

Fiction Puzzle: Storable Challenge in Pragmatist Videogame Aesthetics

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Abstract. This paper surveys the ontological and aesthetic character of puzzles in worlds with storytelling potential, *storable worlds* (potential *storyworlds*). These puzzles are termed *fiction puzzles*. The focus is on the fiction puzzles of videogames, which are accommodated to John Dewey's pragmatist framework of aesthetics to be examined as art products capable of producing aesthetic experiences. This leads to an establishing of analytical criteria for estimating the value of fiction puzzles in the pragmatist framework of aesthetics.

Keywords. Aesthetics; Puzzles; Story; Narrative; Videogames; Adventure Games; Interactive Fiction; John Dewey

1. Introduction

The pragmatist thesis about the correspondence between ‘designed experiences’ and ‘everyday experiences’ has recently become of increased interest to philosophical aesthetics. Perhaps the most central reason for this is the rapidly advancing research of neuroscience, which provides growing support for the pragmatist argument (Schellekens & Goldie 2011; Brown et al: 2011; Shimamura & Palmer 2012; see Zeki 1999). The brain makes no notable distinction between objects (apples) and their representations (painting of apples), which means that the experiences produced by them are potentially the same. This is important especially for the currently proliferating videogames the aesthetic experiences of which are more related to spectacular (Darley 2000) and kinesthetic (Kirkpatrick 2011) sensations rather than to contemplative interpretation. Phillip Deen’s (2011) convincing proposal for considering John Dewey’s pragmatist theory as a framework for analyzing the aesthetic character of the videogame may be taken as a solid point of reference.

This paper continues to explore Dewey’s pragmatist framework by applying it to the aesthetics of a particular videogame challenge that does not necessarily require kinesthetic effort to be overcome: the puzzle. While puzzles may even be older than recorded history (Olivastro 1993), digital gaming has given them several new forms. The present scrutiny will be limited to puzzles that are integrated to worlds with storytelling potential, *storable worlds* (potential *storyworlds*). These puzzles are referred to as *fiction puzzles*. Initially, the fiction puzzle and the fundamental concept of Dewey’s pragmatist theory, ‘aesthetic experience,’ are defined (sections two and three). Subsequently, it is shown how fiction puzzle solving is conceivable as an aesthetic experience that is capable of awaking understanding in the solver (section four), which eventually enables establishing criteria for estimating the value of fiction puzzles in the pragmatist framework of aesthetics (section five). While this study is devoted to the fiction puzzle, there seems to be no reason for dismissing the applied pragmatist framework as an exclusive analytical alternative for videogame criticism in general.

2. Aesthetic Experience

A comprehensive analysis of the relationship between the videogame and John Dewey’s pragmatist aesthetics has already been done by Phillip Deen (2011). Therefore, this section settles for a brief summary, introducing merely those concepts of Dewey’s theory that will turn out crucial for the study at hand.

In John Dewey’s aesthetic theory (1934) the conventional ‘artwork’ is replaced with an ‘aesthetic experience.’ Whereas some artifacts tend to arouse aesthetic experiences, they are not artworks themselves:

Art is quality of doing and of what is done. [...] The work takes place when a human being coöperates with the product so that the outcome is an experience that is enjoyed because of its liberating and ordered properties. (222)

Artworks thus equate to a variety of moments and events which are usually an outcome of encountering an ‘art product’ that has been created to generate an experience of a specific type, an aesthetic experience. This connection between the artwork and the art product is synergetic, but not imperative.¹ Aesthetic experiences occur without art products as well:

The sources of art in human experience will be learned by him who sees how the tense grace of the ball-player infects the onlooking crowd; who notes the delight of the housewife in tending her plants, and the intent interest of her goodman in tending the patch of green in front of the house; the zest of the spectator in poking the wood burning on the heart and in watching the darting flames and crumbling coals. (3)

Accordingly, aesthetic experiences arise from a sense of presence that may derive from very dissimilar activities. This aspect invites one to compare Dewey’s theory to the broadly used concepts of ‘flow’ and ‘immersion.’ Those mental states do not, however, represent the aesthetic experience to the full. The difference is essentially temporal. Whereas the former concepts are generally taken as solid, uninterrupted, and momentary phenomena, an aesthetic experience may extend into a pattern of plural events. Dewey exemplifies this through the longer-lasting undertakings of writing a book, taking part in a political campaign and playing games. These aesthetic experiences he calls ‘integral,’ as they continue after interruption to be constructed post hoc (37). Although Dewey does not make a clear distinction between *short-term* experiences and *integral* ones, the two are helpful for understanding the aesthetic multiplicity of the fiction puzzle.

3. Fiction Puzzle

While intensive psychomotor challenges represent what most videogames are about, the puzzles in focus, *fiction puzzles*², need not entail time-critical kinesthetic effort to be solved. Conversely, they often appear in time-free

¹ In tolerable coherence with Monroe Beardsley’s (1958) conclusion: “because of their specialized nature, [art products] are richer sources of aesthetic value and provide it in higher order” (xx).

² In her pioneering dissertation on game narration, Mary Ann Buckles (1985) refers to this type of puzzles as ‘narrative

frameworks in which the evaluated efforts have no time-critical factors. Ontologically speaking, the cognitive act of fiction puzzle solving is ipso facto never a kinesthetic procedure, albeit *executing* fiction puzzle solutions occasionally requires kinesthetic effort, such as that of manipulating an input device.³

Fiction puzzles made their digital debut in the 1970s along with the first text adventure games, but are today confronted in most other games as well (Bates 2004). Clara Fernández-Vara (2009a) offers a general definition for the puzzle, which shall be the point of departure for the forthcoming formulation of the fiction puzzle:

A puzzle is a challenge where there is no active opponent, but rather it is a problem that needs a solution. The solution entails logical thinking, rather than physical skills, and it is the result of insight thinking. Puzzles usually have a single solution, even if it may [be] possible to obtain it in more than one way. (125–126)

Puzzles are easily confused with strategic challenges. *SimCity* (1989, Maxis) and solitaire card games, for instance, provide strategic challenges that fit well in Fernández-Vara's description. In order to separate the two, it is necessary to make a distinction: strategic challenges entail configuring dynamics; puzzles entail configuring statics alone (Karhulahti 2013; cf. Crawford 1984; Costikyan 2002). Here dynamics and statics are defined in terms of consequences of configuration: in configuring statics consequences are determinate; in configuring dynamics consequences are indeterminate. As dynamic challenges may contain functional static components but not the other way around, a puzzle is never a game in itself whereas games may include puzzles.

