A Reconstructed Neo-Aristotelian Theory of Interactive Narrative

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Abstract

Aristotle's *Poetics* has served as the basis for understanding interactive drama since Brenda Laurel proposed her neo-Aristotelian model in 1991. Michael Mateas (2004) has recently extended Laurel's model to include an explanation of user interaction. This current poetics has accumulated a number of valuable additions during its development. However, the omission of key Aristotelian features—such as the distinction between object, manner, and medium—has lead to certain tensions. Here, we trace the evolution of the current poetics in order to examine its strengths. We then propose an overhauled model that includes most of these benefits while eliminating some of the internal strain. This new poetics closely mirrors many actual interactive drama system architectures. Because it includes manner, it can also apply to other forms of interactive narrative besides dramas.

Aristotle

In the fourth century B.C.E., Aristotle (1961) laid the foundations of narrative theory in his *Poetics*. Though he focuses primarily on describing the nature of tragic drama, he does refer to other art forms such as epic poetry, comedy, dithyrambic poetry, music, dancing, and painting. He claims that all these forms of "imitation" differ from each other in three defining respects: their objects, medium, and manner (which is sometimes called mode).

Objects

The object "imitated" in drama is "men in action" (Chapter I). Tragedy and comedy can be distinguished by the character of the men represented and the nature of the action. The men can be portrayed as "better" or "worse" than they are in real life; the action may or may not be serious, unified, and complete. But the important aspect is "men in action".

Fergusson, in his introduction (Aristotle 1961), explains that our understanding of Aristotle's *action* should be in light of his writings on ethics. Action here means *praxis*—an active, rational "movement of spirit", directed outwards. It is action arising from thought, focused to some end. The motivation of a character is essential to this sort of action.

Aristotle thus explains that the three objects of dramatic action are Plot (that is, the "arrangement of the incidents"), and the Character and Thought of its agents (Chapter VI).

Medium

Art can represent objects through a variety of different media—color and form, or the voice, or rhythm and harmony (Chapter I). Tragedy, specifically, is conveyed through Diction and Song (Chapter VI). That is, actors speak and sing in order to convey the action to the spectators.

Manner

Within the same medium, there may be different manners of presentation. For instance, in poetry conveyed through the media of speech and song, the events can either be narrated through a personality, narrated as if by the poet himself, or enacted as if the characters were "living and moving before us" (Chapter III). This is a distinction between epic and tragedy—epic is narrated, while tragedy is enacted. Aristotle calls this enactment of tragedy the Spectacle (Chapter VI).

Aristotle lists these six parts in terms of their order of importance to tragedy: Plot, Character, Thought, Diction, Song, Spectacle (Chapter VI). The first three are the objects—we understand the Plot of the action in part because we understand the Character and Thought of the characters. The action is presented through the media of Diction and Song, Diction being the more important for Aristotle. He lists the manner of Spectacle as the least essential to judging tragedy. Though the special effects of the stage may have a certain emotional appeal, they are the least connected with the art of poetry. "For the power of tragedy, we may be sure, is felt even apart from representation and actors" (Chapter VI).

Smiley

Sam Smiley, in his 1971 *Playwriting: The Structure of Action*, explores the process of playwriting, using Aristotle's model as a framework. In the first chapter, in arguing that the fine arts produce artificial (that is, manufactured) objects, he explores Aristotle's four causes for coming into being of an artificial product.

For those unfamiliar with Aristotle's causes, the

material cause of an object is the substance of its construction. The material cause of a house is the wood and concrete used to construct it. The formal cause is the form of the object. For a house, this would correspond roughly to its blueprint design. The efficient cause is the process that constructs the object. This would be the construction workers who build the house. The final cause is the end to which the object is constructed. A house is usually constructed to provide shelter.

