Narrative Goals in Games: A Novel Nexus of Story and Gameplay

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ABSTRACT
The intersection of gameplay and story has been widely debated in games scholarship (i.e., the ludology/narratology debate). It has also manifested in concepts used in game discourse (e.g., "ludonarrative dissonance") and development (e.g., "what is narrative design?"). We propose that goals, as a constituent element of games, is a novel and fruitful nexus point between story and gameplay. We provide an analytical framework that articulates and bridges the relationship between the goal structures in games and their narrative counterparts. This framework is anchored upon what we define as a narrative goal: an interpretation of a ludological goal. We can thus formally account for a narrative goal (e.g., "Rescue the prince") that requires players to act in a way that satisfies a corresponding game imperative (e.g., Reach <location>). Finally, we articulate our work’s foundational relevance to narrative design and associated issues.

CCS CONCEPTS
• Software and its engineering → Interactive games; • Applied computing → Computer games; • Human-centered computing → HCI theory, concepts and models; • General and reference → Design.

KEYWORDS
narrative goal, ludological goals, narrative design, analytical framework, story, gameplay, games

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1 INTRODUCTION
Scholars from various backgrounds have debated whether games are stories, stories are games, or what the relationship between them is, could, or should be [e.g., 1, 19, 20, 24, 25, 33]. Some have examined the relationship between story and game via rules [e.g., 5, 44], linking a game’s material rules [37] to “interpretative” rules that govern how to make sense of material ones through narrative structure. Others have argued that the specific structure of the “quest” is the nexus between stories and games [3, 22, 45].

We propose a broader framework for examining the story/game relationship: one that focuses on goals as an often mentioned constitutive element of games [40]. Games often communicate players’ goals by referring to narrative and gameplay together [32]. Further, when describing a game’s goals, players often do so by framing them in a narrative context. Players will say “I need to go save the prince” rather than “I need to move the game character to a specific game location” [18]. Indeed, it seems that for many games, it is a narrative goal that is at the forefront of how players describe the game rather than the game’s goals [15, 29]. We argue that focusing on goals is fruitful for articulating, studying, and bridging the relationship between narrative and games. Our framework is primarily analytical [4]: we set forth concepts and a method with which to interpret, represent, and reason about narrative design. Our framework depends on what a narrative goal is and we illustrate a case example discussion to suggest the analytical richness afforded by narrative goals in the study of story and gameplay.

2 OUR ANALYTICAL FRAMEWORK
We set forth an analytical framework with which to make sense of a game’s design. This framework aligns the narrative and ludic-like natures of games and was developed through abductive analysis [43]. Due to space constraints, we do not fully articulate our framework’s genesis nor its relation to narrative design. Rather, we focus on its constituent concepts and analytical method. The method offers a way to structure a narrative designer’s thinking process and is applied for one case example.

2.1 Concepts: Goals, Narratives, Hierarchy
A goal is an end toward which effort is directed, and we are concerned with two distinct types:1 ludological and narrative.

2.1.1 Ludological Goals. These are designed in-game objectives or conditions players are expected to meet to succeed at a game; for example, score points, move an on-screen character, or trigger certain in-game events. Extant scholarship describes the different kinds of ludological goals a game may have, how they are related to each other, and how they manifest [10, 17, 26, 30, 39]. In prior work [13], we described two kinds of ludological goals.

1We purposefully exclude player-defined goals [7], i.e., goals that players themselves bring to a game, often not necessarily considered by the game’s creators. These goals deserve study, but are outside the scope of this article.
**Table 1: Ultimate goals, per Zagal et al. [48].**

<table>
<thead>
<tr>
<th>Ultimate</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Win</td>
<td>Effect an evaluation when a predefined state is reached.</td>
</tr>
<tr>
<td>Finish</td>
<td>Effect no evaluation when a predefined state is reached.</td>
</tr>
<tr>
<td>Prolong</td>
<td>Conclude against the designer or player’s intent.</td>
</tr>
</tbody>
</table>