Chess is not a puzzle but a game of strategy. While the state change that results from the player's configuring move is determinate, its final consequences depend on the opponent. As long as the opponent's moves are indeterminate, chess maintains its dynamics and strategic character. Chess can, however, sustain puzzles like 'how to win in one move' situations in which dynamics become dysfunctional due the exclusion of the active opponent. The lack of counter-moves makes the consequences of configuration determinate, and the challenge a puzzle.

The chess example is applicable to *Tetris* (Alexey Pajitnov, 1986), which similarly escapes the statics of the puzzle: playing it is not about finding a determinate solution but about executing a dynamic strategy.⁴ Despite the similarities between jigsaw pieces and the tetrominos of *Tetris*—one could designate this the *tetris fallacy*—there is an essential difference between assembling the two, namely that there are neither right nor wrong (kinesthetic) moves in *Tetris* before a state at which some moves result in unwinnable situations. To be specific, as long as *Tetris* provides two or more moves that enable continuing play, the activity is strategic because the consequences of those moves depend on the order in which the dynamic game delivers the next tetromino(s).

As it has been shown, puzzles and strategic challenges are structurally different. This does not mean that they must appear separately. Collecting all the dots in *Pac-Man* (Namco, 1980) is a simple navigational puzzle in which the dynamic relation between the steered existent and the four enemies makes it additionally a challenge with strategic (and kinesthetic) requirements.

Fiction puzzles can be juxtaposed with the common 'problem,' a term that Lebling et al. (1979) used to describe the challenges of their nowadays-canonized text adventure *Zork* (Anderson et al., 1979). What separates the fiction puzzle from everyday problems is that it is always integrated to a *storable world* (cf. 'storyworld' in Herman 2002). Here storable worlds refer exclusively to virtual worlds with storytelling potential; *Tetris* and *Pac-Man*, for example, comprise worlds the mechanics of which are not suitable for storytelling purposes as such. Accordingly, the meaning of 'fiction' indicates solely the problem's position in a reality different from the mundane (Aarseth 2007; Karhulahti 2012b). A fiction puzzle is *a problem in a storable world the nonkinesthetic solving of which does not entail configuration of dynamics*.

² In her pioneering dissertation on game narration, Mary Ann Buckles (1985) refers to this type of puzzles as 'narrative puzzles,' whereas Ragnhild Tronstad (2005) uses the term 'adventure game puzzle.' The fiction puzzle defined in this paper is not exclusive to narratives or adventure games. In the present context, then, instances such as puzzles with narrative functions and the (object manipulation) puzzles of classic adventure games could be categorized as subclasses of the fiction puzzle.

³ Note that only few of the solutions of this paper's examples require nontrivial kinesthetic execution, which is not to imply that puzzles with kinesthetically executable solutions do not exist. The reality is quite the opposite. A vast number of videogames have puzzles with kinesthetically executable solutions; moreover, games like *Prince of Persia: The Sands of Time* (Ubisoft Montreal, 2003) can be said to have advanced this fiction puzzle type into a rich art form of its own.

⁴ The author failed to see this in his earlier work (Karhulahti 2011).

Videogame fiction puzzles are normally, but not necessarily, configured through one or more controllable existents. This means that the solver's contribution is typically mediated to a character whose actions ultimately execute the solution. The (double) vicarious relationship works as means for the solver to achieve a desired state of affairs in the storable world, which is often instrumental for advancing a story. This is not always the case, as some storable worlds (e.g. many multiplayer videogames) may be entered vicariously without being involved in a story. The present scrutiny concentrates on fiction puzzles in story contexts, nevertheless.

Mundane problems that are solvable without configuring dynamics can be transformed into fiction puzzles simply by integrating them to storable worlds. To prevent underage players from exploring the game's sexual themes, *Leisure Suite Larry in the Land of Lounge Lizards* (Sierra On-Line, 1987) opens with a set of questions and riddles that need to be answered correctly in order to begin the story. While these challenges are part of the software, they are not fiction puzzles, however, since they occur outside the diegesis of the storyworld. Being part of the game software, these problems can be termed *extrafictional* in accordance with their extradiegetic nature (see Montfort 2007). A similar quiz is confronted later when a password is requested from the protagonist. The question is now a fiction puzzle as the event takes place in the storyworld.

A typical fiction puzzle in a videogame, nonetheless, is neither a riddle nor a modification of a jigsaw but has its own distinctive mechanics. These mechanics are based on configuring existents, usually objects and characters, of storyworlds. A classic example is the locked door problem that involves the navigational puzzle of finding a key by exploring the storyworld through the player character, and the object manipulation puzzle of opening the door by unlocking it with the obtained key. In sum, all problems in storable videogame worlds the nonkinesthetic solving of which does not require configuring dynamics can be considered fiction puzzles, more or less (cf. Montfort 2007: 48–51).

4. Fiction Puzzle in Pragmatist Aesthetics

Now that the key concepts have been introduced, the fiction puzzle can be examined as a potential producer of aesthetic experiences. It is fitting to commence by recalling Dewey's two experience types: short-term experiences and integral experiences, the integral experience being a coherent consummation of several short-term ones. For both experience types, effort is decisive:

Struggle and conflict may be themselves enjoyed, although they are painful, when they are experienced as means of developing an experience; members in that they carry it forward, not just because they are there. (1934: 42)

The framework allows videogames to be seen as potential producers of integral experiences, and their challenges (including fiction puzzles) as potential producers of short-term experiences. Let the fiction puzzle's short-term aesthetic function be studied first.