Smiley very briefly presents Aristotle's six parts of drama as connected by formal and material causes. (Although the four causes are an Aristotelian concept, Aristotle himself does not state such causes between the six parts in *Poetics*.) Smiley presents them in the same order as Aristotle—Plot, Character, Thought, Diction, Sounds, and Spectacle—and contends that each element dictates the form of those below, while each provides the material for the element above.
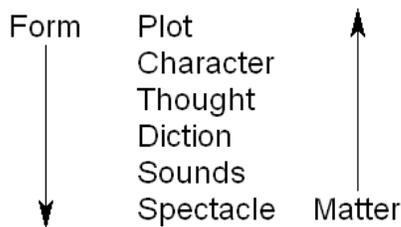

Figure 1: Smiley's model (1971, p.11)

For Smiley, Plot is constructed in terms of the actions of the Characters. The material from which we build Character is Thought. For Smiley, Thought includes all the internal experiences of a character—emotions, qualities, and ideas. Thought is constructed from words, or Diction. Diction is made up of Sounds. (Note the change here from Aristotle's Song.) Spectacle—"the physical actions that accompany the words" (Smiley 1971, p.12)—is the most basic material of all. A playwright holds the formal order to be most important, as the Plot dictates the qualities of the Characters, which espouse certain Thoughts, and so on. The actors and production team tend to construct the play working in the material order, beginning with the Spectacle.

Note that Aristotle's distinction between object, medium, and manner has been ignored here. We will soon discover that a number of tensions were introduced by this omission, as these few paragraphs of Smiley's become the foundation of the modern poetics of interactive drama.

Laurel

Brenda Laurel (1991) begins with Smiley's model, renaming some of the elements to be Action, Character, Thought, Language, Melody, and Spectacle. She describes these elements first in terms of drama, and then expands

their meanings to be suitable for all human-computer activities (such as computer-based interactive narratives).

Starting at the lowest levels, Laurel begins by defining Spectacle as "everything that is seen" and Melody as "everything that is heard". However, this does not fit cleanly into the causal hierarchy since Spectacle does not form the basis of Melody. Also, this emerging neo-Aristotelian model does not seem to allow for visual signals to travel "up" the hierarchy to become the basis of Language and the understanding of the drama.

So instead, Laurel renames Spectacle to Enactment and redefines it to mean all the sensory dimensions of the represented action—visual, auditory, tactile, and any others. From these sensations, the user constructs Patterns. Language now does not mean only spoken human language, but any "selection and arrangement of signs, including verbal, visual, auditory, and other nonverbal phenomena when used semiotically" (Laurel 1991, p.50). Thought and Character remain largely unchanged, though for Laurel they may arise from computer-based, rather than solely human, origins.
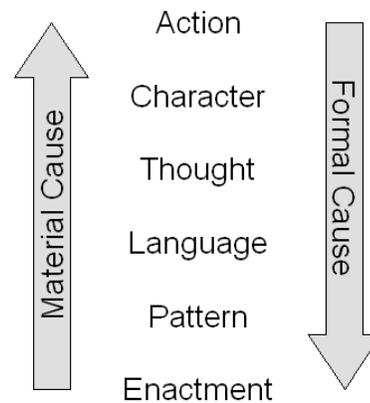

Figure2: Laurel's model (1991, p. 51)

Though Laurel has overhauled the bottom half of the hierarchy in an attempt to fit the demands of the causal connections, we shall see that a number of inadequacies still remain.

Mateas

Michael Mateas (2004) follows Laurel's model, both in the terms used and the material and formal causes. He adds to the model Janet Murray's notion of Agency, which Mateas defines as "the feeling of empowerment that comes from being able to take actions in the world whose effects relate to the player's intention" (Mateas 2004, p.21).