**Table 2: Imperative goals, per Debus et al. [13]: goals necessary to achieve an ultimate goal.**

<table>
<thead>
<tr>
<th>Imperative</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose</td>
<td>Select one element from a finite set of elements.</td>
</tr>
<tr>
<td>Configure</td>
<td>Manipulate elements such that they are in a “correct” state.</td>
</tr>
<tr>
<td>Create</td>
<td>Bring an element into existence that was not before.</td>
</tr>
<tr>
<td>Find</td>
<td>Locate a particular element.</td>
</tr>
<tr>
<td>Obtain</td>
<td>Bring a particular element under control.</td>
</tr>
<tr>
<td>Optimize</td>
<td>Accumulate a requested amount of a particular element.</td>
</tr>
<tr>
<td>Reach</td>
<td>Navigate to a particular location.</td>
</tr>
<tr>
<td>Remove</td>
<td>Eliminate an element from existence that existed before.</td>
</tr>
<tr>
<td>Solve</td>
<td>Select one “correct” element from an infinite set of elements.</td>
</tr>
<tr>
<td>Synchronize</td>
<td>Bring one or more elements into spatial/temporal unity.</td>
</tr>
</tbody>
</table>

Ultimate goals are overarching goals that (often) determine the end conditions of games [48]. There are at least three types: Win a game, Finish it, or Prolong the act of play (see Table 1). Colloquially, you “win” in Soccer, you “finish” Super Mario Bros. [SMB 14], and you “prolong” by surviving in Space Invaders [41]. All games have an ultimate goal.

Imperative goals are sub-ordinate (to ultimate) goals which more-concretely require the player effect a particular game state of affairs described by the game itself [13]. There are at least ten types: Choose, Configure, Create, Find, Obtain, Optimize, Reach, Remove, Solve, and Synchronize, (see Table 2). These goals involve activities that link game elements such as space, time, and entities [12]. Each imperative goal has a logical dual, in the form of its prevention.

2.1.2 The Hierarchy of Ludological Goals. To accomplish a game’s ultimate goal, players must always satisfy an imperative goal [12, 16]. This then leads automatically to the fulfillment of the ultimate goal – e.g. Finish SMB [14] by Removing Bowser – or to the fulfillment at a future point in time – e.g. Win a Soccer match by Optimizing your score. Imperatives may (infinitely) decompose into other imperatives. For instance, the imperative Remove-agent=B1 (where B1 denotes Bowser) might decompose into Reach,<location=A1> (where A1 denotes the Axe), a more-specific imperative that is closer to the needed gameplay as in Figure 1.

Thus, all games have a hierarchy of ludological goals: the hierarchy’s top level defines the ultimate goal, and further sub-ordinate levels define the needed imperative goals until – at the base of the hierarchy – a specific moment in a gameplay session is reached. It is not easy (and perhaps impossible) to determine the complete Ludological Goal Hierarchy for any but the simplest games [13]. This is because the hierarchy includes the more abstract goals all players experience in the game and the idiosyncratic moment-to-moment ludological goals that might emerge during gameplay. To continue the example, all players must satisfy the goal Reach,<location=A1>, but in Figure 1’s game state, that player might have the immediate goal of Prevent(Synchronize-agent=Mario, object=F1 (Fireball), unity=Spatiotemporal), which itself decomposes into Reach,<location=F1> (Platform). Another player may never face these more-specific goals (because perhaps they took a different path via a Warp Zone). Thus, the Ludological Goal Hierarchy includes all goals a player may face in all possible playthroughs of a game.