Dewey names problem solving as one of the avenues to an aesthetic experience (36–37). This experience has been given a more detailed scrutiny by Marcel Danesi (2002), who calls the peculiar pleasure gained from puzzle solving 'an aesthetics of mind.' He states that "a puzzle is indeed a small work of art that stimulates curiosity and provides a kind of aesthetic pleasure all its own" (227). Danesi's phrasing is well applicable to fiction puzzles. There is, nevertheless, a noteworthy functional difference between the fiction puzzle and the puzzles external to storable worlds; namely that the design of the former may lack a solution (for opposing claims see Montfort 2003; Tronstad 2005; Fernández-Vara 2009a; cf. Tronstad 2003) but still be provocative for a strong short-term experience. These solutionless fiction puzzles are story-related problems that provide short-term aesthetic experiences by encouraging the player to actions with significant narrative consequences.

So Far (1996), a text adventure by Andrew Plotkin, opens with a fiction puzzle that motivates the story. When the protagonist's date, Aessa, does not show up to a meeting, he (or she) starts to look for her. The player is soon faced with a locked door that is implied to conceal a hint about where Aessa has gone. Entering the room behind the door becomes a fiction puzzle that has no solution. While exploring the surroundings for another entry, the protagonist is pulled into an event that advances the story by transporting her or him to a new location. Despite not being able to solve the problem, the player is provided with short-term aesthetic consummation.

While all puzzles are capable of arousing small-term aesthetic experiences, fiction puzzles are often functional on the integral level as well. This is because solving them is usually motivated by the desire to advance the story in the manner of overcoming everyday obstacles on one's way toward a goal. Locating Aessa in *So Far* could be an experience-producing problem in everyday life; an incident that produces an aesthetic experience after receiving its solution via undergoing a long search. The ways in which fiction puzzles structure and support integral experiences are elaborated in the ensuing subsections.

4.1. Structuring, Pacing and Intensifying Integral Experiences

Seeing fiction puzzles as producers of integral experiences enables recognizing that the structures of videogame stories may in fact be large fiction puzzle sets (cf. Aarseth 2005). When the player in *So Far* becomes aware that Aessa cannot easily be found, the unsolved problem turns into the driving force of the story. Although the player confronts several problems along her or his travels, the initial one of finding Aessa persists as the ultimate objective. The player is, in Tommi Laulajainen's (1989) words, "in the quest for solving the cause-consequence network of a storyworld" (41). This causal story structure can be seen as an upside-down pyramid in which a master puzzle branches into minor ones that together construct the game and its integral experience (see fig. 1; Fernández-Vara 2009a; Black 2012).

In puzzle-based story structures fiction puzzles become story components. From the perspective of the potential integral narrative experience, one of the most vital functions of fiction puzzles is story pacing. The peculiarities of this function can be revealed by examining it in contrast to Roland Barthes' (1975) concept of text as a controllable striptease performance:

we do not read everything with the same intensity of reading; a rhythm is established, casual, unconcerned with the integrity of the text; our very avidity for knowledge impels us to skim or to skip certain passages (anticipated as 'boring') in order to get more quickly to the warmer parts of the anecdote (10–11)

Fiction puzzles, like all videogame challenges, redefine the reader's position of control. One is no longer capable of undressing the story cloth by cloth with a rhythm of her or his own as the challenges interfere. Instead of one-sided striptease, its less-controllable pacing makes the videogame story rather a two-sided foreplay (cf. Montfort 2003: 3).

Grant Tavinor (2009) argues that a "particular difficulty that videogames face is that they are simply long, and this can have an effect on the ability of the player to sustain their interest in the narrative" (117). Epics notwithstanding, this is true in comparison to most narrative forms. The observation introduces the second role puzzles have in supporting integral narrative experiences: intensifying the player's interest in the story.

As numerous readings on *War and Peace*, *Don Quixote* and *In Search of Lost Time* confirm, length does not inevitably exhaust the potential for an integral narrative experience. If, however, aesthetic experiences are co-products of interactors and objects as Dewey maintains, they must also depend on subjective mental states and external variables. Even the most captivated reader must confess that reading the four thousand pages of *In Search of Lost Time* involves moments of interruption or reduced concentration. The number of these disoriented moments can be reduced by fiction puzzles.

An illustrative example is the conversation-based puzzle. In recent action-adventure *L.A. Noire* (Team Bondi, 2011) the player assumes the role of a detective. After gathering loose pieces of information from crime scenes, reports, and other sources, the player will eventually end up interrogating suspects and witnesses. These interrogations are implemented