In an interactive drama, the story is enacted with the player taking the role of one of the characters. To support interaction at this Character level, Mateas adds two new causal chains—a Material for Action and a User Intention. When a user is interacting within a virtual world, the

objects and the characters in that world afford certain user actions (from below). In turn, the story provides some narrative constraints, or at least direction (from above). When the user acts upon other characters in the story, her intention becomes a formal cause in much the same way the requirements of the action shape characters in traditional narratives. "A player will experience agency when there is a balance between the material and formal constraints" (Mateas 2004, p.25)
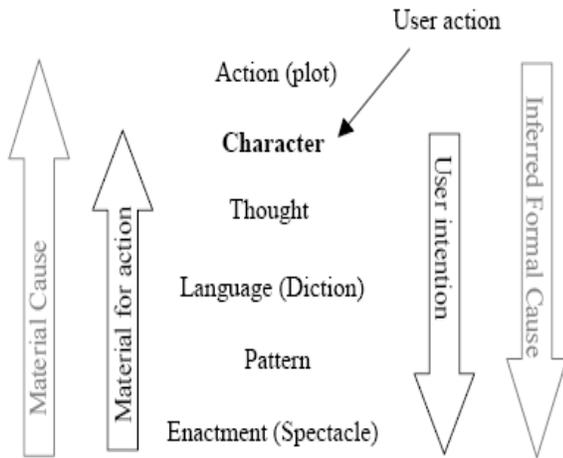

Figure3: Mateas' model (2004, p. 24)

The Problems

We can thus see that Aristotle's model has come a long way through these additions and reformulations. However, due to the introduction of material and formal causes, a number of omission and tensions have been introduced.

First of all, we have lost Aristotle's sense of manner. Rather than differentiating between whether a narrative is enacted or presented, Spectacle has come to mean "all that is experienced by the audience."

Secondly, we have lost the idea that the medium is variable, yet still specific. When defining medium, Aristotle admits that medium may be color, harmony, rhythm, etc. (Chapter I). Only in describing tragedy (and other drama such as epic) does he limit himself to Diction and Song. We have since come to assume that all dramas are presented only through Diction and Song—which are primarily auditory channels.

However, as dramas become computer-based, we have, through Laurel, attempted to regain the flexibility of different possible media. In order to allow for visual signs, we have rather ungracefully expanded Song and Diction to Pattern and Language. We now speak only generally of Patterns, rather than specifically of medium-specific modes. Those Patterns must then be assembled into something as well-defined as a Language in order to serve as the basis of Thought, Character, and Action.

Most importantly, the causal hierarchy implies sequential and exclusive links between the levels. That is, as a stack, it seems only the level directly below forms the basis for the level above. For example, we certainly construct our understanding of a Character in terms of her Thoughts, which are understood in terms of her spoken Language. However, her physical features, expressions, gestures, costume, and theme music also contribute to our understanding of who a character is. Yet these attributes seem to serve as the material for Character without conveying Thought or using Language.

Mateas runs into this problem when he describes interaction with objects as existing "somewhere between spectacle and pattern" (Mateas 2004, p.25). Yet what affordances are granted by raw sensory experiences of Spectacle? What sort of constraints are provided by Patterns such as a purple jacket and an ominous musical chord? Yet it does not seem right to move objects to the level of characters, as objects are not assembled from Language-encoded Thought.

Aristotle does not mention setting or props, probably due to the fact that plays of his time had limited scenery. However, objects in the world play an increasingly important aspect of computer-based interactive drama since they are often the means through which the player can affect the action.

The Reconstruction

Aristotle provides us the basis for describing an art form in terms of its object(s), medium, and manner, while exploring tragedy as a specific example. Smiley gives us the idea of formal and material causes between these elements. A playwright begins with a unified action, which then necessitates certain characters, which espouse certain thoughts. An audience's experience of the drama is, in reverse, constructed from raw experience, producing motivation, character, and the resulting action. Laurel explores this process that Smiley only sketches, and expands this framework to describe computer-based drama. Mateas tackles the problem of how interaction and the experience of agency can fit into this model. We believe that we can keep all these contributions, yet remove many of the tensions introduced during this model's evolution.