2.1.3 Narrative Goals. We define a narrative goal as an interpretation of a ludological (ultimate or imperative) goal. We mean “interpretation” as an assignment of meaning to the symbols of some formal language [42]. Here, the set of symbols is the set of possible ludological (ultimate | imperative) goals and the possible meanings are grounded in the game’s narrative. Thus, a narrative goal is a ludological goal with some meaning “assigned” to it.²

Meaning is the product of enaction, as discussed in embodied cognition [38]. Generally, such meaning emerges as a result of our purposeful activity in the environment (i.e. situated action) [22] and is recoverable through our use of metaphor in language [28]. For us, meaning emerges from two things: the player’s choice [31] of action in pursuit of the underlying ludological goal – including actions not taken [34] and/or inaction [47] – and the feedback (i.e. multi-modal stimuli) that the player receives from the environment/game (e.g. text, images, sound, interface elements). This interpretative activity results from responses to a designer’s pre-structuring [23].

“Save the princess” is a plausible interpretation for SMB’s ultimate goal To Finish because it is suggested by the game’s box, which asks: “Do you have what it takes to save the mushroom princess?” This interpretation is reinforced via feedback presented at the end of gameplay emphasizing the quest-like nature of the player’s preceding actions (see Figure 2).

2.1.4 The Parallel Hierarchy of Narrative Goals. If ludological goals are structured hierarchically, and narrative goals are interpretations of ludological ones, then there is necessarily a parallel hierarchy of narrative goals. Figure 3 illustrates this for our running example. Subordinate to the ultimate goal of To Finish (with corresponding interpretation “Save the princess”), we find Remove-agent=B1 (“Defeat Bowser”), and further Reach,<location=A1> (“Destroy the bridge with an axe”).

²Our understanding of Narrative Goals is broad, including goals that are merely represented but not necessarily part of a narration. The distinction between these is important but omitted due to lack of space.

Figure 1: In SMB, Remove-Bowser may be accomplished via the more-specific imperative Reach-Axe, closer to the needed gameplay.

Figure 2: The feedback at the end of SMB reinforces the interpretation of the ultimate goal To Finish as “Save the princess.”
The Narrative Goal Hierarchy suggests a causal structure in terms of the narrative that the player is a part of. In narratives, there are four senses of causation worth considering [46]: (a) Enablement, a causal relation involving sufficient but strictly not necessary criteria for something to occur, (b) Physical, a causal relation that appeals to the physical world and mechanical causality between entities (e.g., gravity causes me to stay on the ground), (c) Motivational, a causal relation brought about by an action toward a goal, and (d) Psychological, a causal relation that reflects a side-effect of an action toward a goal. The Ludological Goal Hierarchy’s nature – which reflects the sub-ordinate conditions needed to satisfy super-ordinate goals – suggests that the Narrative Goal Hierarchy will primarily reflect Motivational causation. This aligns with the consensus that narratives provide motivation to act in games [24, 25, 36].

2.2 Methods: Decomposition, Regression, Map

The core method of our goal-based framework is to decompositionally and/or regressively analyze [6] a game’s goal structure. Each goal – ludological or narrative – can be analyzed and subsequently mapped to its element on the other side of the generated hierarchy.

The analysis begins on either side of the parallel hierarchies and is question-driven. If you start on the ludological side, each new sub-ordinate (“lower-level”) ludological goal is obtained through decomposition by answering: "and how do you achieve that goal?" If instead you start on the narrative side, each new super-ordinate (“higher-level”) narrative goal is obtained through regression by answering: "and why do you want to achieve that goal?"

The mapping between hierarchies may be more (or less) evident depending on the game. While our interpretation of To Finish as “Save the princess” is plausible, our interpretation of “Destroy the bridge with an axe” is arguably less well-supported: nothing explicitly indicates that what the player is doing is actually destroying the bridge. SMB’s “bridge destruction” animation is of sufficiently low fidelity that players may interpret it differently (e.g., the bridge was “retracted”). Further, nothing explicitly indicates that what the player touches is in fact an axe (perhaps it is a lever?). The game’s graphical representation of <location=A1> suggests the interpretation of an axe due to an appeal to its prototypical [27] appearance.

These interpretations can be fragile since players may never formulate a narrative goal. What happens if the player never comes up with the interpretation "Destroy the bridge with an axe"? Here, they would be “stuck,” unable to continue and forced to randomly try things in hopes of discovering what they’re supposed to do. Here, the game’s imperative Reach <location=A1> can still be met - but the player may not understand what they did that allowed them to finish the game.