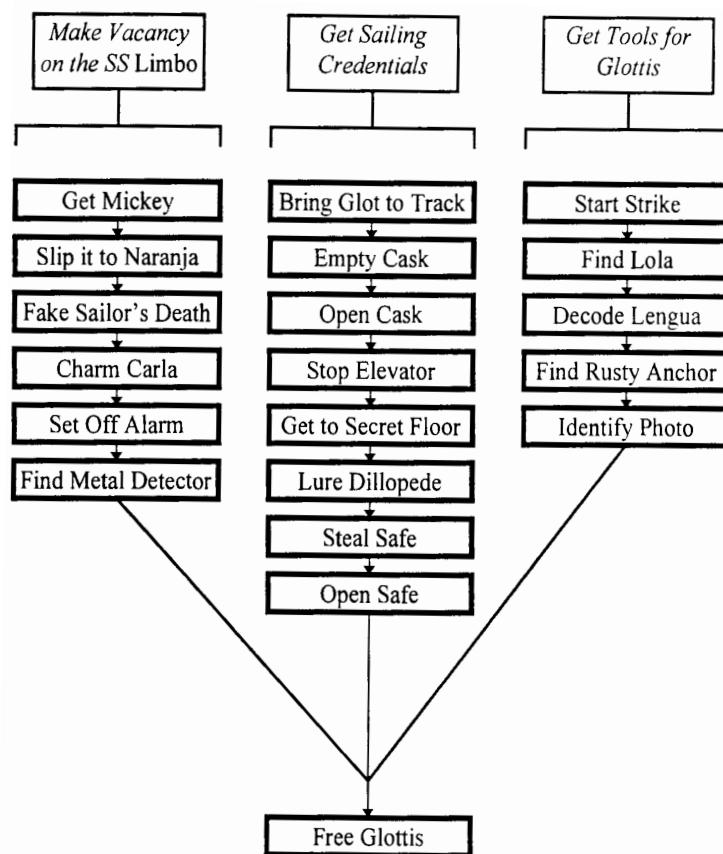


Fig 1 Unpublished Grim Fandango Puzzle Document (Schafer et al 1996). In the second episode of *Grim Fandango* the storyline is driven by the fiction puzzle of releasing Glottis from prison. This requires the player to solve three other fiction puzzles, which in turn require solving nineteen smaller fiction puzzles. ©1996 LucasArts Entertainment Co.

through a dialogue system of choosing between the sentiment options ‘truth,’ ‘doubt’ and ‘lie’ that result in varying responses. The choices are irretrievable and affect the progression of the story conclusively. While truth and doubt sentiments carry the conversation to different arcs, lie accusations must be evidenced by pointing out proper proof. As correct sentiments are mainly deducible from the previously gathered facts, the fiction puzzle encourages players to reassemble the story before advancing it.⁵

Parser-based conversation systems tend to produce the intensifying effect inherently as they rarely provide prewritten options to choose from. Unlike *L.A. Noire*, the detective text adventure *Make It Good* (Ingold, 2009) does not provide the topics of interrogation but the player must type the questions themselves. Within this narrative form, if the reader does not “understand the story [...] the story simply stops” (Buckles 1985, 180). Although these increased demands bear the evident risk of seizing progress and so disintegrating the integral narrative experience, they may also develop into a unique aesthetic. Leaning on Jeremy Douglass’ (2007) observations, the frustration that derives from demanding challenges in text adventure games also defines their generic aesthetic character. In addition to the important aesthetic aspect of unsuccessful solving attempts being commonly replied with poetically exclusive feedback (Karhulahti 2012a), fiction puzzles that keep frustrating the player even when she or he is not playing construct bonds that maintain the integral experience active outside the configurative workplace (Ingold 2011). The dilemma of difficulty will be given a closer examination in the fifth section.

4.2. (Artist’s) Expression and (Solver’s) Understanding

In Dewey’s (1934) view “works of art are the only media of complete and unhindered communication between man and man” (108–109). While art may convey meanings, they must always be embodied in the experience: “Science states meanings; art expresses them” (87). This take on the communicative nature of art appears to be applicable also to the games, as Chris Crawford’s (1986) contrasting corroborates: “simulation communicates technical information, while a game communicates something closer to an artistic message” (9).

Becoming aware of meanings through art or a game is more like a byproduct of an aesthetic experience than a code to be decyphered. The same generation of understanding is essential to the process of solving fiction puzzles, as their solutions tend to have not only formal meanings but also meanings that refer to the solver’s interpretation, operation, and understanding of the work in which they occur (Buckles 1985; Montfort 2007; Douglass 2007). This subsection will show how fiction puzzles are capable of affecting the solver’s understanding by making her or him become aware of meanings that may, but need not (Wimsatt & Beardsley 1946), be expressions of the puzzle’s designer.

According to Danesi (2002), all puzzles are “elusive bits of evidence of a theory of the world that is lurking around somewhere, but that seems to evade articulation” (235). “In their own miniature way,” he declares, “puzzles fill an existential void [...] that we would otherwise feel constantly within us, by providing small-scale experiences of the large-scale questions that life poses” (208). The shortest link for connecting Danesi’s gainful notion to the fiction puzzle is the riddle, as the two are widely considered structurally analogous (Buckles 1985; Montfort 2003; Tronstad 2005; Douglass 2007; Fernández-Vara 2009a). A riddle from the fantasy text adventure *Beyond Zork: The Coconut of Quendor* (Infocom, 1987) shall function as an example:

*Never ahead, ever behind,
Yet flying swiftly past;
For a child, I last forever,
For adults, I’m gone too fast.*

From the perspective of meaning, the riddle has two primary points of interest. Firstly, *what* is the meaning to be understood; and secondly, *how* is that meaning expressed. At this point it is worth quoting Richard Wilbur (1989), who suggests that solving a riddle requires one

to see the peculiar qualities of an object or creature, to discern its resemblance to other forms and forces, and to have an insight into the relatedness of all phenomena, the reticulum of the world. (334)

In the light of Wilbur’s words, the meaning of the above riddle could be described as an expression of the underlying nature of youth. Becoming aware of this meaning does not, however, increase the solver’s knowledge, but awakens it. Recognizing the hint of the last line *For adults, I’m gone too fast* already entails knowledge of the high standing of youth; of how adolescence is generally considered something to be longed-for within the present cultural context. The solver, the riddlee, is guided to realize not something new about youth, but something she or he already knew. In the Wittgensteinian tradition, the rhetoric of the riddle is more self-reflective than communicative for the meaning can

⁵ Although the interrogation model of *L.A. Noire* is effective in intensifying the player’s narrative engagement, it received a mixed reception from critics. See for example Tom Bissell’s (2011) review.

“only be understood by those who have themselves already thought the thoughts which are expressed in it” (Wittgenstein 1922, 23).

