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Artificial Intelligence Best Narrative Stories

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Abstract: **The ability to tell, craft, and understand stories has long been held as a hallmark of human intelligence. Artificial intelligence is rapidly shaping the future of many important aspects of our everyday life. Particular area with growing interest in future is entertainment (TV, film, gaming and general interactive and non-interactive means of storytelling), training, and education. Automated story telling of computational narrative intelligence requires the audiences to perceive the causal connectedness of story events and to infer intentionality of characters.**

Keywords: **human intelligence, computational narrative intelligence.**

1. INTRODUCTION

The ability to tell, craft, and understand stories has long been held as a hallmark of human intelligence (Wintson, 2011) and a long term goal of artificial intelligence technologies. Storytelling is an important part of how we, as humans communicate, entertain and teach each other. To date the main target of computational narrative use of artificial intelligence has been for training, education and entertainment purposes (Porteous et al. 2010a). wintson (2011) argues that research in computational narrative intelligence has sought to create computational intelligence that can answer questions about stories, generate fictional stories and new articles, respond effectively to stories and represent the knowledge contained in natural language narratives.

The entity's ability to organize and explain experiences in narrative terms, comprehend and make inference about narrative we are told, seen or heard and produced effective responses such as empathy to narratives are example of narrative intelligence phenomenon. These computational systems with narratives intelligence capacity are able to interact with human users in a natural way because they are programmable to understand collaborative contexts as emerging narratives and are able to express themselves through story telling. Therefore, this paper aims at exploring new and interesting ways of using computational narrative automated processes of artificial intelligence technologies to generate stories for training, education, and entertainment purposes by enabling software to autonomously generate dialog between characters using only a defined set of predefined attributes.

2. MODEL OF NARRATIVE UNDERSTANDING

Various studies have recognized cognitive aspect of narrative understanding in order to assess the quality of automatically generated narratives and their acceptance by the audience, such as whether system generated narratives were understood by users. This is important as various theories of narrative understanding such as 'constructionist theory' as described by Van den Broek 2010; Graesser et al. (1997) accounts for the knowledge based inference that enable a coherent mental representation of the event as the users need to establish a meaningful relations between concepts, facts, intended meaning and ideas from the text or virtual narratives with their background knowledge, and therefore integrate all information in a referential situation model(a mental representation of the people, setting, action, and events that are mentioned in the explicit clauses or that are filled in inferentially by world knowledge). This therefore implies that the users need to monitor several story elements such as the story setting, the events, action taking place and the protagonist with their motives and goals. However, not all narrative that tells a story. According to Herman (2002) a narrative that tells a story should have certain properties that one comes to expect. In particular, a story is a narrative that has a plot that is structured to have a particular effect on the audience over time.

Graesser et al. (1994) therefore list 13 types of inference that a user is likely to make on trying to understand a text. The full set of inference types and their brief description is given in table 1 below:

Table 1: Types of inference made during narrative understanding,

Type of inference	Brief description
Class 1: Referential	Word or phrase referentially tied to previous element or constituent in text
Class 2: Case structure role assignment	Noun phrase assigned to particular case structure role, e.g. agent, object. . .
Class 3: Causal antecedent	Inference is on a causal bridge between current action (or event or state) and previous context
Class 4: Superordinate goal	Inference is a goal motivating an agent's intentional action
Class 5: Thematic	Main point or moral of the text
Class 6: Character emotional reaction	Emotion experienced by a character caused by or in response to an action or event
Class 7: Causal consequence	Forecasted causal chain, including physical events and new plans by the agents
Class 8: Instantiation of noun category	Exemplar that instantiates an explicit noun or case role required by a verb
Class 9: Instrument	Object, part of body or resources used when an agent executes an intentional action
Class 10: Subordinate goal action	Goal, plan or action that specifies how an agent's action is achieved
Class 11: State	A state not causally related to plot (agent's knowledge or beliefs, object properties, spatial location of entities)
Class 12: Emotion of reader	Emotion that the reader experiences when reading the text
Class 13: Author's intent	Author's attitude or motive in writing

3. ELEMENTS OF A GOOD NARRATIVE

Two layers of interpretations have been linked to narrative by Narratologists: Fabula and Sjuzet. Callaway and Lester 2002; Young 2006; Bae and Young 2008; Cheong and Young (2008) asset that "The fabula of a narrative is an enumeration of the events that occur in the story world between the time the story begins and the time the story ends. The events in fabula are temporally sequenced in the order that they occur, which is not necessarily the same order that they are told. Sjuzet of a narrative on the other hand, is a subset of the fabula that is present via narration to the audience, it presents if the narrative is written or spoken word, natural language, cinematic presentation through the actions of actors and the camera shots that capture that action." Therefore, while it is the narrated sjuzet that is directly exposed to the audience, it is the fibula of a narrative that is the content of the narrative and what the narrative is about. There are many aspects that determine whether a story is accepted by audience as good; these aspects may be subjective in nature or more universal across a wide variety of genres. The two attribute of story narrative are logical causal progression and character believability. According to Chatman (1993) the causality of events is an inherent property of narratives and ensures a whole and continuant subject and it is seen as the notion that there is a relationship between temporally ordered events such that one event changes the story world in a particular way that enables future events to occur. Charles et al (2003) asset that for a story to be successful, it must contain a degree of causal coherence that allows the audience to follow the logical succession of events, hence predict possible outcome. Character believability on the other hand is the perception by the audience that the actions performed by characters do not negatively impact the audience's suspension of disbelief. Therefore, the implication of this is that if a character is perceived as believable; one should be able to, through observations of the character, infers and predicts its likely motivations and intentions.