Returning to Aristotle, we can say that an object of "imitation" is presented through some medium. We can think of this medium as our experience of a "text", whether this be reading a script, watching a movie, or playing a narrative game. The object of imitation does not formally dictate the choice of a certain medium as a whole—a story could be presented as either a novel or as a play. However, the object does formally dictate its construction within a specific, chosen medium—a story's dialog is written within quotes in a novel or spoken by the actors in a play. We construct a sense of the object from our experience of its instantiation in a particular medium.
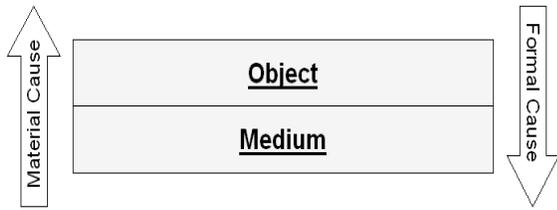
Figure 4: Simplified model of an art object instantiated in a particular medium.

The Medium

Our experience of a medium may utilize a number of sensory channels—the visual, auditory, tactile, etc. This raw sensory experience corresponds to Laurel's (and Mateas's) definition of Enactment.

At a higher level, as Laurel suggests, we discern patterns based on this sensory experience. From various sounds, we may differentiate music or speech. From our visual experience, we may differentiate text, diagrams, photographs, animation, or live action. We might call these differentiated sensory patterns the *modalities* of the medium. (Although Aristotle's manner is sometimes translated as *mode*, that is not what we mean here. Modalities, as defined here, essentially correspond to such parts as Aristotle described as medium—spoken language, musical rhythm, color and form.)

We may also want to consider that, also as Laurel describes, there are certain conventions (something like a proto-language) that develop for these different modalities. For instance, a shot-reverse-shot with a fade can signify a reminiscent flashback in film. Comic books use different "word balloon" conventions to show whether a character is speaking, whispering, or thinking.
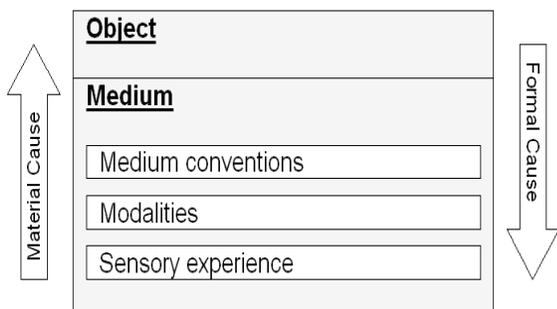

Figure5: Model demonstrating the formal and material causes at work within any particular medium.

The specific sensations, modalities, and conventions depend on the particular medium used. Each level provides the material necessary for constructing those above it, while formally constraining those below it. This reformulation of medium opens the way for a media-specific analysis, as called for by N. Katherine Hayles

(2002). Whether a story is conveyed as a live performance, a film, or a novel, we should be able to explore the particular details of its material embodiment in a medium and how that specific embodiment affects our conception of the work as a whole. This is a different, broader notion of medium from Aristotle's, which would correspond only to what we are calling the modality.

In an interactive medium, the medium also provides interface controls that affect the imitated objects. When experiencing a drama, the user moves through the stages of material causality: from their sensory experience, they discern separate modalities, each with their various conventions for relaying the objects of drama. When handling user inputs, the drama system must make this same transition. The system may allow for various channels for input, such as haptic or auditory. Haptic input might involve different modalities, such as movement of the mouse or the pressing of keyboard keys. Mouse use has number of conventions concerning the difference between left-clicking, right-clicking, and double-clicking. When discussing interaction, we are mostly concerned with the user's agency within the narrative context—how the user can affect the world of the story. However, it is useful to remember that both their understanding of the story world and their attempts to control it must pass through the medium.

The Object

The object of drama is "characters-in-action". This Action has Characters as its material cause; in turn, the Action determines what sort of Characters are needed to produce it. As held by Aristotle, a character's motivation, or Thought, is essential to understanding that Character. However, as we have seen, it is not the *only* material from which characters are formed. They have a number of other physical attributes, and often Thought can only be inferred from these outward appearances. While essential to Character, Thought does not cleanly fit within the exclusive formal/material cause hierarchy.

The notion of Setting is missing from Aristotle. Yet, Action is partly constructed in terms of where things happen and what objects are used. This is particularly true in an interactive drama, in which the user assumes the role of a character and, through this character, interacts in a virtual story world. Though some of this interaction means affecting other characters, the user often spends time manipulating objects and their character's current location. We might refer to the Characters and Setting together as the World of the story.