The self-reflective rhetoric of the riddle is also the mode through which fiction puzzles deliver meanings. This similarity between the riddle and the fiction puzzle will be demonstrated by transforming one of the fiction puzzles of the graphic adventure *Grim Fandango* (fig. 1) into a riddle. Tim Schafer describes the problem in which the protagonist Manny needs to stop an elevator to enter an area called ‘the vault:’

The cask roller guy dumps Manny’s cask off in the basement, picks up a full cask with the forklift, and goes back to sleep upstairs. Manny can ride the elevator up and down to his heart’s content, but it’s an express elevator. It only goes all the way to the top, and all the way to the bottom. In the middle, Manny sees a secret [open] floor which must be ‘the vault,’ but he can not get the elevator to stop on this floor. (Unpublished *Grim Fandango* Puzzle Document)

In a riddle form, the problem could go as follows:

*In this way,
The elevator stops between the floors*

For the situation described above as well as to the above two verses, several actions might result in a desirable outcome. Yet in *Grim Fandango* there is only one correct solution:

So, while the elevator is passing the secret hallway, going up, Manny drives the forklift so its blades stick out of the elevator door, catching on the roof of the secret hallway, and stopping the elevator dead. (Ibid.)

Finding that specific solution requires the player to explore the environment in order to familiarize her or himself with the possibilities of manipulable existents and available actions. Despite lacking the topological dimension, exploration defines riddle solving as well. As Montfort (2007) points out, whereas the text of a riddle may be completely known to the riddlee, solving the riddle “requires that the workings of the riddle’s world be explored and understood, that its rules be discovered” (47). Assuming that the environment of the elevator puzzle is fully known to the riddlee, raising the forklift while riding up the elevator can be poeticized to complete the elevator riddle:

*In this way,
The elevator stops between the floors;
A lift within a lift,
A ride up while riding up.*

The experiment demonstrates how existents and affordances of storable worlds can be read as hints that bear resemblance to the hints hidden in the words of riddles. This indicates that the processes which lead to understanding-awakening insights in riddle solving bear resemblance to the processes of fiction puzzle solving.

Still, the ‘meanings’ awakened by riddles and fiction puzzles call for elucidation. While the example from *Beyond Zork* guided the solver to identify values connected to the concept of youth, the meaning of the elevator puzzle seems to evade all verbal articulation. Instead of expressing conceptual meanings, it makes the player aware of the physical, tactile nature of objects by requiring her or him to apply consequential logic to an artificial situation. In the same vein as the classic Greek sculpture *Discobolus* of Myron (fig. 2) can be seen as a kinesthetic expression of momentary stasis before the release of movement, the elevator puzzle awakens a sensation of stopping movement at the moment of insight. For a moment, the player can “see through the mind’s eye the inner nature of some specific thing” (Danesi 2002: 28). This comprehension of meaning relates to the invisible art of vicarious videogame kinesthetics. Solving

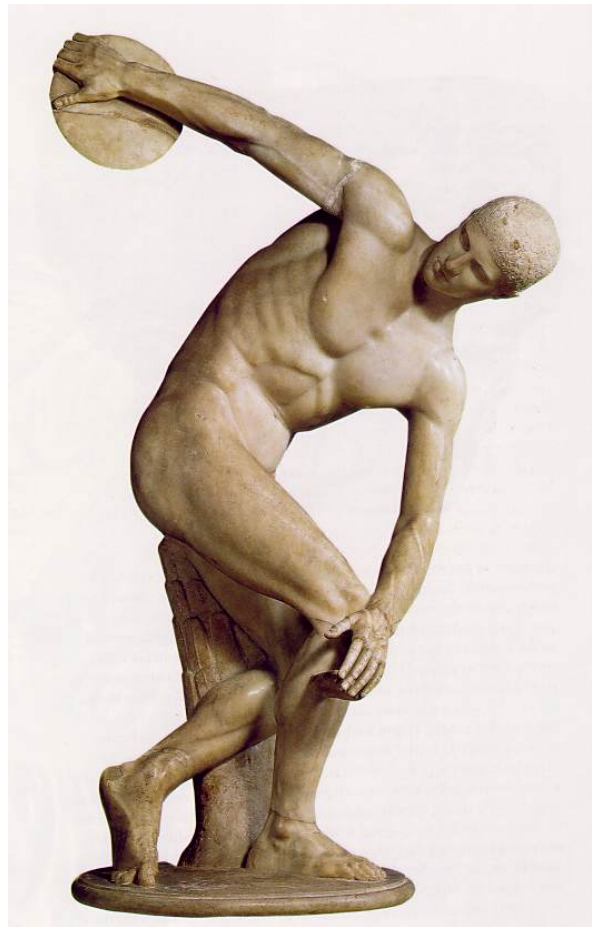


Fig 2 Myron’s *Discobolus*. Circa 450 BCE. National Museum of Rome, Italy.

fiction puzzles and overcoming vicarious psychomotor challenges both make the player aware of sensations that are difficult to communicate by other means.⁶

5. Aesthetic Value of Fiction Puzzles

This final section seeks to survey the properties that strengthen the aesthetic experiences fiction puzzles provoke, that is, to establish criteria for estimating the aesthetic value of fiction puzzles.⁷ Danesi's (2002) observations are once again relevant. Let the survey begin with what he calls the 'aesthetic index,' which is to indicate the aesthetic value of a puzzle:

The *aesthetic index* of a puzzle, as it may be called, seems to be inversely proportional to the complexity of its solution or to the obviousness of the pattern, trap, or trick it hides. Simply put, the longer and more complicated the answer to a puzzle, or the more obvious it is, the less appealing the puzzle seems to be. Puzzles with simple yet elegant solutions, or puzzles that hide a nonobvious principle, have a higher aesthetic index. (227)

Aesthetic index appears to present two criteria against which puzzles ought to be evaluated: elegance and difficulty. For Danesi, an ideal puzzle is elegant, and not too easy. This paper suggests that difficulty ought not be taken into consideration when evaluating the aesthetic value of fiction puzzles but it should construct exclusively of elegance. In what follows elegance is divided into *elegance of form* and *elegance of content*, of which the former is considered as a set of aesthetic factors that apply to puzzles in general, and the latter as one the factors of which apply to fiction puzzles in particular. In order to commence with the general criteria, formal elegance of puzzles is outlined through three aesthetic factors echoed in Danesi's articulation:

- (ef₁) Purity of means of solving (solution does not entail exceptional knowledge; cf. 'Tingle-Immersion' theory)
- (ef₂) Clarity of manifesting the problem
- (ef₃) Briefness of solution

These formal criteria are to be understood as Monroe Beardsley's (1958) objective reasons for evaluating artworks: aesthetic value is always improved when fulfilling these criteria, and it is never improved when not fulfilling them.⁸ Ultimately, formally elegant puzzles provide enriched aesthetic experiences for all solvers when compared to puzzles with less formal elegance if their elegance of content is equal.