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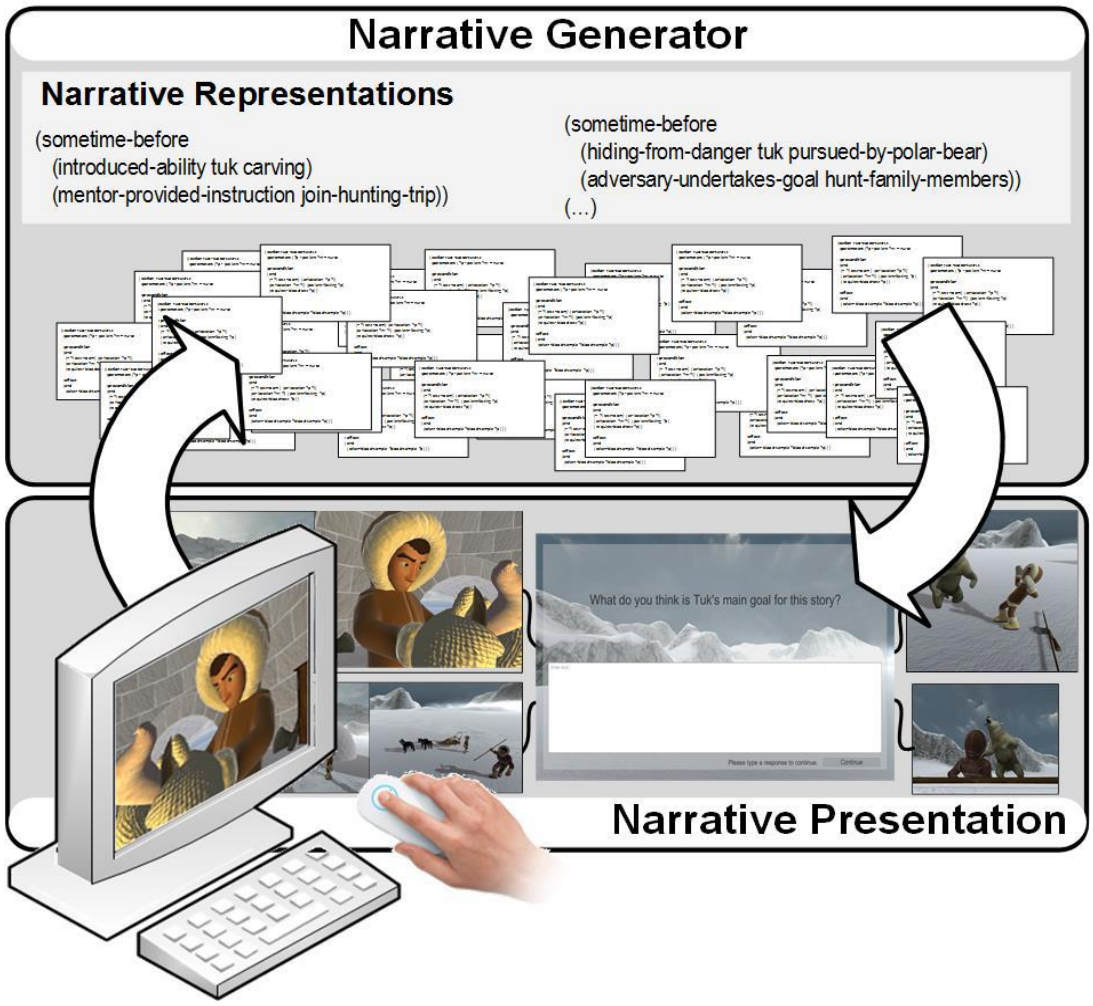
4. NARRATIVE GENERATION

Majority of narrative generator in computational narrative intelligence are being developed using inspiration from the decomposition narrative planning approach of Porteous et al. (2010b). The common narrative generation is developed using the 'The Scheherazade system.'

The Scheherazade system is an automated story generation that attempts a story about any topic requested by users (Li et al. 2012). This system uses crowdsourcing (a process that breaks a complex task into multiple small tasks that can be completed quickly by people without specific training) to rapidly acquire number of linear narrative examples about typical ways in which the topic might occur (Li et al. 2012). Programmatically crowdsourcing utilizes human intelligences to solve problems that require special expertise otherwise. Unlike most other story generators, The Scheherazade system does not rely on built knowledge about the story telling domain. Scheherazade represents a domain as a plot graph (E, P, M, Eo, Ec)

where E is a set of events (also called plot points), P ⊆ E* E is a set of precedence constraints, M ⊆ E * E is a set of mutual exclusion constraints, Eo ⊆ E is a set of optional events, and Ec ⊆ E are events conditioned on whether optional events have occurred. Precedence constraints indicate that a particular event must occur prior to another event occurring. Mutual exclusion constraints indicate when one event precludes the occurrence of another event, resulting in "branching" alternatives to how a situation can unfold.



Source: (Porteous, Charles and Cavassa, 2013)

Figure 1: Plan-based narrative generation which allows user control over the narrative variants (via interface), with real-time 3D visualization that permits punctual evaluation of story understanding.

- A Narrative Generator featuring a mechanism to control the selection (insertion and positioning) of story content related to the protagonists goals and actions i.e. the narrative cues
- The use of Narrative Presentation (Cinematic Staging) Techniques to support the presentation of selected narrative cues.

5. CONCLUSION

Narrative is an effective means of storing and dissemination knowledge, experience and culture and narrative intelligence is central to many of the things we humans do, from communication to entertainment to learning. Therefore, artificial intelligences should be instilled with computational narrative intelligence that can understand human wants, needs, and desires or can act like humans and be effective at communicating with humans and explaining their behaviour through storytelling.

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