The user's actions at the World level serve as partial material for furthering the Action, while the narrative context of the Action so far provides some constraints on the user. This is just as Mateas describes Agency, though in this reformulated model, the world's objects are placed within the same narrative context as characters. Like

characters, modeled story objects often have an internal state that must be inferred by the user from the objects' outward appearances (as conveyed through the medium). Though we are usually most concerned with the affordances offered by the story world, it is helpful to remember that the medium itself must also successfully afford the interaction controls needed to affect those objects.
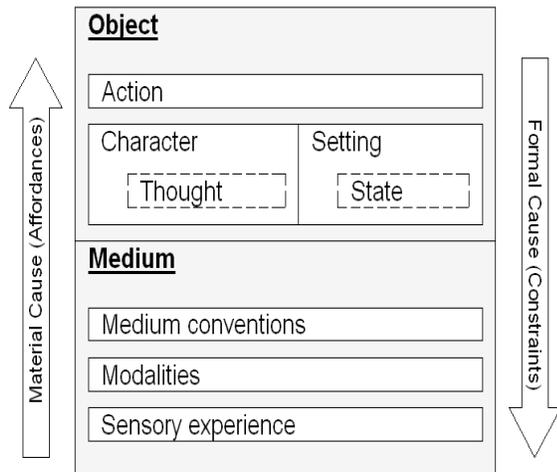

Figure 6: A reconstructed neo-Aristotelian poetics for interactive drama.

We have now restructured the current poetics of Laurel and Mateas. Although we have changed some of the relationships and labels, we have tried to maintain their basic concepts—particularly the formal and material causes, the description of "patterns" and "languages" at work in a medium, and the mechanism of user agency. Most importantly, we have reinstated the Aristotelian distinction between medium and object.

An Extension to Interactive Narrative

Although restructured, our poetics might still be improved by attempting to apply it to other kinds of narrative.

Manner

So far, we have limited ourselves to those elements that have been carried through the evolution of this poetics to Mateas. However, the notion of manner was dropped relatively early in this development. Since we have been restricting ourselves to interactive *drama*, this has been easy to ignore. We can simply assume that, as the player is assuming the role of a character, the manner is invariably that of enactment. Since the manner is always the same, there has been no real need to include it in the model, until now.

Aristotle's definition of manner is very brief:

For the medium being the same, and the objects the same, the poet may imitate by narration—in which case he can either take another personality as Homer does, or speak in his own person, unchanged —or he may present all his characters as living and moving before us (Aristotle 1961, Chapter III).

We can see here that the manner is how the story is presented within a medium, but it is independent of that medium. The main distinction is between narrated and enacted manners. For example, the play *Romeo and Juliet* can be said to have an enacted manner. However, it can be embodied in different media: as a script, as a live performance, as a film. If the same *Romeo and Juliet* story were written as a novel told by Juliet's nurse, then the story would have a narrated manner. This novel could also be made into a film, as film can present both enacted and narrated manners.

It is when we begin to concern ourselves with narration that manner becomes increasingly important. As we've seen, Aristotle distinguishes between two kinds of narration—an omniscient narration verses a limited, character-filtered narration. In either form, we find our experience of the action is provided only through the particular point of view of the narrator. This narrator may be unreliable; the filtering character may be fallible. The narration may be very overt, in which the narrator constantly evaluates or comments on the events and characters of the story.

Narration is not itself an event in the story it conveys, even when the narrator is a character in the story. This is essentially the difference narratologists make between the story (the chronological events of the action) and the discourse (the telling or presentation of those events). The discourse conveys the story to us, but it may comment on that story, focus our attention on certain events over others, omit events, foreshadow or flashback to previous events, provide "backstory" information, etc. There is usually a difference between the discourse and story timeframes—it might take an hour to read about the events that happen to the characters in seconds, or a ninety minute film might show story events that occur years apart.

