IDtension: The Simulation Of Narrative

Nicolas Szilas
Idtension
1, rue des Trois Couronnes
75011 Paris, France
+33 1 43 57 35 16
nicolas.szilas@libertysurf.fr
www.idtension.com

ABSTRACT
This paper describes a demonstration of a running system for Interactive Drama, called IDtension.

1. THEORETICAL FOUNDATIONS
IDtension is a 4 years old research project which aims at providing a new form of digital art, called Interactive Drama: this is drama on computers where the user participates in the story designed by the author by taking the role of one of the characters [6][7][8][9].

In order to solve the seemingly contradiction between interactivity and narrativity [5], our approach consists in simulating the narrative, and letting the user interact with this simulation. The simulation is based on two major components:

- A structural model of the narrative, that is an atemporal model of the narrative [8].
- A user model of narrative perception [7][9].

The user model, inspired by the idea of a "model of the reader" [2], allows to appropriately unfold on the fly the temporal sequence of the story from the structural model, according to the user's actions.

Thus, as discussed at COSIGN 2002 [8], structuralism plays a central role in the system: the structural description of the narrative, inspired from various structuralist theories [3][1][10], might be the only possibility to describe the story in such a way it can be really simulated (not juste reassembled)

2. OVERVIEW OF THE COMPUTER MODEL
A detailed description of the computer model can be found in [9]. We just provide here a flat list of the various type of data that are handled by the narrative engine:

- Character: entities which have goals and perform actions.
- Goals: Some states in the world of the story that characters want to reach.
- Tasks: Concrete activities which lead to the goal.
- Obstacles: Practical elements in the world of the story which make some tasks impossible.
- Actions: What characters do, including information transmission, influences, task performances and transformations.
- Character's states: Characters's wishes, knowledge, opportunities for action, etc.
- Values: Author-defined axes according to which the tasks are evaluated.
- Narrative effects: Criteria according to which a succession of actions is satisfying or not, from a narrative perspective.

The systems works at the level of the action: it takes as an input the action decided by the user, and it produces the next action in the drama.

3. WRITING A STORY WITH IDTENSION
Writing a story with IDtension consists mainly in building the structural model of the drama, which contains: characters, goals, tasks, obstacles and values, and the links between these elements. Such a structure can be represented as follows:

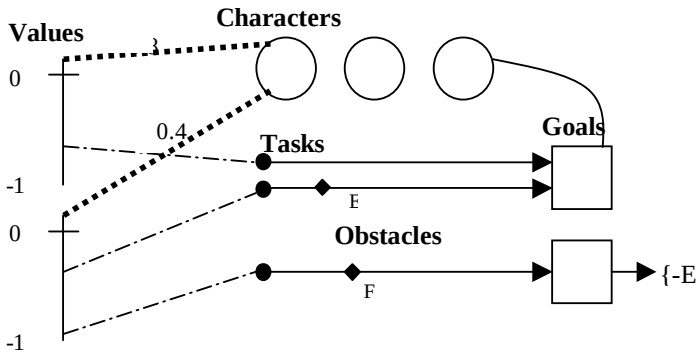

Figure 1. Structural description of a story. Characters (circles) wish to reach some goals (squares). Wishes are represented by curved lines. Each goal can be reached through tasks (arrows) that are more or less negatively evaluated according to each value of the narrative (dashed lines). The characters are more or less linked to the values (bold and dashed lines). Obstacles (diamonds) allow the triggering of sub-goals (via condition "E").

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Such a structure describes the narrative in an atemporal manner. The narrative engines uses this structure to unfold a meaningful story, in an interactive manner.

4. THE TECHNICAL DEMONSTRATION

The IDtension system is fully developed in Java. All modules are operational, even if each of them is under continuous development.

In the current version, at the time of writing, the interface is reduced to its minimal form: actions are chosen by the user among a list of all possible actions, and actions are displayed in a textual and predicative form.

Depending on the narrative mode chosen for the narrative sequencer, there are several ways to activate the system. Currently, we have two modes:

- automatic generation: the system chooses one action among the best actions, which is sent to the user;
- first person: the user is responsible for all of the actions of one character. The user and the computer alternate their action, like in a chess play.

A better interface is currently under development.

Two scenarios have been developed. The first one is very simple: it involves 6 characters, 3 goals, 4 tasks, 3 obstacles and 2 values (see [9]). A new scenario, involving more goals and more tasks is under development, and will be released for the demonstration.

For this second scenario, the rendering of actions is performed through an simple natural generation system: from pieces of sentences written by an author, it generates a natural language form for each action in the story. We will demonstrate how this technical choice is a good compromise between generativity and ability of authoring. Currently, the language of the output is French.

5. REFERENCES

[1] Bremond, C. Logique du récit. Seuil, 1974.

[2] Eco, U. Lector in Fabula. Bompiani, 1979.

[3] Levi-Strauss, C. Anthropologie Structurale. Plon, 1958.

[4] Murray J. Hamlet on the Holodeck. The future of narrative in the cyberspace. Free Press, 1997.

[5] Ryan, M.-L. Narrative as Virtual Reality. The John Hopkins University Press, Baltimore, Maryland, USA (2001)

[6] Szilas, N. Interactive Drama on Computer: Beyond Linear Narrative. In Proc. AAAI Fall Symposium on Narrative Intelligence (North Falmouth MA, November 1999), AAAI Press, 150-156. (also available at http://nicolas.szilas.free.fr/research/aaai99.html)

[7] Szilas, N. A New Approach to Interactive Drama: From Intelligent Characters to an Intelligent Virtual Narrator. In Proc. of the Spring Symposium on Artificial Intelligence and Interactive Entertainment (Stanford CA, March 2001), AAAI Press, 72-76. (also available at http://nicolas.szilas.free.fr/research/aaai01.html)

[8] Szilas, N.: Structural Models for Interactive Drama. In the Proc of the 2nd International Conference on Computational Semiotics for Games and New Media (Augsburg, Germany, Sept. 2002)

[9] Szilas, N. IDtension: a narrative engine for Interactive Drama. In Proc. of TIDSE'03 (Darmstadt, Germany , March 2003), AAAI Press, 72-76. (also available at www.idtension.com)

[10] Todorov, T. Les transformations narratives. Poétiques, 3 (1970), 322-333.