrated ones in terms of the emotions attributed. Moreover, since narratives are specifically aimed at examining the incongruences, problems and details that are synthetically represented in the consciousness in memories, a second hypothesis was that in comparison with not narrated memories, narrated ones were expected to be more complex.

Our expectations were confirmed. Once told, more emotions were attributed to narrated memories in comparison with the number of emotions attributed to memories that had not yet been narrated, and multiple emotions were attributed to narratives more frequently than to memories (richness hypothesis). Moreover the narrated memories were significantly more complex than memories that had not yet been narrated (complexity hypothesis). Since the complex tone of emotions includes both positive and negative emotions, the increase in complexity demonstrates that positive and negative emotions join together more through narrating than when a memory is simply retrieved. It is important to stress that the simple increase in the number of emotions (richness hypothesis) is not the direct cause of the increase of narratives with multiple or complex emotions. (complex hypothesis). In fact the increase in the number of emotions might affect those memories that had already been classified with multiple emotions (for instance, a memory described with two emotions might be described with three or four emotions in the narrative) without transforming memories classified with a single emotion into narratives classified with multiple emotions or with positive and negative emotions. Indeed, what occurred was not a simple increase in the number of emotions but also the fact that memories classified with a single emotion were, once narrated, classified with multiple emotions. Thirty-seven memories that had been selected for subsequent narration were classified with a single emotion while, after they had been narrated, a single emotion category was only used in 14 cases.

Since participants used 167 emotions to label their memories while for narratives they used 208 emotions, almost all of the specific types of emotion increased from memory to narratives to some degree. However the one type of emotion that increased significantly was surprise. Surprise expresses the presence of an unexpected event and this is one of the particularities of narrative, that is, taking into consideration and giving a meaning to what is unexpected (Bruner, 1991). This is consistent with what Bamberg (1997) found investigating children’s narratives: surprise is an inner state moved by an event suddenly occurred and as emotion served the function to “transfix” two conjoined episodes, thereby contributing to
the episodic flow of the narrative whole. So it seems that, through narrating, memories really are transformed into a narrative form and acquire narrative devices. The connection between happiness and surprise goes in this direction, showing that when happiness is in a narrative it acquires an important specification, that of being unexpected. Overall, although gender differences were expected they were not found, either in richness or in complexity. Previous studies that compared the number of retrieved memories found that females retrieve a greater number of memories than males (Pasupathi, 2001; Tani et al., 2010). However, in previous research using a Memory Fluency Task (Tani et al., 2010, Tani et al., 2015) females did not express a greater number of negative memories or positive memories in comparison with males. In the present research we did not measure the number of memories, because our aim was that of studying how a single memory can change through narration. So our findings of no gender differences do not contradict those of previous authors. It can be assumed that, in our research, when participants have to select a special memory no difference appears in the emotional tone because this memory represents a particularly significant experience. In other words, when males and females describe an important or special experience the tone of the emotions is the same, but this does not occur when they have to quickly retrieve multiple memories.

The general results of this inquiry are in line with the studies on personal narratives (see for instance McAdams, 2001; 2006; McAdams et al., 2006) supporting the assumption that narratives play an important role in changing autobiographical memories, promoting both richness (number of emotions) and complexity (more complex types of emotions). As previous studies have demonstrated, telling a story about a past episode is a way to re-experience it (Rubin, 2005) and this can add new emotions or have a “restoring” effect (Pasupathi & Wainryb, 2010). In their studies on autobiographical open interviews McAdams and colleagues (2006) argue that leaving space and time to re-organize events and select the main topics of the past life is an important tool for making a better autobiographical construction of the past. Our results are consistent also with Skowronska and Walker (2004), who claim that rehearsal influences recall and social rehearsal (retelling) is one of the most powerful type of rehearsal. Social rehearsal is process that “may account for the eventual establishment of an autobiographical memory independent of its social origins ” (Nelson & Fivush, 2000, p. 291).

This inquiry has some limits, however. One of the difficulties in studies on memory and narrative is that narratives are a tool to investigate memories once these have been narrated, not before.

The narrative task we employed was not simply a task where participants had to write. We did not use a request of automatic or expressive writing similar to those used by Pannebaker (1997). In these tasks a person has to write uninterruptedly
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without lifting the pen from the paper. In this way all the time that is spent in writing overlaps the time spent in recalling. In our task we provided participants fifteen minutes to write. In this span of time they had time to reflect, to memorise and to write. They could interrupt, reflect, correct what they had written and then go on. More precisely, in our investigation the comparison between memories and narratives was a comparison between memories chosen to narrate and the same memories that during those fifteen minutes of the narrative task were not only narrated but also recalled again (that is likely object of reflection, evaluation and so on). This is nothing strange: asking people to write and to narrate a memory is not just asking to put in words, in written words, their memories because, to use Vygotsky’s words “the transition from inner speech to external speech is not a simple translation from one language into another. It cannot be achieved by merely vocalizing silent speech. It is a complex, dynamic process involving the transformation of the predicative, idiomatic structure of inner speech into syntactically articulated speech intelligible to others” (Vygotsky, 1986 En. Ed., p. 248–249). Our interpretation is that both thought and language were involved in the narrative task but just the task of narrating gave thought a more external and explicit form, a predicative and articulated form that facilitated both the richness and the complexity in the expression of the emotions.

Further research is however necessary to control the influence of language. It would be undoubtedly useful comparing data collected through the narrative task with those obtained through a “thinking or silent recalling task” that is a task where participants have to think and remember in detail their memory but in a silent way. In this way a narrative told silently is more likely to suffer of those abbreviations and fragmentations typical of inner speech (Vygotsky, 1986 En. Ed., p. 193).

Of course not all memories are shared to the same extent: some of them might have been narrated previously much more times than others. Further research is necessary to assess if participants chose a memory to tell because it has been already narrated or more narrated than another. As that matter a post-test memory fluency (asking again participant to reminiscing as many memories they could) could permit to assess how a memory changes (in terms of emotions, for instance) after being narrated.

Although a long way left to do to try to measure the transformations of memories when they are told and the reasons for these changes, our research constitutes a first step in that direction because it shows that providing time (15 minutes), a means (writing) and a goal (narrating), a particular memory become richer and more complex. In conclusion our exploratory study shows that writing a memory is a good strategy to foster reflection and that in this reflection process new meanings that were at least apparently not present in the memory may appear. Creating complex emotions that put together positive and negative emotions means indeed
to construct new more “conflictual” meanings that a memory, given its schematic structure, is less likely to contain.

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References


Narrating memories


