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# Cardplay, a New Textual Instrument

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## Introduction: What is textual play?

We are exploring what it means to 'play' textual literature. We don't mean, by this, playing games that incorporate textual material within their structure but rather textual and literary structures for which play is a primary means of interaction. We are conducting our exploration both as creators and scholars of digital media. This paper discusses a number of related issues — including the notion of "instrumental texts" discussed by electronic literature authors, the critical games proposed by Jerome McGann and Johanna Drucker, and what Markku Eskelinen has characterized as the challenge of ludology (the study of games) to traditional literary study. This discussion then becomes the background for describing a system we are building — *Cardplay* — its design goals, our authoring work within it, and its relationship to prior work in the hypertext and artificial intelligence communities.

## Texts and instruments

In the electronic writing community there has been increasing talk, in the last few years, about the idea of instrumental texts (Cayley, Moulthrop, Wardrip-Fruin). An instrumental text is meant to be played, and provides affordances for such play, much as folk musical instruments do (as the frets on a guitar invite the production of the notes of the scale). Such texts can and should provide opportunities for practice and reward mastery. What is practiced and mastered — again, the analogy is drawn with musical instruments — is often presented as a physical discipline. Instrumental texts also show close resemblances to computer games in these ways. Given that most works presented as examples of instrumental texts always use the same material for their play (always, so to speak, 'play the same tune') the analogy with games may be the more accurate of the two. However, the type of engagement that authors hope to produce with instrumental texts may be more musical than game-like.

A textual instrument, on the other hand, is a tool for textual performance which may be used to play a variety of compositions. In this sense it is evocative of Thalia Field's figure of the "language piano" — something that one learns to play, and which may produce a much wider variety of texts than is the case for those projects normally discussed as instrumental texts. However, a textual instrument need not be like a prepared piano. The direct selection of text, rather than the manipulation of a non-linguistic device, can be its interface. And the relationship between a textual instrument's interface affordances and the possible textual outcomes need not be one-to-one at all levels (as it is with a piano's keys, though they may be played in many combinations). Gaining an intuitive understanding of how a textual instrument will react for a given composition is part of learning to play that piece. Compositions, here, consist of a body of text (and/or a means of acquiring text) and a set of tunings for the instrument(s) used, where a tuning is a particular configuration of the interaction mechanisms and settings for the procedures (along with any instructions on how these change over time).

We have previously built two<sup>1</sup> textual instruments — one, for performing local pre-parsed texts (and for which currently there is one composition, *Regime Change*), the other for playing live network RSS feeds of current news. Both of these operate using the logic of n-gram statistical models of text (first used in textual play by Claude Shannon) and exhibited strengths and weaknesses that might be expected from such a purely statistical approach. An intuitive understanding of how to get 'good' results from both works is possible, however, despite the fact that there is no pre-set goal to the interaction. Because of the aleatoric nature of the automatic processes in both works, and the size and opaqueness of a statistical model of even a short text, these instruments are easy to compose for, but relatively resistant to precise control, by author or reader. *Cardplay*, on the other hand, is designed to operate more directly out of human authorship (of texts and rules), with interaction techniques and infrastructural motifs more typical of hypertexts or rule-based artificial intelligence systems. The aim is a blend of these parallel (non-intersecting) but closely related sets of techniques.

## Playing with games

Interest in games has a long history within the literary community. The work of the Oulipo, for example, could be seen as a relatively recent entry in a series of authoring games stretching back through literary history. (Amusingly, the Oulipo have referred to those employing difficult authoring constraints before them as "anticipatory plagiarists" — and characterized themselves as rats who design the mazes from which they propose to escape.) Critical interpretation has also been characterized as a game. Warren Motte has done important work on 'playtexts'. However there has been little attention to games

in a more formal sense — games involving rules, moves, and outcomes. Perhaps this is because few literal games have, before the last couple of decades, contained much of literary interest.

Now this is changing, and rapidly. Critics from literary backgrounds are among the most active in the formation of the rising field of 'game studies' (or 'ludology'). Meanwhile, other critics have proposed means by which the metaphorical game of literary interpretation can be literalized — via the introduction of rules, moves, and outcomes into public acts of interpretation carried out in a computational media environment.

Among those from a literary background who are now helping create the field of game studies, we will primarily focus on Markku Eskelinen's recent work. While we might also fruitfully consider the work of Espen Aarseth, Lisbeth Klastrup, Susana Tosca, and Torill Mortensen, it is Eskelinen who has most clearly brought concepts from ludology into contact with the notions of "instrumental text" and "textual instrument". He points out the importance of overcoming the "fear of variety" in order to understand instruments fashioned precisely so that each reading is different. We must find methods of reading not only textual outcomes (which vary) but the systems that produce them (which remain consistent).

In another sense, the creation of systems for 'playing literature' — but for critical purposes, rather than artistic ones — has been a focus of the Speculative Computing Laboratory at the University of Virginia. Best known of these projects is *The Ivanhoe Game* first proposed by Jerome McGann and Johanna Drucker. Here some types of literary interpretation are formalized in a manner that would be recognizable to ludologists, even if they do not fully satisfy all formal definitions of the term 'game'.

## Playing cards for drama

In *Cardplay*, we are trying to create a textual instrument whose center of gravity is clearly literary, focused on the creation of a work, a play, that is in some senses conventionally literary, and yet to make the process of playing the work simultaneously be the the process of playing a game in the most literal sense. In *Cardplay*, players manipulate virtual cards (each associated with text that is not fully visible to the players), in an attempt to win the card game (Solitaire is also possible). However, a successful play wins points when the card played interacts with other cards played to advance the creation of the script of a play, whose transcript accumulates and may be saved. Copyright in the result may be automatically granted to the winner of the game, by the program, on the successful completion of the game. Players of the game are thus in competition with each other to advance the story. Unlike many interactive fictions, however, neither player is identified with

a character in the ongoing story, nor is the plot of the story necessarily determinative of victory in the game.

Significant aspects of *Cardplay* are inspired by the description of Mark Bernstein's systems *Thespis* and *Card Shark*. In Bernstein's *Card Shark*, players create texts by playing 'cards' each containing a fragment of narrative. Each card may have some named properties, which are active once the card is played. Cards may also have preconditions which must match the properties of active cards. *Thespis* extended this notion to a self-composing drama system in which a number of artificial agents try to play their own cards, with a similar condition system.

In neither of Bernstein's systems was the notion of a game used. In *Thespis*, a number of standard AI techniques (Blackboard systems, Agents) are used in a minimal way to create a reading experience. *Cardplay* cards can be divided into two types: Fundamental cards, which represent aspects of events, characters, places; and Master cards, which create textual content in the transcript. There is no procedural aspect to *Cardplay* cards, unlike Bernstein's *Thespis* agents, and the conditions by which cards are matched are more complex than those in *Card Shark*. A *Cardplay* card is more like a logical rule in an AI system, which has variables that it can match in the cards 'on deck', and results that it presents, to which other cards can match. When played, a Master card, and the cards that it has matched with, are all removed, and the transcript is augmented with the results.

We believe that the methods of symbolic AI provide a fertile area for exploration in the creation of literary systems and games. The thorny AI issues of how the knowledge in such systems is grounded are irrelevant to the creation of the experience of unreal worlds, which by definition are not so grounded. As authors, we find what has come to seem the naivete of early AI methods quite attractive, because it means that the resulting systems are relatively easy to understand and control. Finally, we find it interesting that in our system the reader will play a game whose issue will provide a soul for the machine that is our text.

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