Although this difference between the story and the discourse is less obvious for enacted narratives, the distinction can still be made (Chatman 1990). For example, film can present things from a particular point of view. A narrator can be established through such conventions as using voice-overs, point-of-view shots, and having the narrating character present in all scenes. Two different directors can tell the same story in different manners using the same film medium depending on how they use scene cuts, pacing, staging. lighting, etc in order to reveal, highlight, or comment upon the action.

Although overlooked, the discourse—how the story is presented—is clearly important. And it is, in fact, present in all forms of narrative. Mark Stephens Meadows (2003)

goes so far as to argue that the perspective from which the events are relayed is even more essential to narrative than the events themselves.

We have seen that Aristotle's manner is, essentially, narratology's discourse. This discourse is what we experience by materially constructing the conventions of the medium. And from the material of the discourse, we construct the world and events of the story based on the perspective we are provided. In reverse, the events and the world of the story determine the form of the discourse, which in turn formally determines how it is embodied in a particular medium.
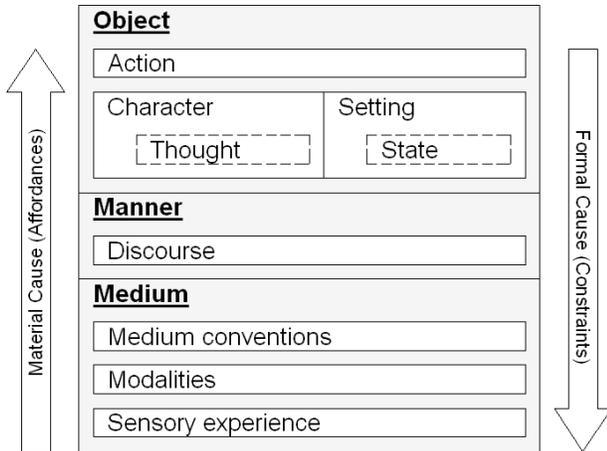

Figure 7: A neo-Aristotelian poetics for interactive narrative.

There are other "meta-story" elements, such as genre, story morphology, theme, and implied author. Though it is tempting to lump them all together as part of the "discourse", it is very unlikely that they belong there. Hopefully our model will someday grow to gracefully accommodate them where they belong.

The Placement of User Action

In an interactive drama, where the user assumes the role of a character, the level of user action is clearly meant to be that of the story world—its characters and setting. However, other interactive narratives have user action at other levels.

At its most basic level, most narratives offer some control over its medium—whether to stop it, turn up the volume, or the speed at which to turn the pages. Some narratives offer the user control over the details of its discourse or presentation. For instance, the user might be able to control the camera viewpoint or might select different hypertext links, changing the order in which the narrative is experienced. Or the user might be able to specify the kind of high-order action she would like to see, either as an interactive "director" or as input to a story generator.

So it could be argued be that a DVD player, a hypertext novella, an interactive drama game, and a story generator are all interactive narratives. They differ only at the level at which user action is intended to occur. If this is the only sort of interaction afforded and supported by the narrative, the user may still feel some sense of agency as long as those affordances and constraints are balanced. However, the user's interactions become more significant—that is, they have a greater impact on the action of the story—the higher the level at which those interactions occur.

Conclusion

The intent here is not to return to Aristotle, but to clarify the existing poetics model based on its evolution through four authors. To do this, it is important to return to Aristotle's distinction between the object, medium, and manner. A story (or any creative work) is always embodied in some particular medium. Renaming Laurel's bottom three levels, we have clarified the different aspects inherent to all such media. We have added Setting to the world of the story, as Action does not progress in terms of Character alone, especially in an interactive drama. We have also explored how the manner—that is, the presentation of the story—might be resurrected within the model. This new poetics more closely mirrors many interactive drama system architectures, which usually contain a drama manager (Action), a modeled world of objects (Setting), believable agents (Character, with inferable Thought), and a presentation layer (Discourse), all conveyed by the means of a particular medium (computer game software). Applying Mateas's definition of user action and agency at different levels, this new model can also apply to other forms of interactive narrative besides dramas.

Acknowledgments

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