3 DISCUSSION

The interpretation of the Ludological Goal Structure is fundamentally a sensemaking activity. Whereas the Ludological Goal Hierarchy codifies the meaning of the game in terms of goals that need to be satisfied To (Win | Finish | Prolong) it, the Narrative Goal Hierarchy suggests the meaning of the game in terms of the motivation for play as part of the player’s sensemaking of the game’s representational elements. Thus, players may walk away with different game stories due to different interpretations of the Ludological Goal Hierarchy, even though they engaged with the same game.

Gameplay and sensemaking co-operate: as the player plays, so too do they mentally enact the events. Importantly, we do not mean that game stories are a byproduct of (what Aarseth [2] calls) purely interpretative activity. Rather, the structural elements of games play a direct role in how the game story is constructed in the mind. Structurally, storygames [35] – which place a primacy on narrative – may have more narrative elements that facilitate a player’s sensemaking of their experience as a narrative. But, relative to storygames, non-storygames (a) have the same “phonological” (e.g., sounds, graphics, haptics) channels to communicate information to the player, and (b) also require the player to act toward structurally-meaningful (ludological) goals. In both storygames and non-storygames, the interface – i.e. the format through which narration happens – that communicates the game’s structural elements can be designed to scaffold (or not) the mental construction of particular narratives. Either way, the game’s interface is what effects a change in a player’s sensemaking, which results in a narrative – specifically, a game story – (mentally) “materializing” to the degree desired by the designer.

We contend that how meaning emerges and is assigned to a particular ludological goal so that a narrative goal emerges is the central concern to narrative design. Borrowing from Cardona-Rivera and Young [9], a narrative designer’s primary role is to construct feedback that elicits a designer-intended interpretation in the minds of players. We posit that the tension across the Parallel Hierarchy of Game Goals is at the heart of thorny narrative design issues and our framework provides a way to explicate them.

For example, ludonarrative dissonance [21, p. 256] might be explained via mismatches between the ludological and narrative goal hierarchies. Further, the challenge of effective localization [11] might be due to the need to transcreate a games’ Narrative Goal Hierarchy so as to preserve the relationships between narrative goals and their ludological counterparts. We can also examine how designers use literary devices to scaffold narrative goal interpretations that, in turn, create player expectations and interactive narrative affordances [8] via the ludological goals they suggest. Due to space limitations, we defer discussing these issues to future work.
4 CONCLUSIONS

We provided a definition for narrative goals and showed how this definition, together with prior work on game goals, can be productive for better understanding and analyzing the relationship between gameplay and narrative. Rather than position games as having to balance between the narrative vs. the ludological, we have illustrated how this spectrum is a false dichotomy that fails to account for how ludological goals might be structured and presented to suggest narrative meaning (in terms of motivations) and how narrative goals might be structured and presented to suggest ludological meaning (in terms of actions).

Storygames and non-storygames alike have narrative quality; both share interfaces that shape the sensemaking that gives rise to a player’s interpretation of the game in a ludological and narrative goal sense, and thus both have need of narrative design. Narrative design is more about constraining the space of designer-satisfying interpretations than it is about world-building or screenplay writing; these latter activities are still immensely important, but more as a means to the narrative design end.

We conclude by revisiting and revising a seminal conclusion in the study of gameplay and narrative: that narratives are “just uninteresting ornaments or gift-wrappings to games, and laying any emphasis on studying these kinds of marketing tools is just a waste of time and energy” [19]. We agree that narratives are “ornaments” in the sense that narrative goals are an interpretation of the ludological ones, but have demonstrated how studying their relationship is interesting, fruitful, and necessary. The relationship between gameplay and narrative is symbiotic—not antagonistic—relevant for all but the most abstract games, and not restricted to storygames. To study a game is to study its narrative, and to study a narrative in games is to study its gameplay.

REFERENCES