It is important to note here that not all formally elegant puzzles are of high aesthetic value. The mathematical puzzle 'What is greater than three but smaller than five?' does not entail exceptional knowledge; it is clear as well as brief, but can hardly be considered bearing substantial aesthetic weight. Another mathematical puzzle ' $\sqrt{4775501025}$ ' is also formally articulate, yet not aesthetically weighty either. The aesthetic value of puzzles must consequently consist of more than mere form.

Whereas one explanation for the lack of the aesthetic appeal of the above two cases could be drawn from their extreme levels of difficulty—the first being overly easy and the second exceedingly difficult—perhaps a more interesting answer is found from the psychological work of Thomas Malone (1980) who suggests the 'informational complexity' of challenge contexts (or environments) as a core element for the challenge's curiosity potential. If the context in which the challenge occurs is commonplace, as many would say of most stand-alone numerical problems, the challenge can hardly offer any insightful surprise: "an optimally complex environment will be one where the [player] knows enough to have expectations about what will happen, but where these expectations are sometimes unmet" (60). As phrased by Malone, context curiosity functions in close relation to challenge difficulty. Before exploring further the aesthetic aspects of context, it is thus suitable to devote a paragraph for discussing the well-recognized problem of 'difficulty.'

As Danesi proposed, one way to deal with difficulty in aesthetics is to consider it as a measurable property.

⁶ Tronstad (2005) speculates how a solution may contribute "a significant element which adds to the experience of inhabiting an alternative reality," by which she might signify the same idea as presented here.

⁷ Although value is discussed here in relation to the structural aspects of the fiction puzzle, puzzle solving could likewise be examined as an evaluable artistic performance (see Humble 1993). In early adventure games acts of fiction puzzle solving are typically scored by the game; players are able to overcome puzzles in alternative ways that contribute to the an overall score. For instance, in *King's Quest II: Romancing the Throne* (Sierra On-Line, 1985) players are rewarded with more points if they solve the puzzle of entering a boat by tricking the boatman instead of simply paying him.

⁸ It should be remarked that brutal breaking of the aesthetic norm occasionally produces fascinating anti-aesthetics. This happens in all arts. As for fiction puzzles, one example could be the infamous 'babel fish puzzle' in *The Hitchhiker's Guide to the Galaxy* (Infocom, 1984).

Nevertheless, since a given task is never equally challenging to all performers, estimating its difficulty leads soon to a theoretical dead end. Whereas some solvers find a puzzle too difficult, others find it is too easy. This is not a dilemma exclusive to puzzles or games—a matter of varying ‘game sense,’ as David Myers (2012) propounds—but concerns arts in general. The same allegory that pleases the mass and provides them with strong aesthetic experiences may well appear too obvious for professional critics. Obviousness and difficulty indisputably affect the arousal of an aesthetic experience, but they cannot be measured as definite quantities (cf. Wong et al. 2012). Because difficulty can exist only in relation to a performer subject to variables such as altering moods and surroundings, in different situations and contexts the same level of difficulty produces different aesthetic effects.

Instead of speculating with the concept of difficulty, then, more fertile grounds for research are the aesthetic relations between fiction puzzles and their contexts of occurrence. The common foundations of these relations (cf. Fernández-Vara 2009b) are summarized here into three criteria of elegance of content:

- (ec₁) Logicality
- (ec₂) Integration
- (ec₃) Expression

In coherence with the criteria of elegance of form, Beardsley’s law applies to (ec₁) and (ec₂) as well: an aesthetic experience is always enriched when fulfilling these criteria, and it is never enriched when not fulfilling them. The aesthetic effects of the last criterion (ec₃) may be either positive or negative. The criteria are examined respectively in the next three subsections, which will also elaborate the criteria of the elegance of form.

5.1. Logicality

When it comes to fiction puzzle logic, more interesting than mathematical unity is the solution’s consistency with the rules of the world in which it occurs; a principle that can be traced all the way back to Aristotle’s claim that "the poet should prefer probable impossibilities to improbable possibilities" (*Poetics*, XXIV). All storable worlds have rules that materialize as structures with unique probabilities and improbabilities. Although these rules principally simulate the mundane, the abstraction of simulation ensures that no storable world is ever identical with the one from which it is perceived. Consequently, the logic of a fiction puzzle stands always in relation to the rules of the world it is integrated to.

Ragnhild Tronstad (2005) sees the elegance of a fiction puzzle proportional to the extent to which its logic relies on rules that are distinct from the mundane world. In Deweyan aesthetics the extent to which a fiction puzzle employs distinctive rules cannot be granted an unconditional positive (nor negative) status of impact, as there are no reasons to assume that distinctiveness—the quantum of elements that separate the storable world from the mundane—enhances the aesthetic experience. As Malone’s (1982) empirical studies confirm: “unless the fantasies are carefully chosen to appeal to the target audience, they may actually make the [game] less interesting rather than more” (64).

Although the extent to which a fiction puzzle employs the unique rules of its world is insignificant, its logic should always adhere them. A rich source of examples is *The Secret of Monkey Island* (LucasArts, 1990). While the game simulates the rules of the mundane at large, the laws of physics are abstracted to serve its core mechanics. Since the primary method for overcoming the game’s challenges is object manipulation, the protagonist Guybrush Threepwood is allowed to carry objects without having to worry about their weight. In this particular world, the objects in Guybrush’s possession cease to weigh anything; and so he ends up carrying books, ropes, shovels and swords without difficulty moving.

