

Memory, Reverie Machine:

Toward a Dance of Agency in Interactive Storytelling

Jichen Zhu; D. Fox Harrell, Ph.D.
Georgia Institute of Technology
Digital Media Program | School of Literature, Communication, and Culture
jichen.zhu@lcc.gatech.edu; fox.harrell@lcc.gatech.edu

"I wonder if a memory is something you have or something you've lost." – Another Woman. Dir. Allen, Woody. 1988.

Introduction

In many interactive narrative pieces, agency is often narrowly understood as a user's freedom to either perform actions or alter the mechanics of narration at will. This paper presents an interactive narrative project, *Memory, Reverie Machine (MRM)*, which explores the expressive use of agency as a narrative device. After a concise review of the concept's rich social implications and its adaptation in digital media, this paper presents *MRM's* main theme – the protagonists's self-discovery portrayed through dynamic shifting of a balance between the user's agency and the system's agency, a dance of agency¹. Finally, we discuss two ways in which the project's theme is instantiated: via the control scheme and via the narration of computationally generated memories and daydreams.

Agency

Agency is a crucial concept that links an individual to the material world and society around. The wide range of negotiations and struggles between an individual and her socialization actions and experiences constitute an important component of one's lived experiences. Different approaches to the concept of agency lend themselves to distinctive social and political practices. The "free will" view emphasises an individual's uncompromised liberty; some feminist theorists locate agency in one's resistance against the hegemonic patriarchal status quo; whereas some read Foucault's impersonal discourses (Foucault 1977) as proof of the absence of individual agency (Ahearn 2001).

In many interactive narrative and digital media artworks, agency is often narrowly understood as a user's freedom to either perform actions or alter the mechanics of narration at will, often followed by an implicit assumption of "the more agency the better" (Harrell and Zhu 2009). For instance, in the computer game *Shenmue*, associated popular hype asserted that the player character was given the agency to interact with every single object in the story world. This type of unconstrained agency, however, focuses on objective interaction with material objects and may bore or overwhelm the user and deprive her of a potentially meaningful and dramatic experience.

¹ This concept is presented with all due respect to Andrew Pickering's insightful earlier use of the phrase in the much different context of the practice of scientific work.

Our work explores the computational engagement of agency, not as a holy grail of digital media practice, but as a novel expressive device. Paralleling the invention of conventions of camera use (e.g., movement, and the length of a shot) as an expressive storytelling mechanism in the history of film, we argue that the variation of agency can convey meanings and express ideas. Based on the domain of interactive narrative, we have proposed a model of *agency play* (Harrell and Zhu 2009), highlighting different aspects of agency and the ways in which their variations and correlations may accentuate the narrative.

Memory, Reverie Machine

Our text-based computational narrative project *Memory, Reverie Machine (MRM)* calls for more nuanced understanding of agency, both as a novel expressive storytelling mechanism afforded by digital media and as critical commentary on our post-conflict society. The interface of *MRM* resides between interactive fiction (IF) and concrete poetry. The user interacts with the system by inputting keywords, and the generated responding text is displayed and sometimes animated typographically.

The control scheme of *MRM* seeks to complicate the conventional dichotomy, in interactive narrative, between user controlled player characters/avatars (emphasizing user agency) and computer controlled non-player characters (highlighting system agency). The protagonist, a robot character named Ales, is controlled *jointly* by the user and the AI system whose power relationship shifts dynamically. Initially, Ales follows the user's commands completely. As the story unfolds, however, the system increasingly gains more control – Ales starts to ignore certain commands by the user if they contradict his internal states; even if he eventually obeys, Ales does so very reluctantly. Ales may become lost in daydream rather than acting. At the end, Ales may even gain full autonomy, eliminating the user's agency to influence the story.