At one point, Guybrush gets thrown into the sea with a heavy weight tied to him with a thin rope. There are several sharp objects around to cut the rope with, but not close enough for him to reach. The solution is simply to pick up the weight as in Guybrush’s pocket it loses its heaviness. In this way, the solution both employs and adheres the exceptional physics of the storyworld. The puzzle fulfills the five other criteria of elegance as well: the solution entails no knowledge external to the core game mechanics (ef₁); the puzzle presents itself clearly as the game does not permit pursuing other goals before resolving the situation (ef₂); the solution is as brief as possible as it needs nothing but using the ‘pick up’ command (ef₃); and resolving the situation is integrated flawlessly to the storyworld as an actual event (ec₂). The extent of fulfillment of the last criterion (ec₃) depends heavily on interpretation; nonetheless, one convincing view is to see the puzzle supporting the game’s fanciful themes by expressing the surreal logic of the peculiar world (see Black 2012).

Although theoretical examples of illogicality are easy to come up with—consider the above situation resolved by Guybrush turning into a salmon and swimming away as a result of, say, ‘open rope’ command—fantastic game elements and twisted forms of logic eventually make judgments of this criterion problematic.⁹ In the graphic adventure *Simon the Sorcerer 3D* (Headfirst Productions, 2002) the protagonist needs to operate a CD-ROM drive that refuses to open. The solution is that the player must eject her or his physical CD-ROM (or DVD-ROM) tray. Since the game has not implied any previous causality between the two worlds, the solution appears rather illogical. Yet one cannot deny the fact that logic, albeit a distorted one, does shadow the solution, for which judgments of its elegance (of logic) cannot entirely avoid relativism.

5.2. Integration

Fiction puzzles are integrated to storable worlds. This integration relates closely to components that David Bordwell (1985) calls ‘diegetic’ elements of film. Streets, skyscrapers, people and the sounds they make are all diegetic elements because they exist in the world that the film depicts. In addition, films often include music, sound effects and credit texts that are extraneous, that is, they do not exist in the film world. In videogame narratology, these elements have been referred to as ‘extradiegetic’ (Montfort 2007). Diegeticity of videogames is not, however, simply a present or an absent property but a gradual spectrum. Some elements can be more diegetic than others without being completely extradiegetic (or nondiegetic). Correspondingly, what defines the level of puzzle integration is how strongly the fiction puzzle and its solution are related to the diegetic existents and events of the storable world and its narrative structures.

Janet Murray (1997) gives an example of tenuous puzzle integration from *The 7th Guest* (Trilobyte, 1993) in which the player investigates a haunted mansion through a first-person viewpoint. Entering one of the rooms is blocked by a logic puzzle the components of which represent the characters of the storyworld but are otherwise extradiegetic:

the player is asked to cut up a cake into enough segments to match the number of victims. The Puzzle is a satisfying one, but since there is no one there to eat the cake, the action takes us outside the immersive world instead of reinforcing our belief in it. (139)

Detective adventure *Puzzle Agent* (Telltale, 2010) provides more examples of low puzzle integration. Like in *The 7th Guest*, the puzzles of *Puzzle Agent* pop up as extradiegetic screens that explain the rules of the particular challenge in the fashion of a traditional puzzle book. While they can be interpreted as representations of story events, say, a labyrinth puzzle as a representation of the protagonist’s journey through the woods, a more accurate term for describing that relation is ‘metaphorical.’ Metaphorical relations do not expand the level of fiction puzzle integration, which is a diegetic measure. While puzzles of low integration can be enjoyed as stand-alone short-term experiences, they do not support the integral experience; the ideal of conceiving the story and gameplay as integrated entities (e.g. Ryan 2006; Wardrip-Fruin 2009).

The previously discussed riddle from *Beyond Zork* shows how a nonfiction puzzle can be integrated firmly into a story. The riddle is written on a boulder that is an existent of the storyworld, making the riddle a diegetic existent as well. The player has to examine the boulder to notice the writing, after which it can be read. Solving the riddle has a magical effect that advances the story, which is likewise logical within the fantasy world in question. This riddle is still not a textbook case of integration, as its content is not related to the story or its world: to solve the puzzle the riddlee needs nothing but logical execution of common knowledge (of the Western culture). So whereas the riddle’s *formal* level of integration is high, its integration of *content* is low.

In the text adventure *Sherlock: The Riddle of the Crown Jewels* (Infocom, 1988) riddles are successfully integrated in both measures, form and content. The story is structured on pursuing a thief who leaves riddle-formed clues behind him. The riddles are written on diegetic letters and paper pieces that must first be obtained and read. Yet in this case also the solution relates to the story and its existents:

*London Bridge is falling down.
All that's under it will drown.
With it falls Victoria's reign,
Britannia ne'er to rule again.*

The riddle above makes no sense outside the game context, but a player familiar with the storyworld and the narrative can logically deduce something to be hidden in a specific location (London Bridge), and that getting it has something to do with the rising high tide. The content is highly integrated via direct connection to the existents of the story and its

⁹ Fernández-Vara (2009b) provides excellent examples of how cultural contexts and translations may affect the logical validity of a fiction puzzle.

world. Integration of content thus makes the act of puzzle solving an attempt to seek answers to questions the player has generated her or himself—an aspect that has been recognized as one of the core factors of all coherent gaming experiences from the very first investigations (Duke 1971) of systematized gaming.

5.3. Expression

This final subsection discusses the fiction puzzle's self-reflective rhetoric as a potential enhancer of aesthetic experiences. Though the rhetoric of the fiction puzzle was earlier stated not to increase the solver's knowledge, its capability to awaken understanding may make the solver become aware of the expressed in a new way, as Montfort (2003) has argued in advocacy of riddles.¹⁰ For lack of a better term, that aesthetic dimension has been titled *expression*, referring to the (potentially author-designed) inducing functions fiction puzzles have in their ability to awaken understanding in solvers. A slight functional difference separates short-term and integral experiences when it comes to the expressive effect: in short-term aesthetic experiences the effect of an awakened understanding is always a strengthening¹¹ one due to their self-contained nature; in integral narrative experiences a thematic coherence with the narrative is vital for a strengthening effect to take place. The subject is discussed through three examples.

Harvester (DigiFX Interactive, 1996), a surreal horror adventure, is set in the fictitious town of Harvest in which the protagonist Steve wakes up without remembering anything from his past. To figure out what has happened, Steve is advised to take part to a meeting of the town's governing organization. Participating in the meeting requires him to prove that he is morally capable of following the town order. This means carrying out errands (fiction puzzles) that structure the story. What makes these errands interesting is their moral character. Against the naïvetés of fable archetypes, Steve needs to prove his immorality instead of virtuousness. Initial tasks involve modest pilferage and vandalism, but soon he is asked to carry out duties that entail heavy crimes such as arson and brutal violence. While in the early game the player is able to avoid immoralities by discovering alternative ways of fulfilling assignments, moral options are gradually taken away. Eventually, advancing the story requires the player to perform utterly inhuman acts like torture and murder.

Emily Short (2009) has convincingly shown how some games transform the player's contribution into a measure of the protagonist's devotion to a cause. In *Harvester* the protagonist's devotion to the cause becomes the measure of the player's morals. Even if players find themselves capable of advancing the story, the immoral means of doing so halt them to consider. Although the acts performed in the game cannot be compared to parallel mundane acts, the urge to advance the story by performing simulated cruelties makes players become aware of their moral character. This reflection turns into a statement in the very last scene in which the player's devotion is rewarded with an explanation. Harvest is a virtual reality that has been created to test whether a man can be turned into a serial killer in a simulated environment. The case demonstrates how the self-reflective rhetoric of fiction puzzles can become a functional component in an integral narrative experience.

Unlike the other five submitted criteria, expression does not implicitly increase the aesthetic value of a fiction puzzle. Educational games are an inexhaustible source of examples. In *Physicus: Save the World with Science!* (Ruske & Puhretmaier Edutainment GmbH, 1999) fiction puzzles stand out as scientific operations that require close examination of the game's educational physics manual. By learning about optics, electricity, heat and acoustics the player will be able to activate an impulse machine and save the world from an emerging meteor. In other words, fiction puzzles are integrated to a storyworld with the expressive function of celebrating Newtonian physics. A comparable scheme frames the educational graphic adventure *EcoQuest: The Search for Cetus* (Sierra, 1991) in which advancing the story and solving puzzles requires following the guidelines of nature conservation (see Salter 2013).

If the expressed content of a fiction puzzle is distinct or in conflict with the story, it is possible that the aesthetic effect becomes negative. In *Physicus* the player soon finds the game's fiction puzzles as mere loose add-ons that serve nothing but the software's underlying educational ends, which makes the expressive aspect clash with the dramatic narrative experience. In *EcoQuest*, conversely, the story is not distinct from its educational theme but takes place in a community of conservationist characters. This motivates the game's expressive rhetoric that encourages the player to seek eco-friendly solutions to problems; in this case a fiction puzzle that would be solved by polluting nature would create a thematic conflict. To conclude, while an understanding awakened by expressive content always adds to a momentary

¹⁰ Brenda Laurel (2004) goes as far as to assert that puzzle solving “can replace language as a form of communication in the game.” As it has been shown, the expressive capabilities of fiction puzzles may indeed serve communicative functions, yet it is difficult to imagine a game in which fiction puzzles had replaced language to serve as the game's primary mode of communication (neither does Laurel explicitly claim this, to be clear).

¹¹ The emotion-neutral word ‘strengthening’ is used here to stress that experiences need not necessarily be comfortable in order to be of high aesthetic value. An awakening of novel understanding may be uncomfortable and still enhance the experience.

short-term aesthetic experience, for the development of narrative integral experiences the effect of expression depends on its thematic coherence with the story.

6. Conclusions

This paper defined *the fiction puzzle* as a problem in a storable world the nonkinesthetic solving of which does not entail configuring dynamics. The fiction puzzle was examined as an art product capable of producing *aesthetic experiences* according to John Dewey's pragmatist theory of aesthetics, which provided a framework for studying the fiction puzzle's aesthetic value. The aesthetic value of the fiction puzzle was examined through their formal and non-formal qualities that were termed *elegance of form* (ef) and *elegance of content* (ec). The two were refined into six criteria that were proposed as the foundation for estimating the aesthetic value of fiction puzzles. The aesthetic value of a fiction puzzle is always improved when fulfilling the criteria, and it is never improved when not fulfilling them; save the last criterion, which may also affect negatively:

- (ef₁) Purity of means of solving
- (ef₂) Clarity of manifesting the problem
- (ef₃) Briefness of solution
- (ec₁) Logicality
- (ec₂) Integration
- (ec₃) Expression

While these ontological and aesthetic discussions are believed to form a relatively solid basis for analyzing and evaluating fiction puzzles in all contexts, further investigations are required. Since the explicit focus of the study was on the videogame, there is firstly a manifest call for exploring the fiction puzzle in non-videogame contexts. Secondly, as the reader has undoubtedly noticed, the emphasis in exploring the integral aesthetic experience was unfairly biased towards the narrative experience. Therefore, another large gap remains unfilled when it comes to understanding the integral functions of the fiction puzzle in consecutive experiences that take place in storable worlds but are not based on story traversal.

A final remark. The puzzle is a phenomenon that occurs in a variety of forms of culture and fields of research. Despite the narrow focus of this contribution, it is hoped that, as a byproduct, the given discussion has also been a step towards a more unified conception of the puzzle in academic research. Puzzles are not games, and their aesthetic functions differ markedly from those of strategic and kinesthetic challenges. Whereas the differences between the puzzle and other ludic phenomena are theoretically notable, the ludic field is, and will always remain, dynamic. For this reason, it is important for future research not to draw solely from the differences established here, but also from the similarities that are yet to be uncovered.

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