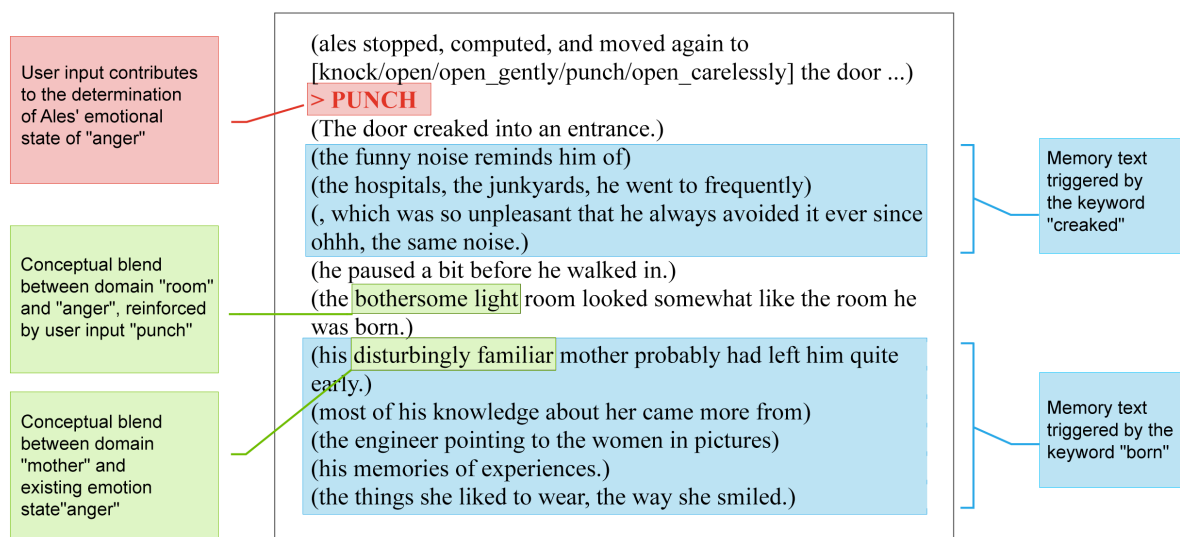


Figure 1: A Diagram of Sample System from *Memory, Reverie Machine*

The shift of emphasis from user's agency to system's agency in the story can be read as a formal exploration in which the protagonist's journal of self-discovery and empowerment is depicted at both the content and discourse level. It also speaks to a social order of multi-dominance, which precludes a hierarchy of human-leader over computer-follower as the sole interaction model with expressive systems (Lewis 2000). *MRM's* engagement of dynamic agency hence invites critical reflection on themes such as control, resistance, and dis/empowerment and is in dialogue with conceptual instruction and pedagogy artworks of Yoko Ono, Adrian Piper, and Sol LeWitt.

Machine Memories, Reveries and Daydreams

The potential of computationally generating and narrating imaginative content (e.g., memories and daydreams) triggered by, and sometimes at odds with, the world at hand has not been fully explored. We turned to the stream-of-consciousness literature for inspiration because these modernist writers sought literary portraits of very similar mental processes. Prior to the turn of the twentieth century, fictional characters were typically represented by their external behaviors. Writers carefully crafted their actions, dialogues, and rational thoughts to create distinctive personas for their stories. The stream-of-consciousness writers' achievements, in comparison, lie in their creation of characters wrought mainly out of their psychological aspects, including their buzzing random thoughts and associative trails. *Mrs. Dalloway* (Woolf 1925), among other works, offered invaluable directions to *MRM's* plot and narration styles.

Memory building is the major means of identity formation in *MRM*. Ales starts as an avatar with no past, emotion, or belief, all of which will be shaped by the types of memories triggered by Ales' encounter of different events, objects, and actors. A piece of memory from his childhood, for instance, may set Ales to a melancholy state, which will make him more easily accept user's commands with similar emotional undertones. At any point of the story, the user never has direct control over Ales' internal world. Aligned with many stream-of-consciousness writers, we deliberately chose memories, reveries, and daydreams as indicators of Ales's independence (Zhu and Harrell 2008), in addition to his actions.

If the recollected memories converge toward a coherent personality, Ales' system agency increases and he will act autonomously and ignore user's commands contradictory to his belief-system. These memories could also be fragmented, triggering one another and leaving him in a state of confusion and hesitation. When the protagonist reaches a high level of system agency in the end, cascades of memories and daydreams may trigger one another and completely take over the main story line.

As Ales gains more autonomy over the actions he takes, the narration also shifts towards increasingly subjective and affective tones. The story hence moves away from the voice of an "objective" third person narrator who emphasises actions, facts, and consequences toward the subjective perspective of Ales. Specifically, the protagonist's emotional state is used to generate affective descriptions of the world through the computational-cognitive approach to conceptual blending (Fauconnier and Turner 1998; Harrell 2007). For instance, the same room could *appear to be* either "bothersome light-

colored” or “refreshingly spacious,” depending on whether Ales is in an “angry” or “happy” emotional state. Such blends provide an affective overlay to the narrative. It is also worth mentioning that *MRM* follows the precedent of *Mrs. Dalloway* and avoids the first person pronoun “I” as a stylistic convention, paying homage to Woolf’s inspirational characteristic combination of third person voice to convey highly affective first person experiences.

Conclusion

MRM foregrounds a shift between user and system agency made visible through the narration of memories, intentions, and dispositions. It brings forth novel narrative experiences as well as critical reflections on social and political conditions. Influenced by the stream-of-consciousness literature and cognitive science (semantics) theory, *MRM* explores the tension between rigid computational algorithms and fluid human cognitive processes by computationally generating affective depictions of the story world as well as the character’s internal world. As our initial exploration for expressive deployment of agency, *MRM* opens up new possibilities towards what we conceive as a dance of agency in interactive storytelling.

References

- Ahearn, Laura M. "Language and Agency." Annual Review of Anthropology 30 (2001): 109-37.
- Fauconnier, Gilles, and Mark Turner. The Way We Think: Conceptual Blending and the Mind's Hidden Complexities. Basic Books, 2002.
- Foucault, Michael. Discipline and Punish. New York: Pantheon, 1977.
- Harrell, D. Fox. "Theory and Technology for Computational Narrative: An Approach to Generative and Interactive Narrative with Bases in Algebraic Semiotics and Cognitive Linguistics " Dissertation. University of California, San Diego, 2007.
- Agency Play: Dimensions of Agency for Interactive Narrative Design. Proceedings of AAAI 2009 Spring Symposium on Interactive Narrative Technologies II. 2009. AAAI Press.
- Lewis, George E. "Too Many Notes: Computers, Complexity and Culture in *Voyager*." Leonardo Music Journal 10 (2000): 33-39.
- Woolf, Virginia. Mrs. Dalloway. Harcourt 2002 (1925).
- Zhu, Jichen, and D. Fox Harrell. "Narrating Artificial Daydreams, Memories, Reveries: Toward Scalable Intentionality in Expressive Artificial Intelligence Practice." Electronic Literature Organization Conference 2008.